Towards a dynamic knowledge-based theory of the firm: an activity system perspective

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Towards a dynamic knowledge-based theory of the firm: an activity system perspective

A study of the mechanisms and dynamics underlying organisational knowledge and knowing emergence and creation in asset management firms using activity theory

Supervisor: Mary Keating, Associate Professor of Business

I declare that this thesis has not been submitted as an exercise for a degree at this or any other university and it is entirely my own work.

Summary

Addressing the challenges posed by both theorists and practitioners over the past 20 years regarding knowledge-based value creation in organisations, this dissertation empirically investigates the emergence and / or creation of knowing and knowledge within asset management firms. The continued interest in the field has been linked to the constant attempts in understanding the mechanisms and dynamics supporting organisational knowing (OK) emergence and / or creation. The existing contributions are partial, prescriptive and fragmented.

While the concepts and principles associated with OK, underpinned by a broad range of theoretical and practical knowledge-based approaches and prescriptive models in the literature, current research paradigms do not provide an adequate methodological perspective to explore the processes involved in OK emergence and creation. Moreover, the prevailing philosophical stance on which the study of knowledge-based issues in organisations currently rests is the positivist paradigm. This positivist perspective is limited in enabling the investigation of mechanisms and dynamics of OK emergence and creation.

This thesis proposes a novel methodological approach involving two levels of analysis. A first step was to identify a unifying terminology to qualify asset management firms in terms of knowledge-based characteristics. The results from this step informed a second stage of analysis: a conceptual framework rooted in activity theory and substantiated by empirical evidence. Relying on a combination of epistemological knowledge approaches and the organisation as an activity system, the mechanisms and dynamics involved in OK emergence and creation are explored.

The contributions of this thesis are two-fold. Firstly, at a theoretical level, a holistic and dynamic knowledge-based theory of the firm is proposed. Supporting this finding, the firm is envisaged as an activity system that embodies OK emergence and creation at both collective and personal levels. As such, activity systems provide a language and a framework to capture and represent the dynamic OK creation. Further, this thesis suggests a unifying framework ‘making sense’ of the fragmented literature.

Secondly, through the application of a novel conceptual perspective the theory method, this research has found a way to operationalise a dynamic knowledge-based theory of the firm in the context of asset management organisations. Moreover, unlike previous studies, this research is rooted in critical realism that has facilitated the emergence of this novel theoretical and methodological perspective.

As the result of this exploratory and explanatory study, the understanding on the mechanisms and dynamics underpinning knowledge creation has been enabled. Relying on activity theorists' concepts and principles, a tool was designed to first explore existing OK emergence and creation patterns. Second, the findings underscore the potential for creating new knowledge that may stem from the activity system capacity to resolve its systemic tensions in expansive ways such as the adoption of new technologies or new processes. On one side, this thesis has built upon the works of Spender (1989, 1996, 2007), Grant (1996), Nonaka (1994), Cook and Brown (1999), Tsoukas (1996, 2005), Tsoukas and Vladimirou (2001) and Brown and Duguid (2001) who pioneered the field of knowledge creation and management in organisations. On the other side, this study integrated insights from developmental psychologists literature and drew substantially on Vygotsky (1978), Engeström (1987, 2001), and Yamagata-Lynch (2010).

It is believed that this unique research has extended the field of OK creation and emergence in knowledge-based firms, which in my opinion will allow further ground breaking work in the area of the holistic and dynamic knowledge-based theory of the firm.

Key words: Organisational knowledge and knowing emergence and creation, activity theory, theory of knowledge, knowledge-based theory of the firm, Marx dialectic materialism, knowledge-intensive organisations.

To my Mother

and

Ali

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Table of Contents

Summary i
Acknowledgements viii
Table of contents x
List of Tables xv
List of Figures xvi
List of Appendices xvii
List of Abbreviations xviii

1 - Introduction 1
1.1 Background 2
1.2 Research problem 6
1.3 Scope of the thesis 7
1.4 Thesis outline 8

2 - Knowledge in organisations: a critical perspective 10
2.1 The question of knowledge in philosophy 12
2.1.1 Limitations of the positivist epistemology 13
2.1.2 Alternatives to the positivist paradigm 15
2.1.3 Conclusion 17
2.2 Knowledge in developmental psychology 19
2.3 Knowledge in economic theories 21
2.4 Knowledge in management and organisation theories 22
2.4.1 Development of the field 22
2.4.2 Knowledge-centred organisations 23
2.4.3 The resource-based view of the firm 24
2.4.4 Nonaka and Takeuchi's theory of organisational knowledge creation 25
2.4.5 The knowledge-based view of the firm paradigm 29
2.5 Conclusion: understanding knowledge in organisations 32
2.6 Theory of knowledge 34
2.6.1 Perspectives on a static view of knowledge in organisations 35
2.6.2 Perspectives on a dynamic view of knowledge in organisations 43
2.7 Theory of the firm 47
2.7.1 The question of the knowledge-based firm and its boundaries 47
2.7.2 Mechanisms and dynamics 49
2.8 Concluding remarks and research questions 51

3 - Conceptual framework 55
3.1 The concept of Activity Theory 55
3.2 Founding principles in activity theory 58
3.2.1 The mediated relationship between subject and object 58
3.2.2 Internalisation and externalisation processes 59
3.2.3 Engeström's contextualised mediated activity 62
3.3 Cultural-historical context and contradictions 65
3.3.1 Cultural-historical context 65
3.3.2 Tensions and contradictions 65
3.4 the unit of analysis 68

3.4.1 The object-oriented activity as the fundamental unit of analysis 69
3.4.2 Hierarchical structure of the activity 69
3.4.3 Conclusion 72
3.5 Designing a conceptual framework for the study of organisational knowing emergence and / or creation 72
3.5.1 The seven elements of the activity system 73
3.5.2 Representation of the activity system guiding the study 75
3.6 Conclusion 76

4 - Research Methodology 77
4.1 Research problem 78
4.1.1 Research objectives 78
4.1.2 Research questions 79
4.2 The case for asset management firms in Ireland 80
4.3 Philosophical perspective 83
4.3.1 Questioning the quantitative paradigm 83
4.3.2 Questioning the qualitative paradigm 84
4.3.3 The case for a realist approach 85
4.4 Research strategy 89
4.4.1 Retroductive logic and intensive design of the research 89
4.4.2 Role of theory 90
4.5 Research design 92
4.5.1 Case study, critical realism and activity theory 92
4.5.2 Case design 94
4.6 Data collection 100
4.6.1 Case study protocol 100
4.6.2 Interviews 101
4.6.3 Other data collection methods 104
4.6.4 Triangulation and the value of multiple data sources 105
4.7 Ethical considerations 106
4.7.1 Ethical issues throughout the interview inquiry 106
4.7.2 Consent and informed consent 107
4.7.3 Confidentiality and anonymity 108
4.7.4 Harm 109
4.7.5 Pilot case 110
4.8 Within case analysis 111
4.8.1 Data reduction using the constant comparative method 112
4.8.2 Activity system modelling 114
4.9 Two-case comparison 116
4.10 Evaluating research design 116
4.10.1 Possible issues with the research design 117
4.10.2 Rigor and validity in qualitative research 117
4.11 Conclusion 121

5 - Delta Limited case 123
5.1 Cultural and historical context 123
5.2 Characterising DLT's organisational knowledge base 126
5.2.1 Bounding the collection of the data and instrumentation 126
5.2.2 DLT organisational knowledge characteristics 127

5.3 Goal-directed object and intended outcome, KDL subjects and network of practice 129
5.3.1 The goal-oriented object and intended outcome 130
5.3.2 The knowing, doing and learning subjects 134
5.3.3 The network of practice 137
5.3.4 Conclusion 140
5.4 Emergence and creation of organisatoinal knowing at a collective level 141
5.4.1 Subject-object relationship mediated by the KDL framework 141
5.4.2 Subject-object relationship mediated by multivoicedness 144
5.4.3 Conclusion 148
5.5 Emergence and /or creation of organisational knowing at the personal level 148
5.5.1 Subject-object relationships mediated by the KDL tools 149
5.5.2 Conclusion 155
5.6 Tensions and contradictions 156
5.6.1 Experience and knowledge, incremental knowledge base 157
5.6.2 Structure and infrastructures issues 158
5.6.3 KDL subjects and technology intensity 161
5.6.4 Tertiary type of contradictions 162
5.6.5 Conclusion 164
5.7 Conclusion 164
5.8 Limitations 166

6 - KIPOS Limited case 167
6.1 Cultural and historical context 167
6.2 Characterising KPS' organisational knowledge base 171
6.2.1 Bounding the collection of the data 171
6.2.2 KPS organisational knowledge characteristics 171
6.3 Goal-directed object and intended outcome, KDL subjects and network of practice 173
6.3.1 The goal-oriented object and intended outcome 174
6.3.2 The knowing, doing and learning subjects 177
6.3.3 The network of practice 180
6.3.4 Conclusion 182
6.4 Emergence and creation of organisational knowing at a collective level 183
6.4.1 Subject-object relationship mediated by the KDL framework 183
6.4.2 Subject-object relationship mediated by multivoicedness 186
6.4.3 Conclusion 190
6.5 Organisational knowing emergence and / or creation at the personal level 190
6.5.1 Subject-object relationships mediated by the KDL tools 188
6.5.2 Conclusion 197
6.6 Tensions and contradictions 198
6.6.1 Structure and infrastructure and KDL subjects 198
6.6.2 Structures and infrastructures and goal-oriented object 202
6.6.3 Tertiary type of contradictions 203
6.6.4 Conclusion 204
6.7 Conclusion 205
6.8 Limitations 207

7 - Two-case comparative analysis 209

7.1 Contextual considerations 209
7.2 Comparing DLT's and KPS' organisational knowledge-intensiveness 213
7.2.1 Knowledge-based competitive and sustainable advantage 214
7.2.2 Structures and infrastructures 215
7.2.3 Flexibility 216
7.2.4 Firm's processes 217
7.2.5 Entrepreneurship 217
7.2.6 Experience and knowledge 219
7.2.7 Employees' specific skill set 219
7.2.8 Communications capabilities 220
7.2.9 Staff self-development 221
7.2.10 Workers' engagement 221
7.2.11 Leadership 222
7.2.12 Incremental knowledge base 223
7.2.13 Collaboration and knowledge sharing 224
7.2.14 Outsourcing, in-sourcing and networking 225
7.2.15 Market driven ethos 226
7.2.16 Industry changes 227
7.2.17 Innovation and creativity 228
7.2.18 Technology-intensity 229
7.2.19 Conclusion 230
7.3 Goal-directed object and intended outcome, KDL subjects and network of practice 233
7.3.1 The goal-oriented object and intended outcome in DLT and KPS 234
7.3.2 DLT's and KPS' subjects 235
7.3.3 Subject-object relationship mediated by the network of practice 235
7.3.4 Conclusion 237
7.4 Emergence and creation of organisational knowing within the zone of proximal development 239
7.4.1 Subject-object relationship mediated by KDL framework 240
7.4.2 Subject – object relationship mediated by multivoicedness 241
7.4.3 Conclusion 243
7.5 Emergence and creation of organisational knowing within the internal plane of action 245
7.5.2 Conclusion 250
7.6 Conclusions on the emergence and creation of knowing in the ZDP and the IPA .. 250
7.7 Systemic tensions and contradictions as a source of OK creation 253
7.7.1 DLT's tensions and contradictions 255
7.7.2 KPS' tensions and contradictions 256
7.7.3 Conclusion 257
7.8 Conclusion 257

8 - Conclusion 261

8.1 Summary of the project 261
8.1.1 Research background 261
8.1.2 Research problem 263
8.1.3 Research strategy 264
8.2 A knowledge-based view of the firm using activity theory 265

8.3 Findings relating to the theory of knowledge 267
8.3.1 Organisational knowing and organisational knowledge 267
8.3.2 Personal knowing and collective knowing 268
8.3.3 Knowledge creation, knowing emergence and creation 269
8.3.4 Modes of knowledge representation using the organisational knowledge-intensity lens 270
8.3.5 Conclusion 271
8.4 Findings relating to the theory of the firm 271
8.4.1 The question of the boundaries of the firm: the unit of analysis 272
8.4.2 Binding and coordinating mechanisms 273
8.4.3 Dynamics supporting organisational knowing emergence and creation 274
8.5 Concluding remarks on the findings 276
8.6 Limitations of the study 278
8.7 Directions for future work 279
8.8 A final word 280

List of Tables

Table 2-1 Major organisational knowledge-intensity characteristics 38
Table 3-1 Comparing Nonakian and AT principles 58
Table 3-2 A hierarchical distribution of components in an activity system 71
Table 4-1 Activity systems analysis and a case study 95
Table 4-2 Strengths and weaknesses of five data collection methods 104
Table 4-3 Multiple sources of data 106
Table 4-4 Ethical issues at seven research stages and action taken 107
Table 4-5 Main uses of Dedoose for this study 114
Table 4-6 Eight-step-model for translating activity systems 115
Table 4-7 Validity in qualitative research 118
Table 7-1 Contextual dynamics: contrasting similarities and differences between cases 212
Table 7-2 Organisational knowledge-based characteristics identified for KPS and DLT 213
Table 7-3 KPS organisational knowledge-intensiveness: a person-centric orientation 231
Table 7-4 DLT's organisational knowledge-intensiveness: a firm-centric orientation 231
Table 7-5 Comparing KPS' and DLT's KDL framework and multivoicedness 240
Table 7-6 Comparing DLT's and KPS' tools and artefacts 246
Table 7-7 Summary of tensions and contradictions identified for DLT and KPS 254

List of figures

Figure 3-1 Vygotsky's mediated action triangle 59
Figure 3-2 Expanded activity theory structure 63
Figure 3-3 Network of two interacting activity systems 64
Figure 3-4 The cycle of expansive learning 68
Figure 3-5 The hierarchical structure of Activity 70
Figure 3-6 Activity system for the understanding of OK emergence and creation 75
Figure 4-1 The stratified ontology of critical realism 87
Figure 5-1 DLT's organisational knowledge characteristics 128
Figure 5-2 Core of the activity system 129
Figure 5-3 Goal-oriented object and intended outcomes for DLT 130
Figure 5-4 DLT's network of practice 138
Figure 5-5 Relationships mediated by KDL framework for DLT 141
Figure 5-6 DLT: relationships mediated by multivoicedness in the ZPD 145
Figure 5-7 KDL tools-mediated relationships 149
Figure 5-8 General activity system for DLT 156
Figure 5-9 Contradictions and tensions impacting the object 164
Figure 5-10 DLT's general activity system 166
Figure 6-1 Themes emerging from selective coding (KPS) 172
Figure 6-2 Core of the activity system 174
Figure 6-3 Goal-oriented object and intended outcomes for KPS 174
Figure 6-4 KPS' Network of practice 180
Figure 6-5 Relationships mediated by KDL framework for KPS 183
Figure 6-6 KPS: relationships mediated by multivoicedness in the ZPD 186
Figure 6-7 KPS KDL-related tools mediated relationships 191
Figure 6-8 General activity system for KPS 198
Figure 6-9 KPS' contradictions and tensions 205
Figure 6-10 Contradictions and tensions impacting 207
Figure 7-1 Core of the activity system 234
Figure 7-2 OK emergence and creation within social context 239
Figure 7-3 OK emergence and creation at the personal level 245
Figure 7-4 Summary of all mediators for KPS and DLT 253
Figure 7-5 Summary of the mediated relationships for DLT and KPS 260
Figure 8-1 A KBV using AT 266

List of appendices

Appendix 1 – Attributes characterising KI in organisations: the firm centric approach 298
Appendix 2 – Attributes characterising KI in organisations: the person-centric approach ... 300
Appendix 3 – Attributes characterising KI in organisations: shared characteristics 303
Appendix 4 – Texts for establishing contacts 305
Appendix 5 – Potential benefits of the study 306
Appendix 6 – Description of the project 308
Appendix 7 – Interviews timetable for DLT 310
Appendix 8 – Interviews timetable for KPS 311
Appendix 9 – Interview guide 312
Appendix 10 – List of documentation for the two companies 315
Appendix 11 – Consent form 316
Appendix 12 – DLT Coding level 1 318
Appendix 13 – DLT Coding: 2nd level – 68 codes 321
Appendix 14 – DLT selective coding 19 codes 323
Appendix 15 – Definitions finalised for DLT's themes 324
Appendix 16 – DLT staff interviewed profile 327
Appendix 17 – DLT supporting tools for building an incremental knowledge base 330
Appendix 18 – Extract of excerpts for *'incremental knowledge based codes'* 331
Appendix 19 – KPS staff interviewed profile 334
Appendix 20 – KPS Open coding: 91 codes 337
Appendix 21 – KPS selective coding: 65 codes 339
Appendix 22 – Selective coding (KPS): 19 codes 343
Appendix 23 – Comparison of DLT and KPS knowledge bases 344
Appendix 24 – Extract from definitions construct: comparison between KPS and KDL 346
Appendix 25 – Pilot case 350

List of abbreviations

ALL:	Alpha Limited
AM:	Asset Management
AS:	Activity System
ASA:	Activity System Analysis
AT:	Activity Theory
AUM:	Assets under management
BL:	Beta Limited
CB:	Central Bank
CDS:	Credit Default Swap
CEO:	Chief Executive Officer
CFA:	Chartered Financial Analyst
CFO:	Chief Financial Officer
CIO:	Chief Investment Officer
CHAT:	Cultural-Historical Activity Theory
CRM:	Customer Relationships Management
DLT:	Delta Limited
ETF:	Exchanged Traded Funds
EU:	European Union
HRM:	Human Resources Management
IC:	Intellectual Capital
IDA:	Industrial Development Authority in Ireland
IFSC:	International Financial Services Centre
IPA:	Internal Plane of Action
IT:	Information Technologies
KPS:	Kipos Limited
KBV:	Knowledge-based view of the firm
KDL:	Knowing, doing, and learning
KI:	Knowledge-intensity
KIF(s):	Knowledge-intensive firm(s)
KIBS:	Knowledge-intensive business services
KIO(s):	Knowledge-intensive organisation(s)
KM:	Knowledge Management
MD:	Managing Director
OK:	Organisational Knowing
OKI:	Organisational knowledge-intensity
UCITS:	Undertakings for Collective Investment in Transferable Securities
ZDP:	Zone of Proximal Development

1 - INTRODUCTION

> *"We are actually at the beginning of a new scientific era. We are observing the birth of a science that is no longer limited to idealised and simplified situations but reflects the complexity of the real world, a science that views us and our creativity as part of a fundamental trend present at all levels of nature."*
>
> Prigogine and Stengers (1997: 7)

> *"What really exists is not things made but things in the making. Once made, they are dead, and an infinite number of alternative conceptual decompositions can be used in defining them. But put yourself in the making by a stroke of intuitive sympathy with the thing and, the whole range of possible decompositions coming into your possession, you are no longer troubled with the question which of them is the more absolutely true. Reality falls in passing into conceptual analysis; it mounts in living its own individual life-it buds and bourgeons, changes, and creates."* [Emphasis in the original]
>
> James (1909/1996: 263-264)

The question of knowledge has long occupied philosophers and sociologists of science before attracting organisational researchers' attention. Knowledge creation has become a central concern in organisations and research interest in theories on knowledge-based organisations has accelerated. The quotation borrowed from Ilya Prigogine and Stengers (1997) that opens this chapter accurately captures how organisational theorists have restricted their contributions within a Cartesian epistemology that ignores the fundamental debate about the complex nature of human knowledge and cognition (Spender, 1996, Cook and Brown, 1999, Tsoukas and Vladimirou, 2001). The second quotation from William James (1909/1996) follows the first and explains that reality resides in action. Thus, organisational knowing or how knowing comes into reality must also be considered. Beyond this argument, the question of an operational framework enabling an empirical study of organisational knowing as *'it*

buds and bourgeons, changes, and creates' (James, 1906 / 1996: 264) is a challenging task. With the exception of Nonaka and Takeuchi (1995) who made a substantial contribution to the field of the knowledge-based view of the firm with their theory of knowledge creation, no further attempt has been undertaken. This is the challenge which will be undertaken in this thesis: to develop a dynamic knowledge-based theory of the firm. It will elicit Cultural Historical Activity Theory (CHAT) (Vygotsky, 1978, Engeström, 1987) as the central theory-method to understand *how* organisational knowing comes into life. Asset management companies are identified as the empirical field of research as these firms replicate Nonaka and Takeuchi's (1995) field of study based on *'old'* industries. These firms are also under-researched from the point of view of knowledge management.

The research question that guides this research is the following:

> *How can we understand the mechanisms and dynamics of organisational knowledge emergence and creation in asset management firms using activity theory?*

This introductive chapter presents the background of the study (Section 1.1), the research rationale (Section 1.2), the scope of study (Section 1.3), and the thesis outline (section 1.4) successively.

1.1 BACKGROUND

As knowledge-economies gathered momentum, the nature of the engine of economic growth changed profoundly to become the new dominant societal and economic paradigm. Knowledge has emerged as a central feature of post-industrial societies (Bell, 1973), an essential element of the production function next to capital, land and labour and the only meaningful resource in today's society (Drucker, 1993, Quinn, 1992), the driver of productivity and economic growth and a major pillar of knowledge-based economies (OECD, 1996). Consistent with the advent of knowledge economies and the unprecedented paradigm shift away from the industrial age, the idea of a firm as a body of knowledge or a knowledge system has gained credence in organisation studies (Spender, 1996a, Grant, 1996, Tsoukas, 2005, 1996, Nonaka et al., 2006). This evolution in organisational theory originated in the works of scholars such as Simon (1947), Selznick (1957) or Penrose (1959) who had initially questioned the prevailing theory of the growth of the firm. The authors endeavoured to integrate a more realistic epistemological orientation towards a theory of the firm suggested by Knight (1921) and Machlup (1980). One of the major building blocks in the field was the distinction Penrose (1959) made between firm's tangible resources that are finite by nature

and the services those resources provided. The latter are infinite and *'mediated by endlessly extensible body of knowledge management capabilities'* (Spender, 1996: 46). At the centre of this new development in organisation theory are the concepts of organisational knowledge and its possible creation.

Organisational knowledge

Organisational knowledge was viewed as the conceptual apparatus that permits the interplay between personal knowledge and collective knowledge or knowledge at the level of the individual and knowledge at the level of the group (Nonaka and Takeuchi, 1995). In contrast with Nelson and Winter (1982b) presuming that a firm was able to know independently from its members, Nonaka and Takeuchi (1995) view organisational knowledge as intrinsically depending on its employees' knowledge while others (Spender, 1996, Tsoukas, 1996, Starbuck, 1992, Drucker, 1999) emphasise the organisational and human nature of knowledge. Accordingly, while he draws on developmental psychologists such as Vygotsky, Spender (1996) adopts a social constructionist position which enabled the focus to be put on the dynamics of the individual's institutional context and where both individuals and organisations are endowed with knowledge-based identities. Similarly, Tsoukas and Vladimirou (2001: 983) suggested that what makes knowledge distinctively organisational is its possible *'codification into propositional statements'* underpinned by collective understanding such as rules, while leaving room for individual judgment and the emergence of novelty in a context characterised by open-endedness of the world and historicity. Thus, emphasising an action level, the authors stress the capability members of an organisation have developed to *'draw distinctions'* or *'make judgements'* within these contexts. However, despite this distinction between static and dynamic aspects of knowledge, the phrase organisational knowledge prevails supporting the dominance of a positivist epistemology in the field of KBV (knowledge-based view of the firm).

The two dimensions of organisational knowledge suggested by Tsoukas and Vladimirou (2001) or Spender (1996) have been developed substantially in the work of Cook and Brown (1999). The authors introduce a first static dimension where knowledge is an attribute that is possessed and that encapsulates tacit, explicit, personal and collective knowledge. The second dimension approaches knowledge in action or as a practice and is referred to as *knowing*. Based on this dual approach, Cook and Brown (1999) argued that organisational knowledge is created from a *'generative dance'* that occurs between the two epistemologies. Although they provide insightful principles that support knowing and knowledge, they fail to suggest clear mechanisms combining these principles together.

The question of the firm

The two issues underpinning the question of the firm concern its purpose and how it can achieve it when organisational knowledge and knowing are the most strategic firm's resources and second, its boundaries or how to conceptualise a relevant unit of analysis. In relation to the first issue, Grant (1996) supports the view that the primary role of the firm is to be an integrator of the specialist knowledge embedded in individuals, a purpose to which Spender (1996) adds knowledge creation. These arguments behind the emergence of the knowledge-based view paradigm holds that valuable rent-yielding capabilities must originate within the firm, more precisely from *'the intangible firm-specific knowledge, which enables it to add value to the incoming factors of production in a relatively unique manner'* (Spender, 1996:46). Thus, organisational performance and competitive advantage are increasingly knowledge-related issues that rest on the strategic development of unique resources and capabilities (Grant, 1996, Blackler, 1995). Firms are particularly skilled at enabling knowledge sharing and transfer between individuals, groups and organisations (Kogut and Zander, 1992). Against this backdrop, organisations are viewed as the structure and infrastructure or organised activity that provided its members with a given set of cognitive categories and typologies of actions.

An inherent issue acknowledging that the purpose of a knowledge-based firm is to integrate and / or to create knowledge relates to the mechanisms or processes enabling this. Following Tsoukas and Vladimirou (2001), the origin of organisational knowledge dynamics resides in the dialectic between the organisational level and personal level or between the general and the particular. Without a *'facilitating'* framework, no action is possible and without the particular, no action may be effective (McCarthy, 1994 as cited in Tsoukas and Vladimirou, 2001). Alternatively, Nonaka and Toyama (2007) argued that knowledge is created through the dynamic interaction between subjectivity and objectivity or, in other words, the subjectivity of context-embedded actors that is objectified through the social process of validation such as markets. From this point of view, Grant (1996) delineates a list of mechanisms he considers to be the key to enabling knowledge integration in the firm. Cook and Brown (1999) suggested a '*generative* dance'. However, these approaches remain principles in the making. To date, only Nonaka and Takeuchi's (1995) knowledge creating mechanisms and dynamics provide a comprehensive and operational approach in the field of the KBV. They delineated the mechanisms and dynamics that transformed knowledge into a competitive advantage and showed how these participated in the success of Japanese companies in the 1980s-1990s. However, they have been criticised for ignoring the

boundaries of the firm or in other words, not suggesting an appropriate knowledge-based theory of the firm. This leads us to the second issue concerning the question of the firm.

The question of the boundaries of the firm is underpinned by the fact that the theory of organisations fails to provide an approach that can lead to knowledge creation. Tsoukas and Vladimirou (2001) have conceptualised organisation as a combination of concrete settings within which subjects' action unfold and in which sets of abstract rules are expressed in the form of propositional statement and historical communities. Alternatively, Grant (1996) suggested considering a constellation of product-knowledge associations, Brown and Duguid (2001) a network of practice, Tsoukas (1996) a distributed knowledge system and Spender (1996) a system of knowing activity. Despite these insightful contributions, none provide a satisfactory answer on how to determine a relevant unit of analysis from which to approach the KBV paradigm.

An activity system perspective

Cultural-Historical Activity Theory (CHAT) (Vygotsky, 1978, Engeström, 1987) could be a possible alternative to address the issues identified in the question of a knowledge-based theory of the firm. This theory-method was initially concerned with learning and child development and has been primarily implemented in educational and healthcare environments. However, it is proposed that CHAT provides a comprehensive framework that could accommodate both a theory of knowledge and theory of the firm. Indeed, this methodological perspective suggests a bounded unit of analysis that the activity system represents (Leontiev, 1981, 1974). Further, Vygotsky (1978) relied on two metaphors to underscore the interplay between cognition emergence at a social level (zone of proximal development), and at an individual level (internal plane of action). Within this approach, mechanisms or processes orchestrate the cognitive development underpinned by processes of internalisation and externalisation. Finally, besides these processes, CHAT facilitates consideration of systemic tensions and contradictions as a source of change.

Asset management companies

Finally, few studies were carried out in the asset management or financial industry at large, an *'old'* sector that is mostly viewed as information-intensive (Alvesson, 2004). Most of the companies studied are in the information and technology, consultancy, R&D, biotechnology, sectors etc. (Käpylä et al., 2011, Tsoukas and Vladimirou, 2001, Swart et al., 2003). Moreover, this study chose to empirically study firms that are similar to the ones that the founders in the field (Nonaka and Takeuchi, 1995) investigated within the industrial age.

1.2 RESEARCH PROBLEM

The thesis is situated in the literature on knowledge / knowing in organisations, its management and generation. Overall, contributions in the field are fragmented, partial and often bearing the imprint of positivism, reducing knowledge to an object to be studied scientifically (Spender, 1996). Following Brown and Duguid (2001: 198), *'these contrary descriptions of knowledge reflect different, partial, and sometimes 'balkanised' perspectives from which knowledge and organisations are viewed'*. Indeed, according to the authors, common images of knowledge in organisations, and models of knowledge creation co-exist in literature and constitute the base of most current speculations. This leads to the emergence of a compartmentalised and static approach on the subject.

The existing models and perspectives suggested in literature and unveiling the intricacies of knowledge management and creation are too prescriptive and tend to be presented as solutions that can be simply implemented in any organisation. These suggestions are often partial and fail to present supporting dynamics and mechanisms such as *'The knowledge-creating company'* (Nonaka and Takeuchi, 1995) concepts and principles (Tsoukas, 2005) do. However, Nonaka and Takeuchi's (1995) theory was criticised for being too centred on the individual.

These shortcomings and others that will be developed in Chapter 2 prevented the field of the KBV from progressing. Indeed, the kernel of organisational knowledge / knowing emergence and / or its creation should be about understanding the underpinning mechanisms (or the set of processes), and dynamics (or the force that stimulates change or progress within a process). In an attempt to progress the field of the KBV, this thesis suggests implementing a CHAT perspective. In this regard, the following overarching research question was identified:

> *How can we understand the mechanisms and dynamics of organisational knowledge emergence and creation using activity theory in asset management firms?*

The epistemological and methodological perspective encapsulated in the Cultural Historical Activity Theory or activity theory (AT) in its shorter version, enables a practical study of how organisational knowledge / knowing emerge and / or is created that transcends the focus on types of knowledge and static stances. In this research, CHAT is used for a theory building perspective and as a descriptive device to address the research question. CHAT's fundamental principle consists in the study of mechanisms and dynamics and acknowledges the existence of possible tensions and contradictions stimulating or hindering knowledge / knowing emergence and / or creation. The activity theoretical mechanisms consist of subject-object

mediated relationships of which the dynamics have different origins, such as the history of the organisation and goal-oriented activities. Moreover, CHAT lends itself naturally to representing the emergence of personal knowledge within collective settings and on an individual level.

1.3 SCOPE OF THE THESIS

This thesis sets out to investigate the generative mechanisms and driving dynamics underlying organisational knowledge / knowing emergence and its creation through the methodological lens of Cultural Historical Activity Theory. Drawing on the works of knowledge management theorists such as Nonaka (1994), Nonaka and Takeuchi (1995), Spender (1996, 1994), Tsoukas (1996), Tsoukas and Vladimirou (2001), and Cook and Brown (1999) but also activity theorists such as Vygotsky (1978), Engeström (1987, 2001) and Barab et al. (2004b), the following research questions were identified to inform the main research question:

> *RQ1: What are the organisational knowledge characteristics of asset management firms?*
>
> *RQ2: How does organisational knowing emerge and /or is created at the social level (zone of proximal development) in asset management firms?*
>
> *RQ3: How does organisational knowing emerge and / or is created at the individual level (internal plane of action) in asset management firms?*

The activity theoretical framework developed in this thesis advocates the study of organisational knowing emergence and creation at both the collective and individual levels. The elicited unit of analysis encapsulates the series of direct or indirect goal-oriented actions which subjects perform that exert significant influence on the organisation's value creation. Within the scope of asset management, these goal-oriented actions stemmed from few senior executives, portfolio managers, traders or compliance managers who were retained as part of the sample. However, the search for a suitable methodology and appropriate methods soon became a research project in itself, as Vygotsky (1978: 64-65) noted:

> *"The search for method becomes one of the most important problems of the entire enterprise of understanding the uniquely human forms of psychological activity. In this case, the method is simultaneously prerequisite and product, the tool and the result of the study."*

Indeed, during this research, a number of epistemological and methodological issues arose and had to be addressed if activity theory was to be used beyond the formulation of theoretical arguments on the emergence and the creation of *knowledge* in organisations, view that prevails in literature (Spender, 2008).

Thus, a methodology enabling a systematic analysis of data is suggested and applied to the study of the emergence and / or creation of knowing in organisations. The adopted methodology allows a description of the complex working environment within which knowledge is created and for the identification of eventual contextual factors stimulating or hindering knowledge emergence and creation. Mechanisms and dynamics between collective and individual actions and dynamics driving the emergence and creation of knowledge are explored.

Provided the requirements of an activity theoretical perspective that requires the inclusion of modes of knowledge representation, the lens of organisational knowledge-intensity in organisations is elicited for identifying these. Finally, the reliance on an activity theoretical interpretative framework presented an opportunity to *'make sense'* of a rather dispersed and eclectic literature pertaining to organisational knowledge. Activity theory provides a unifying and holistic framework that may be considered in the real world if an organisation wishes to understand how it can create knowledge.

1.4 THESIS OUTLINE

In this chapter, the theoretical framework on which this study is based was introduced. It provided some background information about the study of organisational knowledge and knowing, its possible emergence and / or its creation in asset management firms. The research problem that guides the whole study and what is set out to be achieved in this study and how were also presented. The remaining chapters are organised as follows.

Chapter 2 contextualises the study in the relevant literature and is concerned with building a theoretical framework that will inform the operational framework (Chapter 3). Subsequently, to a philosophical discussion on the question of human knowledge, how knowledge has been treated in economic theories and management studies is discussed. More particularly, this chapter concentrates on organisational knowledge and knowing and their possible emergence and / or creation in relation to their epistemological underpinnings. So-called *'static'* and *'dynamic'* dimensions of the understanding of knowledge in organisations are outlined while locating this research in the second stance. The second part of this chapter introduces the

bases of a theory of knowledge and a theory of the firm as it is derived from the first part. Chapter 2 concludes with the research question(s).

Chapter 3 presents an activity theoretical framework applicable to the understanding of mechanisms and dynamics underpinning organisational knowledge and knowing emergence and / or creation in organisations. Following a summary of some of the main tenets of Vygotsky's (1978) theories, it explicates the principles of activity theory as it was initially formulated by Leontiev (1978). The expanded activity theory concepts and principles Engeström (1987) enunciated are then discussed and integrated into a theoretical framework which provides the basis of the method that will guide the empirical research.

Chapter 4 considers the epistemological and methodological choices underpinning this study that support the operating framework developed in Chapter 3. More particularly, it introduces critical realism as an adequate philosophy that enables the use of AT in organisational studies, justifying the choice of the two-case comparative study as the most suitable method for this study. It also identifies a suitable unit of analysis and suggests a method to inform activity systems implementation.

Chapter 5 and 6 describe the operationalisation of this research in two different cases. The first case (Chapter 5) details the study of Delta Limited (DLT), an asset management company. The completion of this case was subsequent to a pilot case that was used as a setting for testing the conceptual framework and research methods. The second case delineates the research at Kipos Limited (KPS), another asset management company that is comparable in size to DLT. During the whole course of action, both the conceptual framework and research methods were constantly revised and refined.

Chapter 7 analyses the results of the two cases and sets out to make the two-case comparison. Results are compared with the research questions and the literature.

Finally, Chapter 8 brings together the theoretical and empirical findings of previous chapters and examines the trustworthiness of the study. Limitations and contributions of the research are presented and plans for further research are also outlined.

2 - KNOWLEDGE IN ORGANISATIONS: A CRITICAL PERSPECTIVE

> *"Our first intellectual obligation is to abandon the Myth of Stability that played so large a part in the Modern age: only this can we heal the wounds inflicted on Reason by the seventeenth-century obsession with Rationality, and give back to Reasonableness the equal treatment of which it was for so long deprived […] The ideals of practical thinkers are more realistic than the optimistic daydreams of simple-minded calculators, who ignore the complexities of real life, or the pessimistic nightmares of their critics, who find these complexities a source of despair"*
>
> Toulmin (2001: 214)

The objectives of this chapter are three-fold. First, it introduces a review of the literature pertaining to the field of the knowledge-based theory of the firm (Part 1). Second, it presents the theoretical framework that will inform this study (Part 2) before introducing the problem identified and the corresponding research questions (Part 3). In relation to the first sub-section and given the nature of the subject of this thesis, and similarly to the leading authors in the field (Nonaka and Takeuchi, 1995, Spender, 1996, Cook and Brown, 1999, Tsoukas, 1996, Tsoukas and Vladimirou, 2001, Grant, 1996), the philosophical foundations on the treatment of knowledge in the literature are critically reviewed (Section 2.1). Indeed, *'knowledge is a highly contentious concept, far too problematic to bear the weight of a useful theory of the firm without a clear statement of the epistemology which gives it meaning'* (Spender, 1996: 48). Moreover, the study of the theories of knowledge or ways of knowing was mainly introspective until the mid-1980s and provided limited insights into knowledge as an object of study (Nonaka et al., 2006). The philosophical background facilitates situating this thesis using activity theory, within the broader discussion that criticises the positivist epistemology and helps introduce our line of research at an early stage. The overarching argument supporting this section in particular and the rest of this thesis in general is summarised in the opening quotation. The following section presents how the question of human knowledge is approached in developmental psychology (Section 2.2). A critical historical overview of the

evolution of the literature leading to the advent of the knowledge-based theory of the firm within economy theories (Section 2.3) and organisations and management studies (Section 2.4) is presented. This sub-section traces the evolution of the theme of organisational knowledge creation / integration that led ultimately to the [dynamic] knowledge-based view of the firm, before introducing how this study is positioned in the field, in a third sub-section. Section 2.5 concludes the first part of this chapter. The second part of this chapter (Part II) is dedicated to the presentation of the different facets that have been identified as constituting the basis of a dynamic knowledge-based theory of the firm and that will serve as the theoretical framework for this study. More specifically, the two axioms emerging from the literature as supporting such a theory are the two complementary theories, that of knowledge (Section 2.6) and that of the firm (Section 2.7). Finally, this chapter concludes on how the investigation of the thesis is theoretically and conceptually founded and introduces the research questions (Section 2.8).

PART 1: PHILOSOPHICAL AND THEORETICAL BACKGROUNDS ABOUT KNOWLEDGE IN ORGANISATIONS

2.1 THE QUESTION OF KNOWLEDGE IN PHILOSOPHY

While the question of human knowledge has been posited in terms of *'what is knowledge'* (Nonaka and Takeuchi, 1995, Grant, 1996, Brown and Duguid, 2001, Orlikowski, 2002), Toulmin (1999) stated that this question has been in deep crisis throughout the 20th century. He situated the roots of this malaise in René Descartes' *Meditations* and *Discourse* where the positivist paradigm originates. This philosophical approach often referred to as classical theories or *'Newtonian style'* (Cohen, 1994, Toulmin, 1990) whereby organisational studies have adopted the thinking from classical science (Tsoukas, 2016) according to which, scientific research aims at searching for the universal, the general and the timeless (Tsoukas and Dooley, 2011, Tsoukas, 2005, Toulmin, 1990). In reaction to the *'seventeenth century obsession with Rationality'* (Toulmin, 2001: 214), Dewey (1929) outlined the intellectual confusion that is so characteristic of this *'quest for certainty'* and Wittgenstein (1953) introduced a more general philosophical scepticism against the prevailing positivist paradigm. Finally, drawing on Rorty (1989), Toulmin (1999: 54) admitted that the works of these writers eventually *'destroyed the program for finding 'unshakeable foundations' for human knowledge, which was dreamed up, from 1630s on, by René Descartes (1968) and his*

successors. That program having run into the sand, the whole epistemological agenda now needs to be reformulated'.

Nonaka and Takeuchi (1995: 20-50) discussed the imprint of positivism or the Western epistemology on management and organisational studies and how it has prevented scholars from identifying a dynamic theory of knowledge creation. This approach is widely echoed in the related literature with Spender (1996: 49) suggesting that we need to identify a different kind of epistemology *'to move beyond the Kantian synthesis'*. More specifically, activity theory or cultural historical activity theory (CHAT) originating in the works of L. S. Vygotsky and his followers in post-revolutionary Soviet psychology is presented as a way out of the conundrum related to the question of human knowledge in organisations (Toulmin, 1999). Drawing on Guy (2005) and Toulmin (1999), it is suggested to reconsider the German classical philosophical tradition of Kant and Hegel and, more particularly, one of its developments, the Marxist-Leninist tradition of dialectic historical materialism that gave birth to the concept of activity in Soviet psychology (Wertsch, 1979). Similar to Nonaka and Takeuchi (1995) and Spender (1996), it is believed that new insights in the field of the [dynamic] knowledge-based view of the firm will emerge from reflecting on the influence of the positivist paradigm and its limitations.

2.1.1 Limitations of the positivist epistemology

Many authors have criticised the positivist impact on the epistemology of knowledge in organisations. First, Spender (1996: 47) underscored how *'organizational theorists have constrained their theorizing by adopting a positivist theory of knowledge that takes little account of the millennia of debate about the problematic nature of human knowledge'*. Accordingly, the prevailing *'conventional rational-cognitive assumptions about management and organisations'* (Blackler, 1993: 863) have led to an objectification of knowledge (Spender, 2011). This approach translates into a static approach on knowledge generally resulting in classifications of knowledge into different types or taxonomies (Tsoukas, 1996). In this regard, Spender (2006: 24) concludes that *'the knowledge-based approach becomes a critique of the rationality-based approach'*.

Tsoukas (2016: 6) has highlighted that the Newtonian style adopted in organisational studies has consequences for how we understand phenomenon or an object of study at three levels. (i) Ontologically, *'organisational phenomena are thought to be discrete entities with certain pre-given properties, existing independently of the observer, which can be captured by the human mind'*; (ii) Epistemologically, pre-given features or representations of these phenomena are abstracted in a cognitive system independent from the observer and are assumed to provide knowledge of organisational phenomena; (iii) praxeologically *'action is undertaken on the*

basis of the systematic relationships formally established. Practitioners relate to knowledge instrumentally: they use it just like they use any other instrument to achieve a purpose. Knowledge is external to users'. Hence, drawing on Tsoukas and Cummings (1997), Tsoukas (2016) argued that the Newtonian style aims at *'decontextualizing'* its object of study to reveal its inherent properties. This gives it a *disjunctive* nature that separates the knower from the phenomenon to be known, and separates facts from value (Morin, 2008). Thus, attempts to explain a phenomenon are operated *'through constructing an idealised model that abstracts away from the complexities of the real world, especially context, value and time, in order for certain regularities to be identified'*, in other words, theorising is *simplified* and fails to cope with the complexity of the world (Tsoukas, 2016: 6) as it has left out context, uniqueness, process and time (Starbuck, 2006).

Second, organisations and management studies are practice-oriented fields and theories should serve this orientation (Toulmin, 1999, Tsoukas, 2016, Nonaka and Takeuchi, 1995). Thus, time is of particular importance to acknowledge the dynamic nature of a phenomenon studied by strategy researchers (Tsoukas, 2016) and most theorizing is ill conceived to handle time unless the phenomena is decontextualized and approached in an abstract manner (Sandberg and Tsoukas, 2011, Guerlac, 2015). In this regard, scholars should take account of the *'understanding backwards – living forward'* dialectic or *'life-as-scholastically-represented and life-as-experience'*. The tension existing between the two extremes is generally ignored by the proponents of scientific rationality; *'life is understood 'backward' when detached theorists abstract and simplify what practitioners were experiencing while they were living it 'forward'* (Tsoukas, 2016: 3). In consequence, *'simplified'* theories that are characteristic of a Newtonian style, fail to capture the *'understanding backward - living forward'* dialectic so central to management scholars' study. An alternative *'system of picturing' to [this] hitherto dominant reductionist-cum-disjunctive system'* would stem from complex theorising (Tsoukas, 2016: 17).

Third, Toulmin (1999: 54) introduced two important elements in this critique of positivism. First, he argued that the promising discussions that started with Descartes eventually *'shipwrecked in the end'* because of the *'excessively individualistic – if not narcissistic – nature of the philosophers' agenda'*. The central question within this narcissistic view is *'how each human, as an individual, can arrive at any well-founded, even certain, knowledge about the world'*. Thus, the way the relationship between *'the knowledge' as the possession of individuals and 'knowledge' as the collective property of communities of 'knowers'* was handled was not convincing.

Toulmin's (1999) second argument involves the Kantian notion of intersubjectivity that introduced a more collective understanding on human knowledge. Wittgenstein (1953)

discredited the ideas of the 17th century epistemology when he investigated the reasons of the intersubjectivity of all our knowledge, concepts, and judgments: *'all such units of understanding obtain their meaning by entering language not via the minds of single individuals but within 'forms of life' (Lebensformen) that are essentially collective. As a result, the origin of any individual's questions and judgments is defined by the current state of the art in the relevant field of inquiry, what Fleck (1981) calls the Wissensstand'*.

At this stage of the philosophical development in the field of human knowledge, Toulmin (1999: 55) suggests that we need to address the following scientific question: *'how is it, then, that individuals can be successfully socialised, or enculturated, into the shared Wissensstand of any particular culture or profession?'*

Finally, the treatment of the question of human knowledge and the mental activity introduced by Michel de Montaigne's *Essais* needs to be addressed. He insisted on the interiority of all mental events, a view that is still influential among scientific writers today. According to Toulmin (1999: 56-57), *'the supposed interiority of mental life is an inescapable feature of the natural processes in our brain and central nervous system'* is central to the theory; so, *'if our mental lives are trapped within our brains, they are thus trapped there from birth'*. These assertions still prevailing today make *'the inner-outer*[1] *problem as it arises in cognitive psychology and epistemology'* a *'by-product of the basic assumption of the 17th century mechanical theory'*. Within this approach, human senses are viewed as *'obstacles'* to be penetrated or surmounted if one wishes to establish a connection between his inner mental life and with the outside world, instead of *'instruments that help us acquire knowledge of the world'*.

Accordingly, the academic contributions that have gradually led to the consolidation of the dynamic knowledge-based theory of the firm did so while criticising the Cartesian approach and its legacy of the treatment of human knowledge in organisations. Therefore, we can conclude that a positivist epistemology is too restrictive for the study of knowledge in organisations.

2.1.2 Alternatives to the positivist paradigm

Two major perspectives can be considered for addressing knowledge in organisations, alternatives that would be free from the limitations of the positivist paradigm. The first one is introduced by Nonaka and Takeuchi (1995) in their influential book *The Knowledge-creating company: how Japanese companies create the dynamics of innovation*. Nonaka and Takeuchi (1995) criticised the reliance of management studies on the positivist paradigm and its

[1] Connection between the *inner* mental life of the knower and the *outer* physical objects known about.

treatment of knowledge in organisations and proposed the Japanese philosophical tradition instead. The foundations of Japanese thinking rest on a holistic approach of life delineated in terms of *'oneness of humanity and nature'; 'oneness of body and mind';* and *'oneness of self and other'* (Nonaka and Takeuchi, 1995: 27). In that sense *'the ultimate reality'* in this philosophy *'lies in the delicate, transitional process of permanent flux, and in visible and concrete matter (…). They see reality typically in the physical interaction with nature and other human being'* (Nonaka and Takeuchi, 1995: 31-32). This philosophical approach suggests that the collective and individual dimensions of knowledge, the importance of its contextualisation, the experiential and *'lived'* nature of knowledge, and the centrality of processes and relationships between people and the environment assist in seeing reality and subsequently in constructing their own *'justified true belief'*.

Toulmin (1999) relying on ideas developed by Luria (1973) and Vygotsky (1978) proposes a second interesting alternative to explore how human knowledge crystallises in people's brains. Vygotsky's activity theory is a theory-method that draws on the Marxist understanding of mind (or consciousness) as inseparable from the material conditions of human existence. This view is a challenge to Cartesian dualism or separation of mind and bodily existence (Guy, 2005). Indeed, *'life is not determined by consciousness, but consciousness by life. In the first method of approach, the starting point is consciousness taken as the living individual; in the second method, which conforms to real life, it is the real living individuals themselves, and consciousness is considered solely as their consciousness'* (Marx and Engels, 1970: 47). In contrast with Descartes' formulation *'cogito, ergo sum'*[2], consciousness does not have an autonomous existence independent of the lives of people. *'Consciousness is the product of man's practical activity (labour) as he goes about producing the means of this existence'*; thus, the natural and material world is transformed in order for the individual to produce what she or he needs and *'in so doing <u>transforms himself</u>'* [emphasis added] (Guy, 2005: 50). Because production and the forms of social organisation that characterises different levels of production evolve in time, so-called human nature is historically specific. Thus, all human activity is potentially revolutionary as it has a transformative effect on both the world and the human mind through the dialectical relationship between the two (Guy, 2005). This transformation of individual consciousness through practical collective activity is also called *'expansive learning'* (Engeström, 1987). Integral part to the dialectical materialism is Marx's historical empirical method of inquiry[3].

[2] *'I think, therefore I am'*.

[3] *'This method of approach is not devoid of premises. It starts out from the real premises and does not abandon them for a moment. Its premises are men, not in any fantastic isolation and rigidity, but in their actual, empirically perceptible process of development under definite conditions. As soon as this active life-process is described, history ceases to be a collection of dead facts as it is with the empiricists (themselves still abstract), or an imagined activity of imagined subjects, as with the*

This is where activity theory has its origins, where Vygotsky adopted Marx's conception of activity as being revolutionary, practical-critical activity but also his methodological approach (Guy, 2005).

Following this line of activity theoretical theorising on human cognitive development and drawing on Wittgenstein (1953), Toulmin (1999: 58) stated that knowledge cannot be treated as *'the possession of individuals'* as these internalised meanings are created in *'the public domain in the context of collective situations and activities'*. Meanings are internalised through learning processes where language plays the major role. On this point, drawing on Vygotsky (1978), Toulmin (1999: 58) states that *'language is the instrument that we use, during enculturation and socialization, (…) to internalise the meanings and patterns of thoughts that are current in our culture or profession. In this way, we 'make up' our own minds and, in time, acquire inner experiences modelled on the public activities of our culture and society'*. Both Vygotsky (1978) and Luria (1973) establish unequivocally that the term *internalisation* concerns a variety of cases and procedures. As such, we learn to do sums *'in our head'* instead of on the paper; we *'read to ourselves'* and get information from the material more quickly than when reading aloud. We also learn *'to think to ourselves'* and manage to conceal plans from others. Finally, we learn *'to judge to ourselves'* inwardly. Thus, internalisation is far from being a single, clear-cut procedure. It embodies a family of techniques that make mental life and activity more efficacious in a number of very different ways (Toulmin, 1999: 59).

Luria (1973) provided new insights on how pure mental processes enter cognitive activity. More specifically, contradicting the idea that human senses are an obstacle that stands between the *'knowing mind'* and the *'knowing world'*, the author considers *'the intellectual activity to the entire human beings and so call into play appropriate parts of the higher nervous system'* (Toulmin, 1999: 59). Tsoukas (2016: 17) appears to concur stating in relation to knowledge in organisations that *'knowledge is the outcome of embodied knowers who are embedded within a discursive practice, on whose cognitive, affective and normative resources they routinely draw'*.

2.1.3 Conclusion

Despite the undisputable contribution Nonaka and Takeuchi (1995) made to the understanding of knowledge in organisations[4], their approach will not be retained in this study. In relation with its philosophical approach, it has been found that their arguments are

idealists. Where speculation ends – in real life – the real, positive science begins: the representation of the practical activity, of the practical process of development of men' (Marx and Engels, 1970: 47-48).

[4] This point and its non-philosophical limitations is substantially addressed Section 2.4.4.

limited. Drawing on Chohmin Nakae[5], the two Japanese authors pointed to the fact that *'Japan has never created any philosophy since its foundation'*[6]. Thus, it can be reasonably argued that their approach lacks the rigour of a true philosophy being tightly related to a Japanese culture, making it hardly transferable to other non-Japanese intellectual traditions. In contrast with Vygotksy's approach, Nonaka and Takeuchi's (1995) holistic intellectual tradition does not provide clear insight on the content and meanings of the *'oneness of humanity and nature'*. A direct consequence is the formulation of Nonaka and Takeuchi's theory of organisational knowledge creation in terms of input-output where tacit knowledge is transformed into explicit knowledge through opaque processes. They do not provide methodological insights nor take account of historical developments of circumstances that would help study human knowledge in organisations. Therefore, their approach to knowledge creation is both restrictive and prescriptive as they translate a theory into an ideal model to be followed in order to create knowledge, which could be said to be Newtonian in approach.

This thesis elicited Vygotsky's (1978) theory-method of activity as it emerges from a strong philosophical tradition, the Marxist dialectical historical materialism that provides principles, method and a history of experimentation (in economics and in psychology). Vygotsky not only adopted Marx's conception of activity but also his methodological approach with the objective of applying the dialectical Marxian method to the study of mind (Guy, 2005). This, combined with the line of reasoning Toulmin (1999) developed that involves implementing an activity theoretical approach can be qualified as a complex theorising and is conjunctive by nature. Following Tsoukas (2016: 17-18), such a complex *'system of picturing'* consists of (i) an open world ontology; (ii) a performative epistemology and (iii) a poetic praxeology. (i) An open ontology posits that the world is changing perpetually and that it holds unforeseen events and *'holds the possibility of non-trivial surprises'*. (ii) Knowing is action whereby *'agents bring the world forward by making distinctions and giving form to a collectively held, unarticulated background or understanding'*. Practice is very central in the works of Vygotsky and Wittgenstein although they never met in real life. The language that constructs meaning *'is determined by its place in a given typified action sequence'*. (iii) The practitioner is a non-trivial agent. From within the circumstances or discursive practices she or he is embedded into, this agent influences these in return while drawing on his experience to make a decision *'through undertaking a purposive action that is relatively opaque in its consequences, variably clear in its motives and desires, and contextually situated'*.

[5] Chohmin Nakae is a liberal thinker who led the *'freedom and people's right movement'* in the Meiji era (1868-1912) – See Nonaka and Takeuchi (1995: 52) – Note 20.
[6] Quotation borrowed from Nakamura (1967: 174) *Introduction to philosophy.* Tokyo: Chuo Koronsha (in Japanese) – See Nonaka and Takeuchi (1995: 52) – Note 20.

Thus, similar to Tsoukas (2016) and drawing on the broader framework of activity theory, Toulmin (1999: 62) emphasises the importance of practice and acknowledges that it should take precedence over theorising and generalising in any new theory of knowledge. A new praxeology asking what procedures are the most efficacious in any given rational enterprise, on what conditions, and for what practical purposes is required. Hence, the ideas of Vygotsky and Luria open an interesting and possible avenue for further research on knowledge in organisations. Indeed, the *'rationality of a scientific or judicial procedure, say, is not a matter of clarity and distinctness or logical coherence alone. Rather, it depends on the way in which these procedures develop in the historical evolution on any given discipline'* [emphasis added] (Toulmin, 1999: 60).

To further the field of the dynamic knowledge-based theory of the firm, this thesis endeavours to follow up on the insights Vygotsky, Luria and other scholars such as Leontiev and Engeström, developed. This opportunity emerges from intersecting developmental psychology, management and organisations theories, and to a lesser extent, economy theory. In consequence, the next sections present how human knowledge is approached in development psychology (Section 2.2), in economic theory (Section 2.3) and in theory of organisations (Section 2.4). Section 2.5 concludes these developments

2.2 KNOWLEDGE IN DEVELOPMENTAL PSYCHOLOGY

Within the field of developmental psychology where the study of human cognition development is central, the question of human knowledge, or rather *'knowing'*, is approached primarily in terms of *'mechanisms'*. Accordingly, Vygotsky (1978) and his followers are more concerned with understanding how knowing occurs and how it is shaped. In this regard and drawing on one of his previous works (Engeström, 1995), Engeström (1999: 377) refers to organisational knowledge creation (using the jargon of organisational and management studies) as *'innovative organisational learning'*, a phrase that he investigated and defined as *'collaborative learning in work organisations that produces new solutions, procedures, or systemic transformations in organisational practices'*. Moreover, based on Leontiev (1978), Engeström (1987) and Cole and Engeström (1993), Engeström (1999: 380) underscored the dynamic and *'oriented'* nature of knowing while acknowledging that *'human cognition and behaviour as embedded in collectively organised, artefact-mediated activity systems'*. In that sense, activities are *'social practices orientated at objects. An entity becomes an object when it meets a human need'*.

AT and its corollary, allows the possibility of capturing the dynamic nature of knowledge in organisations. A goal-oriented activity or activity system is an organisational structure allowing the analysis of the meditational roles of tools or artefacts embedded in a cultural-historical context (Yamagata-Lynch, 2010). It constantly generates actions that shape the object of the activity and reconstructs it *'in specific forms and contents'*. However, the object is a horizon *'that is never fully reached or conquered'*. And the creative potential activity contains is intimately related to the '*search action of object construction and redefinition'* [emphasis in the text] (Engeström, 1999: 381). The dynamic nature of human cognition is also captured within the theory of expansive learning (Engeström, 1987) which is a '*method of grasping the essence of an object by tracing and reproducing theoretically the logic of its development, of its historical formation through the emergence of inner contradictions'* (Engeström, 1999: 382). These contradictions in AT are a fundamental building block that leads to innovative learning. Thus, Engeström (1999: 384) suggests that *'the process of expansive learning should be understood as construction and resolution of successively evolving tensions or contradictions in a complex system that includes the object of objects, the mediating artefacts, and the perspectives of the participants'*.

Drawing on Cole and Engeström (1993), Engeström (1999) suggests that the theoretical framework AT offers is particularly suited to the study of organisational knowledge creation as it is deeply contextual and directed at understanding historically specific local practices, their objects, mediating artefacts, and social organisation. Following Davydov (1990), it is also grounded on a dialectical theory of knowledge and thinking, centred on the creative potential human cognition holds. Considering a dynamic knowledge-based theory of the firm, it is suggested that an activity theoretical perspective can consider a unit of analysis as the different '*communities and practices that continue to coexist within one and the same collective activity system'* (Engeström, 1999: 382). This approach encapsulates the different *perspectives* (Holland and Reeves, 1996) and voices (Engeström, 1995). The term *'perspectives'* here is of particular importance. It transcends the strict view of a *'model'* or the rigorous approaches underpinned by positivist epistemology. As such, Holland and Reeves (1996: 272) argued that '*perspective' is a further elaboration of concepts that links activity systems to one another and to structures and dynamics of power and privilege. It allows one to speak more directly to agency in Marx's work, to the capacity of human to apprehend the conditions of their activities and through their practice change those very conditions'*. Thus dynamics are introduced as a key concept for the understanding of connecting mechanisms supporting knowing. The next section introduces how human knowledge is treated in economic theories.

2.3 KNOWLEDGE IN ECONOMIC THEORIES

Schumpeter (1951: 66) identified knowledge creation as the fundamental impulse of capitalism development that rests in *'new combinations'*. These lead to the emergence of new products, markets, material, etc. In his dynamic theory of economic change, the author also highlighted the tentative and unfolding nature of capitalism (Schumpeter, 1952). More recently, other economists have developed the economics of knowledge in the form of a growth theory (Romer, 1986, Romer, 1990, Lucas, 1988).

On the micro level, Edith Penrose (1959) argued that firms' growth is based on the services rendered by resources rather than on the possession of those resources. In her view, firms were the sole decisions-makers for deciding how those resources were to be used or allocated, and therefore, firms decided on the services that could be derived from resources. Thus, those services [knowledge following Spender (1996) and Tsoukas (1996)] had to be managed to obtain the desired outcome. Moreover, acknowledging the central role played by the planning process in the growth of the firm, she contended that corporate planners created mental models or images of the firm within its context while considering the firm's strengths and weaknesses. In other words, Penrose (1959) identified the firm as a repository of knowledge whereby the experience and knowledge accumulated within the firm is important (Nonaka and Takeuchi, 1995).

This idea of a firm as a repository of knowledge is also to be found in the evolutionary theory of economic and technological change introduced by Nelson and Winter (1977), Nelson and Winter (1982a) and Winter (1988). Accordingly, knowledge is stored as *'regular and predictable behavioural patterns'* in firms, or *'routines'*. Inherently unpredictable *'mutation'* of routines constitutes innovation (Nelson and Winter, 1982a:14-18). Despite these decisive contributions within the realm of economic theory, Nonaka and Takeuchi (1995) concluded that Penrose (1959) failed to address the organisational mechanisms or processes enabling knowledge accumulation, and Nelson and Winter (1982a) did not extend their line of reasoning to broader organisational processes. Spender (1996: 45), however, drew our attention to the fact that Nelson and Winter provided a *'longitudinal perspective on some other underlying cross-sectional or decontextualized theory'*. The question of knowledge in organisations has always attracted economists' attention, but the concept proved too slippery to handle (Penrose, 1959). However, it finally attracted scholars' attention in management and organisation theories where major developments occurred.

2.4 KNOWLEDGE IN MANAGEMENT AND ORGANISATION THEORIES

2.4.1 Development of the field

Simon's (1947) critique of economic rationality is at the origin of the interest of knowledge in organisations (Spender and Grant, 1996). Inspired by Barnard's (1938) insights on the importance of the role of executive managers in the organisation, Simon (1947) and March and Simon (1958) endeavoured to build a scientific theory of problem-solving and decision-making rooted in the assumption that human cognitive capacity is limited in the short run. Based on this concept of *'bounded rationality'*, their information-processing[7] approach participates in identifying a reduced number of consequences corresponding to each strategy decision-makers crafted amidst an array of possible consequences.

In contrast, the *'garbage can model'* organisation[8] (Cohen et al., 1972, March and Olsen, 1976) emphasises the irrational and ambiguous nature of human problem solving and decision making that Simon (1947) ignored. This model breaks from the usual planning and deductive decision-making pertaining to choice theories, and epitomizes the organisation as *'a system of perception that assigns meaning to what happened retrospectively'* (Nonaka and Takeuchi, 1995: 39). March (1978) also introduced the idea that preferences actually emerge from actions rather than guiding actions *a priori*. This concept of emergence is also echoed in the theory of organisational *'sensemaking[9]'* (Weick and Roberts, 1993).

In line with a more humanistic approach as opposed to a mechanistic view of organisations, the collective dimension of learning was recognised by Schein (1985). The author also emphasised how groups learn to cope with external adaptation and internal integration. Next to *'shared knowledge'* (Schein, 1985: 7), beliefs also characterised these systems of shared meanings (Pfeffer, 1981). Despite the advancement in the field of knowledge management, Nonaka and Takeuchi (1995) criticised the passive portrayal of organisations in relation to their environment, and the overlooking of human creativity. Subsequent to Barnard's attempt to synthesize scientific and humanistic views of knowledge, the two streams persisted in their divergence and developed accordingly the scientific approach embodied by the Simonian information-processing approach, and the humanistic stance by the *garbage can* model, and the theory of *sensemaking*. A renewed attempt to combine both the scientific and humanistic

[7] The term *'knowledge'* was not introduced yet. It is Nonaka (1994) and Nonaka and Takeuchi (1995) who introduced it in the field of management and organisations theories.

[8] *'The garbage can model'* states that the organisation is a collection of existing choices in search of problems, feelings looking for decisions situations where they can be expressed, and decision makers looking for work. Cohen, M. D., March, J. G. and Olsen, J. P. 1972. A Garbage Can Model of Organizational Choice. *Administrative Science Quarterly*, 17**,** 1-25.

[9] *'The basic idea of sensemaking is that reality is an ongoing accomplishment that emerges from efforts to create order and make retrospective sense of what occurs…. Sensemaking emphasises that people try to make things rationally accountable to themselves and others'* (Weick and Roberts, 1993: 635).

camps has emerged with the concepts of knowledge society, organisational learning and the resource-based approach.

Peter Drucker (1959) coined the term of *'knowledge worker'* and *'knowledge work'* in his book *Landmarks of Tomorrow* and the *'knowledge society'* in another book: *Post-Capitalist Society* (Drucker, 1993). In this knowledge society, knowledge becomes and will remain the most important factor of production, before capital, land and labour. Drucker (1991, 1999) also introduces the idea of organisational knowledge creation (although not so named) through his concept of continually improving every activity, developing new applications, and making continuous innovation an organised process. This entailed the need for organisations to change continuously (Drucker, 1993, 1996), leading to the emergence of organisational learning (Cohen and Sproull, 1991) with concepts such as the *'learning organisation'* (Senge, 1990). However, central to organisational learning, knowledge development *per se* is simply ignored from this theory (Nonaka and Takeuchi, 1995).

Acknowledging the turbulent competitive environment of the 1990s, the need for an alternative understanding of strategic management of organisations where organisational knowledge occupies centre stage became evident (Spender, 1996, Drucker, 1993, Quinn, 1992, Toffler, 1990). This requirement led to the emergence of the knowledge-centred organisation (Section 2.4.2) and the resource-based view of the firm (Section 2.4.3), confirming further the humanistic orientation observed in the treatment of knowledge in organisations.

2.4.2 Knowledge-centred organisations

Based on their research on the intangible dimension of organisations, Sveiby and Lloyd (1988) identified the *'know-how'* organisation where the production is characterised by non-standardisation, creativity, complex problem-solving and high dependency on individuals. Rooted in a person-centric view of the firm whereby the individual is identified as the most important resource and is the repository of knowledge, the output of being a *'know-how'* company is to be knowledge-enriched; education is the way of improving business and sometimes the human being is the *only* capital of whose departure could be devastating for the company. In parallel with Sveiby and Lloyd's (1988) work, Starbuck (1992) identified *'knowledge-intensive firms'* (KIFs) acknowledging the importance of the organisation in the knowledge management dynamic. Starbuck (1992: 716) singled out KIFs as they are primarily characterised by *esoteric knowledge* that he defines as *'an exceptional and valuable expertise that must make an important contribution'* on which organisations draw in creative and unusual ways. He noted that while this knowledge resides within individuals, it also resides in physical or non-physical capital, firms' routines and cultures. Esoteric knowledge,

as a competitive advantage, may only be enhanced, exploited and institutionalised through organisational learning. It can influence how strategies develop (Kärreman, 2010).

Building on the works of Sveiby and Lloyd (1988), Edvinsson and Malone (1997) and Stewart (1997) later introduced a categorisation of organisational knowledge referred to as Intellectual Capital [IC]. IC, viewed as the collection of intangible assets and their flows (Bontis et al., 1999), aims at capturing organisational intangible resources that participate in value creation (Sullivan, 1998, Spender et al., 2013) and is a way of describing an organisation's strategic intellectual and knowledge-based resources (Schiuma et al., 2007). The phrase *'knowledge assets'* was also introduced to encompass any tangible or intangible organisational resource made of, or incorporating knowledge that contributes to building a company's value while providing an ability to carry out business processes (Marr et al., 2004, Carlucci et al., 2004).

2.4.3 The resource-based view of the firm

Recognising that strategy could no longer afford to be static, competition moved away from being a *'war of position'*: *'competition is now a 'war of movement' in which success depends on anticipation of markets trends and quick response to changing customer needs. Successful competitors move quickly in and out of products, markets and sometimes even entire businesses – a process more akin to an interactive video game than to chess. In such an environment, the essence of strategy is <u>not</u> the structure of a company's products and markets but the dynamics of its behaviour [italic in the original]'* (Stalks et al., 1992: 62). The resource-based view of the firm sourced to Edith Penrose (1959) and re-discovered in the realm of strategic management by Wernerfelt (1984), is now recognised in reviews of the strategic management literature as a body of thought explaining sources of sustainable competitive advantage (Grant, 1996, Lockett et al., 2009) and achieved a re-balancing of the literature on strategy focusing on internal resources (Boxall and Purcell, 2011). Capabilities, core competencies and skills are introduced as the new strategic assets conducive to sustainable competitive advantage (Prahalad and Hamel, 1990, Stalks et al., 1992). This dynamic nature of strategy is also found in the *'dynamic capabilities'* or *'the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments'* (Teece et al., 1997: 516). This work is an argument for a *'knowledge-based'* as opposed to a *'product-based'* view of the firm according to Boxall and Purcell (2011).

Spender (1996: 45) argued that the resource-based view of the firm treated knowledge as an *'objective transferable commodity'* emphasising the positivist stance of the paradigm. The resource-based paradigm is acknowledged to emphasise the role of managers and managerial

processes in implementing a top down approach to knowledge management and in explaining different firm performance outcomes (Barney et al., 2001). Further, Nonaka and Takeuchi (1995: 50) conclude that many views on the resource-based view are passive and static stating that *'the organisation that wishes to cope dynamically with the changing environment needs to be one that creates information and knowledge, not merely processes them efficiently. Furthermore, the organisation members must not be passive but must rather be active agents of innovation'*. Finally, the resource-based view is prescriptive and fails to provide a comprehensive framework that explains how the various parts of an organisation interact with each other to create something new and original along time (Nonaka and Takeuchi, 1995).

In conclusion, at this juncture, although many authors recognised the importance of knowledge in organisations, few studies explored how knowledge is created within and between organisations. Instead, scholars were concerned with the acquisition, accumulation and utilisation of existing knowledge, but not with how to create new knowledge. This was addressed in the works of Nonaka and Takeuchi (1995) introduced hereafter.

2.4.4 Nonaka and Takeuchi's theory of organisational knowledge creation

As we have already seen, Nonaka and Takeuchi (1995: viii), Nonaka (1994) criticised Western epistemology for its scientific treatment of knowledge. Nonaka and Takeuchi (1995: 58-59) defined knowledge as *'a dynamic human process of justifying personal belief towards the truth'* [in italic in the text]. Taking inspiration from the success of Japanese companies in the 1980s and how they adapted to a turbulent environment, they suggested a generic model of organisational knowledge creation. They defined knowledge creation as *'the capability of a company as a whole to create new knowledge, disseminate it throughout the organisation, and embody it in products, services, and systems'*. Acknowledging the dynamic nature of knowledge, they created a dynamic model that incorporates three different dimensions – epistemological, ontological and temporal (Nonaka and Takeuchi, 1995: 49). For the authors, *'knowledge is essentially related to human action'* [in italic in the text] and is *'anchored in the beliefs and commitment of its holder'* suggesting the active and subjective nature of knowledge (Nonaka and Takeuchi, 1995: 58-59). The cornerstone of their theory of knowledge is the distinction between tacit and implicit knowledge and the mobilisation and conversion of tacit knowledge (Nonaka and Takeuchi, 1995) as the key to knowledge creation. Drawing on Polanyi (1966), Nonaka (1994: 16) defines explicit knowledge as a codified knowledge that can be transmitted in formal and systematic language. On the other hand, tacit knowledge embodies the dimension of knowledge that is *'hard to formalise'* and that is *'deeply rooted in action, commitment, and involvement in a specific context'*. Tacit knowledge is introduced as a continuous activity of knowing and encapsulates both cognitive

and technical elements. The cognitive element concerns mental models (Johnson-Laird, 1983 as cited in Nonaka, 1994) in which individuals form *'working models of the world by creating and manipulating analogies in their minds'*. The *'working models include schemata, paradigms, beliefs, and viewpoints that provide 'perspectives' that help individuals to perceive and define their world'*. In contrast, the technical element concerns know-how, crafts, and skills that apply to specific contexts. The *'engine'* of the entire knowledge-creation process rests in the interaction between tacit and explicit knowledge through the four modes of knowledge conversion of socialisation, externalisation, combination and internalisation (the SECI model). These four modes are compared to *mechanisms* that allow the individual knowledge to be *'articulated and 'amplified' into and throughout the organisation'* (Nonaka and Takeuchi, 1995: 57). Thus, the theory of organisational knowledge creation has an epistemological dimension epitomised by the tacit-explicit interplay and an ontological dimension represented by the knowledge spiral that spreads throughout different organisational levels.

However, to facilitate both group activities and the creation and accumulation of knowledge at the individual level, Nonaka and Takeuchi (1995: 73-74) argued that the management or the organisation has to provide the proper context in the form of five conditions able to promote the knowledge spiral. (i) A *'knowledge vision*' is necessary to conceptualise what kind of knowledge should be developed and how to operationalise it within a management system that will enable its implementation. Top and middle management should formulate an organisational *'intention'* and propose it to employees in order to foster their commitment. (ii) An organisation should allow their members at all levels to act *'autonomously'* to increase the chances of introducing unexpected opportunities. (iii) The interaction between the external environment and the organisation is stimulated by *'fluctuation and creative chaos'*. Following Nonaka and Takeuchi (1995: 78-79), when a fluctuation is introduced in the organisation, members face a breakdown or an *'interruption of our habitual, comfortable state of being'*. This triggers a series of deep questioning on the validity of one's attitude towards the world and the continuous processes of critically reflecting on existing premises by individual members of the organisation fosters organisational knowledge creation. (iv) *'Redundancy'* of information is the fourth condition. It allows *'learning by intrusion' for each individual's sphere of perception'*. Redundancy refers to information that is not directly necessary to users' operational requirements. This is important for knowledge creation and concepts created by an individual need to be shared by other members of the group who might not be concerned immediately. Nonaka and Takeuchi (1995: 81) contended that redundancy promotes the sharing of tacit knowledge as *'redundant information enables individuals to invade each other's functional boundaries and offer advice or provide new information from*

different perspectives'. (v) Finally, through the concept of *'requisite variety'* whereby the organisation's internal diversity matches the external environment, firm's members can cope with different contingencies which can be enhanced by combining information in different ways while making this information available throughout the company.

Criticisms addressed to the Nonakian paradigm

While the knowledge creation paradigm proposed by Nonaka (1994) and Nonaka and Takeuchi (1995) is acknowledged as an undisputable contribution that developed the field of knowledge management, it has been criticised. The major criticism concerns their distinction between tacit and explicit knowledge and the knowledge conversion which is at the core of their theory. Tsoukas (2005) suggested that the dyadic view of knowledge in organisations misrepresented the seminal theories introduced by Polanyi (1962, 1966). Further, Tsoukas (1996, 2005: 410) rejects the idea of converting tacit knowledge into explicit knowledge. Tacit knowledge has an ineffable nature that prevents its reduction into what can be articulated. Tacit knowledge resists being *'captured', 'translated' or 'converted' but can only be displayed, manifested, in what we do'; and* tacit and explicit knowledge are part of the same whole. Both tacit and explicit knowledge must exist as such as one facilitates the other to create knowledge. So, besides not lending themselves to conversion, one cannot exist without the other (Cook and Brown, 1999). Knowledge cannot be reduced to a static and linear view or viewed as two hermetic containers (Bratianu, 2011, Bratianu and Andriessen, 2008). Kärreman (2010) argued that the distinction between explicit and tacit knowledge is more clear-cut than Starbuck's (1992) esoteric knowledge. While having proven *'to be a powerful analytical concept'*, this dyadic view of knowledge was criticised for over-emphasising knowledge or the explicit part of the KIF construct too much eclipsing Starbuck's esoteric knowledge.

Nonaka and von Krogh (2009) argued that as tacit and implicit knowledge were never meant to be separated and that the real contribution of Nonaka and Takeuchi (1995) was misunderstood. The subjective tacit knowledge held by an individual is externalised into objective and explicit knowledge that is shared and synthesised within or beyond the organisation. There is a constant dynamic relationship between subjective and objective knowledge. Hence, the knowledge-creating theory understands knowledge as a key dynamic process of justifying the personal belief of a *'truth'* that is never fixed (Nonaka and Toyama, 2007). Recently, Kärreman (2010) argued that this discussion has crystallised too much on the various merits of tacit and explicit dimensions of knowledge and how they related. However, he acknowledges that the preference for tacit-explicit knowledge brings order to the messy concept of knowledge because scholars are more attracted to theories that have neat

formal properties and that are elegant. Interestingly, Tsoukas (2016) disagrees chastising scholars for the tendency of simplifying theories in organisations.

Ignoring *'the essential ineffability of tacit knowledge'* (Tsoukas, 2005: 410), some scholars explored the tacit dimension further and prescribed conversion mechanisms. In his maturation cycle, Allard (2003) suggested that knowledge creation can emerge from a discovery process or a derivation process. Knowledge discovery refers to new knowledge with respect to the already known one while knowledge derivation involves the implementation of some procedural or reasoning knowledge on descriptive knowledge. The author introduced an alternative four-fielder to the SECI: the four stages of the maturation cycle[10]. Also building on the SECI cycle, Young (2012: 60) suggested a model that strives to understand the inner world of individuals, their knowingness or *'deep inner knowing links to inner wisdom, the heart wisdom and spiritual spark that leads to wakefulness and divine consciousness (greater self)'*. He introduced a new knowledge cycle that focuses on the awareness (*'a'*) of the inner individual knowledge (*'K'*). *'Ka'* embodies the knowledge link between the deep inner levels of knowledge and the socialisation and externalisation processes, the individual's intrinsic know-how and wisdom *'which can be accessed and sensed in order to gain a new quality of understanding by being aware of the awareness itself at the inner level'*. (Young, 2012: 57) proposed then another four-phase knowledge cycle, the LOFT[11]. The new framework for understanding knowledge dynamics is then: *'Ka'*, socialisation, externalisation, combination and internalisation. Finally, Bratianu (2013, 2015) recommended that we replace the widely used tacit-explicit knowledge concept with a cognitive, emotional and spiritual knowledge[12] triad displaying the structure of a triple helix. This would overcome what the author referred to as the *'iceberg metaphor'* or known-unknown paradox. The three dimensions are integrated with non-linear organisational *'integrators'*: management, leadership, and organisational culture (Bratianu, 2008, Bratianu, 2013).

Engeström (1999: 379) questioned that the theoretical and empirical viability of a cyclic model that sprung from a four-fielder matrix (SECI) can be built. More specifically, this cycle is constructed on modes of knowledge representation (tacit-sympathised; explicit-conceptual; explicit-systemic; and tacit-operational). The author argued that *'knowledge representations are instrumentalities, implementation of different toolkits of cognitive and discursive work'*.

[10] Discovered knowledge, codified knowledge, migratory knowledge and invisible knowledge.
[11] LOFT: (L) listening to the inner knowledge; (O) Observing and sensing the inner knowledge; (F) Feeling and sensing the inner knowledge; and (T) Thoughts that are taking shape and of which the individual is aware.
[12] Cognitive knowledge is concerned with economical analyses and strategies; emotional knowledge is dedicated to the creation of new systems stimulating employee's engagement in knowledge sharing and knowledge creation; spiritual knowledge is concerned with the development of consistent and coherent systems of values with the ambition to become the new driving forces of the firm.

Little evidence is provided on any inherent order in the employment of this toolkit. Engeström (1999: 379) criticised Nonaka and Takeuchi (1995) for offering too little empirical evidence in relation to a questionable model that seemed *'to be used in accordance with situationally constructed needs and opportunities, often in a probing manner and in opportunistic combination'*. This position can reasonably be extended to others knowledge of dynamic matrices that were suggested in the literature (Allard, 2003, Young, 2012, Bratianu, 2015).

Second, the theory of organisational knowledge creation is quite prescriptive as it suggests that managers are in charge of setting the *'intention'* that should direct knowledge creation through the knowledge vision. The latter is external to the knowledge-creating process in the same way as *'ba'* or the context, is. In other words, the direction of human *'commitments'* and *'beliefs'* (Nonaka and Takeuchi, 1995: 58) are dictated without considering debate. Similarly, Yrgö Engeström (1999: 380) underscored that the Nonakian knowledge creation framework ignores the *'open, multifaceted 'problematic'* nature of knowledge; instead knowledge is represented as a *'problematic field to be circumscribed and dimensionalised'*, a trend that is very much present in positivist philosophy. Moreover, the SECI model is rather deterministic in its way of ordering events in the creation of knowledge and ignores the unstructured and mediated nature of cognitive development and knowledge creation (Engeström, 1999). Third, he criticised Nonaka and Takeuchi (1995) for ignoring what is commonly seen as the foundation of creative renewal ('*Kaizen*') in Japan, the small cycles of team-based continuous improvement. These small cycles may be compared to a spontaneous phenomenon of knowledge emergence. Finally and fourth, the question of the boundaries of the firm was not addressed (Spender, 1996).

Despite these criticisms, Nonaka and Takeuchi's (1995) theory has been influential and has an enduring impact in the field of organisations studies and inspired a number of scholars in developing aspects of their theory of knowledge creation. They seriously challenged the positivist legacy that traditionally shaped the ways of knowing in the Western world. Indeed, Nonaka (1994) and Nonaka and Takeuchi (1995) developed an original, comprehensive and practical theory of knowledge for the first time. They introduced the concept of organisational knowledge and are viewed as a point of reference for knowledge management. However, their work falls short of developing a dynamic knowledge-based theory of the firm.

2.4.5 The knowledge-based view of the firm paradigm

The knowledge-based view of the firm (KBV) is rooted in Simon's (1947) concept of bounded rationality and his endeavour to connect economic and organisational lines of argument. Both Grant (1996) and Spender (1996) recognised this paradigm is an outgrowth of

the resource-based view and that it rests on two pillars. While Grant (1996) takes an economist perspective, puts the emphasis on the theory of the firm and views the management of knowledge pertaining to organisational theory, it is Spender (1996) that gives consistency to the double nature of the KBV framing the theory of organisation in terms of *theory of knowledge*.

In relation to the first pillar, organisational theories concentrates on the analysis of the internal structure of the firm and the relationships and mechanisms bounding its different constituent units and departments (Grant, 1996). It was in this area that the literature focused, particularly in relation to knowledge creation / innovation, and organisational learning (Spender, 1996, Grant, 1996, Grant, 1995). Addressing the question of the existence of the firm when knowledge is the major asset, Grant (1996: 121) attempted to counterbalance the emphasis of the earlier literature on knowledge creation and organisational knowledge by stressing knowledge application and the role of the individual. So, departing from mainstream literature, Grant (1996: 112) is more concerned with the firm as a *'knowledge-integrating institution'*, and the *'application of existing knowledge to the production of goods and services'*. In his views knowledge creation is primarily an individual attribute. In contrast, considering the firm as a *'body of knowledge'* (Spender, 1989: 185), Spender (1996: 46) argued that *'since the origin of all tangible resources lies outside the firm, it follows that competitive advantage is more likely to arise from the intangible firm-specific knowledge which enables it to add value to the incoming factors of production in a relatively unique manner. Thus it is the firm's knowledge, and its ability to generate knowledge, that lies at the core of a more epistemologically sound theory of the firm'*. As such, the author reconciles the firm with the individual in a relationship bounded within a body of knowledge that integrates, keeps and generates knowledge. He settled the KBV in its own paradigm where firms are not anymore *'primarily concerned with predicting the behaviour of firms in external markets' (Grant, 1996: 109) only and moved its counterpart, the theory of organisation to the theory of knowledge.*

Concerning the second pillar of the KBV, the theory of knowledge, a general consensus crystallises on the co-existence of tacit and explicit dimensions of knowledge (Nonaka and Takeuchi, 1995, Spender, 1996, Grant, 1996, Young, 2012, Venkitachalam and Busch, 2012, Nonaka and von Krogh, 2009). Another consensus is that personal knowledge cannot be formed without collective knowledge. Grant (1996: 115) refers to the previous as *'common knowledge'* while Cook and Brown (1999: 386) defines it as *'the body of knowledge'* that is *'held in common by the group'*. Thus, personal and collective knowledge ought to be considered altogether.

In order *'to move towards a dynamic knowledge-based theory of the firm'* (Spender, 1996: 54) additional elements are introduced[13]. Coexisting next to this *'sticky'* view of knowledge (Brown and Duguid, 2001: 198) or knowledge as a possession (Cook and Brown, 1999), some scholars underscored the *'active'* or practice-oriented dimension of knowledge, referring to it as *'knowing'* (Spender, 1996, Cook and Brown, 1999, Brown and Duguid, 2001) as knowledge translates into actions (Orlikowski, 2002). Causal mechanisms articulating the different types of knowledge in the firm (Spender, 1996, Cook and Brown, 1999, Grant, 1996, Nonaka and Takeuchi, 1995) and understanding organisational conflicts and tensions as sources of knowledge creation (Nonaka and Takeuchi, 1995, Cook and Brown, 1999, Spender, 1996) are also of importance.

In conclusion, the foundational elements that could constitute the basis of a *dynamic knowledge-based theory of the firm* have been identified in literature. They have been encapsulated within (i) a theory of the firm and a theory of organisations (Grant, 1996, Tsoukas, 1996), (ii) a theory of the organisations and a theory of knowledge (Tsoukas and Vladimirou, 2001, Nonaka and Takeuchi, 1995, Cook and Brown, 1999), and (iii) a theory of the firm and organisations and a theory of knowledge (Spender, 1996). (i) In the first case, the emphasis is on the nature of the firm and its boundaries, and the mechanisms supporting knowledge flows. While the question of *'what is knowledge'* is considered, it is not explored satisfactorily. (ii) In the second case, the emphasis is on mechanisms and epistemologies of knowledge that are represented in Tsoukas and Vladimirou's (2001) *'from-to'* structure, Nonaka and Takeuchi's (1995) SECI model, and Cook and Brown's (1999) *'generative dance'* between knowing as a practice and knowledge as a possession. Within these rich approaches, it is the theory of the firm and more particularly the question of its boundaries that is overlooked. Thus, while fundamental in the definition of a dynamic knowledge-based theory of the firm, these previous approaches are incomplete. This consensus is found in the work of (iii) Spender (1996) who, through the combination he provides between a theory of the firm and a theory of knowledge, manages to introduce a theory of organisations through his *'knowing entities'* and bounding issues. Spender's (1996) work appears to be the most comprehensive and insightful in terms of foundational principles as the author decisively manages to craft a new paradigm supporting a *dynamic* KBV. Therefore, it is this path that this thesis will follow focusing more specifically on Vygotsky's work which Spender (1996) briefly mentioned and the issue of *'operationalisation'* of a dynamic knowledge-based theory of the firm.

[13] These elements are of importance for this thesis and are developed substantially in Section 26.1 and Section 2.6.2.

Prior to such an endeavour, a perspective on understanding knowledge in organisations and a short presentation of Vygosky's work as a possible avenue to fulfill our goal are presented below.

2.5 CONCLUSION: UNDERSTANDING KNOWLEDGE IN ORGANISATIONS

So, what do we know about knowledge? Knowledge is not a concept that easily lends itself to definition; it is highly ambiguous, unspecific (Alvesson and Kärreman, 2001) and no consensus on its definition has been reached to date. While mainstream literature is focussed on an understanding of human knowledge with the question '*what is knowledge*' (Cook and Brown, 1999, Spender, 1996, Tsoukas and Vladimirou, 2001, Orlikowski, 2002), Grant (1996) stated that since the world's greatest thinkers from Plato to Popper failed to reach a clear consensus on this question, the author decided to refrain from providing his own version of what knowledge is. In this thesis, Grant's (1996) position is adopted and no definition of what knowledge is, is suggested.

The predominant response which Western philosophers have favoured to the question, '*what is knowledge?*' is the Platonic view that knowledge is a *'justified true belief'* (Nonaka and Takeuchi (1995: 21), a response inspired from a positivist approach. This positivist approach has led to conceptualising knowledge as static in the works of some scholars (Käpylä et al., 2011, Massingham, 2014a, 2014b, Edvardsson and Oskarsson, 2011), decontextualized (Bettis et al., 2014, Andreeva and Kianto, 2012) and led a research agenda discussed in Newtonian terms (Davenport and Prusak, 1998, Morris and Empson, 1998)[14]. Recognising the limitations of the positivist approach, Spender (1996) underscores that knowledge matrixes and typologies tell little about how the different types of knowledge act in concert and how the firm can offer an environment allowing knowledge creation and knowledge application processes to interact. Thus, the typologies of knowledge provided and the attempts to articulate these following the example of some scholars (Bratianu, 2012, Bratianu, 2015, Allard, 2003, Young, 2012) are insufficient for understanding how knowing emerges or is created in organisations. Progress has been made in understanding knowledge in organisation with the works of Boisot and Canals (2004) and Tsoukas and Vladimirou (2001). These authors underscored that this notion is better understood in terms of context dependent

[14] For example Davenport and Prusak (1998: 5) defined knowledge as a '*mix of framed experiences, important values, contextual information, and expert insight that provides a framework for evaluation and incorporation of new experiences and information'*.

adaptive action, underpinned by judgments. As such, the idea of knowing (Orlikowski, 2002, Blackler, 1995) began to attract attention as in the works of Cook and Brown (1999).

Instead of asking a *'what is'*-type question that obviously orientates the responses toward a positivist response, perhaps a *'how'*-type is more relevant in this field of study? Answering a*'what is'*-type of questions relating to knowledge calls for a response which describes or classifies an observable item. In this regard, an alternative to the fundamental question of what knowledge is, is proposed by Toulmin (1999)[15] as he draws on Vygotsky and Luria. Instead, a *'how'*-type question (that is strongly suggested in the works of the authors considering *'knowing'* as an alternative to knowledge) moves attention away from the input-output structure and requires considering the mechanisms and dynamics involved in knowing / knowledge generation. To answer this question, Toulmin (1999) suggests first targeting the deep level of human cognitive development. Second, he advocated reflecting on how this cognitive forming occurs at the *individual level* and *collectively* or as part of a group. These two enquiries are underpinned by Wittgenstein's intersubjectivity as he draws on Marx breaking from the more reductive Kantian view on human knowledge that prevails in literature.

So far, the discussion has captured different facets of knowledge such as its context-dependency and active nature (Nonaka and Takeuchi, 1995), the provision of an intangible operating framework (Davenport and Prusak, 1998), the importance of judgement or the ability to draw distinctions (Tsoukas and Vladimirou, 2001). None of these provide a satisfactory answer to the question of knowledge nor constitutes a dynamic knowledge-based theory of the firm *per se*. As Grant (1996: 110) stated, the KBV of the firm is not yet a theory of the firm *per se* but is more a *'confluence of long-established interests in uncertainty and information with several streams of newer thinking about the firm'*.

Many authors have attempted to describe and prescribe how knowledge is created in organisations. The most cited and recognised approach is that of Nonaka and Takeuchi (1995) based on their work in Japanese companies, but they fail to address the firm and its boundaries to build a comprehensive theoretical framework on the KBV. Following the example of Nonaka and Takeuchi (1995), the intent in this thesis is to build such a theory while integrating Tsoukas' (2016) advice for the need of a new praxeology that is concerned with efficacious procedures conducted on certain conditions in rational enterprises while targeting practical purposes. In this regard, it is proposed that, while re-balancing the debate

[15] Toulmin (1999: 53) suggested considering the following questions instead of *'what is knowledge'*: (1) *'How do human beings – how <u>can</u> they – come to know anything about the world?* And (2): *'What, if anything, do they (can they) know <u>for certain</u>, either one at a time, as individuals, or collectively, for example, as members of a profession?'* [Words underlined emphasised in the text]

towards a more humanistic side, an alternative approach integrating perspectives drawn from developmental psychology in the treatment of human knowledge in organisations. Drawing on Nonaka and Takeuchi (1995), the first step involves identifying the elements of knowledge emergence and creation in organisations that are addressed in Section 2.6 and Section 2.7. The next step involves considering a theoretical framework conducive to a tentative construction of a *dynamic knowledge-based theory of the firm*.

PART 2: A THEORETICAL FRAMEWORK SETTING THE BASES OF A DYNAMIC KNOWLEDGE-BASED THEORY OF THE FIRM

The foundational elements of a dynamic knowledge-based theory of the firm as they gradually emerged from the literature have been identified as the following ones: a theory of knowledge encapsulating static and active dimensions of knowledge (Section 2.6), a theory of the firm's causal mechanisms and conflicts as a possible source of knowledge creation (Section 2.7).

2.6 THEORY OF KNOWLEDGE

The prevailing view in the academic literature about the dimensions of organisational knowledge is that static and dynamic dimensions of knowledge should be considered together. Ryle (1949) introduced knowledge in terms of *'know that [it is the case]'* and *'know how [to do it]'* and contended that these two aspects were interdependent and that knowing how could not be defined in terms of knowing that. Citing Ryle's example, knowing the rules of chess does not lead to being able to play chess. While know that may be both explicit and free flowing, it is not actionable or useful on its own. To become useful, know that relies on appropriate know how. Similarly, Foucault (1972) outlined the doubled nature of knowledge that echoes its *'static'* and *'dynamic'* aspects. Knowledge encompasses two aspects translated in French by *'connaissance'* and *'savoir'*. The former, *'connaissance'*, points to the known, to the relation of the subject to the object and the formal rules governing it. This *'acquaintance'* between subject and object constitutes somehow a rather passive aspect. The latter *'refers to the conditions that are necessary in a particular period for this or that type of object to be given to connaissance and for this or that enunciation to be formulated'* (Foucault, 1972:16). *'Savoir'* refers then to the circumstances that allowed the advent of *'connaissance'*. This could be viewed as the active part of knowledge and cannot be isolated from *'savoir' (Foucault, 1972).* Ryle and Foucault's views on the static and dynamic

dimensions of knowledge are reasserted in terms of *'epistemology of possession'* and *'epistemology of* practice' (Cook and Brown, 1999) in the management and organisation literature. These two aspects of a theory of knowledge are respectively developed in the two following sections.

2.6.1 Perspectives on a static view of knowledge in organisations

Adopting the language of Cook and Brown (1999: 383), an epistemology of possession or epistemology of knowledge encapsulates *'knowledge <u>used</u> in action'* [emphasis added in the text]. The first two sub-dimensions introduced in the following section are the distinction between personal and collective knowledge. Second, given that this study locates at the crossroads of developmental psychology and organisations and management studies, we draw on the literature pertaining to knowledge-centred organisations and elicit organisational knowledge-intensity (OKI) as a preferred mode of knowledge representation. OKI contains an openness and adaptability that is in line with Holland and Reeves' (1996) *'perspectives'* compared to more rigorous mode of knowledge representations such as the intellectual capital one. The literature regarding OKI is prolific in modes of knowledge representations emphasising knowledge-intensive organisational qualities and attributes (Section 2.6.1.2). The two other dimensions of knowledge, the personal and collective ones, are discussed in the following section.

2.6.1.1 Personal and collective knowledge

Cook and Brown (1999:386) stated that: *'individuals and groups each do epistemic work that the other cannot'; 'part of what is known about a given domain is possessed by individuals, part by* groups'. However, the remaining issue is to determine where does knowledge emerge in the first place? Nonaka and Takeuchi (1995) viewed the origin of all knowledge at the individual level asserting that organisational knowledge was intrinsically dependant on its individual employees' knowledge, *'without reference to the wider institutional context'* (Robertson et al., 2003:834). Similarly, Grant (1996:112) posited that knowledge creation was primarily an individual activity: *'all learning takes place inside individual human heads; an organisation learns only two ways: (a) by the learning of its members, or (b) by ingesting new members who have knowledge the organization didn't previously have'*. In contrast, Nelson and Winter (1982b) presumed that a firm was able to know independently from its members.

A more balanced approach of setting out the central role played by the organisation as the conceptual entity allowing the emergence of organisational knowledge was introduced by Spender (1996:53). In his view, both individuals and organisations are endowed with

knowledge-based identities: *'we must argue that organisations learn and have knowledge only to the extent that their members are malleable beings whose sense of self is influenced by the organisation's evolving social identity. We argue for an organic or synergistic sense of collective identity as a mere classificatory device, a way of identifying which individuals share a particular body of knowledge'*. Similarly, Tsoukas and Vladimirou (2001) suggested that what makes knowledge distinctively organisational is its possible codification into propositional statements underpinned by collective understanding (i.e. rules). And, while knowing and doing within a specific context, there is still room for individual judgement and the emergence of novelty. This is particularly characteristic to organisational knowledge as it faces what Spender and Scherer (2007) refers to as uncertainties and Tsoukas and Vladimirou (2001) as open-endedness paves the way for novel experience and learning. Tsoukas and Vladimirou (2001) further developed the interdependence between knowledge at the individual level and knowledge at the organisation level. Hence, the generalisations provided by the organisational framework are not forced on; rather they are internalised through relating these to the particular circumstances facing them. So, organisational knowledge was defined as, *'The capability members of an organisation have developed to draw distinctions in the process of carrying out their work, in particular concrete contexts, by enacting sets of generalisation (propositional statements) whose application depends on historically evolved collective understandings and experience'* (Tsoukas and Vladimirou, 2001: 983).

Finally, the interdependence and necessary co-existence of personal and collective knowledge resonates in developmental psychology, although not in organisations but in relation to the cognitive development of the child. Vygotsky (1978) stated that human cognition is formed first at the social level and second at the personal level underscoring as such the inseparable nature of these two dimensions. As early as the 1930s, he developed two concepts to *'capture'* this emergence of cognition at the social level with the Zone of Proximal Development concept and the emergence of individual cognition within the Internal Plane of Action. This precedence of socialised knowledge on individual knowledge is confirmed in the works of Nonaka and Takeuchi (1995) and Brown and Duguid (2001).

2.6.1.2 Modes of knowledge representation: organisational knowledge-intensity

Originally, the phrase *'knowledge-intensity'* was suggested to differentiate knowledge-intensive firms from other well-known constructs, namely capital-intensive or labour-intensive firms. In other words, the term KIFs qualifies firms in which knowledge had more importance than other inputs (Starbuck, 1992) and that relied primarily on the exceptional and rare expertise of individuals (Robertson and Swan, 1998). Before we investigate the rationale

involved in KIFs or knowledge-intensive organisations (KIOs), it is necessary to clarify the word *'intensity'*.

On a general level, Alvesson (2004) defines *'intensity'* as the salience of a particular phenomenon that could be translated in terms of characteristics and qualities that puts forward the possible productiveness of embracing this phenomenon at every possible level in the organisation. Knowledge-intensity indicates the degree of dependence of a firm on the knowledge inherent to its activities and outputs to generate competitive advantage (Autio et al., 2000), suggesting that there are several degrees of knowledge-intensiveness. Makani and Marche (2010) stated that knowledge-intensive is different from *'knowledge-rich'*. Greenwood (2009:35) explained for example that universities are knowledge-rich but not necessarily knowledge-intensive. If the latter consisted in combining a high quality of knowledge and a large staff of highly trained individuals, then universities would be KIOs. However, they are denied such a qualification on the grounds that KIOs are *'a product of structures, relationships, and dynamics in the organisations, not of the quanta of knowledge they contain, the level of education of their personnel, or their sectorial location'* In other words, knowledge-intensity resides more in the *'in-between'*, in the dynamics and processes structuring a knowledge-based organisation rather than in the sum of its knowledge inputs or outputs. Swart and Kinnie (2003b) suggested using the phrase *'knowledge-intensive'* for knowledge-intensive work and knowledge workers.

Knowledge-intensity in organisations is understood in terms of organisational specific features or qualities that single out knowledge-intensive firms from others (Starbuck, 1992, Alvesson, 2004). These characteristics emphasise alternatively firm-related knowledge intensity (Greenwood, 2009, von Nordenflycht, 2010, Alvesson, 2004), person-related knowledge-intensity (Winch and Schneider, 1993, Swart and Kinnie, 2003a, Swart et al., 2003) or overlapping features that are developed in the following paragraphs. Based on a review of this literature (Appendices 1, 2, and 3), a comprehensive thematic analysis was conducted and the findings are presented in Table 2.1 and discussed subsequently.

Table 2-1– Major organisational knowledge-intensity characteristics

Firm-centric characteristics	Person-centric characteristics	Shared characteristics
• Knowledge pervasiveness • Importance of learning • Looser structures and infrastructures • Size and growth patterns • Importance of credentials	• *'Exceptional people'* centricity • Autonomy and independence • Knowledge-intensive workers' specific skill set • Creative and innovative workers • Continuous learners • Worker's engagement	• Technology-intensity • Client-centricity • Knowledge-sharing • Organisational context and market characteristics

Firm-specific characteristics

Mainstream literature (Nonaka and Toyama, 2007, Makani and Marche, 2012, Käpylä et al., 2011, Alvesson, 2000) agrees that knowledge is the output of KIOs. Within KIOs, competitive advantage does not result from economies of scale or cheap labour but from the application of superior knowledge and judgement (Starbuck, 1992, Kärreman, 2010) or the application of expert knowledge (Sheehan, 2002, Käpylä et al., 2011). (Starbuck, 1992:716) informs us that knowledge must be idiosyncratic and personal, and esoteric knowledge refers particularly to an *'exceptional and valuable expertise that dominates commonplace knowledge'* and makes a significant contribution. Kärreman (2010:1408) argued that esoteric knowledge encompasses the knowledge that necessarily matters for a community of practitioners or an organisation; esoteric knowledge provides identity, ethos and competitive advantage: *'esoteric knowledge provides the relevant idiosyncrasies – the markers and distinguishers (…) that are necessary for achieving that'*. Makani and Marche (2012) state that the experts in the firm own esoteric knowledge. It is intellectually appealing to them but unfamiliar to most of the other people in the organisation. Knowledge is captured when exchanged among workers or embedded in documents (Winch and Schneider, 1993), in physical and non-physical capital, organisational routines, relationships and culture (Starbuck, 1992, Swart and Kinnie, 2003b). In conclusion, it may be argued that knowledge is in organisations' DNA[16] and is deeply encrypted in its structure and infrastructure.

Centrality of learning

Alvesson (2001) stresses that KIOs adapt to varied contexts and tasks. This is supported by the inclination of these firms to be more learning-intensive than all other service industries (Nurmi, 1998, Nurmi, 1999) and to engage with on-going learning opportunities and communities of practice (Greenwood, 2009). Organisational learning is instrumental to

[16] DNA: The fundamental and distinctive characteristics or qualities of someone or something, especially when regarded as unchangeable (Oxford Dictionary).

maintain company's esoteric knowledge conducive to sustainable competitive advantage (Kärreman, 2010). Supporting these statements, Autio et al. (2000: 913) conclude that *'the more knowledge-intensive the firm, the more likely it is to develop the learning capacities for rapid adaptation to a foreign environment and to perceive opportunities'*. Thus, KIOs provide an environment that favours learning as well as working (Scarbrough, 1993, Reich, 2002, Alvesson, 2004). However, Autio et al. (2000) establish that over time, KIFs develop learning impediments that prevent them from growing successfully in new environments. In comparison, newer firms are endowed with relative flexibility enabling them to rapidly learn the necessary competencies for achieving sustained growth.

Loose structures and infrastructure

KIOs organisational activities can unfold only in flatter and more flexible structures as more structured, departmentalised and hierarchical organisations (Robertson and Swan, 1998, Nurmi, 1999, Alvesson, 2004) and the traditional command-and-control system would be counterproductive in KIOs (Scarbrough, 1999, Greenwood, 2009). Kärreman and Alvesson (2004) state that in *'post-bureaucracies'*, managerial control consisted more as interplay between loosening technocratic forms of control and stronger claims on people's subjectivity, social identity and identification with the organisation.

Size and growth patterns

Based on the literature from Starbuck (1992) and Alvesson (2004), KIOs can be small firms or large firms employing substantial numbers of people or they can have extensive infrastructures conducive to sustainable competitive advantage (Winch and Schneider, 1993). Considering KIFs growth patterns, Swart et al. (2003) conclude that KIOs are born from an innovative idea addressing the needs of a market niche. These firms tend to grow fast, as they take advantage of the opportunities technology provides regarding global marketing.

Importance of credentials

This characteristic relates to KIFs' image and reputation. Organisations consider their association with a big name and the associated rhetoric as important as it creates and strengthens KIFs' reputation (Sheehan and Stabell, 2007, Alvesson, 2004, Alvesson, 2001). Moreover, Makani and Marche (2012) conclude that accreditation by a self-regulated body was a feature particularly salient when a firm was perceived as knowledge-intensive.

Person-centric characteristics

***'Exceptional people'* centricity**

KIOs are characterised by an overwhelming reliance on key people endowed with a unique or exceptional set of skills (Robertson and Swan, 1998, Swart et al., 2003). Emphasising the

centrality of personal knowledge, knowledge-intensity emerges from its human assets identified as *'organisation's people and employees'* (Sveiby and Lloyd, 1988, Greenwood, 2009), *'experts'* (Starbuck, 1992), *'knowledge workers'* (Winch and Schneider, 1993, Alvesson, 2004, Swart et al., 2003), *'knowledge intensive workers'* (Alvesson, 1993), or *'symbolic analysts'* (Blackler, 1995). *'Human capital'* was also used in this instance (Swart et al., 2003, von Nordenflycht, 2010) and included tacit and explicit knowledge brought into the firm by knowledge workers (Swart and Kinnie, 2003b). These key employees are highly educated and highly experienced (Starbuck, 1992, Robertson and Swan, 1998, Swart and Kinnie, 2003a), and endowed with developed conceptual and cognitive abilities (Blackler, 1995, Makani and Marche, 2012). They perform knowledge-based work using intellectual and symbolic skills (Blackler, 1995, Alvesson, 2004) and are considered as the ultimate repositories of knowledge and at the very origin of value creation (Drucker, 1999). Knowledge workers create value through advanced knowledge (Alvesson, 2004). Trust and longevity in employee relations are two indispensable assets for knowledge-intensive organisations (Pyöriä, 2005).

Autonomy and independence

Another distinguishing feature of knowledge workers resides in their innate autonomy in what they do and independence at work, and their pronounced autonomy (Koslowsky et al., 2012). They derive their power from ability and reputation (Sveiby and Lloyd, 1988) and prize esteem over status (Nurmi, 1998, 1999). They downplay the firm's hierarchy and resist management attempts at control (Alvesson, 2004, Winch and Schneider, 1993). Key staff is viewed as intelligent, able to exercise self-control and self-evaluate itself (Greenwood, 2009). When knowledge workers perform their tasks in teams, they share a spontaneous leadership based on expert power (Pearce, 2004, Jayasingam et al., 2010).

Knowledge-intensive workers' specific-skill set

Scholars acknowledged that KIF's are characterised by their reliance on key workers' analytical skills dedicated to the handling of unique issues; their work is complex and varied and calls for complex problem-solving abilities (Sheehan and Stabell, 2007, Scarbrough, 1993, Makani and Marche, 2012). These knowledge-intensive workers focus on novel and complex work processes (Swart et al., 2003) and exercise judgement (Swart, 2007).

Creative and innovative workers

Ditillo (2004) stated work activities are characterised by uncertainty calling for creativity and innovation to deal with the unknown. In this regard, creativity or creative undertakings and innovative capabilities are acknowledged as a knowledge work defining aspect (Sveiby and Lloyd, 1988, Swart et al., 2003, Ditillo, 2004). Knowledge workers were viewed as

continuous innovators (Drucker, 1999) characterised by non-linear and creative thinking (Reinhardt et al., 2011).

Continuous learners

KIFs' key employees learn continuously (Drucker, 1994, Reinhardt et al., 2011). Learning is understood as encompassing traditional training but also the intuitive or spontaneous learning occurring on the job (Scarbrough, 1993). Hence, knowledge is not exclusively taught through formal education and training but can be gained through direct experience (Nonaka and Takeuchi, 1995). They are inquisitive workers (Alvesson, 2004), knowledge-seeking individuals (Swart, 2007) who give priority to their career aspirations (Robertson and Swan, 1998).

People's engagement in work

KIOs' workers are said to be mentally and emotionally committed to their work (Wang and Ahmed, 2003, Benson and Brown, 2007), and to attach a great importance to fairness in work processes (Davenport, 2005).

Shared or collective characteristics

Technology-intensity

Starbuck (1992) mentioned that KIFs typically used high-tech machines and unusual routines to achieve exceptional results while Windrum and Tomlinson (1999) stated that the reliance on new technologies of information and communication is a determining feature of knowledge-intensive service firms. Indeed, new technologies facilitate communication for coordination and problem solving (Alvesson, 2004, Sheehan, 2002), which helps to achieve global reach or simply to share knowledge (Swart et al., 2003, Greenwood, 2009). Assudani (2009) argued that technological advances are particularly important dimensions as firms increasingly rely on geographically dispersed teams to perform knowledge work (i.e. product development, research and development or market research). Moreover, Reyt and Wiesenfeld (2015) suggest that mobile technologies and mobile computing move people from thinking concretely to thinking more abstractly. However, Blackler (1994), Pyöriä (2007) concur that despite the organisational changes technologies may generate, they are not deterministic in their effect on post-modern organisations: what people choose to do and what they find to do with technologies is also important. Moreover, human relations are still important for KIOs' performance (Pyöriä, 2005).

Client-centricity

Scholars (Sheehan and Stabell, 2007, Sveiby and Lloyd, 1988) have suggested that KIFs and their knowledge-intensive workers' activities are strongly driven by clients' satisfaction. KIFs

are characterised by high customer contacts and by idiosyncratic clients services that provided highly customised solutions to their clients problems while managing complex relations with them (Alvesson, 2004, Donnelly, 2006, Swart, 2007). Finally, Lorsch (2007) viewed KIFs' employees as outstanding professionals able to attract and retain clients.

Collaboration – communication - knowledge sharing

Alvesson (2004) states that knowledge-sharing captures the idea that knowledge is shared among organisation's members and external individuals through collaboration, teamwork, networks or actions of communication. Hence, extensive communication or seeking new knowledge for solving problems and coordination was introduced as a feature of KIFs. These firms have multiple links with the outside and have permeable boundaries, knowledge sharing, networking and team-based work (Greenwood, 2009, Drucker, 1993, Swart, 2007, Reinhardt et al., 2011). KIFs collaborate with similar organisations to be able to satisfy their clients. Swart et al. (2003) mentioned that to some extent, these collaborations lead to the constitution of networks that encompass the clients themselves. As Assudani (2009) informs, knowledge emerges from a collectivity of actors that operate in a networked fashion as organisations increasingly tend to use teams located in different geographical locations to conduct all kinds of knowledge work.

Organisational context and market characteristics

Other characteristics found in literature that define a KIO include the (i) knowledge management context and (ii) market characteristics. Firstly, (i) to successfully capture knowledge exchanged between knowledge workers or embedded in documents, KIFs must provide a context where such activities can flourish. Moreover, physical settings influence cognition of the individual approached from a situated learning theoretical perspective (Scarbrough, 1993, Reich, 2002, Assudani, 2009). Secondly, (ii) market conditions correspond to uncertainties and competitive pressures and determine firm's knowledge-intensiveness. Some firms may operate in highly specialised local market niches with little competition while others may perform in highly competitive markets (Windrum and Tomlinson, 1999, Swart and Kinnie, 2003a). In this regard, small firms engaged in business-to-business relationships with a relatively small number of clients are targeted. By contrast to large firms distributing their services to end users, these small firms focus on bespoke services and solutions. Both types of organisations can belong to the same industry but address different markets (Swart et al., 2003, Swart and Kinnie, 2003b).

Consistent with Cook and Brown (1999: 383), this section introduced *'knowledge <u>used in</u> action'*, or knowledge that individual, groups and organisations possess. While Cook and Brown (1999) presented four dimensions characterising static knowledge (tacit/explicit and

personal/collective), Nonaka and Takeuchi (1995) added three more with the group, organisation and inter-organisational levels. Similar suggestions are found in the works of Spender (1996) and Grant (1996). These views are limited as all the dimensions of knowledge introduced are primarily related to the individual while the organisation is downplayed. In contrast and similar to Tsoukas (1996, 2005) and Spender (1996), this study left out the tacit and explicit dimensions. Instead, it and introduces organisational knowledge-intensive characteristics as mode of knowledge representation that epitomise the organisation following up on Latour (1996, 1993) and his redefinition of the reality to be examined. This thesis envisages personal and collective knowledge as two fundamental interrelated and interdependent spaces where action unfolds. Scholars (Tsoukas, 1996, Brown and Duguid, 2001, Orlikowski, 2002, Nonaka and Takeuchi, 1995) criticised the tendency in literature to favour an epistemology of possession (i.e. Makani and Marche, 2010, 2012, Edvardsson and Oskarsson, 2011, Swart et al., 2003, Käpylä et al., 2011) that bears the imprint of positivism (Toulmin, 1999, Tsoukas, 2016, Spender, 1996). Thus, as Cook and Brown (1999: 383) inform, considering a theory of knowledge requires integrating an epistemology of *'knowing as part of action'*. The following section sets forth the active dimension of knowing.

2.6.2 Perspectives on a dynamic view of knowledge in organisations

Cook and Brown (1999: 383) referred to *'knowledge'* what is possessed and *'knowing'*, knowledge part of action or *'knowing as part of action'* [in italic in the text]. This dimension pertains to an epistemology of practice that engages with what *'is not captured'* [emphasis added in the text] by the forms of knowledge that are possessed (Cook and Brown, 1999: 386). The two authors contended that knowing relates to the epistemological dimension of the action itself and that *'knowing is dynamic, concrete, and relational'*. Thus knowing pertains to the domain of *action.*

Knowing and doing

Early works from American pragmatists (Dewey, 1938, 1949, James, 1910, 1963 as cited by Nag, 2007) approached knowledge as a dynamic phenomenon that becomes apparent in the very act of knowing something instead of an objectified knowledge. Both Polanyi (1975) and Ryle (1949) use the term *'knowing'* in their works, distinguishing between knowledge and knowing and emphasising that *'our knowing is in our action'* (Schön, 1983: 49 as cited by Orlikowsky, 2002: 251). In his work on the hierarchical structure of activity theory, Leontiev (1981) isolates the level of action that is short-lived and has a temporally clear-cut beginning and end within a wider activity. The level of the activity and the level of the action are intrinsically related whereby the activity emerges from a reciprocal process transforming the actor, the problem space Leontiev (1981), and both relationships and context. Thus, action

constitutes the level of reflection concerning the understanding of human cognitive development in AT. This is confirmed by Cook and Brown (1999) who suggest that all abstract systems ultimately encounter the imperfect and complex real world or experience, and this confrontation is inevitably mediated through human judgement. Based on Tsoukas and Vladimirou (2001), two elements determine the capacity to exercise judgement: the individual's ability to draw distinctions and her or his embeddedness within a domain of action that is collectively generated and sustained. Knowledge is utterly personal and constructed from sense impressions; it cannot inform the individual about any reality beyond these impressions. Thus, knowing, action and judgement are intricately linked and translate in *doing*.

Knowing and learning

Following Ryle (1949), know *how is* not acquired like *'know that'*; *'how'* is learned by practice. This emphasis on learning-by-doing is salient in the works of Nonaka and Takeuchi (1995) and Polanyi (1966: 48) who stresses the *'comprehension'* by which knowledge is acquired from another that is *'both intellectual and practical'*. Based on Nag et al. (2007:825), *'knowledge is viewed more as an on-going dialogue between practice (action) and meanings (cognition)'*. Accordingly, Lave (1993: 8) suggested that learning is an active process that can be defined as a creative and collective interpretation of past experiences: *"1. Knowledge always undergoes construction and transformation in use; 2. Learning is an integral aspect of activity in and with the world at all times. That learning occurs is not problematic; 3. What is learning is always complexly problematic; 4. Acquisition of knowledge is not a simple matter of taking in knowledge; rather, things assumed to be natural categories, such as 'bodies of knowledge', 'learners', and 'cultural transmission' require reconceptualization as cultural, social products."*

Within Cook and Brown's (1999) approach, practice incorporates the specific activities people engage in while solving problems. Learning is about acquiring identities reflecting how a learner sees the world but also how the world sees him. In other words, people do not only *'learn <u>about'</u>* but also *'learn <u>to be'</u>* [emphasis added in the text] (Brown and Duguid, 2001:200). This latter statement underscores the role of experience *'or the process of communicating the knowledge previously generated by others'* (Spender, 1996: 48). Learning was introduced as an integral part of the *'creative routines of kata*[17]*'*, which makes knowledge creation possible as it fosters creativity and preserves efficiency (Nonaka and Toyama, 2007).

[17] *Kata* is different from routines; it contains a continuous self-renewal process. Kata impersonates the idea that an individual learns certain patterns in the first place [*shu*: learn], breaks away from them [*ha*: break] and creates new patterns [*ri*: create] once the old ones are totally mastered (Nonaka and Toyama, 2007).

Knowing, doing and learning are goal-driven and contextually embedded

Scholars (Blackler, 1995, Tsoukas and Vladimirou, 2001, Cook and Brown, 1999) highlighted that knowing, doing and learning are goal driven and contextually embedded. Blackler (1995: 1040-1042) states that organisational behaviour is located in its broader socio-historical context, and organisations are represented as mediated systems where active agents are engaged in collective activities. (i) Knowing is mediated as it is influenced and shaped by systems of language, technology, collaboration and control. (ii) Knowing belongs to particular times and spaces and is specific to particular contexts. Activities are socially and historically located, and they evolve over time. (iii) Knowing is socially constructed and constantly developing through constant and inevitable tensions pervasive to systems of knowing and doing. (iv) Knowing is influenced by the object and purpose of the activity. (v) Knowing is contested as it occurs in an environment fraught with issues of domination and subordination that are fundamental to the development of a theory of knowing. Drawing on AT, Blackler (1995) concludes that *knowledge* is an active process that is *(i) mediated, (ii) situated, (iii) provisional, (iv) pragmatic and, (v) contested.* (i)

Tsoukas and Vladimirou (2001: 982) suggest a connection between the personal realm and the organisational one that occurred through knowing. They defined the latter as having a *'from-to'* structure where *'the particulars bear on the focus* to *which I attend* from *them'*. Thus, knowing implies subsidiary particulars, a focal target and a person that can link the two through action or *'an individual capability to draw on distinctions, within a domain of action, based on an appreciation of context or theory or both'* (Tsoukas and Vladimirou, 2001: 983). Similarly, Cook and Brown (1999: 386) introduce *'practice'* to encapsulate the *'doing'* part of knowledge *'as it is informed by a particular organisational or group context'*. Thus, actions are performed in an organised manner and informed by the context within which they unfold. These views are also developed in the works of Orlikowski (2002: 249) who emphasised the idea of action that is driven towards a goal, action where individuals are *'purposive and reflexive, continually and routinely monitoring the ongoing flow of action'*.

More specifically, as they draw on Dewey (1929), Cook and Brown (1999: 388) crystallise the knowing as a goal-driven and contextually embedded action with their concept of *'productive inquiry'*. The latter encapsulates the idea of actively seeking a solution ('*productive*') to a troublesome situation ('*query*') that is *'informed'* or *'disciplined' by theories, rules of thumb, concepts, and the like'*. Thus, knowledge as an active process is pragmatic according to Blackler (1995). Similarly, within the field of activity theory, Leontiev (1974, 1981) proposed the concept of object-oriented activity. First the *'activity system'* is a comprehensive schematic methodology aiming at representing the subjective and objective worlds of complex organic life. Echoes of their work are found in some degree in

Cook and Brown's (1999) *'practice'*. Moreover, the activity is directed towards the transformation of a particular object, hence, the principle of *'object-oriented activity'*. The latter would correspond to Cook and Brown's *'productive inquiry'*.

Whereas Blackler (1995) sees knowing as situated in historical and social contexts, Cook and Brown (1999) underscore that knowing does not translate in terms of possession, but in terms of relation with the physical and social world. From this interaction between the self and given timely circumstances, one derives what she or he can know or can do. These interactions epitomise Vygotsky's (1978) mediated action whereby all psychological activity is mediated by a third element usually referred to as a tool. Engeström (1987) added other mediators such as rules or division of labour. Mediation as developed by Vygotsky (1978) is the cornerstone of AT.

Knowing, doing and learning and tensions

Drawing on Ortega y Gasset (1961a, 1961b as cited in Cook and Brown, 1999), Cook and Brown (1999: 389) outline that during the interactions with the world, *'facilities'* and *'frustrations'*[18] can be experienced or implemented *('affordance').* These two properties do not relate to the world; they belong only and solely to the interaction with the world. Within this situation, forms of *'affordance'* emerge from interacting with the world, an interaction that is *'dynamic'* in nature. The dynamic affordance resonates with Blackler's (1995) concepts of *'contested'* and *'provisional'* knowledge and Engeström's (2001) tensions and contradictions. Similar to facilities and frustrations, tensions and contradictions determine what can be known and done. As such, they can encourage development or on the contrary, hinder it. Nonaka and Takeuchi (1995) also underscore that knowledge could be created out of conflict and disagreement.

This section has introduced the different dimensions of a theory of knowledge encapsulating both an epistemology of possession and an epistemology of practice, dimensions Cook and Brown (1999) originally introduced but that were revisited to suit the requirements of this study. For the remainder of this thesis, KDL will be used to refer to knowing, doing and learning, and learning and knowing will be used interchangeably to lighten the prose. While the literature tends to emphasise a static view of knowledge, the authors underscored that both dimensions ought to be considered to be able to start referring to a theory of knowledge. With a view of supporting a *dynamic* dimension of a knowledge-based theory of the firm, the epistemology of practice should be favoured. However, such an endeavour is far from being

[18] Cook and Brown (1999) borrowed *'facilities'* and *'frustrations'* from Ortega y Gasset, Jose, 1961 [orig. 1941]. Man the technician. *History as a System.* W. W. Norton, New York

self-evident and is seldom found in literature. Indeed, an epistemology of practice characterised by contested and situated actions resists to classification attempts.

The attention turns now to the other axis of a dynamic knowledge-based theory, the theory of the firm.

2.7 THEORY OF THE FIRM

Drawing on Machlup (1967), Grant (1996: 109) suggested that theories of the firm are *'conceptualisations and models of business'* aimed at explaining and predicting their structure and behaviours. As such, there is not only one single general theory of the firm but many. Given that *'organisational theory addresses aspects of the firm ignored by neoclassical economics'*, Grant (1996) put forward a theory of the firm based on organisational knowledge that is a construct worth considering. He explained that the firm is a complex organisation that employs many individuals. The objective of organisational theory is to analyse the internal structure of the firm and the relationships connecting its different units and departments. Against this backdrop, Spender (1996: 51) argues that a theory of the firm must posit *'some kind of bounding process or isolation mechanisms, and boundaries around that firm'* highlighting the need for (i) defining a manageable unit of analysis and secondly, (ii) identifying the supporting mechanisms of KDL (Grant, 1996, Brown and Duguid, 2001). With a view to resolving these two issues, proposals from the literature are respectively introduced hereafter.

2.7.1 The question of the knowledge-based firm and its boundaries

'Organisations as activity systems[19]'

Spender (1996: 46-47) suggest considering a new epistemological grounding of the theory of the firm at the centre of which *'it is firm's knowledge, and its ability to generate knowledge'* that determines competitive advantage. Thus, instead of assuming that firms are hierarchical structures where power and knowledge are shared between shareholders and senior entrepreneurs, top management should be concerned with providing a context in which employees become independent while expressing their creativity through heuristics. Sharing this epistemological viewpoint, Scott (1995) and Veick (1979) [as cited by Tsoukas and Vladimirou, 2001], view organisations as the structure and infrastructure or organised activity that provide its members with a given set of cognitive categories and typologies of actions. Within this framework, rules play a central role and establish the realm of collectively shared

[19] Title borrowed from Spender (1996: 55)

meanings. Hence, organisations encapsulate three dimensions *'[1] concrete settings within which individual action takes place; [2] sets of abstract rules in the form of propositional statements; and [3] historical communities'* (Tsoukas and Vladimirou, 2001: 983).

In contrast with the previous perspectives on the firms where the emphasis is put on the firm as a body of knowledge that creates knowledge, Grant (1996: 120) identifies the primary role of the firm as *'integrating the specialist knowledge resident in individuals into goods and services'*. He also informs that the most important task management should be accountable for is to establish the required coordinating mechanisms enabling knowledge integration. In this regard, his primary concern has been to investigate these coordinating mechanisms which integrate specialised knowledge. Drawing on Grant and Baden-Fuller (1995), Grant (1996: 120) stated that firms could be characterised *'as product domains and knowledge domains'* that would be unified as these show congruence. He concluded that firms tend to crystallise around *'product-knowledge constellations'*.

Actor-Network Theory

A second proposition that may capture the concept of the firm from a knowledge-based perspective is the Actor-Network Theory (ANT) (Callon, 1980, 1986, Law and Callon, 1992, Latour, 1993, 1996). While Callon introduced the notion of actors' networks, Latour (1993) suggested an epistemology of human activity where social action is the element that redefines the object of attention or the reality to be examined. The strength of the actor-network theory is that the actor or *'actant'* is not necessarily a person but can be an artefact, factory, infrastructure and so on (Spender, 1996).

This paradigm presents a serious alternative for studying issues related to organisational knowledge. Spender (1996: 57) recognised that this approach provided *'a rich and dynamic sense of the interactions of the many different types of knowledge being created, circulated, stored and applied within the firm'*. He also stated that ANT was in its sense a knowledge-based theory where knowledge was viewed as a competent goal-oriented activity instead of knowledge of acquaintance in a more traditional social constructionism. However, Spender (1996) acknowledges that the operationalisation of such a theory may not be possible.

Communities and networks of practice

Another important point addressed by scholars (Spender, 1996, Brown and Duguid, 2001, Blackler, 1995) relates to eliciting a relevant level of analysis and / or unit of analysis as well as alternative methods for studying organisational knowledge. Coordinating a firm around knowledge and practice is quite different from coordinating it around more conventional routines (Brown and Duguid, 2001). In order to finalise the line of thinking introduced in this

section, an alternative epistemology positing a correspondence between knowledge and reality, envisaging personal and collective knowledge was needed (Spender, 1996).

In this instance, Brown and Duguid (2001) suggested a *'community of practice'* as an alternative organisational subset allowing the examination of organisational knowledge as well as identity. Communities of practice consist of groups of interdependent participants providing the work context within which shared identities and its inherent social context are constructed. These communities are said to mediate between individuals and large and formal and informal social structures, and between organisations and their environment. It is within those mediating communities that most of knowledge creation and organisational learning occur. Hence, members in a particular job category within a large organisation do not necessarily belong to the same community of practice. This job category may, in fact, be composed of several sub-organisational units which, considered together, may be part of a larger network. These are then networks of practice that exist within the organisation, but also reach beyond its borders (Brown and Duguid, 2001). Spender (1989) illustrated this point with the notion of *'Industry recipes'* and how knowledge and management practices moved within networks of managers. These *'recipes'* or knowledge must be first extracted or dis-embedded from local practice before being re-embedded in the local conditions of those hoping to use it. However, according to Brown and Duguid (2001), the second stage is not self-evident. To be able to use the *'recipe'*, the apprentices must understand it or first be part of the practice. A strong emphasis is put on learning as part of knowledge creation process. While the concept of network of practice or a community of practice appears promising for the study of organisation knowledge, Brown and Duguid (2001) do not provide ways for operationalising this endeavour.

The issue of organisational agency or how to articulate the different participating entities involved in knowledge-knowing integration and/or creation is a recurrent one in the literature. Both Spender (1996) and Grant (1996) underscore the difficulty of breaching the gap between theory and practice. Following the example of Grant (1996: 121), it is argued that one has to explore the mechanisms (or processes) and dynamics (impulses or motivations driving the processes) leading and enabling organisational knowledge/knowing emergence and creation. Indeed, he states that *'it is in the analysis of coordination within the firm that the knowledge-based view promises the make its biggest contribution'*.

2.7.2 Mechanisms and dynamics

Based on Grant (1996), mechanisms and dynamics consist of identifying a mode of interaction between the members of an organisation that is conducive to the integration of expert knowledge. In this respect, interdependence is to be approached as part of

organisational design and the result of managerial choice. Thus, the crux for a manager is to devise the mechanisms that will allow the integration of an individual's specialised knowledge. In this regard, Grant (1996: 115) introduced four mechanisms: *'rules and directives'; 'sequencing'; 'group problem solving and decision making'* and *'routines'*. The last one found some echo in the literature. In a rather reductionist approach, Nelson and Winter (1982a: 14) noted that *'decision rules'* treating human agency in organisations can be assimilated to *'production techniques'* that are constitutive of *'routines'*. These routines are compared to *'computer programming'* (: 97), suggesting that *'routines provide the decision rule whose operation guarantees the 'uneventful' functioning of organisations – namely, the absence of change'* (Tsoukas, 2016: 8). Alternatively, Grant (1996) underscores that routines are particularly interesting in that they appear to support complex patterns of interaction between members of an organisation, even in the absence of rules and directives, or even important verbal communication. This view is echoed in other scholars' works underscoring that when experienced from the inside, routines are filled with creative agency (Feldman, 2000, Feldman and Pentland, 2003, Howard-Grenville et al., 2016). In contrast with Nelson and Winter's (1982a) more reductive view of agency suggesting to follow decision rules, Feldman (2000: 614) writes that *"routines are performed by people who think and feel and care. Their reactions are situated in institutional, organisational and personal contexts. Their actions are motivated by will and intention. They create, resist, engage in conflict, acquiesce to domination. All these forces influence the enactment of organisational routines and create in them tremendous potential for change."* Drawing on Feldman (2000), Tsoukas (2016) concludes that organisational routines are *performed* by individuals whose agency rests on cognition but also affect. Interestingly, we can notice that this last version about routines encapsulates a double dimension whereby both the issues of knowing integration and knowing creation are addressed.

Considering knowledge creation, Cook and Brown (1999: 383) introduce the idea of *'the generative dance'* between knowing and knowledge that holds *'a potentially generative phenomenon'*. They assert that new knowledge and knowing emerge from using knowledge as a tool for knowing during a specific interaction with the social world and physical world. Knowing has a dynamic relationship with knowledge whereby knowledge is a tool and is brought into life with knowing. The concept of *'genre'* is introduced to refer to the *'frames for understanding and interpreting what we read', 'or take in a text'* (Cook and Brown, 1999: 391). However, for the *'generative dance'* to perform, *'genre'* is to be underpinned by *'dynamic affordance'* and *'productive inquiry'* (: 393). Finally, Nonaka (1994) and Nonaka and Takeuchi (1995) have provided to date the most illustrative and comprehensive form of mechanisms conducive to knowledge creation, the SECI model, the knowledge-creating spiral

and the context *('ba'*). They also emphasised the idea of dynamics or impulse through the required knowledge vision while Cook and Brown (1999) preferred the productive inquiry and dynamic affordance.

In conclusion, it is contended that concepts such as *'routines'* or *'generative dance'* are limited to descriptive principles and do not provide a clear means to really understanding the emergence or the creation of knowing. As mentioned, Nonaka and Takeuchi's (1995) work does attempt to provide such an insight. However, it is similarly limited as the focus is on types of knowledge and their contribution was found to be too linear and descriptive to enable the understanding of knowledge emergence and creation (Engeström, 1999).

PART 3: IDENTIFYING THE PROBLEM

2.8 CONCLUDING REMARKS AND RESEARCH QUESTIONS

The *'what is'* question led to a dominant positivist approach to addressing the question of knowledge in general and in firms. This led to a conceptualisation of knowledge that is static and many scholars have invested in producing classifications (von Nordenflycht, 2010, Makani and Marche, 2010, 2012) and tentative models of knowledge creation (Allard, 2003, Young, 2012, Bratianu, 2015) of a static and simplified reality. The most notable contribution in this latter field is the works of Nonaka (1994) and Nonaka and Takeuchi (1995). They constructed a comprehensive and articulated theory of knowledge creation transcending the prevailing Newtonian epistemology. They identified knowledge and its management as being the crux of interest if the field of the knowledge-based view of the firm was to progress. Despite grounding their theory in the Japanese holistic philosophy, the two authors eventually developed a descriptive and prescriptive theory based on modes of knowledge representations that circulate along a linear process. While they identified an epistemological dimension with the SECI and an ontological one with the spiral, their account of how these two dimensions *create* knowledge does not really capture *how* human knowledge comes to become an organisational one. Moreover, the emphasis hinges too much on knowledge creation. Contrasting with attempts to emphasise the dynamic nature of knowledge, Nonaka and Takeuchi (1995) treated human knowledge in terms of *input-output* whereby one type of knowledge is transformed into another type with a view to generating new knowledge and eventually competitive advantage. What really happens between the two ends of a process, the mechanisms and dynamics has not been engaged with properly yet. Finally, existing

approaches on the KBV primarily favour an epistemology of possession featuring *organisational knowledge*.

In relation to the discussion around a theory of knowledge, the one pertaining to the theory of the firm has been unsatisfactorily addressed if not simply overlooked. The few suggestions scholars made on the nature of firm, its boundaries and relevant unit of analysis have been unsatisfactory.

In an attempt to address the challenges characterising the treatment of human knowledge in organisations, this thesis proposes a new perspective rooted in Wittgenstein (1953) and Toulmin's (1999) philosophical insights as an alternative to the Cartesian one. As the question of human knowledge and its development belong naturally to psychology, it is proposed to integrate this with the current understanding of the KBV to support such a new approach. Thus, relying on Vygotsky (1978), Leontiev (1974, 1978, 1981) and Engeström's (1987, 1999, 2001) psychological contributions, and Luria's (1973) neurological ones, it is proposed to reconsider the question of human knowledge within the scope of a dynamic knowledge-based theory of the firm using activity theory. It is hoped that such an approach that concentrates on the level of the *action* will support a shift of the KBV towards an epistemology of practice embodied by *organisational knowing*. In other words, *'rather than studying knowledge as something individuals or organisations supposedly have, activity theory studies knowing as something that they do and analyses the dynamics of the systems through which knowing is accomplished'* (Blackler, 1995:1039).

The underlying argument supporting the use of activity theory is that it is social experiences that shape people's consciousness or psychological processes and subsequently their social being. This entails an adequate unit of analysis is neither individuals nor organisations, but *socially-distributed systems*. Within this approach, knowing is not studied as a separate entity but rather permeates the relations depicted. Within the KDL dynamic, members of an organisation rely on their situated knowing in circumstances that they constantly develop. According to this changing situation, member's knowledge and behaviour also continually evolve (Engeström, 1987, Engeström, 1991). One of the fundamental arguments of activity theory is that knowing is constantly changing and consequently tensions inevitably arise within those socially-distributed activity systems. This on-going mutation constitutes in itself an opportunity for system development.

Thus, a dynamic knowledge-based theory of the firm encapsulates (i) both a theory of knowledge and a theory of the firm. In this thesis, the theory of knowledge rests on one hand on (ii) the dialectic between organisational level and personal level or between the general and the particular (Engeström (2001). On the other hand, (iii) it adopts organisational

knowledge-intensity as the preferred mode of knowledge representation (instead of the widespread tacit/explicit dimension).

Instead of approaching human knowledge in organisations in terms of input and output, the theory of the firm concentrates on (iv) the supporting mechanisms and dynamics. In activity theory, these are embodied in the principle of *mediated relationships*. These processes and impulses target the *understanding* of *organisational knowing agency*.

Finally, (v) to operationalise these suggestions, a conceptual framework is required to help visualise the previous points and to provide a guiding structure for its implementation. This conceptual framework is developed in Chapter 3. To enact this activity theoretical dynamic knowledge-based theory of the firm, (vi) asset management firms are chosen. An argumentation supporting this choice is provided in Section 4.2.

The overarching research question that is identified and that will guide the remainder of this thesis is the following one:

> *How can we understand the mechanisms and dynamics of organisational knowledge emergence and creation using activity theory in asset management firms?*

To address this main problem, the following sub-enquiries are formulated. The first sub-research question (RQ1) addresses the identification of mode of knowledge representations that are specific to the unit studied and embodies an epistemology of possession.

> *RQ1: What are the organisational knowledge characteristics of asset management firms?*

The two others sub-research questions (RQ2 and RQ3) represent an epistemology of practice and articulate an activity theoretical framework:

> *RQ2: How does organisational knowing emerge and/or is created at the social level in asset management firms?*

> *RQ3: How does organisational knowing emerge and/or is created at the personal level in asset management firms?*

Chapter 3 presents a conceptual framework supporting the visualisation and implementation of a dynamic knowledge-based theory of the firm.

3 - CONCEPTUAL FRAMEWORK

"Nor is wisdom only concerned with universals: to be wise, one must also be familiar with the particular, since wisdom has to do with action, and the sphere of action is constituted by particulars... which come to be known through experience"

Aristotle (2002: 1141b15)

This chapter presents the conceptual framework that is suggested for the understanding of the mechanisms and dynamics at the origin of organisational knowing emergence and / or creation using Cultural Historical Activity Theory (CHAT). The latter is a methodological perspective borrowed from developmental psychology that is quite complex and rests on a lexicon of its own. Relying on action, this theoretical perspective provides the opportunity to reconcile the *'universals'* and *'particulars'* (Aristotle (2002: 1141b15) mentioned in the opening quotation and bring together knowledge and knowing. This chapter is structured as follows: CHAT and the mechanisms and dynamics of OK creation are presented in the first section. Section 3.1 introduces the concept of activity theory, Section 3.2 develops its founding principles and Section 3.3 presents the cultural-historical context and contradictions. The two last sections introduce the principle of the unit of analysis in activity theory (Section3.4) and the tentative activity system featuring a KBV that will guide this study.

3.1 THE CONCEPT OF ACTIVITY THEORY

Around 1920, Russian revolutionary psychologists Lev Vygotsky (1978, 1987), A. R. Luria (1961, 1979) and A. N. Leontiev (1978, 1981) initiated the movement that is now referred to as Cultural-Historical Activity Theory. Cole and Engeström (1993) referred simply to it as Activity Theory (AT); thus, both terms are used interchangeably in this study. CHAT approaches human activity as a dialectic relationship between subject and object. This relationship is mediated by tools and the community setting the rules and roles within which the different participants act (Hasan, 2002). According to Kuutti (1996), activity theory is a

philosophy and cross-disciplinary framework that lends itself to the study of the different forms of human practices and provides a set of concepts, structures and terms that are perfectly suited to any research undertaken within communities of practice. It offers a useful way for synthesizing and developing various notions of knowledge in organisations and management (Blackler, 1993).

AT is a theoretical framework particularly suited for the exploration of knowledge work practices (Reinhardt et al., 2011), and an innovative framework transcending the usual dichotomies of micro- and macro-, mental and material, qualitative and quantitative, observation and intervention in analysis and redesign of work (Engeström, 2000). CHAT is also a sense-making tool that attributes significance to incoherency and dilemma. As Yamagata-Lynch (2010: vii) stated, it is particularly suited to the understanding of complex environment defined as *'situations in natural settings where multiple individuals are involved in shared activities within a single or multi-organisational context'*.

CHAT theoretical perspective emerged from the works of the Russian psychologist Lev Vygotsky who lived through the 1917 Soviet Revolution. From 1924 to 1934, he worked closely with Leontiev and Luria in Moscow before dying at the age of 37 from tuberculosis. His approach on psychology was grounded in Marxian dialectical materialism where the relationship between individuals and their social environment is central. From this perspective, it is not the consciousness of humans that determines their social being, but social experiences that shapes it: consciousness is the product of man's practical activity (labour) as he goes about producing the means of his existence (Guy, 2005). This means that psychological processes can only be understood by an appreciation of the culturally provided factors that mediate them (Blackler, 1995). In other words, AT provides the means to overcome the Cartesian dichotomy that mislead researchers in understanding individuals separated from their contexts for analytical and synthetic activities (Barab et al., 2004b).

Within this Vygotskian paradigm, the practice or action occupies center stage and is epitomised with the term *'activity'* in English. However, the English version does not reflect the essential connotation *'doing in order to transform something'* that is implied in the original use of German *('tätigkeit')* or Russian *('dejatel'nost'*) (Kuutti, 1996). Stemming from this and adapting it for psychology, Vygotsky strove to capture the co-evolutionary process people encounter in their environment while learning to engage in shared activities (Yamagata-Lynch, 2010). When considering activity, activity theorists' focus is not limited to *doing* as an isolated fashion but with *'doing in order to transform something'* implying a contextualised activity as a whole (Engeström, 1987, Kuutti, 1996). Thus mechanisms and dynamics are the primary foci of AT. Both terms are explained hereafter.

Defining mechanisms and dynamics

The distinction between mechanisms and dynamics is of importance in this thesis, hence the definition of these two terms. The Oxford dictionary provides three alternative definitions[20] that emphasise a sequence of steps working together or natural or established processes by which something takes place. Mechanisms bear the idea that all phenomena can be explained with reference to mechanics. The idea of processes can also be extended to thoughts or intangible things. The same dictionary defines dynamics as *'the forces or properties, which stimulate growth, development, or change within a system or process: the dynamics of changing social relations.'* Hence, dynamics are understood as forces or properties able to create mutations within a system or a process. Dynamics and mechanisms are then different but complementary, whereby mechanisms encapsulate processes that can be explained by looking at the different parts composing a whole, and dynamics embody the forces or impulse for change.

To illustrate mechanisms and dynamics, the case of the *'Knowledge-creating company'* (Nonaka and Takeuchi, 1995) is used. The SECI process and the spiral of knowledge creation are mechanisms, and the *'ba'* (context) and the managerial vision are the dynamics driving these mechanisms. In the case of AT, the mechanisms or processes reside in the mediated relationships between subjects, community and object of activity (Section 3.2). The dynamics emerge from the culture and history, the object of the activity and intended outcome, and systemic tensions and contradictions. First, the methodology of AT is a tool that helps 'reading' the mechanisms and dynamics underpinning knowing emergence and / or creation within and organisation in a structured manner. AT provides also an opportunity to build on existing circumstances by primarily understanding the current circumstances in an organised manner, before identifying ways to improve them. In conclusion, AT is a realistic perspective able to achieve interesting results. The parallel between Nonakian OK creation and AT is summarised in Table 3.1 and contributes in bringing clarity to the concept of AT.

[20] (i) A system of parts working together in a machine; a piece of machinery: *a third motor powers the tape eject mechanism*. (ii) A natural or established process by which something takes place or is brought about: *the immune system's mechanism for detecting pathogens*. (iii) *Philosophy* the doctrine that all natural phenomena, including life and thought, can be explained with reference to mechanical or chemical processes.

Table 3-1 – Comparing Nonakian and AT principles

	Nonaka and Takeuchi (1995)	Activity Theory
Process	SECI; Knowledge creating spiral	Mediated relationship
Dynamics	*'Ba'*; managerial/leader's vision	Culture and history; tensions and contradictions; object of activity
Approach	Top-down (prescriptive)	Bottom-up (emergent)

Thus, a framework based on AT can participate in furthering the understanding of mechanisms and dynamics of organisational knowing emergence and / or creation. In addition to strengths of its own, this alternative theoretical perspective may participate in furthering the KBV. The founding principles that characterise AT are developed in the following sections.

3.2 FOUNDING PRINCIPLES IN ACTIVITY THEORY

AT concentrates on the dynamic relationship between subject(s) and object and how this relationship is influenced and shaped by a third part element. Before explaining the internalisation and externalisation process involved in the emergence of consciousness, the fundamental mechanisms on which AT theory perspective is grounded (Section 3.2.2), the mediated relationship, is introduced hereafter. Section 3.2.3 presents the contextualisation of the activity.

3.2.1 The mediated relationship between subject and object

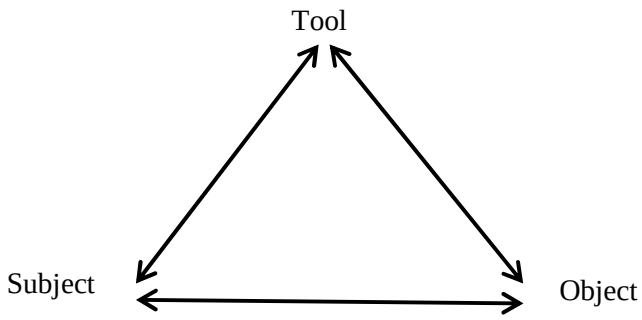
At the time of Vygotsky, mainstream scholars in Russian psychology understood the organism and the environment as separate entities (Vygotsky, 1978, Luria, 1979, Scribner, 1997). Following Vygotsky, this research tradition led to erroneous principles implying that the individual had to be separated from her or his environment to understand human cognition and behaviour (Barab et al., 2004b). In order to transcend this prevailing Cartesian dichotomy, the Russian revolutionary psychologist formulated an alternative unified perspective inspired from Marx's political theory on collective exchanges and material production examining organisms and the environment in which they are embedded, as a single unit of analysis (Cole 1985).

Vygotsky acknowledged the essential relationship between an individual's mental processes and that individual's interactions with cultural, historical, and institutional settings (Rogoff, 1990, Wertsch et al., 1995, Wertsch, 1991), which is the foundation for understanding how

consciousness was formed. Individuals are not considered as passive participants waiting for the environment to initiate some meaning-making processes for them. They actually make meaning of the world through their interactions and they alter and create activities that trigger transformations of artefacts, tools and people in their environment (Scribner, 1997). Throughout history, individuals have constructed and adapted tools that impacted their transformation in the same way tools embedded in social interactions have triggered human development (Barab et al., 2004b). Culturally and historically embedded tools and knowledge that are relevant for individuals continued use are passed through generations via a learning process that is fundamentally collective (Yamagata-Lynch, 2010).

Vygotsky (1978, 1987) argued that all psychological activity is *mediated* by a third element, a '*tool'* or '*instrument'* that typically includes artefacts, social others, and prior knowledge contributing to the subject's mediated actions and experiences within the activity; the *object* is viewed as the goal of the activity. This mediated action is represented in Figure 3-1.

Figure 3-1 Vygotsky's mediated action triangle



Human activity is approached as a process that involves mediating artefacts (tools, signs and social others) available in the social environment that act as psychological tools. This process contributes to the formation of individual consciousness within an evolving environment (Yamagata-Lynch, 2010). Barab et al. (2004: 201) outlined that language including semiotic tools (i.e. signs and symbols), *'is the most critical psychological tool through which people can communicate, interact, experience, and construct reality.'*

3.2.2 Internalisation and externalisation processes

Internationalisation and externalisation refers to the interplay between personal and collective knowledge. Both terms acknowledge the fact that all human knowledge is socially constructed (Hasan, 2002) prior to being internalised. Vygotsky (1978: 57) proposes that:

> *"Every function in the child's cultural development appears twice: first, on the social level, and later, on the individual level; first, between people (interpsychological), and then inside the child (intrapsychological). This applies equally to voluntary attention, to logical memory, and to the formation of concepts. All the higher functions originate as actual relations between human individuals."*

Interpersonal communication happens through the interactions among subjects, tools, signs and objects while the individual develops new signs that help them make sense of the world (Kozulin, 1996). Subsequent to the materialisation of the sign, the subject transforms this sign into a cultural tool or artefact according to the way he decides to continue its use and shares the sign. This implies that the capability and availability of tools determine what can be done. Within this interaction lays aspects of Cook and Brown's (1999) *'dynamic affordance'*. Then, the tool evolves to contain the historical knowledge of how communities behave and are organised (Yamagata-Lynch, 2010). This double process of internalisation and externalisation could be compared with Nonaka and Takeuchi' (1995) SECI. However, in AT, the stress is on the *interaction* and the *elements* that influence the emergence of subject's consciousness.

To explain the cultural-historical interrelationship between human and environment underpinned by internalisation and externalisation processes, Vygotsky (1978) identified the concept of the zone of proximal development (ZDP) where the double process happens for the first time at a social level *('intermental')*. The Russian psychologist singled out also the internal plane of action (IPA) where internalisation and externalisation occurs for the second time at the personal level *('intramental')*. Consistent with the philosophical underpinnings of AT, this methodological perspective is concerned with making available tools and a language to study complex learning situations. Moreover, AT concentrates on the *'in-between'*, the *'interactions'*, the *'problem spaces'*[21] or unexplained distances between two cognitive states. The ZDP and IPA are introduced hereafter.

Mediated action and Zone of Proximal Development

The ZPD is introduced as a metaphorical tool aiming at understanding the complexities involved in human activities while individuals engage in meaning-making processes and interacting with the environment (Yamagata-Lynch, 2010). Vygotsky (1978: 90) characterised the notion of ZDP as follows:

> *"An essential feature of learning is that it creates the zone of proximal development; that is, learning awakens a variety of internal*

[21] This term is borrowed from Van der Riet (2011).

> *developmental processes that are able to operate only when the child is interacting with people in his environment and in cooperation with his peers. Once these processes are internalised, they become part of the child's independent developmental achievement."*

Alternatively, Barab et al. (2004b) understood the ZDP as the distance between the actual level of cognitive development and the potential level of development or what an individual can achieve on her or his own and what she or he can accomplish when guided by more capable peers. The primary idea of the ZDP is that learning occurs through social interaction that is historically and culturally embedded:

> *"It is the distance between the present everyday actions of the individuals and the historically new form of the societal activity that can be collectively generated as a solution to the double bind potentially embedded in the everyday action"* (Engeström, 1987: 174).

Hence, the intermental plane is the level where shared cognition emerges through interaction between and among individuals (Barab et al., 2004b). In the realm of the theory of knowledge, it is assimilated to the emergence of collective knowing which occurs during socialisation (ZDP) whereas personal knowing emerges in the intramental plane, the place where the shared cognition is internalised and this is referred to as the Internal Plane of Action (IPA).

Mediated action and internalisation

Internalisation exists in the underlying mechanisms at the origin of mental processes that are derived from external actions. Following Yamagata-Lynch (2010: 17), the concept of internalisation explains *'how individuals processed what they learned through mediated action to develop individual consciousness through social interactions'. Within inner mental operations and actions occurring in the IPA, external processes encapsulating external and material objects are transformed into processes unfolding at the consciousness level or mental level. At that time, processes evolve and are then externalised through generalisation, verbalisation (Vygotsky, 1978). These are then abbreviated and crystallised in means* that constitute the base for further developments able to transcend what is possible with external activity (Zinchenko, 1992 in Guy, 2005). Internalised concepts are then psychological tools that are consolidated in the Internal Plane of Action that brings further the cognitive concept of working memory and mental models (Hasan, 2002). The individual performs manipulations with an internal representation of objects prior to initiating actions with these objects in reality. The activity emerges through a reciprocal process that transforms the

subject, the object, and the in-between relationships and their context (Davydov, 1999). Thus, activity itself encompasses cultural formation of its own structures (Engeström and Miettinen, 1999). Moreover, once activity is institutionalised, it becomes a founding base within the culture (Cole and Engeström, 1993).

Without denying the substantial contribution Vygotsky made to the developmental psychology, criticisms emerged on the lack of development and articulation of this theoretical perspective that were never fully developed (Barab et al., 2004b). Engeström (1987) addressed this point with the contextualisation of activity theory (Section 3.2.3). Second, Vygotsky's contribution was found too person-centred and over-emphasising the cognizing individual(s) as the unit of analysis (Barab et al., 2004b, Yamagata-Lynch, 2010).

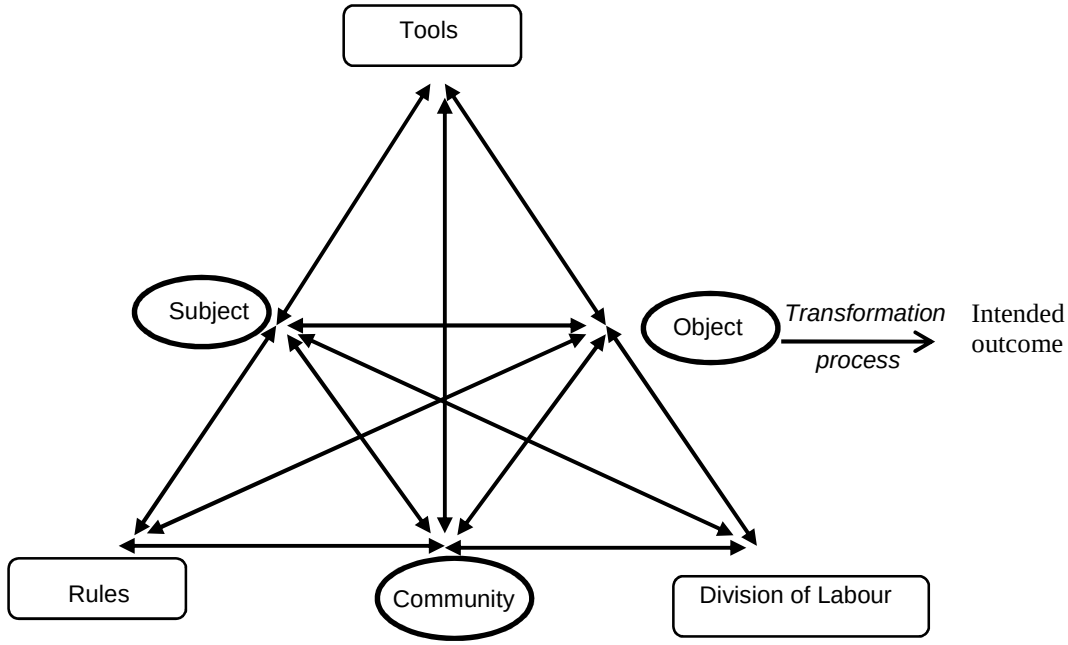
3.2.3 Engeström's contextualised mediated activity

Within a contextualised mediated activity, the *prime unit of analysis* is a collective, artefact-mediated and object-oriented activity system (AS) understood in its network relations to other activity systems (Engeström, 2001). Moreover, the author's vision of AS encompasses the idea of multiple expression. These three aspects are introduced respectively hereafter.

The contextualised mediated activity

Drawing on the works of his predecessors, Engeström (1987) made two major contributions. He expanded Vygotsky's (1978) mediation triangle to integrate a community, and he provided a graphic representation of this contextualised and mediated activity. Thus, Engeström (1987) completed first the original tripartite activity with two other relationships, subject-community and community-object. The individual was understood as acting as part of a community that is shaped and defined by the common object directing and giving sense to the actions achieved by the individual or groups. The relationship between object and subject is mediated by explicit and implicit rules. The relationship between community and the object is mediated by the division of labour representing both the horizontal distribution of tasks between peers and the vertical distribution of power between participants. The triad subject-object-community forms the core of activity systems (Kuutti, 1996). The visual model of collective activity system encompassing Leontiev and Vygotsky's original contributions (Figure 3-2), was subsequently developed by Engeström (1987).

Figure 3-2 Expanded activity theory structure (Engeström, 1987)



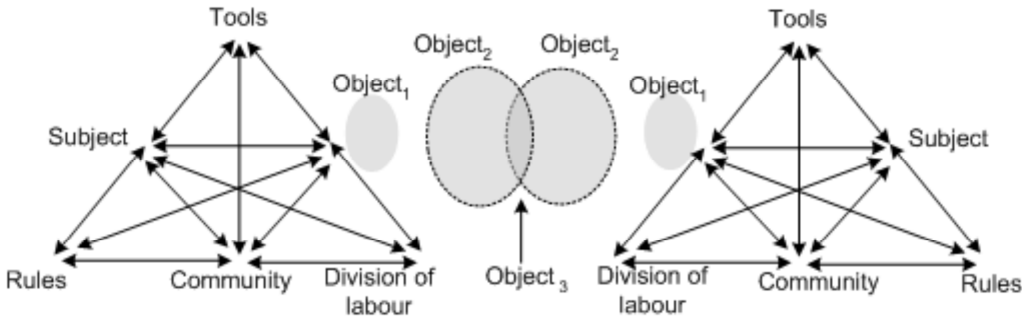
Bearing in mind that activity theory is concerned with providing tools and a language for understanding complex learning situations, the different components can be shaped according to the needs. Thus, tools encompass anything informing the transformation process (material tools or psychological tools for thinking). Rules refer to the implicit or explicit norms, conventions and social relations within a community. The division of labour covers the arrangements of the processes related to the goal, that is the explicit or implicit organisation of a community who is involved in the transformation process of the object leading to fulfilling the outcome (Kuutti, 1996). The latter was defined as intended, or not, implications of activity (Rochelle, 1998 in Barab et al. 2004b). Because the activity is historically and culturally embedded, each of the mediating items transforms regularly and gradually. Consequently, the activity cannot be separated into elements and it is by focusing on the relationships between the nodes on the triangle that activity and cognitive development can be studied (Leontiev, 1978).

Network of activity systems

The second element contextualising even more the AS is its embeddedness in a network composed of other AS, a minimum of two interacting AS. This underscored the need for developing conceptual tools to understand dialogue, multiple perspectives, and networks of interacting activity systems where the object is viewed as a *'moving target, not reducible to conscious short-term goals'* (Engeström, 2001: 136). The network approach on AS was

particularly suited for the application of activity theory in developmental research where the investigator takes a participatory and interventionist role in participants' activity (Yamagata-Lynch, 2010). A representation of a network of AS is provided in Figure 3-3.

Figure 3-3 Network of two interacting activity systems (Engeström, 2001: 136)



Multivoicedness

The third element that outlines the contextualisation of AS is that these encompass multiple points of view and interests that are multiplied in networks of interacting activity systems. The division of labour creates diverse positions for participants who carry their own particular histories in the same way activity systems evolve from multiple layers and strands of history that are part of its artefacts, rules and conventions (Engeström, 2001). Moreover, multivoicedness can be revealed through a shift of subject's focus from tools to objects due to the subject's unfamiliarity with a tool. This results in the individual's shift of focus from tool to object and vice-versa (Hasu and Engeström, 2000) causing in the short-term a distraction from the object and intended outcome of the AS. Thus, multivoicedness constitutes a source of trouble as well as a source of innovation requiring translation and negotiation (Engeström, 2001). This leads to different construction of the object by the different participants in the community that transforms on a continual basis the activity system, often through retrospective reflection (Lektorsky, 2004 in Blin, 2005). Consequently, an activity system requires an understanding of the historical context in which he is embedded, context that impulses the drive for change. In other words, historical and cultural context is one of the dynamics driving OK creation in an AT-based framework. This contextual dimension is developed in the following section.

3.3 CULTURAL-HISTORICAL CONTEXT AND CONTRADICTIONS

3.3.1 Cultural-historical context

One of the originalities of AT is the way it integrates history and context. Again, it does not provide a model to implement but rather is a method for approaching circumstances. Considering history and context is of importance in understanding how, in our case KDL, evolves and impacts the object and intended outcome. Indeed, AS are historically embedded and change over time, and problems and potentials may only be understood against their own history:

> *"What initially appears as object may soon be transformed into an outcome, then turned into an instrument, and perhaps later into a rule (Engeström, 1996). For instance, an unusual medical case first appears as a problem, is transformed into a successful diagnosis and treatment, the account of which is used instrumentally as a prototype or model for other similar cases, and is gradually sedimented and petrified into a rule requiring certain procedures in all cases that fit the category. On the other hand, rules may be questioned, reinterpretated and turned into new tools and object." (Center for Activity Theory and Developmental Work Research)*[22]

The history of an activity system is itself embedded in its own internal structure and organisation, and also in the history of the tools, procedures, concepts and principles that have become mediators of the activity. Thus, local history of the activity and its object, the history of theoretical ideas and tools that shaped the activity must be studied (Engeström, 2001). One way to capture this cultural-historical context is through identifying underpinning systemic tensions and contradictions. These are introduced in the following section.

3.3.2 Tensions and contradictions

The impulse for change

Human activity generates tensions that are caused by systemic contradictions (Engeström, 1987, Cole and Engeström, 1993). These do not occur accidentally or arbitrarily (Engeström, 1996) but emerge from the way human beings modify and create new activities while adapting to the environment; in turn, they modify objects and the environment itself (Scribner, 1997). The term contradiction should not be understood in a negative sense such as a problem or obstacles. Rather, it indicates a misfit within and between elements as well as

[22] http://www.edu.helsinki.fi/activity/pages/chatanddwr/activitysystem/

between different activities or developmental phases of a particular activity (Kuutti, 1996). Tensions and contradictions are compared to pressures that can encourage development, prevent it or trigger a change in the nature of activity (Barab et al., 2002a). In other words, new qualitative forms of activity emerge as solutions to the contradictions of the previous form. Subsequently, this unfolds into the form of invisible breakthroughs and innovations from inside.

Understanding the underlying contradictions of an activity system is therefore critical for understanding the system itself (Barab et al., 2002a). Within a context of work practices, contradictions take the form of problems, ruptures or breakdown clashes (Kuutti, 1996). Moreover, the identification of those tensions and contradictions can be useful to demonstrate and discuss in what ways changes in the environment within complex human activities can bring new pressures to the subject's activity, in what ways they can drive transformation in future activities and identify to which extent human activities are tied to several complex phenomena in a natural setting instead of trying to predict a causal relationship between isolated variables and observed behaviour (Yamagata-Lynch, 2010). The author also contended that the interest of identifying systemic contradictions and tensions provide the opportunity for the investigator to discuss how new pressures on the subject's activity can emerge from contextual changes located in complex human activities and how they can drive transformations in future activities.

Levels of contradictions

Four levels of contradictions are suggested in a network of human activity systems (Engeström, 1987, Engeström, 2001). The primary contradiction of all activities in capitalist socio-economic formations resides between the exchange value and the use value within each element of the activity system and it pervades all elements of this activity system (Engeström, 2001). For example, in the case of the work activity of a physician in primary medical care, the primary contradiction in the object of the doctor's work activity takes the form of the patient as a person to be helped and healed versus the patient as a source of revenue and profit (or on the flip side, as an opportunity to profit by cutting costs) (Leontiev, 1981, Centre for Activity Theory and Developmental Work Research). The primary contradiction can be found by focusing on any of the elements of the doctor's work activity (Engeström, 2001).

Engeström (1987) identified secondary contradictions developing between the nodes of the triangle of activity system as a new external element enters into the activity and creates imbalances. An example of a secondary contradiction in medical work would be that caused by the emergence of new kinds of objects, that is, patients and their medical problems. Conflicts emerge between the increasingly ambivalent and complex problems and symptoms

of the patients and the traditional biomedical diagnostic instruments. Patients' problems increasingly do not comply with the standards of classical diagnosis and classification of diseases. They require an integrated social, psychological and biomedical approach which may not yet exist (Engeström, 2001).

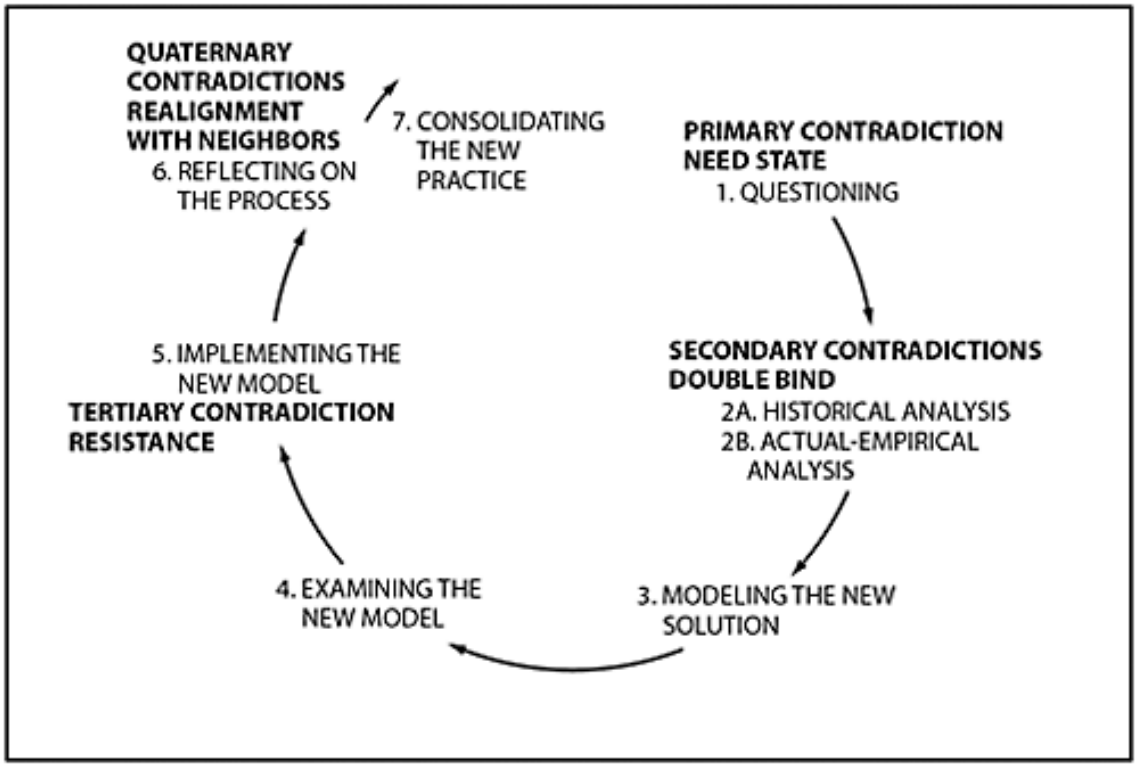
Tertiary contradictions emerge when a more *'culturally advanced'* object and motive is introduced into the activity. Such a tertiary contradiction arises when, practitioners of a medical clinic, using experiences from other clinics, design and adopt a new model for their work that corresponds to the ideals of a more holistic and integrated medicine. The new ideas may be formally implemented, but they are internally resisted by the reminiscences of the old activity (Engeström, 2001).

Finally, quaternary contradictions emerge between the changing central activity and its neighbouring activities in their interaction. Engeström (2001) exploring further the medical example suggested to consider a primary care doctor, working on a new holistic and integrated basis, who refers the patient to a hospital operating strictly on a traditional biomedical model. Conflicts and misunderstandings easily emerge between these activity systems.

Expansive transformation

The four levels of contradictions can be seen at the origin of emerging tensions that trigger the need and the research for a series of changes in the activity system; this change process instigated by tensions is referred to as the expansive learning cycle. This is an organisational learning theory proposed by Engeström (Yamagata-Lynch, 2007). An expansive transformation is complete when the object and motive of the activity system is re-conceptualized and is understood in a much broader scope of opportunities than within the previous premises (Engeström, 1999, Engeström, 2001). Engeström (2001) defines a full cycle of expansive transformation to a collective journey through the zone of proximal development. Activity systems evolve through relatively long cycles of qualitative transformations where contradictions are aggravated and leading the activity system to subsequent new stages of development (Figure 3-4).

Figure 3-4 The cycle of expansive learning (Engeström, 2001)



Hence, AT can be understood as an organisational structure for analysing the mediational roles of tools and artefacts embedded in a cultural-historical context (Barab et al., 2004b). An activity is conceptualised as '*a coherent, stable, relatively long-term endeavour directed to an articulated or identifiable goal or object*' (Rochelle, 1998 as cited in Barab et al., 2004:204). Subsequently, an activity directed at an object driving or motivating the activity, giving it a specific direction constitutes the unit of analysis. The object can only be fulfilled by goal-directed (different) actions that are conscious acts. These are implemented through automatic operations which provide an adjustment of actions to current situations (Barab et al., 2004b).

3.4 THE UNIT OF ANALYSIS

AT suggests identifying a manageable unit of analysis crystallising around goal-oriented actions. The major contributor on this point is Leontiev (1974, 1978, 1981) who first, conceptualised the collective nature of human activity (Section 3.4.1) and second, identifying the structure of activity (Section 3.4.2). In other words, he provided a structure and infrastructure of how a theory of a firm should be understood within CHAT.

3.4.1 The object-oriented activity as the fundamental unit of analysis

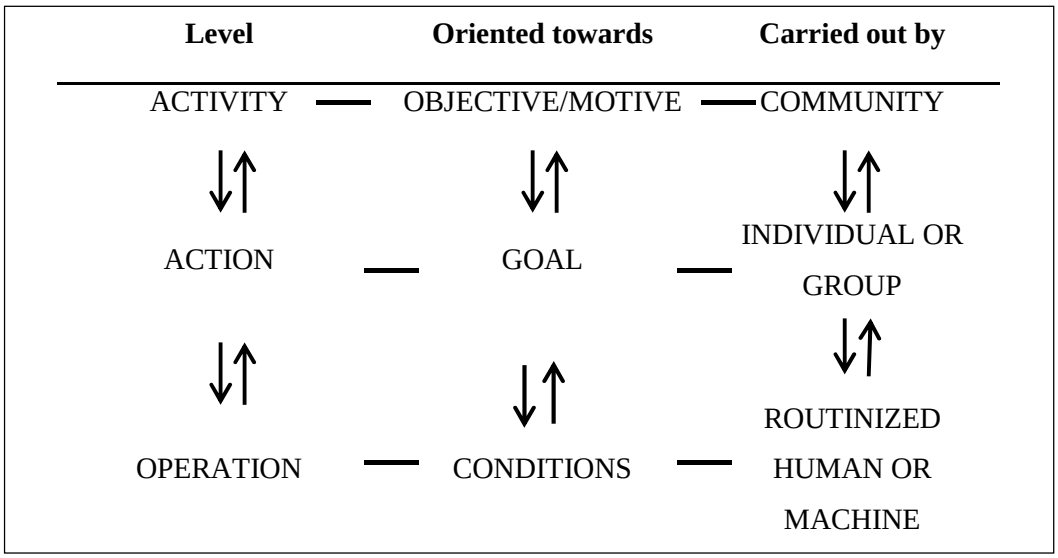
Leontiev (1974, 1978 and 1981) formulated the concept of the object-oriented activity as the fundamental enabling the understanding of the subjective and objective worlds of complex organic life. His motivation was to identify a concept that would encapsulate the objective, material world and subjective, psychic world. He particularly emphasised the importance of the object (Barab et al., 2004b). As such, the object and the way the activity is shaped in its direction constitute another dynamic driving OK creation.

An activity is not an abstract concept and is singled out from other activities by its object. It is always directed towards the transformation of a specific object, hence the principle of object-oriented activity. The emerging features of this activity originate from the object that gives the specific historical form of the subject's activity and from the process of '*internalisation*' (Guy, 2005). Kuutti (1996) outlined that these transformations and developments were not linear but uneven and discontinuous. Activities have a history of their own and reminiscences of older phases often stay embedded in them as they develop. Then an historical analysis of the previous is generally needed to understand the recent situation. Further, activity systems evolve over lengthy periods of socio-historical time, often taking the form of institutions and organisations (Engeström, 1987). Hence, activity theory suggests researchers using this perspective should include at least a minimal meaningful context for individual actions to be studied. The inclusion of the context calls for an object of research that is always essentially collective; an individual usually participates in more than one activity (Kuutti, 1996).

3.4.2 Hierarchical structure of the activity

The activity is viewed as a system endowed with an intrinsic structure, its own transitions and transformations as well as its own development (Leontiev, 1981). An activity system is a collective, systemic formation that has a complex mediational structure. It produces actions through means of actions. These are relatively short-lived and have a temporally clear-cut beginning and end. The activity emerges from a reciprocal process transforming the subject, the object, their relationship and their context. The activity itself goes through cultural transformations with its own structures and, at one point, once it is institutionalised, it becomes itself a solid and enduring tool within the culture (Yamagata-Lynch, 2010). Thus, the activity has its own structured system with its own internal transitions, transformations and development (Leontiev, 1981). The distinction between individual actions and collective activity provided the basis for a three-level activity that is intrinsically interindependent (Figure 3-5).

Figure 3-5 The hierarchical structure of Activity (Leontiev, 1981)



This approach originally endeavoured to provide an explanation from a psychological perspective on how a mental and observable activity could be considered as a single unit of analysis, and second, on how the interactions between the two affected both the individual and the environment (Yamagata-Lynch, 2010). At the top of the hierarchy, collective activity is driven by a long-term object-related motive. In the center-stage, an individual or group action is driven by a conscious goal. Activity cannot be reduced to actions as they are relatively shortlived with a temporarily clear-cut beginning and end (Engeström, 1996). And, the motivation of an activity is to transform the object into an outcome. At the bottom level feature automatic *operations* driven by the conditions of the tools of action immediately available (Barab et al., 2004b). Examples of this hierarchical approach are provided in Table 3-2 where the case of a knowledge-based organisation has been included.

Table 3-2 A hierarchical distribution of components in an activity system: three examples

Hierarchy of activity components	Activity systems		
	Hunters [a]	Researcher [b]	A knowledge-based organisation[c]
Activity	Hunting	Carrying out research into a topic	Creating novel and strategic knowledge
Motive (s)	*Survival*	*Contribution to a particular body of research*	*Knowledge-based competitive and sustainable advantage*
Action (s)	Drum beating; spear throwing	Searching for references; participating in a conference; writing a report	Searching for new information; identifying new methodologies; sharing ideas
Need (s)	*Clothing; sustenance*	*Intellectual development; building a network*	*Innovation; developing superior productive capabilities*
Operation (s)	Striking drum; gripping spear	Using logical syllogisms; Selecting appropriate wording	Analysing data; reading; comparing; communicating
Conditions (s)	*Material of drum skin; drumstick, and spear; savannah landscape and climate*	*Databases; research facilities; technological equipment; university and faculties culture*	*Technological facilities; organisation culture; leadership; state of previous knowledge*

[a] Adapted from Leontiev (1981) in Barab et al. 2004
[b] Adapted from Kuutti (1996)
[c] Adapted by the author

Actions are often associated with individual knowledge and skills suggesting several associated actions within the same activity (Kuutti, 1996). While individuals are usually aware of actions at the conscious level and immediate goals with available resources, actions are in fact conditioned by a larger cultural scope and supported by previously learned automatic behaviours. Consequently, an adequate level of analysis should be the action level (Barab et al., 2004b). This task would consist in representing analytically and further understanding (Engeström, 2000) the processes involved in using conceptual or material tools, the enabling or constraining (mediating) effects these tools could have on object-oriented activity, and the resulting outcomes such as knowledge (Barab et al., 2004b). In line with this hierarchical approach of activity, Engeström (1987) suggested to define development or learning as the process of activity moving from the highest to the lowest level and vice-versa.

3.4.3 Conclusion

This section considering the activity as a unit of analysis aimed at introducing the idea of a manageable unit of analysis with identified boundaries in lieu of a conventional approach of the firm. Barab et al. (2004b) argued that the activity theory perspective was particularly unique and insightful as it prompted researchers to look beyond the operation and action levels and to approach the utilisation of the designed tool in terms of more comprehensive, distributed, and contextualised activity. Post-Vygotskian CHAT theorists, known as Kharkovites, suggested considering activity as an holistic unit of analysis that is organised around the goals and motives of an individual or group of individuals participating in the activity (Davydov, 1999). The Kharkovites also further developed Vygotsky's mediated action by emphasising the fact that human activity is a series of processes that is contained within an activity that acts as a bounded system; it is composed of observable physical actions and mental activity (Yamagata-Lynch, 2010). Human activity is then the unit of analysis that is distributed among multiple individuals and objects in the environment (Zeek et al., 2001 as cited in Yamagata-Lynch, 2010). Moreover, the activity system provides a structure of analysis that brings order to chaos.

In the light of the different insights introduced in the previous sections, the remaining task is to suggest a conceptual framework that can be implemented for the understanding of the mechanisms and dynamics of organisation knowledge emergence and creation in real situations. Activity theory is a perspective that offers tools and language that can be adapted to the requirements of this study.

3.5 DESIGNING A CONCEPTUAL FRAMEWORK FOR THE STUDY OF ORGANISATIONAL KNOWING EMERGENCE AND / OR CREATION

The activity system is envisaged as the prime unit of analysis. CHAT can be used in developmental research where the researcher is part of the activity and interacts accordingly, or it can be used in a descriptive manner to explain specific situations (Yamagata-Lynch, 2010) like this is the case in this research. The following framework aims at constructing a methodological lens for understanding organisational knowing emergence and / or creation. The following section presents a conceptualisation of the seven corresponding elements composing an activity system (Section 3.5.1). Section 3.5.2 displays a graphic representation.

3.5.1 The seven elements of the activity system

The phrase *'knowing, doing and learning'* (KDL) puts the emphasis on the knowledge-based actions and helps to keep the attention focused on organisational knowing.

The KDL subject(s)

The *subject* can be an individual or a group and is the entryway for the researcher to vicariously experience the activities of their participants (Yamagata-Lynch, 2003). This experience provides a way for researchers to identify activities that can most efficiently answer research questions. It also allows them to examine the collective meaning making processes (Yamagata-Lynch, 2007). Within a knowledge-based environment, the subject is constantly learning, in particular while *doing* or acting when involved in different functions and roles. Following the behaviour of the individual towards novel inputs, his knowledge and experience are enriching on a regular basis through constant interaction with the other elements of the system. Through the internalisation and externalisation occurring in the ZDP and IPA, what individuals learn is what has been processed through social interactions (Vygotsky, 1978). So learning, the acquisition of existing knowledge and skills but also the ability to interpret and respond to problems that are explicitly embedded in the existing future social practices (Edwards, 2005) occurs through these processes. The use of *knowing, doing and learning* attached to the subject put the emphasis on their cognitive capabilities and willingness. The term *'knowledge worker'* is used occasionally in lieu of KDL subject.

The goal-oriented object and intended outcome

The object of the activity and the intended outcome are two separate components of the AS, and one cannot be conceived without the other. The object of activity is forged and elusive but gives a direction to the activity. The object refers to the *raw material* or *problem space* at which the activity is directed and which is moulded and transformed into *outcomes* with the help of physical and symbolic, external and internal mediating instruments, including both tools and signs (Van Der Riet, 2011).

Within the realm of the KBV of the firm, the suggested object is an incremental KDL which encompasses an improvement of knowing and doing through learning that can be successfully combined or integrated into the existing one. The intended outcome consists in a knowledge-based competitive advantage delineated in terms of firm-specific expertise and knowing.

KDL tools

The subject acting on the object is influenced by the tools she or he uses as well as by internalised conceptual models. The physical and mental tools and instruments facilitating knowing, doing and learning and that mediate the relationship between subject(s) and object

could include for example the state of technological equipment, firm structure, experience, expertise and other elements. It is contended that *ad-hoc* knowledge and a way of doing things result from everyday practice within the organisation. It encompasses certain routines or in-house working processes that may be compared to *esoteric* knowledge maps following Starbuck (1992) and Kärreman's (2010) understanding.

Networks of practice

Yamagata-Lynch (2010) stated that the subject's community is the one that share the same object about the activity than the subject. This community encompasses the group of actors who share the same interest and motivation towards the object. In this regard, Brown and Duguid (2001:203) suggested to consider *'communities of practice'* whereby the term *'practice'* refers to *'undertaking or engaging fully in a task, job or profession'*. These communities are composed of members collectively developing an outlook on the work and the world that particularly reflect a local community instead of the organisation as a whole. They are located inside the organisation but also outside its walls. These communities are defined as *'privileged sites for a tight, effective loop of insight, problem identification, learning, and knowledge production'* (Brown and Duguid, 2001:202). Those who benefit from these solutions identify answers to problems instead of the intervention of specialists. Always following the two authors, communities of practice represent substantial repositories for the development, maintenance and reproduction of knowing. However, these communities may be composed of sub-groups not sharing very close interests but only related ones. In other words, these groups do not form homogeneous epistemological communities. In order to represent loose epistemic groups where knowledge flows from one sub-entity to the other, the phrase *network of practice* appears relevant. Within these networks, relations are looser than those within a community of practice. In fact, most of the individuals composing the network will never know, know of or meet in person, and yet they are able to share a great deal of knowledge (Brown and Duguid, 2001). *Networks of practice* is then the term retained for this study to represent a knowing, doing and learning community.

KDL framework

Knowing-related rules encapsulate the explicit and implicit regulations, conventions, norms and other contextual issues that can constrain or liberate the activity and guide the subject on which correct procedures and acceptable interactions to take with other community members (Engeström, 1993). For this research, they summarise the knowing, doing and learning-based framework that mediate the relationship between subject(s) and object and between subject(s) and networks of practice. They can stimulate or hinder actions. This could encompass items such as organisational or corporate culture or industry practices.

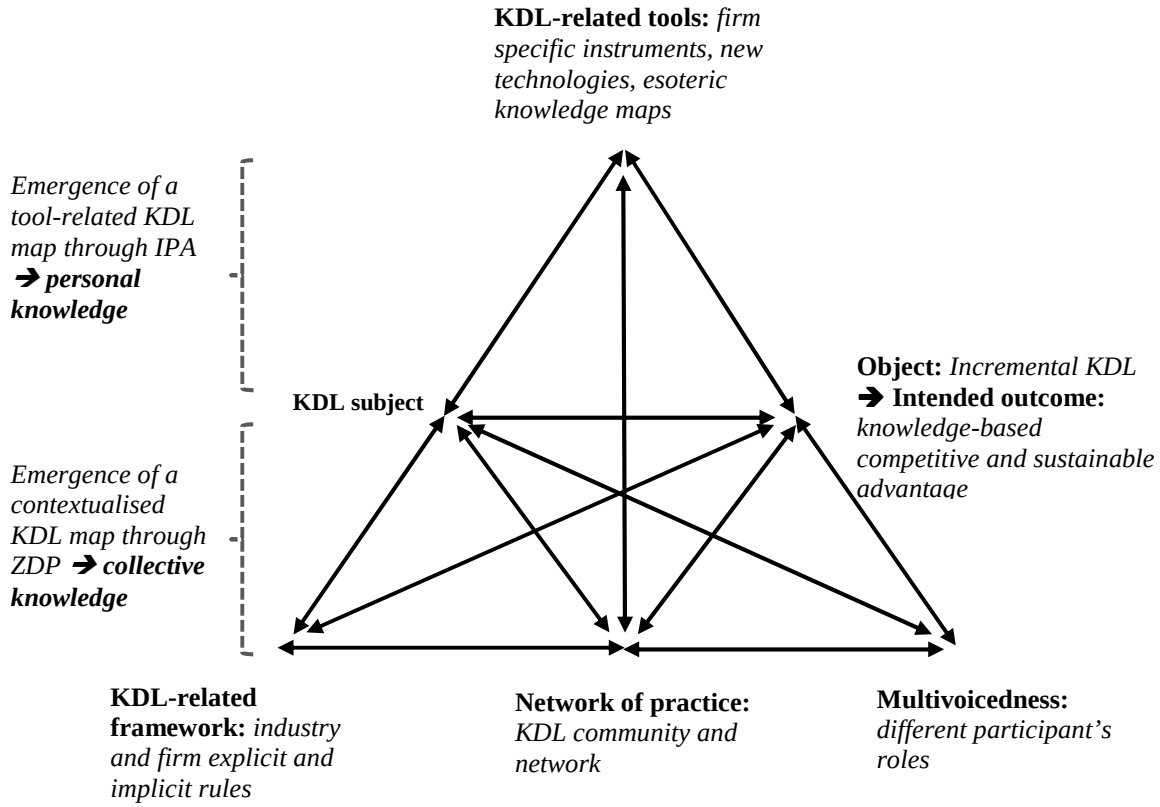
Multivoicedness

The division of labour reflects how the tasks are shared among the community in terms of skills and knowledge and in terms of power and status. Next to this concept and within a network of AS, Engeström (2001) introduced the latter as a community of multiple points of view, traditions and interests that are multiplied in networks of interacting activity systems. This multivoicedness creates different positions for the subjects as they impersonate their own backgrounds. In other words, participants are expected to wear different caps following working circumstances. KDL is inclusive to multivoicedness.

3.5.2 Representation of the activity system guiding the study

The seven elements introduced in the previous paragraphs are summarised and represented in the following figure (Figure 3-6) with IPA and ZDP featuring respectively the emergence of a tool-related KDL map and of a contextualised KDL map.

Figure 3-6 Activity system for the understanding of OK emergence and creation



3.6 CONCLUSION

This chapter suggested an alternative and original approach for the understanding of the mechanisms and dynamics of organisational knowing emergence and / or creation using AT. The conceptual framework developed in this chapter an exploratory method that aims at progressing the field of the KBV. The particular interest of AT, is that it is a theory-method that suggests tools and a language for exploring in a structured manner complex KDL situations. As such, it does not stand as a prescriptive device occupying centre stage in the analysis of organisational situations, forcing reality into pre-defined categories or vice-versa such as in the Nonakian model.

Second, it embraces Cook and Brown (1999) epistemologies of knowledge and knowing contained respectively in the mediators and in the mediated subject-object relationships. Third, the activity theoretical perspective states an original and manageable unit of analysis featured by subjects' goal-oriented actions. This represents the level of analysis retained in this thesis while it is embedded in a larger entity, the object-oriented activity. Finally, the interplay between collective and personal knowing sits naturally in the context from which it depends. And, the focus is on its emergence (and possible creation) understood as the distance between two cognitive states.

At this point of juncture, both the theoretical (Sections 2.6 and 2.7) and the conceptual frameworks have been presented and participate in addressing the main research question. The next step involves crafting a research strategy to conduct empirically this research. A research methodology is developed in the following Chapter 4.

4 - RESEARCH METHODOLOGY

"Blind intelligence destroys unities and totalities. It isolates all objects from their environment. It cannot conceive of the inseparable link between the observer and the observed. Key realities are disintegrated. [. . .] The dominant methodology produces an increasing obscurantism: because there are no longer any links between the disjointed elements of knowledge, so there is no longer an opportunity to truly absorb them and reflect on them."

Edgar Morin (2008: 4)

Edgar Morin (2008: 4) underscored the limitations of prevailing compartmentalised methodological approaches and how these preclude constructive advances in knowledge from happening. The alternative resides in identifying an epistemology that allows considering integrated *'key realities'* and this is what this chapter seeks to address. The following pages present the research methodology with a view to meeting the research objectives. Research design is defined as the plan or proposal to conduct research; it represents the intersection of philosophy, strategy of inquiry, and specific methods (Creswell, 2009). Moreover, this study seeks consistency, delineated in terms of *'methodological fit'*, requiring that each element of the research design and supporting methods are aiming in concert towards the research objective and its underlying research questions (Edmondson and McManus, 2007). Hence, the purpose of this chapter is to introduce the decisions made for this research and to demonstrate how each element serves both the objective of the study and the other components of the research design. The following sections present the research problem and context of the study before examining the critical realist approach and philosophical perspectives. Subsequently, the chapter presents the research strategy before turning attention to the research design that includes an overview of practical considerations such as case selection, data collection, and data analysis. Research evaluation and ethical considerations are considered in the last sections.

4.1 RESEARCH PROBLEM

4.1.1 Research objectives

The purposes of this qualitative explanatory and exploratory investigation are six-fold. Considering a holistic and dynamic knowledge-based theory of the firm, the first four objectives concern the theory of knowledge while the fifth one pertains to the theory of the firm. The last goal is a subsidiary one and concerns the use of activity theory.

The first intention of this study is to explore the understanding of mechanisms and dynamics underpinning organisational knowledge and knowing emergence and / or creation in asset management firms using activity theory (Vygotsky, 1978, Engeström, 1987, 2001). While integrating insights from psychology to organisational theory, the emphasis is put on comprehending how the cognitive developments occurring at the individual level are formed and externalised within an identified bounded organisational unit. While being grounded unequivocally in organisational theory, this approach transcends the fragmented and partial studies currently available in literature. This study endeavours to suggest an holistic and dynamic operational framework delineating the processes involved in OK emergence and creation in asset management firms, together with identifying the forces guiding and stimulating these processes.

Second, relying on Vygotsky's (1978) mediated action, this study sets out to find what informs an individual's cognitive development in social contexts. It attempts to explain the mechanisms involved in the emergence and / or creation of OK in the zone of proximal development (collective level), and in the internal plane of action (personal level).

The third objective of this study is to identify the organisational dynamics driving OK emergence which can trigger the creation of new knowledge. Indeed, beyond the mechanisms underpinning OK emergence and / or creation, an overall direction drives organisational cognition and action.

To better serve these aims, the need for a substantial conceptual study on organisational knowledge-intensity emerged. This study will inform the interpretative lens enabling the understanding of the selected asset management firms in terms of OK. An investigation in terms of OK implied that such a theoretical lens was instrumental to reach a conceptual level an investigation in terms of OK implied. Given the general purpose of this thesis and that no study have analysed these firms against a knowledge-based theoretical lens, this fourth objective endeavours to do so. The findings stemming from this conceptual study will participate in modelling the activity systems for the units of analysis studied.

The fifth motivation relates to the theory of the firm. It sets to explore the validity of a bounded unit of analysis as a manageable unit of analysis for the study of the emergence and creation of OK. This objective addresses a substantial problem in this field of study: understanding a firm as a knowledge system and a body of knowledge necessitates the identification of boundaries.

Finally, the seventh objective is to investigate the use of the activity theory perspective as a methodological device for theory building in the KBV. Yamagata-Lynch (2010) established that activity system analysis was used primarily for capturing the processes involved in organisational change (Barab et al., 2004a, Yamagata-Lynch et al., 2007, Engeström, 2000), for identifying guidelines for designing constructivist learning environments (Jonassen and Rohrer-Murphy, 1999 in Yamagata-Lynch, 2010), for identifying systematic contradictions and tensions that shape developments in educational settings (Barab et al., 2002b), and for demonstrating historical developments in organisational learning (Yamagata-Lynch, 2003). This study sets out to identify if it is a suitable framework for understanding OK emergence and creation.

4.1.2 Research questions

The main research question is informed by three sub-questions that participate in achieving the research objectives introduced in the previous section. The overarching research question guiding this study is the following:

> *How can we understand the mechanisms and dynamics of organisational knowledge emergence and creation in asset management firms using activity theory?*

Three subsidiary questions informing the main question are suggested as follows:

> *RQ1: What are the organisational knowledge characteristics of asset management firms?*
>
> *RQ2: How does organisational knowing emerge and / or is created at the social level using activity theory?*
>
> *RQ3: How does organisational knowing emerge and / or is created at the individual level using activity theory?*

While these questions endeavour to address the overarching research question, the first one deals with objective number four and seeks to provide insights on organisational knowledge-intensive characteristics of asset management firms. Questions 2 and 3 focus on the first,

second, third and fifth objectives. The sixth one is an overall concern overlapping the three sub-research questions.

4.2 THE CASE FOR ASSET MANAGEMENT FIRMS IN IRELAND

In order to explore and understand the mechanisms and dynamics underpinning OK emergence and creation using activity theory, the study was situated in asset management firms operating in Ireland.

The first motivation of this study is to continue the work of the early researchers in this field (Sveiby and Lloyd, 1988, Starbuck, 1992, Nonaka and Takeuchi, 1995) and to identify a field of investigation similar to that found in their works as opposed to the focus of those more recent researches (Alvesson, 2004) on consultancy, IT and research and development. Nonaka and Takeuchi (1995) investigated several manufacturing companies and the US Marines, and underscored how organisational knowledge was or was not created; Sveiby and Lloyd (1988) presented case studies on manufacturing firms, consultancies and banking; and Starbuck (1992) investigated a traditional manufacturing company that he found unique. Similarly, this thesis revisits an *'old'* industry (von Nordenflycht, 2010) and seeks to front stage the views and perspectives of these authors. Therefore, Asset Management (AM) organisations are identified as the suitable field for empirical study in this thesis. Asset management or fund management is concerned with collecting and managing funds on one side and negotiating financial products on the other side. By choosing AM as the organisational context for this inquiry, it is proposed that the focus is on organisational knowledge and the way of understanding it following the example of the precursors in the field (Spender, 1996, Grant, 1996, Nonaka and Takeuchi, 1995). The same holistic emphasis participating in crafting a knowledge-based theory of the firm is sought in this study.

Second, the literature review covered in Part 1, Chapter 2 revealed that very few studies relating to OK exist on firms situated in the financial industry (Kubo and Saka, 2002, Sveiby and Lloyd, 1988), let alone asset management firms. Activities such as asset management or investment banking have become the engine room of the financial world (Haldane, 2014); and this underscores the vital role the firms located in this industry play in contemporary economies. However, there is no motivation to establishing AM firms as a KIF archetype and enriching existing typologies. Indeed, while mainstream literature has focused on identifying typologies of KIOs (Alvesson, 2004, Makani and Marche, 2010, 2012, von Nordenflycht, 2010, Lazzolino and Laise, 2016), this thesis does not. The focus is on studying the organisational knowledge-intensiveness of unique companies and how they create knowledge,

an endeavour that precludes any attempt of generalisation (Starbuck, 1993). Thus, knowledge-intensity in organisations is regarded as a notion that is not necessarily attached to a specific type of company but as a timeless and independent concept to be used as McGrath (2005) showed in his study on early medieval Irish monastic communities.

Understanding the concept of KI in organisations called for a study of the related literature. In this regard, Robertson and Hammersley (2000: 241) noted that the first contributions tended to *'emphasise the technical aspects of KM (…) at the expense of the people management aspects'*, an inclination that subsequently influenced the type of firms explored. Despite the focus of recent studies being finally on *'the people management aspects'*, these empirical studies are primarily concerned with organisations that are substantially related to information and technology (Chasserio and Legault, 2010, Cleary, 2009, Timo and Arto, 2009, Lee-Kelley et al., 2007). Moreover, Sveiby and Lloyd (1988: 14) suggested that the *'classical knowhow company is the consultancy firm'* and that other organisations ought to learn from them. Thus, the firms that caught scholars' attention have been the ones that multiplied and experienced unprecedented growth during the 1990s (Reich, 2002) such as accounting firms, research and development (Chang et al., 2010, Whelan et al., 2010), engineering (Jackson et al., 2006, Merat and Bo, 2013), scientific consultancy (Robertson et al., 2001), law (Forstenlechner and Lettice, 2007), large insurance company and a large consumer health product company (Erhardt, 2011). However, knowledge-intensity spreads increasingly throughout the economy and should be studied in firms of all kinds (von Nordenflycht, 2010). In this regard and to retrieve the *'neutrality'* and the focus on OK generation of the early scholars, and to address an economic activity under searched, asset management is elicited as the field of inquiry.

The third argument supporting the choice of AM firms as adequate for empirical study stems from the post-2008 financial crisis social and economic context. Similar to early writers in the field, the overarching argument is that a challenging context forces organisations to adapt to survive. And, within the knowledge age, it is proposed that the only way out rests on knowledge management. In this instance, Nonaka and Takeuchi (1995: ix) emphasised the impact of the post World War II economic environment on Japanese firms and how the intrinsic challenges made these companies particularly competitive. The two Japanese authors studied several manufacturing companies such as Matsushita, Sharp, Nissan, Fuji Xerox, Kao, Shin Caterpillar Mitsubishi, NEC, etc. Thus, more than the type of firm, context prevails and impacts the development of OK creation.

Sveiby and Lloyd (1988) investigated Barclays Bank and its investment division in United Kingdom and how the financial institution was re-organising its activities in order to adapt to the Big Bang (27 October 1986) in the City of London. The mid-1980s sudden deregulation

of financial markets operated in the London Stock Exchange and witnessed a substantial increase in market activity which changed irremediably the structure of the financial market. Direct consequences involved seeing many old firms being taken over by national and foreign larger banks and the emergence of big groups, similar to the asset management industry after the 2008 financial crisis. Since the beginning of the millennium, the contemporary asset management industry has dramatically changed under the combined influence of a profound mutation of the prevailing business models and the consequences of the recent financial crisis, and asset managers are no longer in a stable and predictable business environment (Griffin et al., 2013, Rajan, 2013). In the aftermath of the 2008 financial crisis, asset management firms became part of an increasingly dynamic industry fraught with uncertainties, subject to heavy and prolific regulations that stretched companies' resources while attempting to adapt their operating models (Khadir-Poggi et al., 2014). Following Sveiby and Lloyd (1988), Dicken (2011), financial institutions are particularly sensitive to their environment and they are the first to be impacted, to acknowledge changes in the industry and to amend their overall structure accordingly. Thus, like Nonaka and Takeuchi (1995) and Sveiby and Lloyd (1988), the context within which AM firms operate also informed the decision about an adequate field of inquiry to study OK emergence and creation.

In terms of location for this empirical study, Ireland emerged as particularly relevant. This country went through the biggest financially driven economic shock in its history. The number of firms and units specialising in asset management reduced dramatically and global fund management companies located outside Ireland took over the management of most of he remainder. In the aftermath of the 2008 financial disaster in Ireland, major players such as Bank of Ireland Asset Management once viewed as a benchmark in the industry, was taken over by State Street, a large US-based company. Royal Bank of Scotland, Standard Life and Pioneer Financial Group simply left the country. Following this financial crisis, an unprecedented regulatory wave, stemming from both the Irish financial authorities and the European Union, constrained the resources of Irish asset managers compelling them to recruit additional, non-direct value-adding staff to adapt. The disappearance of national investors combined with an increasingly hostile regulatory environment made the Irish market increasingly challenging for small asset managers. Survivors had to operate in a much fiercer competitive environment. While big firms may have the financial and tactical resources to absorb and adapt to this industry upheavals, smaller players did not (Khadir-Poggi and Keating, 2014). As a consequence it is proposed that those AM firms which remained in Ireland have had to rely on their intangibles assets and practices, or knowledge-based capabilities in order to survive or thrive. This Irish context is similar to that in which Sveiby and Lloyd (1988) conducted the much-cited study on Barclays bank in the 1980s.

Fourth, most of the existing studies using activity theory have been carried out in education (Barab et al., 2004a, Blin, 2005, Yamagata-Lynch and Smaldino, 2007, Bagarukayo et al., 2016), in health services (Engeström, 1987, Engeström, 1993, Allen et al., 2013, Kent et al., 2016), high-tech companies (Blackler et al., 1999, Blackler et al., 2000), and to investigate human-computer interactions (Kuutti, 1996, Hasan and Gould, 2003, Yamagata-Lynch, 2003, Kaptelinin and Nardi, 2012). Bedney and Meister (2015) also added ergonomics and social and work psychology as the traditional fields of implementation. With the exception of Blackler et al. (1999), no study has been found using activity theory on a private company operating in a fast paced environment. This is a gap this study seeks to address. Thus, this work endeavours to diversify and popularise the use of AT and underscore its operability in other situations than the ones regularly studied in literature.

4.3 PHILOSOPHICAL PERSPECTIVE

'It is a good medicine, we think, for the researcher to make their preferences clear. To know how a researcher construes the shape of the social world and aims to gives us a credible account of it is to know our conversational partner' (Miles and Huberman, 1994: 4). Clarifying one's preferences involves that one makes his or her beliefs explicit about the nature of the world out there (the ontology) as well as how to gain knowledge about this reality (the epistemology). Therefore, it is necessary to communicate these assumptions prior to engaging in any debate about methodology or methods (Morgan and Smircich, 1980). The following section introduces the elements that influenced the choice of the philosophical perspective guiding this study.

4.3.1 Questioning the quantitative paradigm

The research question guiding this study is *'how can we understand the mechanisms and dynamics of organisational knowledge emergence and creation in asset management firms, using activity theory?* First, this research question indicates explanatory research underpinned by an exploratory stance. Second, it suggests the use of a theoretical perspective that is activity theory in order to address the explanatory concern. The aim of this research is to better understand the underlying mechanisms and dynamics of OK emergence and creation. This could have been achieved by using a deterministic framework following the example of Makani and Marche (2012). However, this implied a positivist stance giving prominence to quantitative research that *'emphasises measurement and analysis of causal relations among variables'* (Denzin and Lincoln, 2000: 8) or to quantitative methods that suggests an attempt to *'freeze the social world into structured immobility and to reduce the role of human beings*

to elements subject to the influence of a more or less deterministic set of forces' (Morgan and Smircich, 1980: 498). This approach does not embody the explanatory and exploratory nature of this research and echoes Blackler's (1993) criticisms on the limitations of conventional rational-cognitive assumptions about management and organisations, and Spender's (1996) rejection of positivist and neo-Kantian views about knowledge. Indeed, a *'scientific'* and truncated view of knowledge is too reductive and ignores the problematic nature of human knowledge. Hence, the quantitative paradigm is not retained for this study. An alternative epistemological approach to explore resides in the qualitative paradigm.

4.3.2 Questioning the qualitative paradigm

A qualitative research *'builds social science constructs from members' 'concepts-in-use' and focuses on the socially constructed nature of reality'* (Schultz, 1973 in Gephart, 2004: 455). The interpretive perspective involves narratives based on people's view(s) on reality, and relies on language to create texts. An inductive approach guides the construction of social science concepts based on the very ones social actors hold, which constitutes the basis of analytic induction: *'Interpretive research thus describes how different meanings held by different persons or groups produce and sustain a sense of truth particularly in the face of competing definitions of reality'* (Gephart, 2004: 457). However, this research is not approached as a qualitative research *per se*, but rests exclusively on qualitative data. The latter is not restricted to the qualitative research realm (Gephart Jr, 2004, Eisenhardt and Graebner, 2007). Traditionally, activity theory is located in the field of naturalistic inquiry (Lincoln and Guba, 1985) that pertains to qualitative research. And, qualitative activity theory data analysis calls for an alternative inductive process (Yamagata-Lynch, 2010), alternative that is not retained for this research. Indeed, the purpose of this study is to gain an understanding of the underlying mechanisms and dynamics of OK using activity theory as an instrument enabling rigorous description and outlining mediated relationships. This involves an interpretive effort from the researcher to unravel the dynamics at work in OK that transcends the thick descriptions of participant's experiences and the rich contextual information, key raw data from observations, interviews and documents analysis (Geertz, 1973 in Yamagata-Lynch, 2010). Another alternative that was not considered is the social constructionist approach that is introduced hereafter.

Within this qualitative realm, social constructionism emerged as one of the dominant philosophical paradigms that shaped organisational research for the last thirty years. This philosophy implies the centrality of the individual as the lens for constructing reality (Alvesson and Sköldberg, 2009). Following Reed (2009: 434), the world of social constructionist reduces to *'social realities' that can only be accessed, described, and*

understood through the linguistic traditions and discursive communities by mean of which they are constituted (Gergen, 1994; Burkitt, 1998; Westwood and Linstead, 2001)'. It ensues that an objective ontology, independent from sociolinguistic practices through which this ontology could emerge, is not conceivable. Social constructionists hold that since social reality is the result of a social construction, the only thing worth exploring is the way this construction occurred. This stance is characterised by descriptivism and a reduction of investigations to the individual level of analysis. Thus, ontology and epistemology are simply collapsed within the social constructionist stance (Alvesson and Sköldberg, 2009, Reed, 2009). But the study of OK creation and emergence rests precisely on a clearly delineated ontology and epistemology, or on both an individual level of analysis and a collective one. Moreover, the term *'construction'* (Berger and Luckmann, 1966) that might suggest the idea of mechanisms was never defined nor explained (Alvesson and Sköldberg, 2009). As such, this first version of social constructionism could not be retained for this study.

It is noted that against this backdrop, Spender (1996) underscored the potential residing in the version of social constructionism suggested by Callon (1980, 1986) and Law and Callon (1992), and that Latour (1993, 1996) later consolidated. While Callon (1980) introduced the notion of actors networks, Latour (1993) suggested an epistemology of human activity where social action is the element that redefines the object of attention or the reality to be examined. The strength of the actor-network theory (ANT) is that the actors or *'actants'* are not necessarily a person but can be an artefact, factories, infrastructure and so on. Spender (1996: 57) noted that ANT provided '*a rich and dynamic sense of the interactions of the many different types of knowledge being created, circulated, stored and applied within the firm'*. He also stated that ANT was in its sense a knowledge-based theory where knowledge is viewed as a competent goal-oriented activity instead of knowledge of acquaintance in a more traditional social constructionism. However, operationalizing such an approach was problematic (Spender, 1996). Indeed, it did not provide operational insights as to how to implement such a theoretical approach.

4.3.3 The case for a realist approach

Critical realist philosophy

Critical realism is suggested as a *'third way'* approach to both scientific positivism and social constructionism that has shaped organizational research since the 1980s (Reed, 2009), and is particularly suited for the use of activity theory. Critical realism and activity theory share many philosophical aspects. Both are situated in a tradition embracing Marxian themes, transcending positivism and interpretivism concerning a dialectically evolving material and social reality. With the exception of Callon (1980, 1986) and Latour's (1996, 1993)

understanding of social constructionism, activity theory and critical realism are the only perspectives that foreground as essential semiotics, mediational aspects between subjects and objects and other aspects that have been neglected by previous philosophical traditions (Allen et al., 2013).

Critical realism focuses on the underlying mechanisms and structures behind phenomena. It considers that while explaining the world is important, so is the possibility of changing it (Alvesson and Sköldberg, 2009). Reed (2009: 436) summarised this explanatory aim: *"critical realist research combines historical, structural, and interpretive forms of analysis in order to describe, understand, and explain concrete events or outcomes and the complex structuration processes and relations through which they are produced, elaborated, and transformed."*

Bhaskar (1991), the originator of this perspective, sees a shift from epistemology to ontology and, within the latter a shift from events to mechanisms. In his view, epistemology and ontology should not be coupled as that would amount to confusing that which exists with the knowledge we have about it; he referred to this as the *'epistemic fallacy'*. Thus ontology has priority over epistemology. The former exercises a powerful and pervasive influence on the specifications of the intellectual goals that researchers set for themselves, such as the meaning of *'describing'*, *'understanding'* and *'explaining'* and the intellectual means required for their realisation. They accept that knowledge of social reality is always mediated through reflective and creative mobilisation of existing stocks of knowledge – concepts, models, theories, discourses – accumulated through previous generations' attempts to describe, understand and explain what the world is and how it works (Reed, 2009).

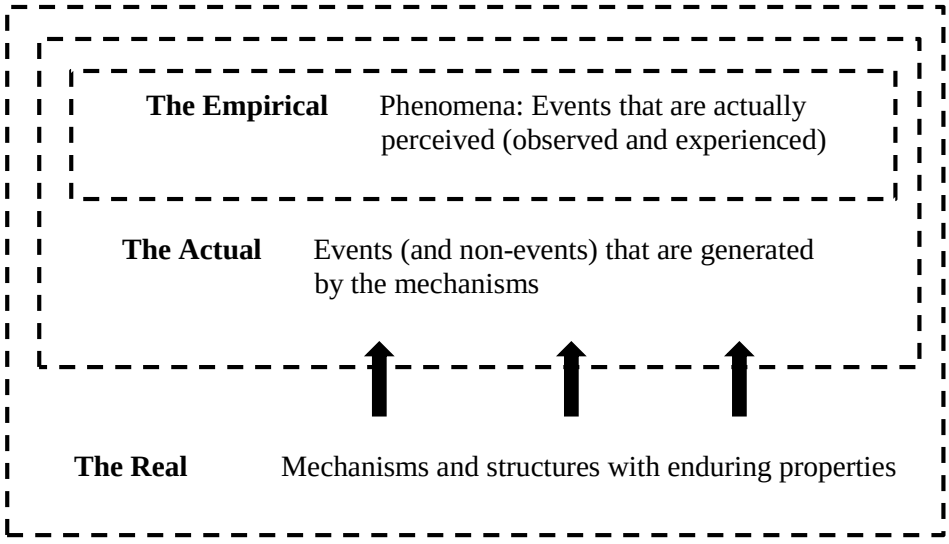
The notion of reality consists of three overlapping domains: the empirical, the actual and the real (Alvesson and Sköldberg, 2009, Blaikie, 2000):

- The *'domain of the empirical'* is the domain of the observable. It consists of experiences such as events that can be observed. Following Blaikie (2000), this is the area where positivists concentrate. This domain would encapsulate knowledge-intensive characteristics.
- The *'domain of the actual'* is broad; *'it refers to that which transpires independent of the researcher or any other observer who might record it'* (Alvesson and Sköldberg, 2009:40). In this study, the knowing, doing and learning related actions within the individual and collective planes would locate in this domain. The latter encapsulates the events and non-events that are generated by the mechanisms (Johnston and Smith, 2010, Zachariadis et al., 2013)

- The *'domain of the real'* consists of the underlying mechanisms, the *'unobservable'* that are productive of different events and other *'surface phenomena'*. Within the critical realism perspective, the task of science is to investigate the realm of the real and how it relates the two domains (Alvesson and Sköldberg, 2009). These may consist of the deeply rooted causal structures and processes that explain how organisational knowing emerge and / or is created and how it can become a feature on which value creation hinges on. Within this study that elicited the activity theory perspective, the *real* points towards Vygotskian mediation were explored earlier.

The three dimensions of the stratified ontology of critical realism are visualised in Fig. 4-1.

Figure 4-1 The stratified ontology of critical realism



Adapted from Zachariadis, 2013 and Johnston and Smith, 2010

Admittedly, science is the product of a social reality shaped by a range of social, ideological and political conditions, *'but the mechanisms that it identifies operate prior to and independently of their discovery'* (Bhaskar, 1998:xii). Indeed, critical realism is ontologically committed to the concept of *'emergence'*: new entities and powers emerge from the complex interplay mechanisms and entities located and operating at different and irreducible levels of reality. This is summarised by Danermark et al. (2002: 62-3) as follows: "*Concrete phenomena are complexly composed of powers and mechanisms, which affect, reinforce, weaken, and sometimes neutralize the effects of one another. The question of which mechanisms are most significant for the object under study can, therefore, only be decided from case to case, through empirical studies and in relation to the problem we address."*

Following Reed (2009), once these anti-reductionist and anti-determinist issues are settled, identifying and mapping of *'generative mechanisms'* enabling social explanation is possible. Generative mechanisms consist of structures, powers, and capacities that *'make things happen in the world'* (Danermark et al., 2002: 206). These are context-dependant and operate within levels of reality that range from the more abstract and complex to the more concrete and short-term (Reed, 2009). Within this philosophical approach, CHAT is particularly relevant. Indeed, critical realism suggests that generative mechanisms *'have to be identified and interrelated through a complex process of conceptual abstraction, model building, and testing'* (Reed, 2009: 432). This enables us to describe how and under what exact circumstances these mechanisms unfold and how they exactly interact within these circumstances (Danermark et al., 2002). In this regard, a conceptual framework based on CHAT as outlined in Chapter 3, endeavours to capture the complexity of *'processes'* involved in organisational knowledge emergence and creation.

Another important shared concern between critical realism and activity theory is the potential identification of tensions and contradictions as an impetus for change. Within the explanatory logic inherent to critical realism, an expected contribution '*lies in the intellectual capacity to construct narratives that identify the conditions under which the endemic contradictions and tensions between structure and agency are translated into <u>'live' forms of discontent that have the potential to change the situation in which agents are operating</u>[23]'* (Reed, 2009: 436).

Limitations

While critical realism is presented as the philosophical perspective within which this study is located, some limitations must be recognised. First, to the claim that it is the nature of the studied object that solely guides the choice of the applicable methods, it is contended that the investigator also influences this choice as she is always influenced by her *'paradigmatic and methodological assumptions, a certain vocabulary and political stances'* (Alvesson and Sköldberg, 2009: 45). More specifically, the exploratory and explanatory nature of this study relates to the use of activity theory involving an interpretivist approach. Indeed, interpretations contain elements of both understanding and explanations (Morrow, 1994 in Alvesson and Sköldberg, 2009).

Second, Blaikie (2000) contended that critical realism promoted an excessively complex research approach preventing any possible clear and precise explanation of social phenomena. Moreover, a lack of reflexivity on arising problems clouded by the intricate relationship between the researcher and the researched is to be expected (Baert, 2005 in Reed, 2009). To address this criticism, the interpretive lens of KI in organisation guides data analysis. The

[23] Section underscored *in italic in the text*

conceptual framework provided in Chapter 3 as a possible alternative for understanding OK emergence and / or creation, was designed in order to *'force'* the focus on OK by using terms such as *'knowing, doing and learning framework'*.

In sum, it is agreed that activity theory presents substantial arguments addressing these criticisms. When complex experiences are desiccated into mutually exclusive variables, they lose the richness that emerges from real-world activities. In this particular case, ASA offers a new way to extract meaningful information from massive and complex qualitative data sets and makes sense of it in a structured and orderly manner. In addition, AT helps conceptualise how real-world phenomena are embedded within the situation that is being examined (Yamagata-Lynch, 2010). Instead of focusing on the visible facts, AT concentrates on the mediators that influence the way OK emerges and / or is created. Overall, critical realism introduces a clear rupture from positivist and constructionist approaches. It forces researchers to rise above and beyond the empirical level and develop more daring and theoretical analysis (Alvesson and Sköldberg, 2009). Indeed, the subject remains the entry point and provides vicarious experiences about a cognising situation, but the elements or factors informing the mediated action are also important. Thus, beyond the subject, the emphasis is on the active and mediated relation subjects entertain with the object and the network of practice.

4.4 RESEARCH STRATEGY

A research strategy is a logic of inquiry which consists into the processes involved in answering research questions, solving intellectual puzzles and generating new knowledge (Blaikie, 2007).

4.4.1 Retroductive logic and intensive design of the research

Opposed to an inductive, deductive, or abductive research strategy, critical realists favour a retroductive strategy, and an intensive rather than an extensive research design (Blaikie, 2000, Danermark et al., 2002). The deductive approach consists in a movement from general statement to specific ones and is more likely to be used in a quantitative study. The inductive strategy consists in a movement from specific statements to general statements (Blaikie, 2007). These two approaches imply searching for generalisable laws that are confirmed or rejected through hypothesis construction and empirical testing in which statistical generalisation is regarded as the foundation to reliable and valid scientific knowledge. Inductive and deductive strategies give priority to epistemology over ontology (Reed, 2009) and are not retained for this research. An abductive research strategy is a creative process aiming at discovering individuals' construction of reality, their ways of conceptualising and

giving meaning to, or interpreting their social world (Blaikie, 2007). Abductive approach does not rely on a *'pre-existing body of abstract theory that is externally imposed on the actors' understanding and meanings as they inform and shape unfolding patterns of social interaction and the wider institutional orders that they facilitate and legitimate'* (Smith, 2005 in Reed, 2009) as necessitated within critical realism. None of these three research strategies calls for '*the search of deep or hidden generative mechanisms that produce observable phenomena'* (Reed, 2009: 439).

In contrast, a retroductive approach focuses on the underlying structure or the mechanism that is responsible for producing an observed regularity (Blaikie, 2007). It consists in *'working back'* from the identification of certain phenomena, to theoretically postulated mechanisms or structures, an explanation. Finally, *'a retroductive strategy involves the construction and application of theoretical models that uncover the real and unobservable mechanisms or structures that are assumed to be causing actual events and experiences"* (Reed, 2009: 438). Hence, retroductive strategy is based on an iterative process of constructing hypothetical models of reality, testing them against empirical data, and proceeding whether with amending the models or moving deeper into reality's *'ontological depth'* (Blaikie, 2000).

A retroductive strategy emphasises an intense research design (Danermark et al., 2002). This involves *'going beyond'* the actors' understanding and discourses that the use of abstract theoretical models and interpretations able to emphasise the operation of mechanisms of which actors are not aware of (Reed, 2009). Qualitative or intensive methods used within critical realism are more profound (Zachariadis et al., 2013). Intensive methods such as interviews, case studies or historical narratives are *'epistemologically valid'* (Tsoukas, 1989: 556) and more suited for the description of a phenomenon, the construction of propositions or hypothesis, and the identification of structure and interactions between complex mechanisms (Layder, 1990, Sayer, 2000). The need for interpretation and understanding of structures or social phenomena that are concept-dependent and subject to an agent's notion of them or the apparatus that allowed their observation, is quite significant (Zachariadis et al., 2013). Thus, it is contended that a retroductive strategy will best serve the exploration of underlying mechanisms and dynamics of OK emergence and creation using AT. Consistent with this retroductive strategy, a conceptual framework was designed (see Section 3.5).

4.4.2 Role of theory

Theory generation may be the final output of a study and would appear then at the end of a project. Alternatively, it comes at the beginning of the work and provides a lens that participates in understanding what is under investigation and the questions being asked. It guides the researcher about the relative importance of issues to examine and the individuals

that need to be studied (Creswell, 2009). For this thesis, the research question draws from prior work emerging from separate bodies of literature. The aim is to suggest new constructs or provisional theoretical explanations on the generative mechanisms and dynamics underpinning OK creation and emergence. Following Edmondson and McManus (2007: 1158), this work is located at an intermediate theory level defined as presenting *'provisional explanations of phenomena, often introducing a new construct and proposing relationships between it and established constructs.' Thus,* the development of intermediate theories is motivated by the desire to reinvestigate a theory that sits within a mature stream of research in order to challenge previous contributions.

This research implies a questioning on the mechanisms and dynamics underpinning OK emergence and / or creation in asset management firms. It is suggested that the question is to be addressed dynamically and holistically with a focus on action. The latter is suggested as a founding principle in AT and is underscored in the conceptual framework elaborated in Section 3.5 with the expression *'knowing, doing and learning'* attached to different mediators. Second, the dominant epistemological stance observed in literature is challenged by locating the study of OK emergence and / or creation neither within positivist nor social constructionist traditions but within that of critical realism. Instead of engaging in debates about what knowledge in organisations *'is'* and how it is transformed from one type into another, the purpose here is to understand the way knowing, doing and learning occur within specific contexts when socialised and at an individual level. Instead of assuming that endowments in knowledge-based assets and practices are systematically conducive to knowledge creation and thus, value creation, the possible existence of inherent systemic contradictions and tensions and knowledge-based issues are also explored.

Whetten (1989) suggests that there is no distinction between a model and a theory. It can be derived from this that model building is truly a theory-building process which combines induction (theory emerges from data) and deduction (theory exists prior data) to which Langley (1999) incorporates inspiration, driven by researchers' creativity and insight. In this regard, the research objectives contain elements of exploration since little empirical connection has been established to date between subjects-tools-objects, and between subject-community-object. From this point of view, a case exists for grounding the theory in the data (Glaser and Strauss, 1967) which supports this close relationship between emerging concepts and studied social actors' behaviours and perspectives. However, this closeness may hinder access to the broader context and consequently to the underlying mechanisms central to a realist approach. As Suddaby (2006) and Goulding (2009) have suggested, theory-building must be informed by extant literature. Substantive theory constitutes a strategic link in the *'formulation and generation of a grounded formal theory' (Glaser and Strauss, 1967: 79).*

This is vital for ordering fieldwork and structuring manuscripts (Suddaby, 2006). Hence, a middle position may be retained whereby there is no strict adherence either to ideal theory or to a strong and substantial *a-priori* explanation, but rather a continuous interplay between the two (Parkhe, 1993). Hence, *a priori* specification of constructs may participate into shaping the initial design of theory building research. And, if these constructs gain in importance as the research progresses, then the researcher has a firmer empirical grounding for the emergent theory (Eisenhardt, 1989). In this research, the conceptual framework was designed based on CHAT and modified according to the data collected from the pilot study. It will be operationalised and used for understanding the mechanisms and dynamics of OK emergence and / or creation in asset management firms.

4.5 RESEARCH DESIGN

Research design consists of the plans and procedures for research that guides the decisions from broad assumptions to detailed methods of data collection and analysis (Creswell, 2009). It is *'the logical sequence that connects the empirical data to a study's initial research questions and, ultimately to its conclusions' (Yin, 2009: 26).* The research design is guided by the research questions emerging from a deep and thorough study of the literature which involves the use of the activity system analysis (ASA) method. This research is designed to capture multi-mediational processes in human activity (Engeström, 1987). The comparative method or case-oriented studies involving very few cases (Ragin, 1987) is particularly suited to investigate this and provide a solid research design framework within which to carry out ASA. The methodology supporting the comparative method operationalisation is borrowed from the case study method. The following sections present first a critical approach on the combination between case study, critical realism and activity theory, and second, the case study design. The subsequent section introduces the data collection.

4.5.1 Case study, critical realism and activity theory

Case study and critical realism

According to Easton (2010) and Eisenhardt (1989), the case study methodology is particularly suited within a critical realist approach. Indeed, this involves developing a research question constructed around an identified phenomenon of interest delineated in terms of discernible events and asking what causes them to happen. The research question guiding this study identifies OK emergence and creation based on a combination of personal and collective knowledge as the phenomenon of interest, and questions the mechanisms and dynamics that cause these. The way to carry on then with empirical research consists in proceeding *'by*

capturing data with respect to on-going or past events asking at all times why they happened or are happening and taking into account the problems and issues associated with interpreting the empirical data back to the real entities and their actions' (Easton, 2010: 128).

Case study and activity theory

Barab et al. (2004b) suggested that there is no generally acknowledged methodology for implementing activity theory concepts and principles. While ASA constitutes a method in its own right that may be implemented as such, strong incentives exist for the use of strategies and tactics borrowed from well-established methodologies such as the comparative method, case study, ethnography and design experiment in order to adopt a more holistic approach *'that allows for the contribution of multiple perspectives'* (Barab et al., 2004b:208). The case study approach is particularly suited to the theoretical assertions and analytical intentions involved in activity systems analysis (Yamagata-Lynch, 2010). Stake (1995) stressed that a case study's expected outcome is particularisation and not generalisation on the grounds that the goal of a case study is to truly understand a case and not to compare it with other cases in order to make general claims. The author refers to this as *'petite generalisation'*. Thus, ASA lends itself particularly well to the case study research method as investigators strive to understand the relationship between the phenomenon, the variables, and context within a specific bounded system (Yamagata-Lynch, 2010: 79). This involves *"the examination of self-sustained systems that are difficult to remove from the context and when investigators engage in data collection and analysis they need to be able to treat goal-directed actions, object-oriented activities, and activity settings as separate, yet highly interrelated bounded systems"*. Moreover, when engaging in data collection and data analysis stages, a case study approach involves examining clear and bounded systems in natural settings (Creswell, 2009, Merriam, 2009), which *'brings an organising framework to maintain focus'* (Yamagata-Lynch, 2010: 79).

Case study and case-oriented approach

Insights from the case study methods are used to inform the comparative method that involves few cases or small N[24]. The case study, flexible in its application, is a method allowing the researcher to explore in depth an event, an activity or a process in relation with one or more individuals. Cases are bounded by time and activity while detailed information is collected using different data collection procedures over a period of time (Stake, 1995). The aim of this research is to study actions and activities in *'real life'* contexts and not controls on behavioural events; as such it rules out the experimental method approach. Similarly, this

[24] Small N: small number of cases (Lijphart, 1971)

research does not meet the criteria of a specific historical inquiry. However, it does not exclude the study of archival records to describe or investigate the context of the emergence and / or creation of OK. Case study strategy is best when researchers want to cover contextual conditions deliberately as it is believed that they will be highly pertinent to the phenomenon under study. The case study inquiry encompasses the use of many more variables of interest than data points as well as a diversity of techniques in approaching them. As such, it relies on multiple sources of evidence that allow subsequent triangulation (Yin, 2009).

Based on the arguments presented outlining consistency between case study research, critical realist philosophy and activity system analysis, the case study method is retained as an the appropriate method for this investigation. The rationale is based here on (i) the descriptive and explanatory orientations of the research, and (ii) the research objectives (Section 4.1.1) identified to understand the underlying mechanisms involved in OK emergence and creation using activity theory. The following section will review the case study design.

4.5.2 Case design

Levels and unit of analysis

The level(s) and unit of analysis are concerned with defining *'what'* the case is, and where the boundaries of the case lie (Yin, 2009). While the author tends to view the unit of analysis as the case to study and concluded that therefore the unit is the case, Grünbaum (2007) contended that they are not necessarily combined and that the paradigmatic stance of the topic investigated and the researcher actually influence the outcome. Thus, the purpose of the study determines the unit of analysis and its understanding. The unit of analysis must be defined in terms of what will be studied and what will be excluded. It comprises the conceptual nature of the unit, its social size (the participants involved in the activity system), its physical location (locations where the main actions pertaining to the activity system take place) and its temporal extent (Miles, 1994). Similar to the precepts and principles underpinning OK emergence and / or creation, in activity theory the collective is not separated from the individual or the social from the technical. Individual's thoughts and actions are linked to their broader cultural, social and technological instrumentalities as well as the existing regulation (Blackler, 2009). A system is constantly evolving as organisations and institutions are a lot less stable than is usually recognised (Blackler, 1995, Engeström, 1987). Yamagata-Lynch (2010) illustrated the conceptual compatibilities between ASA and case study research in Table 4.1.

Table 4-1 Activity systems analysis and a case study

	Activity systems analysis	Case study
Bounded system	Object-oriented activities, goal-directed actions, or activity settings	Case
Unit of analysis	Object-oriented activities that could be identified in the personal, interpersonal, or community/institutional planes	Case

Source: Yamagata-Lynch, 2010: 79

The bounded system composed of object-oriented activities, goals-directed actions and activity settings, may be viewed as the level of analysis. While case studies do not have pre-defined types of bounded systems for researchers to examine, activity theorists are particularly interested in identifying object-oriented activities. Moreover, when engaging in the study of object-oriented activities as a bounded system, this system can be characterised on three levels: personal, interpersonal or community/institutional planes of analysis (Rogoff, 1995). The unit of analysis is understood as the human activity itself embedded within its social context (Engeström, 1987, Rogoff, 1995, Wertsch et al., 1995). In order to properly identify this unit of analysis, the researcher must examine carefully the critical activities related to the study question (Yamagata-Lynch, 2007). In this research, the unit of analysis was defined as follows:

> *Series of goal-oriented actions that represent an object-oriented activity based on collective experiences, and described by multiple participant sources. These actions are to participate substantially in performance generation.*

Isolating the bounded system from real-world complex human activity was not self-evident. Bounding this unit of analysis involves identifying those individuals who are essential for understanding OK dynamics and mechanisms embedded in its context and providing a view of the case from interconnected levels of analysis (Pettigrew, 1990). In addition to the object-oriented activities and goal-directed actions that are typical of activity theory bounded systems, Yamagata-Lynch (2010) suggested to rely on (i) activity settings and (ii) the three planes of socio-cultural analysis in order to identify units of bounded systems in the data set.

(i) Consistent with CHAT and critical realist approach, activity settings that provide the context in which activities take place (Tharp and Gallimore, 1988) are the entire part of human cognitive action (Rogoff, 1990). While this influences the types of activities participants may engage with, it helps researchers to bind the most relevant and essential contextual information. Hence, relationships between participants' activities and social environment may be described without being overwhelmed by irrelevant data (Yamagata-

Lynch, 2010). For this study, activity settings are understood as the premises and facilities where the series of goal-oriented actions, which enable asset management firms' performance, unfolded.

(ii) The three planes of sociocultural analysis are identified through the subject of an activity and participate in identifying the bounded system (Rogoff, 1995). These three planes echo the Nonakian ontological dimension whereby transformed and transforming knowledge circulate between individual levels to group, intergroup and inter-firms levels. For this study, the individual or subject of activity occurring in the personal plane such as portfolio managers, compliance managers or other executive directors involved personally in the performance generation. In the interpersonal plane, the groups of individuals engaging in collective initiatives (Yamagata-Lynch, 2010) is best represented by formal groups such as Investment Committees or informal groups that form spontaneously during work. The third plane encompasses the community-based collective global activities that are performed by a subject of an activity occurring in the institutional or community plane. The *'network of practice'* in the conceptual framework (Section 3.5) encompasses this previous plane.

The examination of individual behaviour is the point of entry for researchers to vicariously experience participants' activities when conducting research based on ASA (Yamagata-Lynch, 2003). Researchers can then identify activities that are critical in answering their research questions and examine the collective meaning making processes (Yamagata-Lynch, 2007).

Two-case comparative design

This study is positioned as a two-case comparative design. The *'comparative-case strategy'* or small N analysis (Lijphart, 1971: 163) is also referred to as *'case-oriented comparative method'* (Ragin, 1987: 34-52). Considered as a basic method in its own right, alongside experimental, statistical and case study methods, this design is *'a method of discovering empirical relationships among variables'* (Lijphart, 1971: 683). The previous author defined the comparative method with an intermediate status. The approach bears a weaker basis than the experimental or statistical method for evaluating hypotheses as it presents little experimental control and the problem of many variables, small N. However, the author contends that the case-oriented comparative method offers also a stronger basis for evaluating hypotheses than do case studies.

The comparative perspective is a fundamental tool of analysis that *'sharpens our power of description, and plays a control role in concept-formation by bringing into focus suggestive similarities and contrast among cases'* (Collier, 1993: 105). Moreover, comparisons can participate in the discovery of new hypotheses and to theory building, which this thesis seeks

to achieve. Similarly to CHAT, the case-oriented method is particularly concerned with an individual situation in its historical specificity and its full context. Each case is envisaged as a whole, encompassing the total configuration or constellation of factors and conditions. The in-depth study of few cases is seen as insight-generating, opportunities to explore multiple and conjunctural causations (Lor, 2012). Thus comparativists' motivation is to understand or interpret specific cases because of their intrinsic value (Ragin, 1987).

Provided that *'theoretical complexity is needed to account for organisational complexity'* (Tsoukas, 2016: 1), the AT intricate framework, focusing on generative mechanisms and dynamics, has been elicited to investigate complicated organisational settings. The previous aligns with the need to untangle the *'multiple conjunctural causation'* (Ragin, 1987: 20) characterising social phenomena: *"complex theorising is conjunctive: it seeks to make connections between diverse elements of human experience through making those analytical distinctions that will enable the joining up of concepts normally used in a compartmentalised manner"* (Tsoukas, 2016: 1).

Comparative methods are suited for promising intensive analysis of cases involving multiple embedded units of analysis. When implementing ASA, the focus is on the goal-oriented actions representing an object-oriented activity system, the main unit of analysis. However, other embedded units of analysis call for consideration such as the mediated relationships (i.e. KDL subject-KDL tools-object / intended outcome; subject-network of practice-object / intended outcome; etc.) or the IPA or ZPD. A drawback of embedded units of analysis is their inability to go back to the main unit of analysis (Yin, 2009). However, this can be avoided by firmly keeping in mind the research question (Yin, 2009).

Case selection

Carefully matched cases are to be selected when eliciting the comparative method as a research strategy (Lijphart, 1975). More specifically, a *'deep analogy'* that takes the form of a *'comparative analysis of very few, extremely closely matched'*, is advocated (Stinchcombe, 1978 in Collier, 1993: 111). However, Przeworski and Teune (1970) argued that a *'most similar'* systems design is fraught with *'overdetermination'* whereby the latter fails to provide an opportunity to eliminate many rival explanations. Instead, the two authors contended that going for a *'most different'* system design is preferable. In this instance, this perspective is based on a highly diverse set of cases where the analyst can trace similar processes of change. However, closely matched cases from one point of view may contrast sharply from another (Collier, 1993) as this was implemented in some studies (Collier and Collier, 1991 in Collier, 1993). The replication logic and theoretical sampling discussion (Yin, 2009) echoes the previous discussion.

In line with Collier (1993), Eisenhardt (1989) and Yin (2009), replication logic employing both literal and theoretical replication determined the case selection. The outcome of a replication logic can both be literal, and generate similar results or theoretical and deliver contrasting results for expected reasons. The two selected cases present similar analytical contexts but also substantially different elements (Section 7.1) that are conducive to theory development. In this instance, theoretical sampling is more appropriate for bringing more clarity and more depth to relationships and logic among constructs (Eisenhardt and Graebner, 2007).

Pettigrew (1990) suggested three criteria that should be observed when selecting cases: to go for extreme situations; go for polar types as this consists into an opportunity to disconfirm patterns from one case study to the other; to go for high experience levels as they assume a concern for strategic issues. Moreover, because this research was carried out using the perspective of activity theory, it was necessary to include other criteria to identify the case or bounded system or who, what, and where to engage in data collection. In this regard, to build a strong sense of familiarity with the settings from an AT point of view, Yamagata-Lynch (2010) suggested identifying the typical activities performed in the settings, the ones that tentatively seem relevant to the research question, the participants engaged in activities relevant to the research question, and existing relevant documents and artefacts.

Identifying the bounded system

Consistent with the comparative method, cases can be closely matched from one point of view and contrast sharply from another (Collier, 1993). Locating the study in comparable small asset management companies, which had witnessed the most challenging environment, provided the researcher with *'extreme situation'* as described in Section 4.2. Second, the two settings selected were identified as constituting polar types. While being located in the same industry, the asset management firms selected were very different. One case is an innovative firm, Delta Limited (DLT), that survived during the financial turmoil and that is very concerned with managing knowledge assets *per se*. The other case was a more traditional asset management firm, Kipos Limited (KPS) that was impacted negatively by the financial turmoil since 2000. Both firms were medium-sized organisations at the time of the study in 2013 and employed about 50 employees.

Individuals performing the goal-oriented actions targeted in the unit of analysis were identified. The core activity of fund managers can reasonably be understood as *'managing funds'* collected from clients and underpinned by investment strategies. The activities that seemed relevant to the research question were those involved in decision-making directly impacting the performance of the assets managed and the decisions that were instrumental in

the success of these operations such as compliance. Thus, decision-makers and employees who have a direct and strongly related impact on performance and a strong concern for strategic issues were selected. This was consistent with the literature suggesting that knowledge-intensity involved the decisions made by highly skilled and educated individuals. This group of individuals that helped inform the unit of analysis were identified during the preliminary meetings with the heads of KPS and DLT.

Access negotiation

The research was positioned in the private sector and asset management industry and the conditions surrounding the access to companies changed dramatically between the preliminary contacts taken at the time of the formulation of the project in 2007-2008 and the actual field work in 2013. At the very early stage of this research, a strong goodwill from possible targeted organisations in asset management was met. However, the financial crisis changed the situation substantially. Firms *'disappeared'* through restructuring, changing boards, and contacts that were taken were no longer available. With the exception of the pilot case consistent with Pettigrew's (1990) planned opportunism and to which access was facilitated by researcher's own connections, the access to the two other cases was gained differently. Negotiating access to the latter proved a lengthy task characterised by high levels of uncertainty.

Contacts with eligible companies were established and identified through a Google search, lists provided by the IFSC[25] website, and IDA[26] Ireland first by email. Subsequent to listing potential candidate organisations for the research, an email was sent for a first contact. However, contact by email provided no result. The biggest issue was to get past the person in charge of receiving general emails sent to the company. Subsequently, based on the established listing, a decision was made to use LinkedIn as a means for directly reaching Chief Executive Officers (CEOs) or Managing Directors (MDs) (Appendix 4). Subsequently, follow up texts were prepared in order to secure the contacts. For one of the companies contacted, the researcher was asked to produce a document outlining the benefits of the research addressing specific points (Appendix 5). In the end, only one firm established contact (KPS). Subsequent to the first meeting with the company CEO, a formal introduction was made by him with DLT. It became rapidly obvious that the two companies constituted two polar cases and allowed the research for contacts to stop.

[25] IFSC: International Financial Services Centre in Ireland

[26] IDA: Industrial Development Authority in Ireland

4.6 DATA COLLECTION

Drawing on qualitative studies, two main sources of data are available: interviews and documents (Merriam, 2009). Yamagata-Lynch (2010) stressed that investigators initially rely on their theoretical and practical knowledge gathered about the research in order to identify the appropriate method for collecting data. This research, drawing on CHAT, is largely concerned with people's experience and interaction between individuals. Therefore, the interview data collection method emerged as the most appropriate to capture the vicarious experience of participants. This study draws on two data collection methods: semi-structured interviews are the main instrument, and it is supplemented by document analysis (Yamagata-Lynch, 2010, Kolb, 2012). Eisenhardt (1989) outlined that a stronger substantiation of constructs and hypotheses is possible when relying on multiple data collection methods that allows triangulation. Documents analysis is introduced in Section 4.6.3. Prior to this step, the next section concentrates on the preparation phase data collection, and the development of a case study protocol.

4.6.1 Case study protocol

A case study protocol is necessary to guide the data collection process from each case investigated. It contains the instruments, procedures and rules to be followed in using the protocol and is instrumental in increasing the reliability of a case study (Yin, 2009). A case study protocol typically contains four sections: (i) an overview of the case study project, (ii) field procedures, (iii) specific questions guiding the research during data collection, (iv) guide for the report (Yin, 2009).

i. The first step is concerned with introducing the project objectives, case study issues, and relevant readings about the topic being investigated. The doctoral paper presented to a review panel in October 2010 and other papers published and presented at conferences (Khadir-Poggi and Keating, 2013a, Khadir-Poggi and Keating, 2013b) issued the relevant literature, identified research gaps and epistemological problems. The framework, research questions and preliminary guidelines for data collection were developed in a subsequent paper (Khadir-Poggi and Keating, 2013c) and were used as a base for the conceptual framework developed in Chapter 3 and the final research question.

ii. Field procedures consist of presentation of credentials, access to the case study *'sites'*, sources of information and procedural reminder. A research proposal describing the project and methodology (Appendix 6) is to be sent in order to grant access to the different sites. It includes a brief that specifies the requirements in

terms of interviewing, meeting attendance and the collection of other sources of information.

iii. Although the detailed wording of the research questions guiding this study has evolved, the investigator had to remain consistent throughout the research and kept systematically addressing the research questions and recorded information as it was collected in the field. Thus, the focus remained on understanding the generative mechanisms and dynamics involved in OK emergence and / or creation and identifying tensions and contradictions. In this regard, the action level was targeted and inquiries concerned the goal-oriented work performed by participants. Other foci included organisational knowledge-intensity characteristics, personal account of firm's history and culture, and areas of dissatisfaction. Possible sources of evidence were encapsulated in the list of documentation provided, and in the observations made on the field.

iv. The two case reports present the same structure in terms of outline, format for the data, use and presentation of other documentation and bibliographical information. These are consistent with the research questions and the conceptual framework.

4.6.2 Interviews

The interview data collection method, consistent with ASA was selected as the primary data collection method. Interviews are important for identifying information about the subject, the existing or missing tools, and the subject's perspectives about the object (Yamagata-Lynch, 2010). Semi-structured interviews were administered in order to gather data on the underlying mechanisms and dynamics of organisational knowledge-intensity. Semi-structured interviews are defined as '*an interview with the purpose of obtaining descriptions of the life world of the interviewee in order to interpret the meaning of the described phenomena*' (Kvale and Brinkman, 2009: 3). The questions and answers sessions were conducted as much as possible in privacy within the participant's own premises (office or meeting room) which provided an opportunity to observe the participant within her or his own setting. For practical reasons, some interviews were conducted over the phone either because the interviewees were in a distant location from the local site, or were located abroad. All interviews were recorded using Audionote application on a tablet, transcribed verbatim using Microsoft Word and sent for confirmation to the interviewees.

In each case, a list of participants was issued with the agreement of the companies' C.E.Os. It was critical to include multiple groups and different hierarchical levels to reduce bias (Eisenhardt and Graebner, 2007) or improve '*fairness*' (Guba and Lincoln, 1994). A list of desired participants and meeting schedules is provided (Appendices 7 and 8). 35 interviews

were conducted in total lasting on average between 1 hour and 2.5 hours. The interviews took place between February and December 2013.

Interview guide

The conceptual framework presented in Chapter 3 informed the themes for the interview. The interview guide evolved over the course of the research. Indeed, following Miles and Huberman (1994), this tended to reflect a better understanding of the settings. This interview guide was designed in order to gain data on the mechanisms and dynamics underpinning OK emergence and creation approached in a dynamic and holistic way using activity theory. It aimed at gaining knowledge on the object-oriented activity system and focused on the relationships existing between the nodes of the triangle of activity system and on the systemic contractions, tensions and uncertainties and on how the participants address them. In other words, the focus was on the actions performed during work and what these involved. The interview guide (Appendix 9) was organised around the following themes:

- Cultural and historical backgrounds informing OK dynamics and mechanisms; gaining insights on the history of the organisation and how it led to the current situation
- Identification of goal-directed activities and intended outcome; *'problem space'* (Van Der Riet, 2011) addressed in terms of knowing, doing and learning
- Gaining insights in the dynamics involved in the internal plane of action; understanding how the relationship between the subject and the object was mediated by which knowing, doing and learning tools and artefacts
- Gaining insights in the dynamics involved in the zone of proximal development; understanding how the network of practice, the KDL-related framework, and mutivoicedness mediated the relationship between subject and object.
- Possible participants' last and personal comments and what their vision was about a possible improvement in their work in their company.

While themes were driving the semi-structured interviews, interviews ran mostly as *'loose'* conversations surrounding the general theme of OK emergence and creation. This was consistent with Starbuck's (1993) suggestion that a good interview is the one that is run on a conversation style. As a matter of fact, the higher the hierarchical ranking, the more conversational the interviews were. Conversely, lower rank participants needed more guidance when answering the questions.

The main challenge of the interviews was to use a language that would facilitate meaningful data collection. Subsequent to the interviews administered *(n=3)* for the pilot case (Appendix 25), it became obvious that the terms *'knowledge-intensive', 'knowledge base', 'intellectual*

capital' or *'activity system* or *theory'* could not be used in the questions. First, many participants were alien to the semantics pertaining to the literature on organisational knowledge and activity theory. Second, those who had an understanding of the terms might have preconceived ideas that would limit the lines of enquiry and undermine research objectives.

Another issue arose from investigating tensions and contradictions. This was potentially a sensitive and emotive issue that tended to transform the interview into a long list of complaints and malaise expressed by participants in some cases, quite vehemently. The investigator's role was then to try and focus the conversation in order to serve the research objective. This process improved when experience in interviewing was gained. Some interviews that were scheduled to happen over the phone, as the participants were located in the United States or in Asia, did not occur. The connection could not be established and, considering the technical and time constraints, the interviews were just cancelled. Data was triangulated with documentary analysis (Sections 4.6.3 and 4.6.4). Each method of data collection presents strengths and weaknesses that are summarised in Table 4-2 and later commented upon in more detail.

Table 4-2 Strengths and weaknesses of five data collection methods

Sources of evidence	Strengths	Weaknesses
Interviews	• Targeted: focuses directly on case study topics • Insightful: depth, subtlety, personal feeling • Useful when participants cannot be directly observed • Participants can provide historical information	• Problems due to poorly articulated questions or poor recall • Researcher induced or respondent induced bias • Reflexivity: interviewee gives what interviewer wants to hear
Documentation	• Provides exact facts, names, references and details on events • Stable: can be reviewed repeatedly • Unobtrusive: not created as a result of the case study • Broad coverage of the studied object • Provides the language and words of participants	• Can be difficult to find (low retrievability) • Biased selectivity if collection is incomplete • Reporting bias: reflect unknown bias of the author • Access: maybe deliberately withheld
Electronic texts	• Encourage open expression of thoughts and feelings as no face-to-face • Recruit participants on a much larger scale • Access to wide selection of material	• Excludes poorly computer-skilled and low income persons • Non-verbal cues impossible to access • Internet is subject to time compression (updates modifying or suppressing data) • Ethical issues of privacy, confidentiality – problems of validity of consents
Direct observations	• Reality: covers events in real time • Contextual: covers context of case • Unusual aspect can be noticed	• Time-consuming • Selectivity (narrow coverage unless team of observers available) • Reflexivity: event may proceed differently because it is being observed
Participant observation	• *Same as the above* • Insightful into interpersonal behaviour and motives	• *Same as above* • Bias due to participant-observer's manipulation of events

Adapted from Yin (2009), Eisenhardt, (1989); Creswell (2009); Esterberg (2002)

4.6.3 Other data collection methods

Documents and archival

Internal and external documentary information were used for the two cases (Appendix 10). This included employees job descriptions made available by the companies, organisational charts, annual reports, company's website and company brochures. These documents allowed

the researcher's further understanding of the activity systems, rules and division of labour that influences the participant engagement in everyday activities. Studying policy manuals and newsletters over time improved the researcher's knowledge about the participant community (Yamagata-Lynch, 2010) or network of practice in this study. Following Yamagata-Lynch (2010), these documents provide a reflection of participants' established collective decisions following how they identify their community. At last, documentation provides an insight on company's history and on the bounded system.

Observations

For this research, opportunities for observations were very limited and cannot constitute a supplementary data collection method *per se*. However, informal and punctual observations were possible in each organisation during fieldwork. This was facilitated by first time visits of companies premises and the opportunity of observation provided by on-site interviews performed in rooms with transparent glass walls. In addition, the researcher returned on several occasions on the sites for interviewees unavailable during the initial visit.

From an activity theory perspective, observation implies that researchers observe situations where participants are engaged in goal-directed action and object-oriented activity that participate at answering the research question. This exercise may involve multiple object-oriented activities taking place over a lengthy period of time and in multiple locations and may prove challenging to accomplish. Hence, during the interview process, investigators have an opportunity to make contextual observations on how everyday goal-directed actions are fitting within the object-oriented activities (Yamagata-Lynch, 2010). However, this was not possible and the researcher was only made comfortable in the context.

4.6.4 Triangulation and the value of multiple data sources

Multiple sources of evidence enhance the validity of the findings. Integrating multiple sources of data is a key advantage of the case study method, and allows the convergence of lines of enquiry and data triangulation. The latter embeds finding in several other sources that act as several *'witnesses'* bolstering the credibility of the findings (Yin, 2009, Merriam, 2009). A summary of these different sources are indicated Table 4-3.

Table 4-3 Multiple sources of data

Data source	Delta	Kipos
Interviews	15	16
Documents	11 (Appendix 10)	11 (Appendix 10)
Observational visits*	5	7

* Limited to making the researcher comfortable

4.7 ETHICAL CONSIDERATIONS

Consistent with activity system analysis, the interviews were the primary source of data where the subject provides a vicarious experience of his work. Moreover, this research operates within the domain of social sciences. As a consequence, the protection of the human subjects was identified as the core ethical issue. The following section introduces the ethical issues arising during the seven stages of the interview inquiry. The attention turns then to the specific issues of consent, anonymity and confidentiality and the consequence in terms of possible harm for participants.

4.7.1 Ethical issues throughout the interview inquiry

Ethical issues are a specificity of interview research because of the complexities of *'researching private lives and placing accounts in the public arena'* (Birch et al., 2002: 1), Kvale and Brinkman (2009) indicated that ethical issues concern the entire process of an interview investigation that can arise throughout seven stages (Table 4-4).

Table 4-4 Ethical issues at seven research stages and action taken

Research stages	Description	Action taken in this study
Thematising	The purpose of an interview study should, beyond the scientific value of the knowledge sough, also be considered with regard to improvement of the human situation investigated.	Better awareness of mechanism and dynamics involved in OK creation or the firm and participants. Self-reflection.
Designing	Ethical issues of design involve obtaining the subjects' informed consent to participate in the study, securing confidentiality, and considering the possible consequences of the study for the subjects.	*Point addressed in section 4.7.2*
Interview situation	The personal consequences of the interview interaction for the subjects needs to be taken into account such as stress during the interview and changes in self-understanding.	Breaks or answer reconsidering were possible during the interviews
Transcription	The confidentiality of the interviewees needs to be protected and there is also the question of whether a transcribed text is loyal to the interviewees' oral statement.	Interviewees' confidentiality was organised with the interview consent form. Interviewees' names were replaced by a code for the study
Analysis	Ethical issues in analysis involve the question of how penetratingly the interviews can be analysed and of whether the subjects should have a say in how their statements are interpreted.	Analysis rested on the conceptual framework developed in Chapter 3 and did not lend itself to subject's intervention
Verification	It is the researcher's ethical responsibility to report knowledge that is as secured and verified as possible. This involves the issue of how critically an interviewee may be questioned.	Interviews were recorded with Audionote, transcribed verbatim and sent for confirmation and checking to interviewees.
Reporting	There is again the issue of confidentiality when reporting private interviews in public, and of the consequences of the published report for the interviewees and for the groups they belong to.	When the data collected was used for published work, no name (unless clearly stated) or specific signs were mentioned.

(Adapted from Kvale and Brinkman, 2009)

4.7.2 Consent and informed consent

The matter of consent was addressed using two management strategies that included the use of a consent form, a delay between information provision, consent of two to three weeks, and a two-stage consent process. In each site, the '*gatekeeper'* method of gaining access was employed with a view of protecting staff's privacy and provided them with an opportunity for refusal. The research was presented first to the heads of the two companies after contact was made in the first place. Information on the study was provided together with inclusion and

exclusion criteria that acted in turn as *'gatekeepers'*. Inclusion criteria specified that interview participants should be individuals involved directly or indirectly in managing assets and impacting significantly the performance of the company. Exclusion criteria *a contrario* targeted the staff that was not involved in asset management and that had no substantial influence on company's performance. The material supplied included an information note (Appendix 6), a *'potential benefits for the company'* note (Appendix 5) and consent agreements for participants (Appendix 11). The researcher also signed a confidentiality agreement for one of the companies; the other firm did not provide such a document.

A consent form was provided to each participant involved in the study. An "informed consent entails informing the research participants about the overall purpose of the investigation and the main features of the design, as well as of any possible risks and benefits from participation in the research project" (Kvale and Brinkman, 2009: 70). The second stage of the consent was obtained before the interview started. The documents listed were provided again including a brief explanation of the research and what was involved for the participants such as the anonymity, voluntary participation, and the possibility to withdraw at any time. The two-stage consent allowed two to three weeks delay between information and stage two consent for reflection and review of information.

4.7.3 Confidentiality and anonymity

The participant is entitled to the protection of his data and right to privacy. Despite adopting different strategies to address confidentiality and anonymity issues, complete anonymity could not be guaranteed provided the nature of face-to-face interviews and provided the rather small structures of the companies investigated and high-ranking participants interviewed. The aim is to protect confidentiality and provide anonymity beyond the researcher.

Confidentiality

Confidentiality in research involves that private data identifying the participants will not be disclosed (Kvale and Brinkman, 2009). Hence, with the exception of companies' names that are mentioned, the data was coded and access to the code is confined to the researcher. All participants' identity has been kept confidential and no material refers to the name of the participant or cases. This separates the data from the identity of the participant to safeguard confidentiality and participants were identified by case pseudonyms and position descriptor. In addition to the confidentiality agreement the researcher signed with the companies when available, the researcher can apply for a three or five year *'thesis hold'* if the information in the thesis is deemed politically or commercially sensitive, or if its release into the public domain would damage the confidentiality or privacy of participants.

Role anonymity

Role anonymity is an issue when interview participants are potentially identifiable due to seniority or numerated positions arises for qualitative researcher in social sciences. This issue is somewhat magnified in Ireland due to its small size. This issue arose in this research with respect to a participant in a senior position. This was addressed with the following strategies:

1. Organisations' anonymity: each of the companies in this study is kept confidential and referred to only by pseudonym: Delta (DLT) and Kipos (KPS). Rival companies names mentioned in the interviews are not named, and simply replaced with *'[rival company]'*.
2. Organisation's Intellectual Property: all protected material, in-house systems and other similar items that may comprise anonymity, are given different names.
3. Geographic anonymity: the study makes no reference to geographical location, just Ireland.
4. Gender anonymity: all gender references have been removed from the reported data. Only male gender is used for all participants.

4.7.4 Harm

The consequences of a qualitative study need to be addressed considering the possible harm that can occur for participants as well as the benefits expected from their participation to the study. Accordingly, the ethical principle of *beneficence* entails that the risk of harm to a participant should be the least possible (Kvale and Brinkman, 2009). The potential harm caused by this research was limited to light and transient upset. It was expected that some interview participants might become upset while relating some personal work-related experiences. But, then this was related to the event discussions and not the interview. It was made clear at the beginning of each interview that the participant was free to take a break or leave if she or he wanted. While none of the previous occurred, a substantial part of interviewees of one of the companies studied took the opportunity to communicate with an exterior person as a cathartic release. There were two notable instances where the subjects complained quite virulently against their firm.

The interview process endeavoured limiting risks for participants. Questions were designed to meet the objectives of the research, to be understood by participants, and to be non-threatening. Accordingly, a key challenge was the use of semantics that would facilitate meaningful data collection without the bias of personal interpretation from interviewees on research-specific terms. Actually, during the pilot case, the contentious terms were integrated in the questioning and it was confirmed that this vocabulary was totally alien to interviewees and could not constitute the base of a discussion.

To avoid the *'threatening'* aspect that interviews may carry, Yin's (2009) advice was implemented and *'how'* questions were used whenever possible. This issue was also mitigated by establishing a rapport with the subject at the beginning of the interview. It was specified how interviewees were protected and how anonymity was guarantied. Moreover, building rapport was also facilitated by the setting of the location of the interview and general questions about the interviewees used as *'ice-breaker'*.

4.7.5 Pilot case

According to Yin (2009), a pilot case facilitates in refining data collection plans in terms of content of data and procedures to be followed. The selection of the pilot case is generally guided by convenience or access. In this thesis, this case provided the opportunity for a *'low risk'* approach for this study as prior personal contacts of the researcher granted access to this company. In this instance, AA[27], a company the researcher had known for some 10 years, was approached in the first half of 2013. According to Yin (2009), the pilot case can take the form of a *'pilot test'* and help in developing the relevant lines of questions, and some possible conceptual clarification for the research design. Alternatively, the exercise may pertain more to a *'pre-test'*, a *'dress-rehearsal'* in which the intended data collection plan is used as faithfully as possible. AA has served for both pilot test and pre-test exercises.

In regards to the pilot test exercise, AA was treated as a full case study (Appendix 25) of equivalent standing to DLT and KPS ones. However, it has not been integrated in the main body of this research as only 5 individuals remained in the firm at the time of the study. Thus, AA could not be compared with KPS and DLT. Undertaking the task of compiling the pilot case was of great value for this study. It served in the early stages of this research to confront and test in real terms the practicability and feasibility of the data collection plan. In addition, the scope of inquiry for a pilot case can be much broader and less focused than the final data collection plan, and may cover both substantive and methodological issues (Yin, 2009) which was important in this exploratory phase of the study. This thesis is a first attempt at using activity system analysis to explore holistically and dynamically OK emergence and creation. The formulation of the final research strategy and the conduct of data analysis and within case analysis became only possible after n^{th} versions of this pilot case through which the final structure of the study took form gradually. Examples of the value this AA case added to this study include the identification of the need for a conceptual lens and organisational knowledge-intensity to reach a required level of abstraction and as an adequate one to inform the interpretation of data (Appendix 25 - Section 1.4); the constant fine-tuning of the conceptual framework (Section 3.5) and the adaptation and integration of the eight-step-

[27] Name given to the company investigated for the pilot test

model for translating activity systems (Section 4.8.2); the understanding of how to move from a primary data to an abstract knowing-doing and learning activity system; and how to approach tensions and contradictions (Appendix 25 - Section 1.5.8).

Moreover, this pilot case helped understand the dangers of being overwhelmed by data and that decisions had to be made to address this challenge. Thus, this pilot case was pivotal in deciding if this thesis was to concentrate only on the mediated relationships and align with Nonaka and Takeuchi (1995) epistemological and ontological dimensions, leaving aside the tensions and contradictions. Such a decision was critical and impacted the handling of data analysis as running a full ASA would have exceeded the scope of doing a PhD. However, when the researcher began to glimpse at this early stage the substance of the contribution she could make to knowledge, the choice shifted to performing a full ASA, sacrificing depth for comprehensiveness. Instead of studying exhaustively all mediated relationships and all tensions and contradictions, the focus was on underscoring the mechanisms and dynamics. Traditionally, ASA is implemented to advance or solve an undesirable situation in an organisation. In this work it is used as a means to study the mechanisms and dynamics of OK emergence and creation.

Finally, the pilot case was used as a *'pre-test'* (Yin, 2009), and the final version presented in Appendix 25 was an opportunity to craft an example of a full case study.

In conclusion, conducting a pilot test and a pre-test was important for this research. Given that the researcher was inexperienced in the field of implementing activity theory, the pilot case AA was an important training opportunity. The AA case helped the researcher to select a language and also to develop an abstract pattern of thinking. And, the case underscored the need for a two-stage methodological approach involving the organisational knowledge-intensity conceptual lens. Finally, performing this case enabled the researcher to pursue the methodology with confidence.

4.8 WITHIN CASE ANALYSIS

This section summarises the analytic strategy used in case study analysis. There is no standard format for within case analysis (Eisenhardt, 1989). Researchers should be concerned with the idea of becoming intimately familiar with each particular case, and this provides the opportunity to use patterns that may be unique to each case before carrying on with pattern generalization across cases if any. As Gephart Jr (2004: 457) stated: *"Qualitative methodologies must be used in ways that are consistent with the theoretical or paradigmatic view(s) adopted and the specific problems being explored. This consistency is important so*

that the research process is capable of producing the kinds of data and analyses necessitated by the theory in use and the goals of research in the related paradigm".

Accordingly, the analysis of each case involves two different levels of interpretation. The first one aimed at *'reducing'* the data according to the constant comparative method (Glaser and Strauss, 1967, Strauss and Corbin, 1998, Strauss, 1987). Indeed, the latter was posited as most suited to efforts for understanding the process by which actors construct meaning out of inter-subjective experience (Suddaby, 2006). The expected outcome was a list of knowledge-intensive characteristics on the two organisations investigated that was consistent with the Cook and Brown's (1999) epistemology of knowledge. The corresponding epistemology of knowing was encapsulated in the second level of analysis that was concerned with making sense of the data using the conceptual framework (Chapter 3).

4.8.1 Data reduction using the constant comparative method

The constant comparative method consists in '*comparing incidents applicable to each category, integrating categories and their properties, delimiting the theory, and writing the theory'* (Glaser and Strauss, 1967: 105). This data reduction stage engages the researcher in an intense, systematic process of examination and re-examination of the data while comparing one source with another in order to uncover similarities and differences. More specifically, data reduction consists into the process of selecting, focusing, simplifying, abstracting, and transforming data gathered in written up field notes or transcripts (Miles and Huberman, 1994). According to the principles of selectivity and some combination of deductive and inductive reasoning, it is the researcher who decides which data to single out (Berkowitz, 1997). In this regard, the theoretical lens introduced in literature review concerning the theory of knowledge primarily guided data reduction. The different steps involved in data reduction are conceptually distinct but not necessarily sequential consist in open coding, axial coding and selective coding.

Open coding involves finding conceptual categories in the data at a first level of abstraction. During this stage, an intense microscopic examination of data is engaged with to open up theoretical possibilities. The purpose is to generate abstract conceptual categories that the researcher can use subsequently in later theory building; these are called substantive codes. The coding is not centrally concerned with description or thematic analysis of data but with generating abstract concepts that may then become the building blocks for the theory. At that stage, the codes or labels are provisional and investigators can keep an open mind about them and evaluate their relevance to the study (Strauss, 1987). At one point, after refining the initial labels, a code and definition table can be created that is as descriptive as possible and where codes and definitions are mutually exclusive (Yamagata-Lynch, 2010). The final outcome of

open coding is the emergence of a set of conceptual categories generated from data that are small in number (Punch, 2009).

This second step consists of an intensive analysis of the categories of codes identified during the open coding process (Strauss, 1987, Corbin and Strauss, 2008). Axial coding reconstructs the categories but in conceptually different ways (Punch, 2009). Overarching existing themes and categories are then singled out (Yamagata-Lynch, 2010). These connecting concepts are also referred to as *'theoretical codes'* (term used by Glaser) or *'coding paradigm'* (term used by Strauss and Corbin) (Punch, 2009).

During this final stage, the investigator identifies and chooses the more relevant core categories, systematically connects it to other ones, validates identified similarities and relationships and further refines and develops certain categories if needed (Kolb, 2012). Selective coding replicates the same techniques as the two previous stages but at a higher level of abstraction (Punch, 2009). The researcher must code the data around the core categories of codes that presents the highest relevance and that carries the message about what the investigator learned from the study (Strauss, 1987).

Software as a data analysis tool

Generally speaking, the use of computers for qualitative analysis allows an effective management of rich and complex data. Data is easily retrieved and such software support theory emerged through a facilitated process of *'coding and retrieval'* or categorising analysis (Maxwell, 2013). As a consequence, qualitative data analysis software is a tool inclusive of an iterative and cyclical process that is engaged between data and emergent theory (Richards and Richards, 1994). The decision to use Dedoose (2014) was a key methodological decision for this research, and the online software facilitated the management of large quantities of qualitative data. Moreover, accommodating the specific needs of the researcher, this software could be operated on Apple computers. This was not the case of N'Vivo at the time of the study which was web-based, implying a possibility for working in different locations and was very affordable in terms of investment. It was also a very intuitive software that the researcher learned. The major limitations of this software were that it necessitated a good Internet connection and did not provide personal back up of data at the time of the study. In this regard, even if very unlikely, data loss is still a risk that the researcher experienced in real terms and she did lose all her data (coding, memos, definitions…). The following Table 4.5 summarises the key uses of Dedoose in this research as well as its relevance.

Table 4-5 Main uses of Dedoose for this study

Function	Dedoose type	Details	Advantages and value to research
Storage and retrieval	Documents	• Interview transcripts	• Accessibility
Coding	Nodes	• Code structure and sub-structure and preliminary definitions of constructs • Easiness in organising and collapsing codes when necessary • Easy access to excerpts using codes	• Hierarchical code structure facilitating open, axial and selective coding • Constant improvement of definitions of constructs • Avoiding "context-stripping"
Memoing	Notes	• Specific comments and notes made within the document • General comments and notes	• Maintain focus on research question • Analytic data cycled back as *'raw data'* to raise conceptual level
Searching	Nodes	• Systematic complementing of coding • Word-clouds / 3-D word-clouds enabling reflection on emerging codes	• Quick and easy data retrieval • Coding status reviewing • Getting a gradual of theory building – emergent theory
Data replication	Nodes	• Chain of evidence	• Enabled the creation of a chain of evidence, and records of analysis

With the exception of the data loss mentioned earlier, the use of data analysis software improved the efficiency of data analysis and was critical in the management of large data sets.

4.8.2 Activity system modelling

This research is grounded within the activity theory perspective that has its roots in the dialectical logic of Hegel and Marx. As such, it cannot restrict itself to the description of the beliefs, knowledge and methods of the subjects of study with reference to an emic perspective. Instead, the researcher has to *'explain'* activity in context, as dynamic and emergent phenomena and with reference to a broader analysis of historical development and social relations. She has also to integrate an evaluation and criticism of practices and culture to see the extent to which they constitute barriers to change and progress or, on the contrary, support the transformation of the social context and its preeminence on consciousness (Guy, 2005). At that stage of the analysis and level one being completed, activity systems models can be drafted by identifying the themes fitting into the different nodes of the activity system triangle designed for this study and developed. The models are finalised after thick

description of data is written in a narrative format. As this may involve an additional stage of analysis, additional changes are integrated to the models (Yamagata-Lynch, 2010).

Thus, the preliminary step based on Van Der Riet (2011), is to understand by what and how culture and history influenced the evolution OK emergence and creation. Building related insights while interviewing the participants can satisfy this question. Subsequently, to display the data in the activity system as suggested in section 3.6.7, a list of questions informing this endeavour is suggested. These questions are adapted from Mwanza's (2002) Eight-Step-Model that helps to explain workplace practices from an activity theory perspective. This model was a '*a unique contribution to the development of activity systems analysis because it provides a guide for how the researchers and practitioners can begin their analysis using this methodology'* (Yamagata-Lynch, 2010: 55). An adaptation of these questions is provided in Table 4-6 and informs the conceptual framework for this study.

Table 4-6 Eight-step-model for translating activity systems

Identify the….		**Question to ask**
Step1	Activity	What sort of knowing, doing and learning object-oriented activity are the subjects interested in?
Step 2	Objective	Why is this activity taking place?
Step 3	Subjects	Who is involved in carrying out the knowing, doing and learning activity?
Step 4	KDL tools	By what knowing, doing and learning means are the subjects carrying out this activity?
Step 5	KDL framework	Are there any cultural norms, rules and regulations governing the performance of activity?
Step 6	Multivoicedness	Who is responsible for what when carrying out this activity and what are the different roles subjects take on in this activity?
Step 7	Network of practice	What is the environment in which the activity is carried out?
Step 8	Intended outcome	What is the desired outcome from this activity?

Adapted from Mwanza (2002)

The constant comparative method and activity system analysis were carried out for the two cases as well as the pilot case.

4.9 TWO-CASE COMPARISON

Case-oriented studies provide a strong basis for theory building (Ragin, 1987). Multiple cases are relied on to participate in setting an appropriate level of abstraction and set the ground for broader exploration of the research question and theoretical elaboration (Eisenhardt and Graebner, 2007). However, a two-case comparative study also provides such an opportunity (Lijphart, 1971). Comparative research aims at understanding, explaining and interpreting a phenomenon of interest by identifying divergences and similarities across cases (Ragin, 1987). Subsequently, the *'challenge comes in trying to make sense of the diversity across cases in a way that unites similarities and differences in a single, coherent framework'* (Ragin, 1987: 19). For this research, a two-case comparison involved searching for similarities and differences across the two studies. Particular attention was paid to the organisations' knowledge endowments and to their respective identified activity systems.

During the analysis, emerging concepts, theories or hypotheses are compared with the literature (Eisenhardt, 1989: 544); *'this involves asking what is similar to, what does it contradict, and why. A key to this process is to consider a broad range of literature'*. Contrasting emergent theory with conflicting literature strengthen confidence in the findings and more importantly, this represents an opportunity for more creativity leading to deeper insights. In contrast, discussing similar findings is equally important. This constitutes an opportunity for tying together underlying similarities in phenomena usually not associated with each other (Eisenhardt, 1989). Chapter 7 presents this two-case comparison seeking patterns across cases (Ragin, 1987), and compares emergent theory with literature.

4.10 EVALUATING RESEARCH DESIGN

This research rests on the method of activity systems analysis developed by Yrjö Engeström for analysing human interaction with CHAT while identifying human activity as the unit of analysis. ASA is a relatively novel analytical method with no agreed-upon strategies for maintaining trustworthiness. The case study approach is another research method that is particularly compatible with the theoretical assertions and analytical intentions involved in ASA (Yamagata-Lynch, 2010). It was integrated in this research in the form of a two-case comparison. Despite being a more popular and proven research strategy than ASA, the case study strategy suffers also from the absence of a generally accepted set of guidelines for its assessment (Eisenhardt, 1989). Consequently, the intent of this section is to review the limitations of the research design chosen for this study before presenting the actions taken to address these weaknesses.

4.10.1 Possible issues with the research design

Theory-building case studies that rest on qualitative data imply that the researcher has to engage with a substantial volume of data, which may lead to over-complex theories providing rich details without the simplicity of overall perspective. From there, singling out the important from the idiosyncratic proves a difficult endeavour (Eisenhardt, 1989). It is contended that ASA shares the same features. This method also involves handling a vast amount of qualitative data. Thus, a risk exists that the theory described the very idiosyncratic phenomenon that could prevent the researcher from rising to the generality of the theory. However, the very weaknesses of case-oriented study are derived from their strengths. This points particularly to the rich and creative insights that can be gained from the juxtaposition of contrary or paradoxical evidence. A strong dialogue between theory and evidence is then possible. Case studies produce strong constructs. Subsequently, the resulting theory is grounded in evidence intrinsically rooted in data and therefore is empirically valid (Eisenhardt, 1989). Another limitation lies in the dependence on the researcher as the instrument of data collection and data analysis. This creates potential biases of which the researcher was aware during the study. In order to limit this bias, a constant focus on the research question helped to mitigate this issue.

4.10.2 Rigor and validity in qualitative research

This research follows an intensive design involving qualitative research methods. Despite the different points of view on the need for validity (Guba and Lincoln, 2005), it is contended that validation is crucial for the development of a common scientific body of knowledge (Morse et al., 2002, Venkatesh et al., 2013). Zachariadis et al. (2013) suggested an understanding of criteria of validity in qualitative research within the critical realism epistemology, as set out in Table 4-7, based on a common understanding emerging from scholars.

Table 4-7 Validity in qualitative research

Validity type	Conventional description	Critical realism
Design validity	• *Descriptive validity:* Accuracy of events, objects, behaviours, and settings reported.	• Explanations of mechanisms in action and the conditions with which they are interacting; appreciation of the field by identifying, prioritizing, and scoping boundaries of the study.
	• *Credibility*: Results are believable from the participants of the research.	
	• *Transferability*: Results can be generalised and transferred to other settings	• The idea that similar or related events that occur (or might occur) in other settings are caused by the generative mechanism that caused the actual events in the field.
Analytical validity	• *Theoretical validity*: Theoretical explanation developed fits the data.	• Theory is used to help hypothesize about the mechanisms and provide explanations for the events that have occurred.
	• *Dependability*: Researchers describe changes in the research setting and its effects on the research approach of the study.	• This is an essential part of the retroductive process and identification of contingent factors.
	• *Consistency*: Verifying the steps of qualitative research process.	• Challenge and inform the terms of (quasi-) closure and process of on-going inquiry in retroductive analysis.
	• *Plausibility*: Findings of the study fit the data from which they are derived.	• Whether data that is empirically available gives valid knowledge about the actual manifestation of the alleged generative mechanism in the field.
Inferential validity	• *Interpretive validity*: Interpretations of participants' views are accurate.	• Findings from qualitative research can provide information about the mechanisms that cause the events at the empirical level.
	• *Confirmability*: The results are confirmed by others.	

A comparison of these conventional views of the different types of validity with those of critical realism is delineated hereafter. Instead of focusing on empirical events, critical realism centres on underlying mechanisms arguing that these could be non-related and independent. In practical terms this means that, instead of being concerned with internal validity or whether correlated empirical phenomena are causally linked, a critical realist will be concerned with establishing whether the generative mechanism and dynamic hypothesized or uncovered is involved in the observed events in the field (Johnston and Smith, 2010). External validity within a critical realist epistemology related to the possible generalizability of knowledge claims about one or more causal mechanisms (Zachariadis et al., 2013) and dynamics, and construct validity would address if *'empirical traces give information about the actual events… that are purportedly caused by the generative mechanisms'* (Johnston and

Smith, 2010: 33). Whilst it is not the intent of this section to address in a detailed manner each query, the key challenges for this research combining case study and activity theory are developed hereafter.

Design validity

Zachariadis et al. (2013: 5) defined design validity as follows: *'how well the qualitative study was designed and executed'*. In this study, Section 3.2 provides the details of the possible mechanisms and dynamics considered and the conditions within which they unfold. The conceptual framework features the activity system to be studied through mediation as developed by Vygotsky (1978). The bounded system that constitutes the case is introduced in the case study design in Section 4.5.2. Moreover and consistent with Lincoln and Guba (1985), sufficient time was spent in the field to be immersed into participant's daily activities and cultural context. A total of four to six weeks were spent on the premises of the two companies studied which involved preparing the fieldwork, performing it and debriefing. Rich and thick explanations of research sites and characteristics of case organisations are provided in the two case studies (Chapters 5 and 6) in order to enhance transferability (Lincoln and Guba, 1985). A case study protocol was also used in order to bring rigor in the data collection process and repeat precisely the same steps involved in the fieldwork.

Analytical validity

Analytical validity is defined as follows: *'how well data were collected and analysed, in order to dependable, consistent, and plausible findings'* (Zachariadis et al., 2013:5). This involves steps of data collection and data analysis. In this regard, Denzin (1989) introduced four types of triangulation processes: (i) data triangulation, (ii) investigator triangulation, (iii) theory triangulation, and (iv) methodological triangulation. In this research, three of the four types were used. First data triangulation requires investigators to obtain data from multiple sources, from different time settings and space. Consistent with the previous, two companies symptomatic of polar type cases were investigated in Ireland. Within each of them, a selection of interviewees involved primary and secondary participants who were asked the similar questions. Second, theory triangulation requires investigators to interpret data from the theoretical framework they relied on for the study. This was performed according to the conceptual framework developed in Chapter 3 with a focus on the generative mechanims and dynamics involved in OK emergence and creation. Finally, methodological triangulation requires investigators to gather data using more than one strategy. This research collected data though interviews and document archivals. *'Investigator triangulation'*, the fourth type of triangulation process, requires investigators to work with multiple investigators during data

collection and analysis. This was not possible for this doctoral work. Besides triangulation, a chain of evidence (Yin, 2009) was maintained.

Inferential validity

Inferential validity is concerned with 'how to assess the overall quality of interpretation and inferences' (Zachariadis et al., 2013: 5). In this study, a rich description of generative mechanisms and dynamics is provided for each case study and activity systems summarising the different findings are provided. Moreover, *'peer debriefing'* and *'member checking'* (Lincoln and Guba, 1985) were implemented. In relation with the former, a presentation of the study was made in March 2016 to a researcher's university panel that were not involved in the study. The subsequent discussion and written report was very helpful for this research. Moreover, participations at conferences helped in improving this research work.

Member checking involves presenting the data and analysis results to members and stakeholders of the participants' community (Lincoln and Guba, 1985) in order to obtain critical feedback and observations, and eventually elaborate further on raised issues (Yamagata-Lynch, 2010). A specific report enfolding the first part of the analysis that consisted into identifying company's knowledge base was compiled and sent to KPS. A similar work was provided to DLT. However, instead of being in the form of a report, it was in the form of a conference paper (Khadir-Poggi et al., 2014) that was communicated to the firm and to which DLT formulated some suggestions.

Maintaining trustworthiness in activity system analysis.

Accepting that ASA is a relatively novel analytical method with no-agreed upon strategies for maintaining trustworthiness, in addition to the previous steps ensuring rigor and validity, Schoenfeld (1992: 181) five standards were integrated:

> *"1. Establish the context; describe the issues to be addressed.*
> *2. Describe the rationale for the method.*
> *3. Describe the method in sufficient detail that readers who wish to can apply the method.*
> *4. Provide a body of data that is large enough to allow readers to (a) analyse it on their own terms to see if their sense of what happened in it agrees with the author's, and (b) employ the author's method and see if it produces the author's analysis.*
> *5. Offer a methodological discussion that specifies the scope and limitations of the method, as well as the circumstances in which it can profitably be used, and that treats issues of reliability and validity."*

Standards 1, 3 and 4 were addressed in the previous paragraphs and show in the case study reports. Standard 2 was addressed in Chapter 2 and Chapter 3 where a rationale for the choice of activity theory for the study of OK emergence and creation is provided. Standard 5 related to discussing the strengths and weaknesses of the methodology and the reliability and validity issues. This was included in the conclusions of the case studies where the researcher indicated what she had learned about the case.

4.11 CONCLUSION

This chapter has outlined the realist philosophical approach adapted in this research, and has explained the rationale for the research design. It has introduced the different steps involved in case study based research using activity system analysis and data collection procedures used in this research. Data analysis has been described providing some details on how the software was in the analysis process. Finally, the quality criteria and limitations were acknowledged in the last section, together with the ethical concerns raised by this research.

At this juncture, the research objectives and questions have been posed and expounded (Chapter 1, 2 and 3) while the approach and the methods employed have been presented in this chapter. The theoretical framework derived from the literature (Chapter 2) underscored the three fundamental aspects of a dynamic knowledge-based theory of the firm: an epistemology of knowledge, an epistemology of knowing, and a theory of the firm. It has also emphasised the personal and collective dimensions of OK emergence and / or creation. Chapter 3 has suggested a conceptual framework able to operationalise such intricate and related epistemological and ontological dimensions. A methodological perspective inspired from activity theory has been designed to encompass this holistic perspective. Moreover and consistent with the leading research question, this conceptual framework was set to focus solely on the mechanisms and dynamics underpinning OK creation and / or emergence. Finally, this chapter introduced the philosophical and practical details that will inform the conceptual framework. In particular, this methodological chapter located this study within the critical realist philosophy, overcoming as such the limitations posed by social constructivism. It has also suggested a unit of analysis that addresses the question of the theory of firm, issued usually overlooked or partially engaged in. At last, the present chapter introduced an original set of questions able to operationalise the activity system triangle featuring the conceptual framework.

This research turns now to the examination of the findings that are developed within the three following chapters: Chapter 5, Delta, Chapter 6, Kipos, and Chapter 7, the two-case analysis.

5 -DELTA LIMITED CASE

Delta Limited (DLT) is a medium-sized firm involved in asset management operating in Ireland. The data collection was conducted between September 2013 and January 2014 that included an intensive week of interviewing within the company. This case study offers the opportunity to look into a unique type of asset management firm which is very much concerned with its knowledge base. This chapter is structured as follows: the first section introduces the cultural and historical background of the firm. The second section provides the results of the first level of analysis of this case study discussed in Section 4.8.1 and explores DLT organisational knowing base. The two following sections investigate respectively the mechanisms and dynamics at the origin of the emergence and / or creation of organisational knowing. The subsequent centre of interest explores what could hinder or limit the emergence of organisational knowledge for the case of DLT. This chapter closes with a conclusion highlighting the main findings. All the findings will be reported with the lens of the activity theoretical framework as suggested by Yamagata-Lynch (2010).

5.1 CULTURAL AND HISTORICAL CONTEXT

DLT origin and structure

DLT is an authorised asset management company incorporated in Ireland in 1999. The firm is dedicated to deliver investment solutions through mutual funds and insurance products and advises primarily the retail market in Italy, Spain and Germany. It is the asset management subsidiary company of a financial services company based in a European southern country. The company has benefited from a very stable ownership structure for years. In 1996, a new holding company was listed on the stock exchange. Today, more than 70% of the shares of the group are still in the hands of the original founder and current Chief Executive Officer (CEO) and his original partner. The remainder is owned by a number of subsidiary financial institutions.

Market-driven ethos

Until recently, the success of the group resulted from its sales and its client-centricity. This focus is the main value driving the company strategy and is stated in its mission, values and vision that were regularly mentioned in the interviews. The Group’s slogan bears the original

founder's clear philosophical imprint inherited from the founder's original experience as a financial advisor.

In 2006, the group coined the term *'Home Traders'*[28] referring as such to a *'qualified professional who bring services and advice directly into the homes of customers to help them find the banking and financial solutions that best meet their needs'* [Social Report, 2013:13]. Following the model and spirit instilled by the original founder, Home Traders possessed a very deep knowledge of the Italian local market. Moreover, the retail market the company was addressing as a whole was a niche located between institutional investors endowed with substantial capital and retail clients with limited amounts of capital as a senior executive explained:

> *"They're (The Group) focusing on potential investors that … to an almost forgotten group of customers (…). There's a huge amount money and investors who have enough money to invest but don't have enough money to have tailored investment solutions. I think they are forgotten investors and what [The Group] has managed so well is tapping into this area and offer a full suite of products that is interested to that customer base. They have been successful by recognising this niche area to attract money." (DLTTM4-10459)*

Building on geographical, locational and competitive advantage

In 2000, a strategic change of direction aimed at providing the company with a strong asset management unit took place. Pursuing its expansion strategy at a European level, the group identified Ireland as an operational base: English-speaking country, Eurozone member and host to financial services friendly regulatory environment, high standard of IT and business skills, Ireland's attractiveness for asset managers was indisputable compared to DLT's country of origin. As explained by the Managing Director:

> *"What happened was that in the mid-1990s, with the arrival of UCITS, we have seen a huge arrival of third party products from big asset managers, international AM and so forth. And all these products were competition and all these products were coming in from Luxembourg or Ireland because it is where that the UCITS were established. UCITS is the directives that allow the establishment within the EU of the mutual funds and giving the passports and the distribution passports among the different countries. And therefore we found ourselves specifically for the*

[28] Home Traders: phrase replacing company's protected term.

mutual business in a very difficult position because these funds tend to be very innovative and in Ireland you could approve vehicles in three months, two months, very quickly while in Italy to approve them it could sometimes take more than a year." (DLTC1-2610)

"Then, the other thing is that in Ireland, you could avail of, outsourcing. So basically you could outsource your administrative activities to the best available in the market, which in [country of origin] is again something you could not. In [country of origin], for example all the administration activity is meant to be done in-house." (DLTC1-3888)

The first move to Ireland occurred in 1997 when the Group established its first Ireland-based subsidiary, Beta Limited (BL) as a product *'factory'*. BL was a management company specialising in maintaining and developing a European platform for funds (UCITS and Non UCITS funds) within the Group. In 1999, Alpha Limited (ALL) – a life insurance private company- and Delta Limited (DLT) were created. DLT, ALL and BL all share office premises, facilities and some human resources. The final group structure is available in Appendix 12.

BL, ALL and another entity based in Luxembourg are delegating companies, or DLT's *'clients'*, as the investment firm manages the assets of the three other firms. DLT fulfils two missions for its clients: a portfolio management activity and the provision of investment advice. In relation to the first mission, DLT directly managed the investments on behalf of delegating companies. Concerning the second mission, DLT provides performance, attribution analysis and risk measurement services to a large number of Collective Investment Schemes. These business relationships were framed by Delegate Investment Manager / Cash Agreement with delegating companies. At the time of the study, the company was performing very well even during the worst of the 2008 financial crisis. Based on 2012 results and data, DLT increased its AUM by 16% (+€3bn to €28.7bn), its operating income by 24%, and a profit before tax of €18.5m, up 14% at the end of 2013.

Outsourcing

DLT dedicated its resources to what the firm had identified as value-adding core activities related to investment management. In relation to the portfolio management activities, some activities were outsourced to external managers such as BlackRock, Morgan Stanley, etc.; Provision of Investment advice with companies based in Delta's operating markets. DLT also externalised some functions identified as non-core services. They encompassed fund administration, legal services, external auditing, external tax services, administration of salary and payment, shared services agreements, security and functional analysis activities.

This section completes the cultural and historical descriptive overview of the company.

5.2 CHARACTERISING DLT'S ORGANISATIONAL KNOWLEDGE BASE

Consistent with the structure of the within case analysis discussed in Section 4.8, this section will to identify DLT's knowledge base through the implementation of the constant comparative method (Glaser and Strauss, 1967). This first stage of analysis is introduced as a preliminary step which will inform the activity theoretical framework (Section 3.5) to be introduced in the following section. This step will identify a mode of knowledge representation that will allow us to discuss organisational knowing emergence and creation. The following sub-division provides some methodological details informing the process involved in identifying the sample of interviewees. The second section produces the list of characteristics emerging from open coding, axial coding and selective coding loosely informed by the lens of organisational knowledge-intensiveness.

5.2.1 Bounding the collection of the data and instrumentation

Consistent with activity system analysis and the corresponding unit of analysis introduced in Section 4.5.2, those participants were identified who contributed substantially to DLT's overall value creation. The identified group encompassed those workers specifically concerned with making decisions that would impact directly firm's results, or with making strategic decisions. Preliminary meetings with the C.E.O, one senior executive and several exchanges by emails allowed the identification of a fifteen person target group. Agreement on a timetable for conducting the interviews (Appendix 7) was established.

All interviews for this case study were face-to-face and conducted on-site. They were recorded using Audionote on a tablet, transcribed verbatim and sent to the individual interviewees for confirmation. Interviews lasted between 1 and 2 hours. A room was made available within the company premises as well as the use of coffee facilities. In addition, a visit of these facilities was organised where the researcher had the opportunity to briefly observe physical layout, and the company's technological equipment. Documentation (Appendix 10) was also made available and completed the base of evidence.

The major method used to gather information were interviews supported by document analysis. The interview guide was an amended and improved version emerging from a learning curve that showed the limitation of too narrow questions, and the use of specialist semantics to which interviewees were aliens.

5.2.2 DLT organisational knowledge characteristics

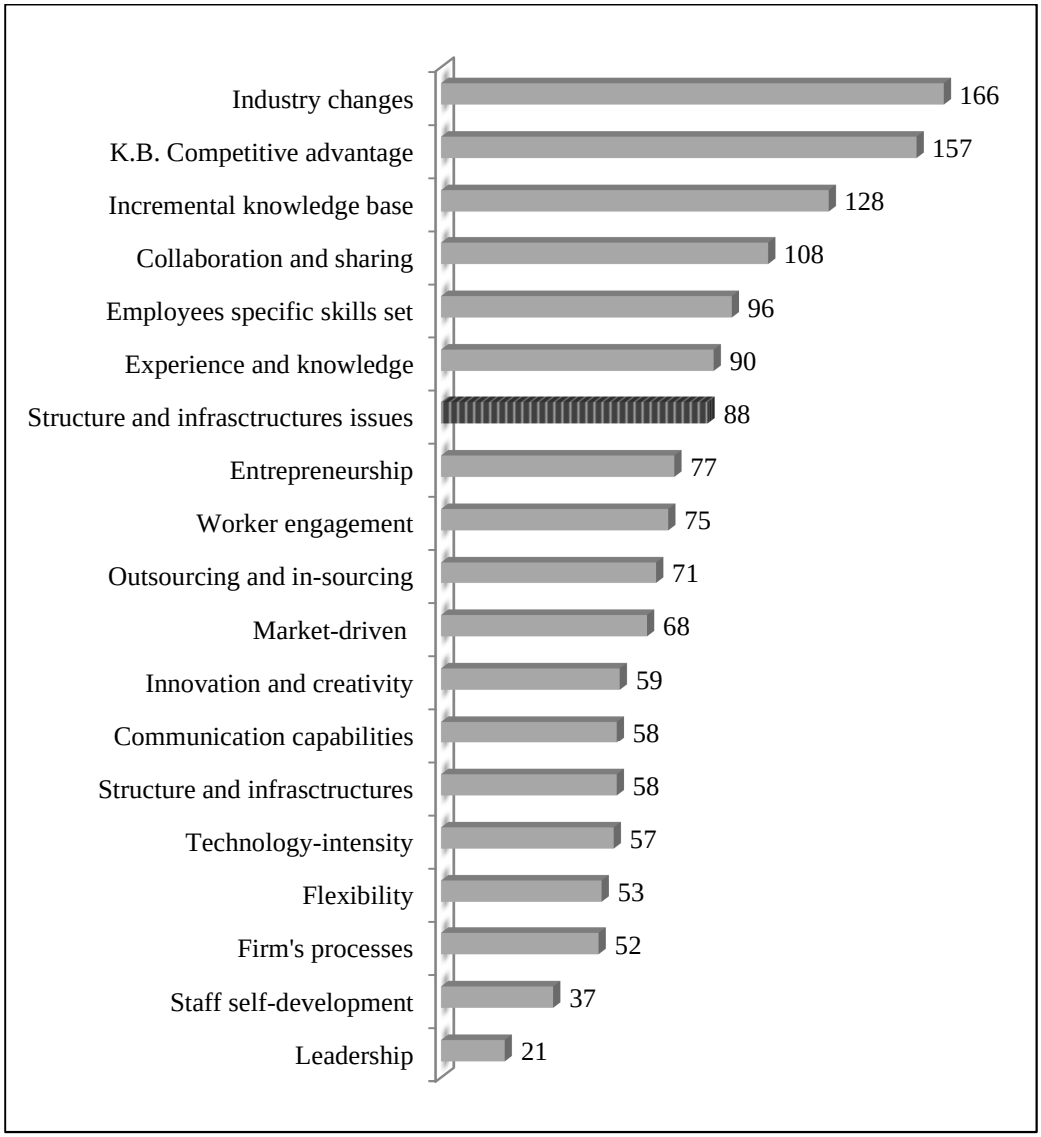
The purpose of this initial coding was to identify the case organisational knowing characteristics at DLT. Each interview was analysed through the lens of organisational knowledge-intensity with a major focus on *action* that is consistent with activity theory. This whole process was underpinned by the implementation of the Eight-step-model of questioning (Table 4.6) that enables the modelling of activity systems. Once a representative sequence was identified in the interview, it was conceptualised and interpreted into a more abstract form while a draft definition was formulated. This process was repeated for all the data collected and the first round of open coding of the interviews led to a preliminary identification of 122 different codes (Appendix 12).

The abstraction process initiated in the previous stage was repeated for the axial coding with the same theoretical lenses and tool. Redundant themes and the ones with a weak code frequencies (number of mentions by participants) compared to the average were combined with other codes close in significance. After reinterpretation, the axial coding allowed the emergence of 68 codes (Appendix 13). The corresponding definitions were amended accordingly.

The final selective coding stage of the coding process was primarily informed by the Eight-step-model for translating activity systems (Table 4.6) corresponding to the nodes of the activity system triangle (Figure 3.6) underpinned by the organisational knowledge-intensity lens. Thus the researcher engaged in an interpretation exercise that led to a reduction of themes into 19 final codes (Appendix 14). The definitions were again rewritten to best represent the themes.

The objective of identifying the codes was to establish representations of organisational knowing and knowledge that will participate in theory building. The 19 final codes are represented graphically on Figure 5.1.

Figure 5-1 DLT's organisational knowledge characteristics



*K.B. competitive advantage: knowledge-based competitive advantage

The list of characteristics shown in Figure 5-1 reflects DLT's knowledge base identified through the lens of KI in organisations discussed in Section 2.6.1.2. The figures at the end of the bars indicate the corresponding number of code applications[29] made while analysing the interviews. Knowledge-based issues appear in a darker grey colour in the chart. The selective coding displayed in Figure 5-1 was set out in order of decreasing importance and reflects the code frequencies.

Based on Figure 5.1 we can observe that among the most mentioned themes, the contextual concerns (*'industry changes'*) ranked in first position among the subjects followed by

[29] Code frequency: number of occurrences in the interviews

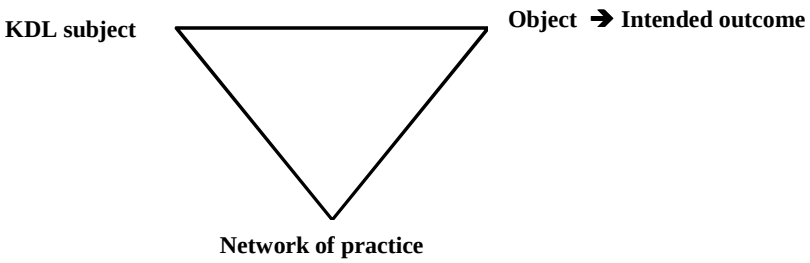
respectively the *'knowledge-based competitive advantage'* and '*incremental knowledge base'*. A '*negative'* theme emerges in the 7th position, '*structure and infrastructure issues'* and reflects the orientation of the coding process toward implementing activity system analysis. All the themes shown in Figure 5.1 will be developed in the upcoming sections.

Following Yamagata-Lynch (2010), the codes identified in Figure 5.1 were used to gradually model DLT activity system and were distributed between the nodes of the AS triangle. This stage was informed by the eight-step-model for translating activity systems (Table 4.6) that guided the distribution of the themes to construct the final AS for DLT. Thus, the company's activity system was conceptualised in terms of knowing, doing and learning as well as goal-oriented actions. The three following sections explore the core activity triangle, featuring subjects, object and network of practice, the OK emergence and creation in social context, and OK emergence and creation at the individual level.

5.3 GOAL-DIRECTED OBJECT AND INTENDED OUTCOME, KDL SUBJECTS AND NETWORK OF PRACTICE

As we enter the field of AT, ad hoc terminology is used. First, the KDL subjects are the 15 participants identified as the target sample. Second, the network of practice encapsulates the external and internal community to which KDL subjects belong and with whom they interact. The object and the intended outcome are addressed subsequently. These three elements represent the core of an activity system (Figure 5-2).

Figure 5-2 Core of the activity system

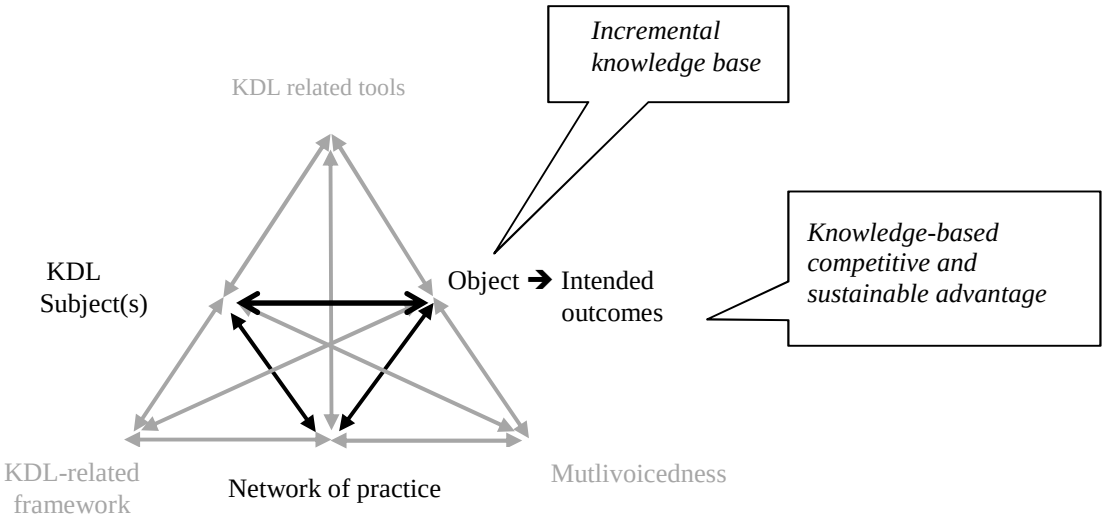


At that stage, the object and intended outcome were determined among the list of KI characteristics and insights gained from the interviews. The KDL subjects and the network of practice were identified based on the interviews and on documentation. The gradual constitution of the activity system for DLT required in-depth immersion in data and a good level of interpretation.

5.3.1 The goal-oriented object and intended outcome

Based on the meanings the participants provided, *'incremental knowledge base'* was identified as the object that was addressed by subjects in this activity system. The themes *'efficiency and quality'*, *'unique products and methodologies'*, and *'firm's credibility'* were understood as the intended outcomes KDL subjects endeavoured to achieve, as these themes were perceived as guaranteeing the future of the firm. An example from the interviewed participants explaining these themes is provided in Appendix 18. Thus, these last three themes were encapsulated under the heading *'knowledge-based competitive and sustainable advantage'*. Figure 5-3 hereafter represents the goal-oriented object and intended outcome.

Figure 5-3 Goal-oriented object and intended outcomes for DLT



Goal-oriented object: incremental knowledge base

In this study the *'incremental knowledge base'* within individuals and the firm emerged as the shared object and defined the object-oriented activity. A major concern expressed by the group of interviewees was recognising the need to constantly increase both the organisational and employees' knowledge bases. This emerged as the *'problem space'* (Van Der Riet, 2011) to which the goal of the unit of analysis' activity was oriented. As one senior executive explained, the prevailing uncertainties within the operating environment called for constant learning in order to be able to perform one's tasks:

> *"Maybe it is looking at other people and how they get scared of something if you don't know how to do it. It is not a roadmap from A to B. There is not a roadmap anymore, a lot of things you do for the first time are new, the day of processes of procedures that are static for any job and any role, I think that to a large degree is gone. (…) But the more you go up the corporate ladder, the more experience you have, the less obvious it is to achieve things. So you need to be comfortable in a sort of unstructured environment and you need to be comfortable taking on tasks when you don't know what outcome it is going to be and just trust that you're going to be able to get there eventually." (DLTC5-16804)*

This dynamic approach to learning was driven by the will to constantly build up the overall knowledge base (Reinhardt et al. 2011, Drucker, 1994). This could be viewed as a strong drive towards strengthening the learning curve (Scarbrough, 1993, Alvesson, 2004). The following quotations from two senior executives underscored a very clear concern for addressing this:

> *"So when you start from something that is built in the process in your journey, then automatically you're opening up to look at more and more avenues in order to increase your global intelligence, your intellectual capital. When you are in a journey, you are evolving." (DLTC1-18946)*

> *"It is a very challenging environment. DLTC1 is very challenging. You know the fact that we are looking at these new ideas before everybody else; we don't wait for anybody else; it is constant learning, I am learning every day. Much more than in the previous job; I mean we're spread across three companies." (DLTC2-42055)*

Subjects also stressed that they need to learn principles for example in order to be able to make a judgment (Tsoukas and Vladimirou, 2001) as this employee mentioned:

> *"I need to make sure that I understand the overriding principles. That would be the kind of message that I can give to the board that they can understand: (…). And, that is important because if people just follow the rules they might lose what they want to achieve in essence. And that would be my job. When the CB is coming to inspect us, it is my responsibility not just to follow the rules but to stand back and to make sure that the rules have been understood…" (DLTC4-8484)*

The following example of incremental knowing, doing and learning illustrates Senge's (1990) adaptive and generative learning:

> *"First we manage the portfolio and second we constantly try to refine and update the models and the way we look at things and it is how to develop the business." (DLTPM1-5347)*

This identified goal-oriented object was supported by evidence collected from documentation. The organisation had in place and was still looking for new ways of *'physically'* storing, enhancing and sharing this knowledge base aimed at generating an upward spiral of knowing, doing and learning (Argyris and Schön, 1978). At the time of the study, the company had developed a substantial portfolio of proprietary models that included tools such as an online company specific library, an in-house investment management process, or the project around the development of a Knowledge-Sharing Platform (Appendix 17).

Intended outcome: knowledge-based competitive advantage

In the case of DLT, the *'knowledge-based competitive and sustainable advantage'* was identified as aiming at achieving (i) efficiency and quality, (ii) unique products and methodologies, and (iii) organisation's credentials as shown (Figure 5-3).

(i) Efficiency and quality

Efficiency and quality involved different aspects. In this instance, the asset management company showed a strong commitment to deliver the best performance within the firm but also to its clients. Efficiency and quality was understood as adding value while improving the inputs and being able to prioritise:

> *"So, I own the business plan, so it is not just about developing the business plan and doing the numbers, it is actually making sure that we are actually delivering on the business plan and the strategy for the next one to three years. (…)" (DLTC2-22870)*

> *"Part of my role is to make sure that we finish the last thing and I want to make sure that we get the value-added for it and then to challenge deadlines and dates and resources because we are a small team and we are stretched." (DLTC2-46896)*

A common intent existed amongst the interviewees for improving the business in the long run, whether in terms of objectives or in terms of sustainability. As this senior executive mentioned:

> *"So launching the product today, we have to make sure that next year, in five years time that the product is still relevant. So it is continually the product to make sure that it meets what the client needs and that it is still relevant to market conditions or else closing down the product." (DLTC5-3278)*

(ii) Unique products and methodologies

Another aspect of the intended outcomes for DLT rested in regularly improving a combination of skills, products and methodologies that were made company-specific. As part of its business model, DLT relied on an original investment management process: Del3. This investment process captured the know-how and intellectual capital accumulated over the years. Moreover, DLT's portfolio managers had a broad mandate portfolio for managing fixed income universe. These aspects featuring this theme of *'unique products and methodologies'* can be identified with Starbuck's (1992) esoteric knowledge as illustrated by these two following quotes from a senior executive and the two Portfolio Managers:

> *"It [DLT] has a disruptive kind of character in terms of the industry… We do things differently; we're probably the Ryanair of the financial services in Italy. All the things that banks and asset managers do and have always done it because is how it must be done, we don't." (DLTC7-17770)*

> *"It is something we developed over time; we combine traditional fundamental analysis that is traditional finance with technical analysis which is become profile charting since 1980s, all of it charting investors sentiment and analysis. So we take that to another level. We use investors psychology as the third element of the investment process: how every other investor is positioned and how we perceive that position." (DLTPM5-1028)*

> *"Everything else within the fixed income universe, we do it. That is a unique opportunity in the market; it is extremely broad. As here, we are only four people managing the funds, 80 funds." [DLTPM2-545]*

This and other existing processes constituted strong points of reference for the company and DLT Group's stakeholders. These fostered a strong corporate culture, organisational routines (Starbuck, 1992) and participated in communicating the company's strategic vision. These processes were designed with a view to generate new knowledge and strengthen DLT's competitive advantage.

(iii) Firm's credentials

The third intended outcome that was singled out related to the perception of organisation's reputation and image in the industry (Sheehan and Stabell, 2007). DLT was concerned with establishing strong credentials, showing good governance, transparency and integrity while generating value as emphasised by the Managing Director:

> *"Well, if you have a reputation issue, it would quickly affect your operational. So they are linked at the end. The governance is very important, if there was a governance issue that arose and then ended up in the papers that would actually affect sales channels over in [Country]. Reputational risk is very important and we'll bring it together." (DLTC2-34485)*

5.3.2 The knowing, doing and learning subjects

The following data informing the understanding of subjects' profiles was collected from the interviews and from the Company's Description document. At the beginning of each interview, serving as *'ice-breaker'* and focusing the attention of the participants, questions were asked in relation to education, career and current position. A brief statistical description was performed based on the information collected (Appendix 16), and is introduced hereafter. Then, primary and secondary participants' profiles are delineated.

Sample description

From a CHAT perspective, activity systems are always examined from the viewpoint of the subject. There were 13 males and 2 females in the target participant group. Most of the staff was Irish while 3 were Italian, one Scottish and one Welsh. A large majority of the staff had a degree and a Master's and some 45% have additional professional qualifications of which only one obtained the Chartered Financial Analyst (C.F.A.) qualification. The sample involved participants with different levels of managing and developing investment strategies. In terms of total professional experience, 8 people had accumulated 10+ years of total experience while 5 employees had between 5-10 years and only two with less than 5 years. 7 out of the 15 group has less than 5 years of managerial experience suggesting that DLT has a solid base of experienced managers. The current Managing Director operated in DLT since the company's inception in 1997. Finally, a large majority (11 employees) built their professional experiences in only 2 to 4 different companies. The charts displayed in Appendix 17 shows evidence that the firm operated a large recruitment during the 2 years leading up to this study.

Primary participants were singled out from secondary participants. The first group were the subjects who had a direct or indirect involvement in investment strategies and secondary participants were identified for the operational support they provided to the first group. Within the latter, one subject were selected for the insights he could deliver on the subject of this thesis. He had a senior position and was working in the company for the last 35 years *('opportunistic sampling'*). The following section introduces primary and secondary participants with a concern for anonymity. All are addressed using the male gender.

Primary participants

DLTC1: He has extensive experience in investment management and started his career more than 20 years ago. He is part of the Investment Committee and is responsible for the operations of DLT Group in Ireland and in Luxembourg; he carries out the strategic policies received from Headquarters and the Board; leads and implements the innovation-based and knowledge-based culture and infrastructure; ensures the efficiency of the subsidiary and business.

DLTC3: He started his career in 1987 and moved to Ireland 6 years ago where he was part of the Investment Committee. He implemented and coordinated investment strategies, tactical asset allocations and investment guidelines decided upon by the Investment Committee while ensuring that regulations, limits and fund prospectuses were respected. Besides coordinating the Portfolio Management, Analyst and Trading Units, he also coordinated and developed the relations between asset management teams in Ireland and the financial advisors in target countries. He left the company at the end of the year.

DLTC4: He joined DLT 12 months ago. Qualified in accountancy practice, he worked originally as an auditor for the government where he developed a good understanding of systems. He made sure that the Compliance and Risk teams were organised and managed for an effective delivery of their objectives.

DLTPM1: He spent 11 years in the financial industry specialising in long short equity head funds and has since spent 18 months in DLT where he specialises in macro approach and developed processes and his own vision. He is part of the Investment Committee. He is the head of the portfolio management team composed of asset allocation and securities selection, a team that according to him was quite inexperienced. He orientated and built investment strategies and coordinated and trained the Portfolio Manager's team.

DLTPM2: He has 10 years experience in the financial industry and has spent 4 years with DLT where he manages in-house bond portfolios. He has a quite extensive and diverse experience that introduced him to the full-cycle of fund management. He researches possible securities in which to invest, establishing a duration view and a view on all asset classes.

DLTPM3: He joined DLT 18 months ago where he is part of the securities selection team. He has a total of 4 years of experience in fund selection (funds of funds). His work consists of performing on-going review of existing target funds; identifying prospective target funds and recommending their inclusion in the Delta Fund of Funds model portfolio to the Investment Committee as well as reviewing of segregated mandates.

DLTTM4: He has an extensive 16 years experience in the financial industry and joined DLT 8 months previous to the interviews. He is a member of the Investment Committee. He is in charge of derivatives and cash management and identifies business opportunities while resolving issues. On the investment side, his role consists of protecting portfolios against an extreme outcome on *terrorist* volatility, and in performing tactical trading allocation. He structures index linked and unit linked products; implements the asset allocation tactical decisions taken by the Investment Committee; manages derivatives and cash teams; supervises the infrastructure of the investment team; models portfolio and asset allocation changes.

DLTPM5: He has 5 years experience and has spent 18 months within DLT. He is in charge of the management of equities in the Overlay program using futures or ETF[30], of the daily monitoring of open positions on the Overlay funds. He reconciles daily positions with data received by custodians and investigates any discrepancies.

DLTC6: He was involved in risk management for 8 years and he joined DLT 18 months previous. He identifies, monitors, measures and manages the firm's risks as well as those arising from the assets under management associated with DLT, BL and ALL activities.

DLTC8: He has 8 years experience in compliance and anti-money laundering. He integrates DLT 2 years ago and was promoted manager 4 months before the study took place. He oversees the overall compliance tasks, assisted in the development and implementation of compliance procedures, monitors policies and procedures, provides advice to the staff and acted on compliance issues as they arise. He also supports the Head of Investment in managing the relationship with the Trustees for the range of UCITs and non-UCITS funds.

Secondary participants:

DLTC2: He has been in the company for 2 years but has 17 years experience in his field. He manages and supervises all the accounting processes, financial matters, tax and legal matters relating to the three entities (DLT, BL and ALL). He develops and implements business strategies, innovation-based and knowledge-based culture.

[30] ETF: Exchange-Traded Fund

DLTC5: He has 24 years experience, 10 of which were at management level with DLT in the investment area and then in product development, management and implementation. He monitors trends and developments in the global asset management industry, facilitates reviews of BL's existing products and businesses, carries out day-to-day product development activities.

DLTC7: He has 35 years experience in diverse economic sectors that include engineering and pharmacy. His role includes Human Resources management strategy and provides for all information technology requirements.

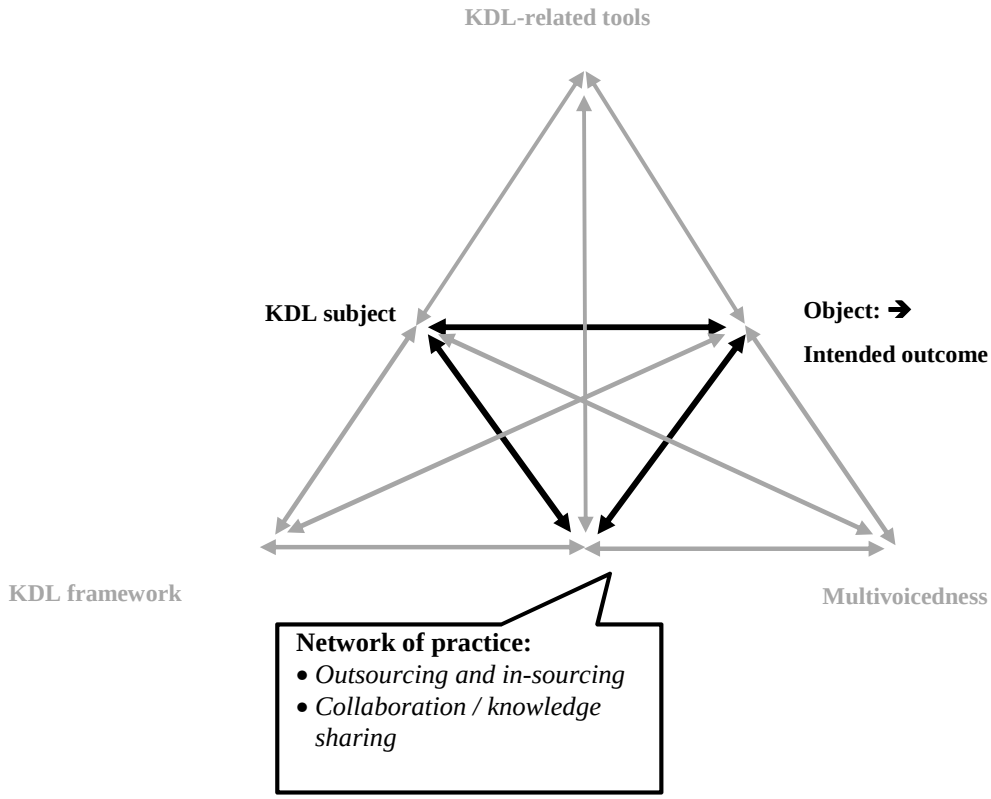
DLTS1: He had a long personal experience developing projects in small firms. He has been with DLT for 5 years. He performs business analysis and test management on larger projects, analyses and oversees business functions and processes in order to identify possible synergies and improvements in controls, including possible automation or new process flows. He was due to leave the company at the end of the week when he was interviewed.

DLTS2: He has 14 years experience in the financial sector and has spent 5 years with DLT. He identifies staff's needs and endeavours to provide IT solutions. He maps and formalises all the operational processes, ensures that all the processes and operational procedures are documented, maintains all corporate governance documents, assists in achieving a standard Group approach where relevant and beneficial; assists with the development of all systems in use by ALL, DLT and BL.

5.3.3 The network of practice

The theme that was identified and related to the network of practice was *'outsourcing and insourcing'* (Figure 5.4).

Figure 5-4 DLT's network of practice



During the modelling of DLT's activity system, two themes were identified as characterising the network of practice: outsourcing, in-sourcing and networking; collaboration and knowledge-sharing.

Subject-object relationship mediated by outsourcing, in-sourcing and networking

This theme underscored the openness of DLT to the outside world and characterised the network of practice for the company. Creating an external network for the firm to exchange knowledge for the purposes of its business was deemed essential. However, it also involved the members of the company to which the subjects related individually (Tsoukas and Vladimirou, 2001). The firm sub-delegated certain activities to external operators in the fund industry. Some functions identified as non-core services were also externalised such as fund administration, legal services, external auditing, external tax services, administration of salary and payment, etc. The firm strove to build tight relationships with its business partners in order to avail of a network of expertise (Assudani, 2009) . It tended to base its value-creating process in developing a synergy between its own knowledge base and the external knowledge (Brown and Duguid, 2001). The idea of co-sourcing or outsourcing-insourcing and its importance for the firm was supported by industry evolution:

> *"When I did this research, I have seen 40 different management tools on the web and apparently there are companies and vendors that are growing very fast in this business and the idea of developing the idea and sharing it, improve it is something that belongs to Web 2.0; enterprises are going social and the idea of sharing something is the winning way of winning products. The idea of engaging a number of partners and people to select a number of ideas and improve it is amazing." (DLTS1-6021)*

The way DLT outsources contributes to guiding the kind of OK that emerged or was created. The firm's policy for outsourcing and insourcing limited the amount of distractions for the participants who finally concentrated on the core areas the organisation chose:

> *"But even the way we're outsourcing is different. So, we don't do outsourcing by appointing somebody and then meeting on a quarterly or six-month basis to see how things are going; ours is much more a 'co-sourcing'. It means that we are working at four hands with them, we are trying to require a very high level of customization and therefore it is never a full out-sourcing. Because we always want to make sure that the process works as we expect it to and we are not having surprises." (DLTC1-6132)*

Subject-object relationship mediated by collaboration and knowledge sharing

Collaboration and knowledge sharing is another KDL the organisation relied upon to generate OK. While it is a tool and is located in the IPA, it reaches also to the network of practice where knowledge is extracted from (Brown and Duguid, 2001). This tool took many forms: collaborative and knowledge sharing organisational platforms based on networks and team-based work regularly incentivised for example, through DelCred, a virtual rewarding in-house tool, the internal online library, the KSP, etc (Sheehan, 2002). This rested on an extensive internal network connecting the different employees in the company and set the foundations for learning and sharing knowledge (Swart and Kinnie, 2003b). It fostered employees' positive attitude for sharing knowledge which reflected an intertwined relationship of dependence. The following quotations illustrate how this tool mediates the relationship between subject and object:

> *"The whole idea is we build the product in discussion with the distributors. So the distributors understand the markets, they understand the Home Traders. They say the "[Country] customers wants coupons, structurally coupons products". So we build the product around [theme]*

with as low risk as possible. We will then develop the product. We'll give it to the production channel and then sell it." (DLTC2-10162)

"Externally we have counter-parties who we trade through, liaising with them, you know relationships with delegate managers and our co-branded products and we have calls with them on a monthly basis, brokers. And then there is research; we have research providers, independent research. As maintenance of the business, custodians…" (DLTTM4-14854)

Collaboration and knowledge sharing in this organisation was supported by physical lay out of offices, and was also institutionalised for compliance and professional reasons:

"We have meetings at three different levels. We have the asset allocation and investment committee meeting, which happens once a month. The investment committee is me, portfolio managers, the head of trading team, the head of analyst team and head of Investments. So that is five of us. And then we have a couple of other members. So that is formalised and we're making major asset allocation decision at that time. The second is strategy meetings weekly. It includes all the investment people, we talk about asset allocation, ideas, we discuss what's going on in the world, trading things, information on outflows and movement of money. The investment team tell us about the fund manager and what they're doing. So we all collaborate in that respect and we try to understand what is going on board." (DLTPM1-9433)

5.3.4 Conclusion

Based on the content of the interviews, we can see that the object and intended outcomes are understood as dynamics motivating OK emergence and /or creation. This core of the activity system analysed in this section emphasise the object-oriented activity. KDL subjects' actions are oriented towards the same object: increase the knowledge base in order to generate a knowledge-based competitive advantage. Subjects endeavoured to achieve this while interacting within their network of practice.

The next two sections will concentrate on understanding the underlying mechanisms involved in the emergence of personal and collective knowing. Attention turns now to the mediated actions located at the social level and leading to OK emergence and / or creation.

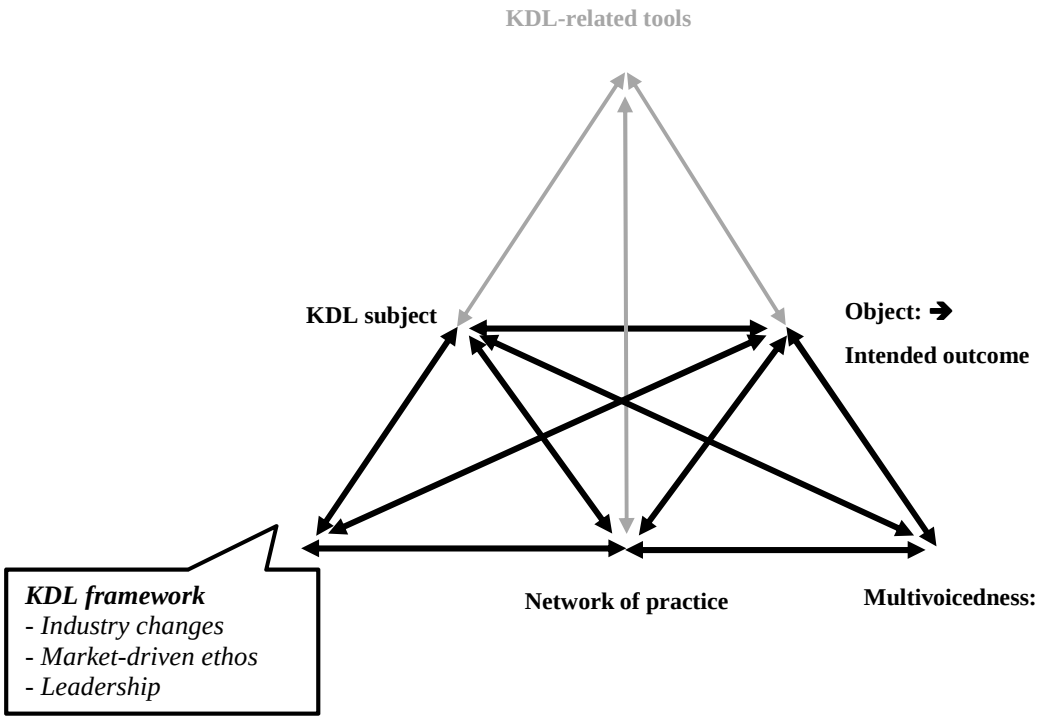
5.4 EMERGENCE AND CREATION OF ORGANISATOINAL KNOWING AT A COLLECTIVE LEVEL

Consistent with the conceptual framework introduced in Chapter 3, the mediated relationships unfolding at the social level encapsulate the mechanisms underpinning OK emergence and / or creation. The emergence and creation of OK collectively occur in the zone of proximal development where a contextualised KDL map forms. The two mediators informing the object and intended outcome were identified as the KDL framework (Section 5.4.1), and multivoicedness (Section 5.4.2). The substance of these mediators for DLT is based on the insights provided in the interviews. Thus, the themes identified in the first level of analysis are distributed accordingly.

5.4.1 Subject-object relationship mediated by the KDL framework

Explicit and implicit rules were internalised collectively by the subjects who, following Tsoukas and Vladimirou (2001:983) were operating in *'particular concrete contexts by enacting sets of generalisation'*. The relationships between the KDL subject and the object were mediated by three knowing, doing and learning restraining or enabling explicit or implicit rules identified in the KI characteristics: *'industry changes'*, *'market driven rationale' and 'leadership'* (Figure 5-5).

Figure 5-5 Relationships mediated by KDL framework for DLT



Subject-object relationship mediated by industry changes

KDL subjects were operating in a time bound context determined by the prevailing business model in the industry, persistent uncertainties, an acute awareness of risks, socio-economic conditions and information-intensity (OECD, 1996). Subjects were operating and increasing their knowledge within this knowing, doing and learning context. The latter was particularly challenging at the time of the study as interviewees stressed and the fast pace of change occurring in an industry that was traditionally slow-moving (Swart and Kinnie, 2003b, Swart et al., 2003). This is exemplified by the following quotations that referred respectively to the industry and the need for being endowed with appropriate technologies:

> *"All businesses are in a point of inflection. (…) I am not saying that every company has to become a technology company (…). Financial services, as I always say, there is 1.0 in the 1990s. In the 1990s you just need the maths. In 2.0 is the last decade and you need the technology to process more and faster. The next decade that is ours, the one that we are in at the moment is where analytics, digital media, cognitive computing… they are becoming fundamental for what you are doing because they are going to add to make better decisions, more educated decisions and they are going to scale up your businesses." (DLTC1-29896)*

The asset management industry in Ireland was marked by general economic and financial uncertainties. In this regard, interviewees emphasised particularly the unprecedented regulatory wave that sweeps the industry and that originates from the Irish financial authorities and the European Union, adding complexity to subjects' activities:

> *"For example, at the moment I have maybe 5 on-going new projects on new pieces of legislation coming down the road or that have already been implemented, for example, AIFMD, CRD IV, UCITS V and VI, MIFID II. Pretty much all of these things have been introduced over the past two years or so in response to the financial crisis or shortcomings with existing regimes." (DLTC8-6277)*

The major elements that were restricting the operating framework were also the worsening uncertainties in the industry and the inflation in the volume of information to be treated in addition to the already high volumes of financial and economic information.

Subject-object relationship mediated by market-driven ethos

Market driven rationale strongly mediated the relationships between subjects and object, influencing decisively the collective knowing, doing and learning dynamic. Emerging from

the interviews and confirmed by the available documentation, this was consistent with Delta Group's ethos; client-centricity was stated as an important axis driving DLT strategy (Sheehan, 2002, Sheehan and Stabell, 2007) as explained by this manager:

> *"Delta as a group is very good at holding on to client and client's money; it is superb in my opinion. They do this by investing in a lot of communication and a lot of contacts; when severe shocks in the system happen, [Group Leader] goes right in front of the camera (we have our own TV Chanel) and speaks to the sale force and stimulates them in retaining clients." (DLTC7-17135)*

Final investors' relationships were in the hands of BL distributors and their network of financial advisors in Italy, Spain and Germany. Following the model and spirit instilled by the original founder, Home Traders possessed a very deep knowledge of the Italian local market. They collected information on clients' needs and expectations and shared them with DLT and BL who, in turn, designed and managed the corresponding products (Winch and Schneider, 1993, Swart and Kinnie, 2003a). With an average of 11.8 years of experience within the group, the Home Traders were central for performance generation as illustrated by the following:

> *"We have launched 3 funds lately and they're successful and it is a very direct consequence of understanding of what customers want. So Delta's success to a great degree is down to that." (DLTTM4-11097)*

The principles driving the group's business strategy were based on: a strong experience gained since 1982 in customers management, innovation to support future-orientated actions anticipating market needs, technology-intensity, and humanity that guides the relationship between the Bank and the customers. A very close relationship existed between the asset management unit based in Ireland and these distributors and this was supported by bespoke services (Learning in-house tool) to provide to BL distributors' final investors regular training on investment strategies, product investment updates, etc., in Irish offices or through video-conferencing (Alvesson, 2004). By interacting closely with DLT, financial advisors also demonstrated a certain level of expertise in the technicalities of the product itself that bring them closer to the asset management function:

> *"So this kind of service, [in-house protected tool] is really important from an educational point of view, we're talking about our products but we are also giving Home Traders the reasons to sell products (the most suitable, how to sell them...)." (DLTC3-2513)*

All sessions were video-recorded and made available to the staff and distributors via the virtual library.

Subject-object relationship mediated by leadership

The emergence of collective knowing also rested on an implicit strong leadership that was observed at different hierarchical levels. KDL subject were provided with a clear direction and vision that influenced their knowing, doing and learning dynamics. Subjects' actions were driven by strong guidance and *'inspiration'* as was the case with the Group's founder. The two following quotations from two senior executives illustrate this theme:

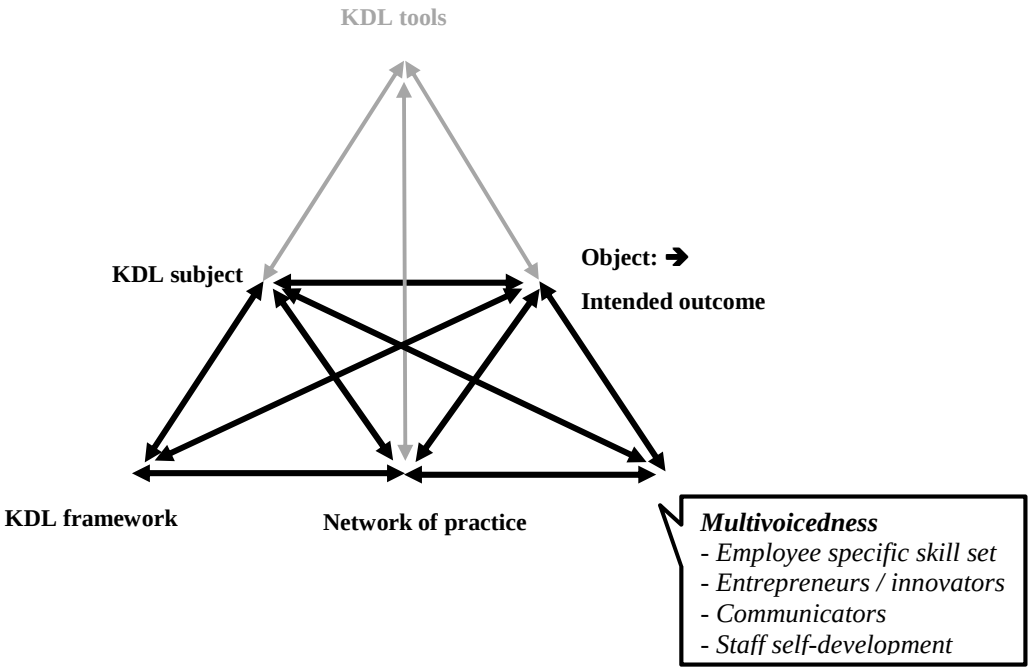
> *"… Very demanding. But that is his [Managing Director] manner; he is almost like an entrepreneur. He is constantly saying 'look at this, at that'. Saturday, Sunday night, at 3 am he sends a new article from the Harvard Business Review. He never stops. He sends us books; we have a book club. So, we sit down and discuss certain of them. He's very good at pushing us. He's probably right because otherwise people would not finish what they have to, as we are so busy. It is why you are learning so much. He is pushing us as probably we are pushing ourselves. It is very good but it is very challenging." (DLTC2-42692)*

> *"I believe in giving a man a shovel rather than giving him a bag of food. So, I try to teach how to know, how to learn, do it themselves. The hard part is that sometimes they're not following the way things should be done, or missing things. I am trying to get the best and the ideas out from people." (DLTPM1-16313)*

5.4.2 Subject-object relationship mediated by multivoicedness

Multivoicedness influenced organisational knowing emergence and creation in social context. The division of labour and multivoicedness created different positions for the KDL subjects as they worked within the organisation. Based on the insights gained during the interviews, four different themes were identified to represent the different roles participants had to play and that participated in shaping collective knowledge: *'employees specific skill set', 'entrepreneurship', 'communication capabilities', 'staff self-development'* (Figure 5-6).

Figure 5-6 DLT: relationships mediated by multivoicedness in the ZPD



Subject-object relationship mediated by employees' specific skillset

The participants' skillset encompassed multitasking, analytical capabilities, ability to deal with complexity, expertise in managing data and delivering or achieving the required objective. A strong stress was put on *'understanding'* leading to interpretation within participants own specialty. This understanding was a pre-requisite to decision making and summarised the knowing, doing and learning dynamic (Sheehan, 2002, Sheehan and Stabell, 2007, Scarbrough, 1993)). *'Understanding'* clearly underscored the gap-breaching between subjects' personal knowing and the one stemming from the social context. This echoed the Vygotskian distance between what is known and what can be achieve while guided by capable peers. For example, it was expected that a portfolio manager be able to conceptualise and identify a philosophy of investment and select relevant data. This finally participated in informing the object, incremental knowing, doing and learning. This is illustrated by the following quotations from a manager and a portfolio manager respectively:

> *"In my current role, what you're involved is not just to make sure that the regulations are implemented but identifying the regulation before they become part of the business. So, it is understanding what is changing and how do we prepare for that change, how do we make sure our pretty products are set up and ready for this change." (DLTC4-6363)*

"You have all those sources but you have to build the knowledge in order to know what to look for in those trends. It is not evident at the time." (DLTPM5-4496)

Subject-object relationship mediated by participants acting as entrepreneurs and innovators

The emergence of collective knowing was also mediated by subjects acting as entrepreneurs. In this instance, they were acting as risk takers and opportunity detectors (Alvesson, 2000). They had different personal attributes: openness to change, ability to stand back, challenge oneself and act autonomously (Robertson and Swan, 1998). This involved the ability to make a decision and implement it (Swart, 2007, Swart et al. 2007). Other characteristics emerging from the interviews were: being curious and having an adventurous nature, resilience, astuteness and intuition (Wang and Ahmed, 2003). The participants were capable of establishing a vision and a long-term trajectory they were willing to pursue. These qualities informed the way of knowing, doing and learning and its final outcome. For example, the participant who was involved in designing and developing the knowledge sharing applications such as DelCred had an original career path. This was characterised by the creation of several start ups, building online communities in various sectors (food, agriculture). He enjoyed keeping up-to-date with web developments and testing new ideas. Entrepreneurial qualities were generally expected from participants as illustrated by these two managers:

"So when someone come to see me with a problem I expect him to have tried to figure out the solution and actually by figuring out the problem, you kind of have the solution. This is a key attribute today". (DLTC7-11430)

"I am good at coordinating and being able to step back and to look at the two sides. Because it is ok to look at the technical aspects of risk but if you can't stand back and look at the macro elements as well and be able to tie up all that together." (DLTC6-7849)

Subject-object relationship mediated by participants acting as communicators

During the study, participants implied that incremental knowing, doing and learning depended on good communication. So, being a communicator was instrumental to collective knowing emergence. This role encompassed the ability to communicate and listen efficiently, being able to sum up an idea and explain its core as substantiated by this senior executive:

> *"You need to explain to people and to let people understand what is your vision and you need to be able to explain to people what is the value for them in buying in this vision." (DLTC1-33498)*

Being a communicator implied the ability to understand and connect with an audience in order to provide a relevant answer. These capabilities were viewed as important for purposes of quality of information that was part of the collective knowing emergence as illustrated by this participant:

> *"We have two, three meetings per week and conference calls…. If you want to get information out of people and learn more about some people, you need social skills." (DLTPM3-5173)*

The ability to communicate was also viewed as a soft skill and to be a *people person*.

> *"I feel I can connect the dots a lot. And then also my ability to teach and work at a team member." (DLTPM1-1127)*

Subject-object relationship mediated by staff self-development

Staff self-development involved participants in being able to take care of their own career paths, to market and train themselves while taking control of their own learning process (Wang and Ahmed, 2003). This attribute was strongly related to entrepreneurship but was kept separate in order to better reflect how collective knoweldge was informed in this company. The participants showed a genuine concern for managing their own career development through initiative taking, improving their learning curves while taking control of their own learning processes (Robertson and Swan, 1998). Many of the participants had a rich career path showing a varied expertise gained in different industrial sectors or a strong knowledge of the financial industry value chain. They act in an autonomous fashion in order to progress their careers (Robertson and Swan, 1998) as summarised by this manager:

> *"And then with the introduction of technology, the role and the way we did it wasn't required anymore. So I kind of find myself at around 29, what do I do now? But at that stage, I consciously made a decision to acquire generic and transferable skills and not to purposely seek and take roles that were not, where you were put in a silo, where there was a lot of demand on you from different areas just to keep… Because I did not want to be in a situation where I would train for a role and then something would come up and you're obsolete. (…) So you need to make yourself*

attractive across a number of roles and acquire as much knowledge as you can across different areas." (DLTC5-17618)

5.4.3 Conclusion

This section on OK emergence and creation in socialised context highlighted primarily the underlying mechanisms. These typically involve the relation between the subject and the object and a mediator that determines the way the subject informs the distance between their levels of knowing and those that they seek to integrate.

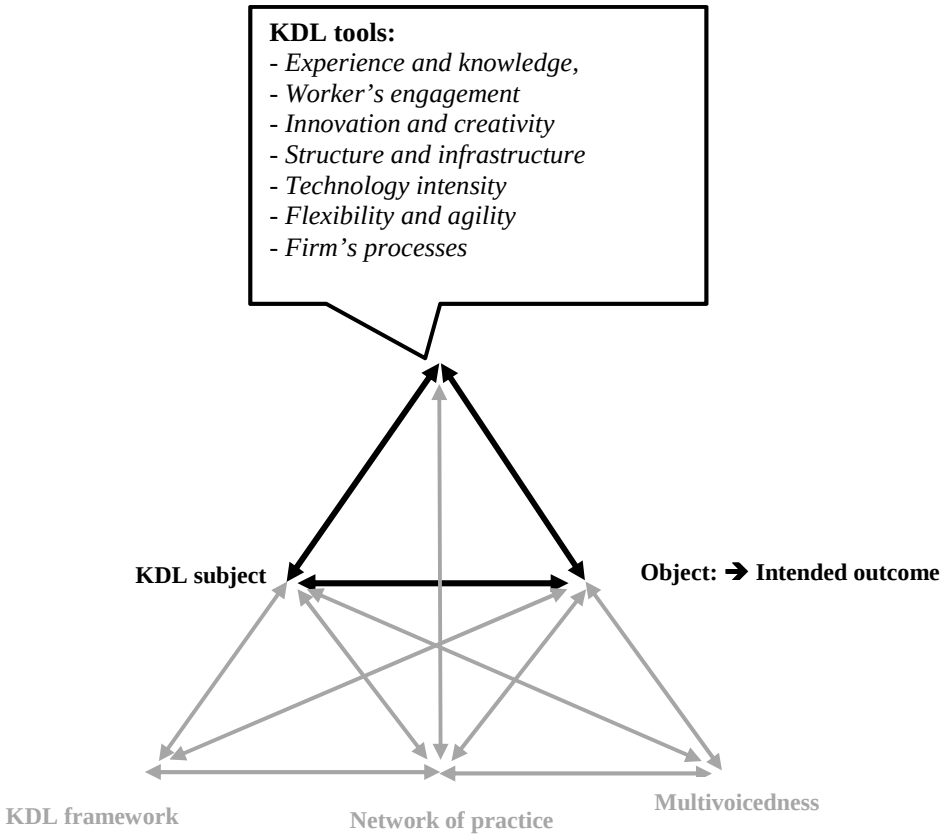
This section also identified *'leadership'* and purpose as a dynamic stimulating OK emergence and / or creation. This is maybe particular to the company under review. Since this knowledge-intensive characteristic was perceived as deeply embedded in the company's culture and history, *'leadership'* was qualified as KDL framework. In other circumstances, it could be seen as a KDL tool. The other mediator that can be approached as a possible dynamic is that of *'entrepreneur and innovator'*. However, DLT's subject's entrepreneurship seemed to be downplayed by the prevalence of well-established and visualised patented processes (Alvesson, 2004).

At this stage of DLT case study, the different mediated relationships participating in the emergence of organisational knowing were investigated in social context. Subsequent to the first level of cognitive development (Vygotsky, 1978), attention turns now to the second level where knowing is internalised and exteriorised at the personal level within the internal plane of action.

5.5 EMERGENCE AND /OR CREATION OF ORGANISATIONAL KNOWING AT THE PERSONAL LEVEL

The relationships between subjects and the object was mediated by six knowing, doing and learning tools identified in the interviews: *'experience and knowledge'*, *'worker's engagement'*, *'innovation and creatvivity'*, *'structure and infrastructure'*, *'technology intensity'*, *'flexibility and agility'*, *'firm's processes'*. The underlying mechanisms related to the emergence of personal knowing are located in the upper part of the activity system triangle that is shown in black bold in Figure 5-7.

Figure 5-7 KDL tools-mediated relationships



5.5.1 Subject-object relationships mediated by the KDL tools

Subject-object relationship mediated by experience and knowledge

The incremental knowing, doing and learning at an individual level or the personal organisation knowing emergence was determined by subjects' knowledge and experience. This encompassed all the years of total experience, the deep and thorough knowledge of financial industry value-chain in general and asset management in particular, to their knowledge diversity and expertise in their specific domains and talent, existing among the staff (Swart and Kinnie, 2003a, Robertson and Swan, 2003). The two following quotations show how past experiences created individual knowledge maps that were then adapted to the current company where subjects were operating. New *ad hoc* knowledge maps emerged then from adding supplementary experience gained within the new company:

> *"From a fixed income perspective as I used to work on the sale side, not for a very long time but the curve is very steep. I always go back to that…. when I was constructing the portfolio, you have to know a lot of the names*

within the space and this is where I learned a lot of the intricacies of the credits, specifically on the high yield. Because the high yield has expanded hugely and it has been a very important facet of the portfolio. It was an immature asset class 5 years ago compared to today. The learning curve there was very steep but it is very relevant to what I do now." (DLTPM2-5441)

"If [Managing Director] wants to replace me, he will find a good investment guy for that. What would be hard to replace is my full knowledge of the culture of the group and my capacity to be the link between a pure investment role and the sales network. This is not easy to find. (…) I challenge in my experience…. Also my capability to manage conflicts with angry people... It is important in a managerial role and it is not easy to find. Also trying to have the best from the people that are working for me and to do the right connections and the right strategies, not only in terms of investment, but also in terms of communication, internal communications not only with Home Traders but other people in the company in [Country]… I am a platform of communication and I am an expert to that, because my age is giving me a lot of experience… I don't deserve it but my age deserves it…" (DLTC3-12671)

This experience and knowledge was encapsulated in the firm's knowledge base. In this instance, the coding of the products reflected its history. This instantiates the firm as a body of knowledge (Spender, 1996a, Starbuck, 1992). This is illustrated by this quote of a senior executive who emphasised the importance of keeping track of the evolution of the products:

"(…) If you look at the product, the name is based-brand high-yield. But in reality you know, the reality is, for an internal coding, you have based-brand high-yield 4.7.5 which means that you have three different codes. The first one tells you how many times the prospectus has been changed, the regulatory documentation has been changed, how many times there have been changes on the investment strategies and so on and the third one, how many managers do you have changed within the portfolio." (DLTC1-14861)

Subject-object relationship mediated by workers' engagement

Workers' engagement or their emotional connection to the firm and their activities amidst a rewarding work and stimulating environment (Wang and Ahmed, 2003) exerted an influence

on the dynamic involved in incremental knowledge, the object of the activity. To a certain extent, worker's engagement was viewed as workers' willingness to work outside their comfort zone. Overall, this was another imput to the personal knowledge map that was determining for the object and the intended outcome. The following quotations illustrate this relationship:

> *"The technical expertise can be taken for granted. But the one factor… positivity and optimism is the differentiating factor of what makes somebody fit into a team and fit into a company as opposed to a kind of negativity and me, me, me. Some kind of positivity and believe in the future." (DLTC5-20933)*

> *"And then I give specific job where they report to just me, because they enjoy that, it is good for them to get the face-to-face time with the CFO. And it is also good to keep them challenged and try to show them that they are adding value and give them, I suppose it is esteem, and it is reward as well as I thank when they have achieved. They get the reward or the recognition for what they do. You know it is important in a small team that people can step in for each other" (DLTC2-45171)*

Subject-object relationship mediated by innovation and creativity

The capability and regular endeavours the organisation demonstrated in *'being different'* and better compared to competition impacted also the object of the activity system. This intent encompassed diverse aspects such as incremental innovation (continuous improvement), creativity, invisible innovation (little incremental progress of significant value that impacts the final outcome), its orientation towards open innovation, process management improvement and product innovation. The following quotes substantiate the relationship between subject and object that is mediated by innovation and creativity:

> *"So when you start from something that is built in the process in your journey, then automatically you're opening up to look at more and more avenues in order to increase your global intelligence, your intellectual capital. When you are in a journey, you are evolving." (DLTC1-18946)*

> *"And we kept pushing and pushing and now we are starting to deliver fix process to free up people for a bit of time, that they can focus: "I need you to identify the process, I need you to help me now that I can help you in the future." (DLTC2-35749)*

Moreover, substantial investments in technologies improving the management of information supported the company's orientation toward innovation (Alvesson, 2004, Scarbrough, 1999). DLT was investing substantially in systems such as MYSIS or Data Warehouse to facilitate the processing of information and introduced as *'position keeping system and risk management tools'* (DLTC4-15860). The tripartite relationship also involved the subject's own circumstances in relation to creativity (Reinhardt et al., 2011), as illustrated by this Portfolio Manager:

> *"I would consider myself a creative thinker. I kind of step back and try to remain emotionless. If we built sentiment indicators it is because the trouble in the market, they're getting too emotional (…), so we kind of remove the emotion part of the market." (DLTPM5-7020)*

Subject-object relationship mediated by structures and infrastructures

Subject's knowing, doing and learning improvement was also shaped by the regulatory, competitive structure and infrastructures, and an *ad hoc* structure that enabled current running of operations and business development. An illustrative instance resided in the primary concern of the organisation on focusing subjects' actions on identified core activities while outsourcing the non-core ones. This was singled out as being the *'right'* business model:

> *"When I joined the company, it was a self contained company. Everything that had to be done for the company was done by the company, nothing was outsourced. And that model is not the one that is used anymore. What happens now is that companies…*
>
> *As an investment company, you're generally selling a product; in order for you to generate that value of that product and to sell units to policy holder, just to maintain pace with your competitor, it means that you have to invest a lot of money in IT systems just to keep pace with the very dynamic changing environment.*
>
> *What companies found, is that in order to keep pace (being able to produce your prices at a particular time in the day, having very cost cut offs…), you have to have a huge investment in IT. And, what companies found more and more is that it was not profitable for them to do that themselves in-house. So they started to outsource to different companies and we did that." (DLTC4-3379)*

'Infrastructures' was a term chosen to refer to the *'intangible'* aspect of the working organisation such as the importance of a team working culture (Scarbrough, 1999, Greenwood, 2009) or the evolution of the orientation of a working unit as mentioned by two managers:

> *"(…) The team dynamic is important on different levels, from information gathering, relaying and discussing ideas; socially it is also very important that you're comfortable with people, become very attached to the people I think, because you're taking a lot of risks, you're very exposed. You need trust in your teammates to take risks. In finance you see a lot of similar mindsets… a mentality… it really comes down to trust and then you're more comfortable to take the bet. (…)" (DLTPM2-8472)*

> *"The development of the investment team has moved from being more operation to being more investments. A lot of the guys in the team haven't stemmed from a conventional investment house. Maybe the people I am working with have come out from the graduate path, formal education into investment, whereas the guys who, in a lot of ways, have taught themselves or have learned on the job in a less formalised fashion." (DLTTM4-20099)*

The firm was endowed with a rather *'flat'* hierarchy and a stimulating atmosphere for staff learning and development (Alvesson, 2004, Robertson and Swan, 1998) as illustrated by the following quote:

> *"Oh yes, I love it so much [the open floor structure]… even the CFO is sitting with us, you can talk to people. It has a very big impact; it is not that if you have to knock on a door and step in. And people can join in conversations. In [a rival company], people sat according to rank; it was very traditional. In [another rival company], you were not allowed to speak to the person above you…" (DLTC6-14527)*

Subject-object relationship mediated by technology intensity

This theme related to organisation's structures. However, it was isolated to undescore the particular inclination of the company in being *'a technology or high tech company'* following the words of the Managing Director. There was a very strong belief in the productive outcomes related to endowing the company with adequate technological infrastructure, and improving substantially the knowing, doing and learning dynamic (Alvesson, 2004, Sheehan, 2002, Greenwood, 2009). Thus, the development of an intellectual property portfolio

(Appendix 17) and a network-based ethos, supported by information technologies, was one of the strong structural assets on which a company's organisational performance rested. Within budget constraints and a prioritisation agenda, it strove to implement the most updated systems that were deemed relevant. Substantial investments were made into information systems, equipment and software with a view to alleviating staff workload, gaining flexibility and speed and enhancing risk assessment. This infrastructure was also key to easing knowledge flows (Assudani, 2009, Blackler, 1995). Proprietary systems were developed in-house such as Data Warehouse and a Knowledge-Sharing Platform (Appendix 17). An internal online library with its collaboration tool DelCred was also part of this infrastructure. This is explained by the following quote from the Organisation Officer:

> *"The other project I am involved in is the DelCred. This is a way to make the staff more productive. It is an internal competition…. to improve the collaboration among the staff, base on spontaneous action. i.e. if you need help, I help you and you want to thank me, you can give me credit. It is a kind of game that has been adopted by the HR to make the place more friendly and increase the cooperation among the staff members." (DLTS1-4641)*

Subject-object relationship mediated by flexibility

Flexibility and agility were other elements that mediated the relationship between subjects and object. Based on the content of the interviews, this was understood as the intent of the firm to improve its business, while projecting itself in the long run (Drucker, 1996). This was about its agility and its ability to react and adapt to new circumstances rapidly, and early enough and in an innovative way:

> *"But then when it comes to the analysis of the fund, you cannot get narrow-minded in how you analyse a fund. You might say it's done well in the last three years; past performance is definitively not a guide for future performance. It might have performed well for many reasons but you have to imagine how it is going to perform in the future; it might be analytical skills, but you must be able to think outside of the box." (DLTPM3-5330)*

> *"We need people who can deal with complexity, people who can multi-task, it's very important. A lot of people are coming from one company and doing one job. Here we've three companies and we work at a very fast pace, so I need people who can deal with multi-tasking, who can deal with complexity, who can bring in the experience." (DLTC2-30988)*

Flexibility and agility also encapsulated the renewal capital and organisation's ability to strengthen its capabilities and change the business when required (Scarbrough, 1993). For example, to best approach prevailing high industry risks, DLT was in the process of designing a process tool, Map Uncertainties to detect early enough business-related risks:

> *"(…) For example we have Maps [Uncertainties]. This is an initiative to look at the potential headwinds, areas that cause difficulties for the firm or the investment." (DLTTM4- 9459)*

Subject-object relationship mediated by firm's processes

One of the strong specificities of this organisation was that it placed a huge emphasis on constructing in-house working processes or clear and well-delineated routines following which knowing, doing and learning would occur (Lee, 1999, Winch and Schneider, 1993). This was acting as a unifying working framework covering the entire processes involved in managing assets, and to which subjects performed their actions. In the case of this company, this was encapsulated in a substantial portfolio of processes (appendix 17) related to investment decision-making, product development, research and development, and risk assessment. DLT referred to the previous using the term *'innovation capital'*. This overlapped with the company's *'process capital'* encompassing in-house processes, techniques, procedures and programs. These elements were among the core value-adding centres that were identified by the company, conceptualised and protected. This concern for operating frameworks was clearly stated:

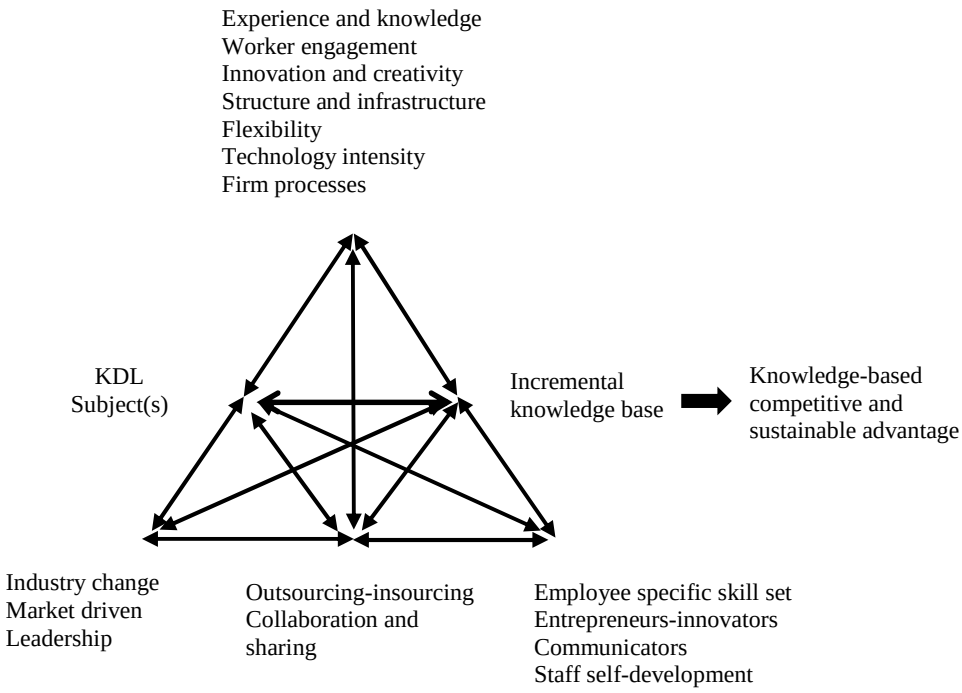
> *"You need to have people within a framework, processes that are able to demonstrate and to leverage on their own leadership to make sure that things are repeatable. That is exactly where you can see everything… it's just a refining process" (DLTC1- 14522)*

5.5.2 Conclusion

This section presented the different themes that mediate the relationship between object and subject from which knowing emerged. Within the internal plane of action, personal cognitive development emerges as the subject addresses the object. While being influenced and guided in this, her or his actions by tools and artefacts (Vygotsky, 1978) have been presented.

Based on the descriptive analysis of findings extracted from the data, Figure 5.8 presents a summary of the KI characteristics encapsulated in the different mediators within the company.

Figure 5-8 General activity system for DLT



At that stage, the study of the mediated relationships featuring the mechanisms behind OK emergence and / or creation is achieved. Some of the inherent dynamics stimulating knowledge creations were underscored.

The following section introduces the inherent systemic tensions and contradictions identified for DLT. These act as impulse for change and are considered as dynamics that can stimulate OK creation (Engeström, 1987).

5.6 TENSIONS AND CONTRADICTIONS

The two following sub-sections introduce the identified tensions and contradictions that may impact negatively or positively the creation and emergence of organisational knowledge. The areas concerned are the following: (i) experience and knowledge, and incremental knowledge base (ii) structure and infrastructures, and incremental knowledge base, (iii) KDL subjects and technology intensity, and (iv) tertiary type of tensions.

5.6.1 Experience and knowledge, incremental knowledge base

Experience and knowledge mediated the relationship between subject and object impacting as such the emergence of organisational knoweldge and determining the organisation's knowledge based competitive and sustainable advantage. Three tensions were identified from the interviews in regard to (i) staff retention, (ii) age pyramid, (iii) limited staff experience.

Staff retention

Staff turnover represents a serious issue in relation to maintaining the necessary steady base of experience and knowledge to build a competitive and sustainable knowing, doing and learning dynamic. DLT was suffering from a higher staff turnover (20%) compared to the rest of the industry (10%) in Ireland as mentioned by one manager:

> *"In Ireland you will find that there's a steady turnover in the financial services and in the fund industry, there're a lot of growth. The turnover is some 20% a year, which is quite high. (…) Therefore you must be able to retain your people and you have to be able to attract new people." (DLTC2-37558)*

One of the reasons that might have explained this situation was that the Irish-based foreign company witnessed a change in the composition of its staff in the previous two to three years. At DLT's inception back in 2000s, it was essentially the foreign staff who settled the operations in Ireland. However, knowledge and experience regularly *'left'* the company as the foreign staff repatriated in their home country at the time of the study.

Age pyramid

Tensions in respect to knowledge and experience arose from the age pyramid of the company. Based on the understanding of the situation, a gap existed between junior staff that had a good level of education but little experience and the senior staff, who were stretched between their own workload and training the juniors:

> *"I suppose in a way they've lost a huge amount of knowledge but maybe they brought in… in some ways it is very good; it's fresh and they learn a lot. A lot of those guys would be close to retirement age, so you lose a lot of knowledge but you gain fresh ideas." (DLTPM5-13582)*

This situation created a systemic risk for maintaining the incremental knowledge base and delivering client needs.

Limited staff experience

The lack of experience of the junior staff was also viewed as a challenge for the incremental knowledge base. For the company, experience was summarised as having been through a whole business cycle and *'having felt the pain'* of making a decision and taking full responsibility of the outcome. This meant the most experienced participants had to divert some time in training less experienced participants and fixing errors. This issue was particularly important as it was expressed by many staff. The following quotations from a manager illustrated the point:

> *"DLTPM1: So there is a lot of strengths in skills and ability but lack of experience. (…), but the experience is not enough. To be a market expert, you probably need to have been through a whole business cycle and the rest of the team hasn't been through even one each.*
>
> *RESEARCHER: I understand that by experience the team should have gone through the ups and downs of the cycle?*
>
> *DLTPM1: Yes, you need to feel the pain; you need to feel euphoria; so that's an experience thing. (…)*
>
> *DLTPM1: So there's actually experience, and managing the money is actually quite low, so I am trying to bring that up.*
>
> *(…) It also comes back to confidence again, because the back-test of the model and the way we look at things has been very good, but the implementation has not been as good. And that comes a bit down to psychology. So, you're feeling the pain and you're 'oh, I should sell' when actually you should be buying. And those skills are very very different to those and that's where it is taking lots more. So when you experience the pain and you understand the pain, you can get through it. The reason most people fail in this industry, let's say move out of it, is because of the inability to take the pain or the inability to understand the pain." (DLTPM1-17410)*

5.6.2 Structure and infrastructures issues

Two further issues were identified in relation to structures and infrastructures as impacting the knowledge base: (i) an unsustainable pace of work and (ii) participants' feeling of lack of consideration from the organisation.

Unsustainable pace of work

During the interviews, participants regularly mentioned the intense pace of work and heavy workload and confirmed the negative consequence on the object. Thus, personal knoweldge emergence was limited by participants being too stretched between too many tasks. At one point, the perceived excessive drive for company development may jeopardise the future of the firm as exemplified by these two extracts:

> *"So the work overload for many many months has been an inhibitor in terms of not being able to do a lot of the other things that the job maybe should expect to be done, more blue sky thinking, more outside the box, when you have alerts from law firms, tax firms and you don't have time to open them… this is a risk issue" (DLTC7-13973)*

> *"Most of the time, we're working with too much pressure, too much because we are forgetting to use the common sense in doing things. We can't demand to do things where you do not have the experience, the resources. So, sometimes, we can cover the gaps putting more heart in the things, working on Saturday or pushing hard in the evening, but it should not be the routine. Otherwise you cannot survive for long and the quality of your work is going to be reduced and the balance between objectives but also resources not only in terms of people or in terms of the right people but also in terms of tools and IT support and so on; (…) That is probably something that we have forgotten since we are pushing so much to develop the company, the strategies to show to the others internally and externally that you are able to do things, we are engaging in challenges that we cannot win. (…)" (DLTC3-13700)*

Staff feeling undervalued and underpaid

These factors were suggested as the main reasons for which employees were leaving the company. Interviewees mentioned their disatisfaction about their pay and conflated this with how the company valued them.

There appeared to be a difference between what top managers were considering and what the employees were experiencing. In this instance, some senior executives were considering that the *'experience gained within the firm'* was a kind of compensation that was balancing the average pay levels compared to industry standards:

> *"I think that we are lucky because we are also in three businesses and people can see what is happening in every area and in every fund. They*

have the opportunity to see how does it work in asset management, in insurance, in funds. We have many positive sides. (DLTC7-5261)

The participants did not share this and resented the compensation policy:

"… people leave because they don't get bonuses… there's a flat pay structure there, so… Normally if you go into an accounting firm, you start off very low and then you jump jump… But here, it is tiny increments from the start and if somebody is brought in senior they go that level, but people are always on tiny tiny increments." (DLTPM5-17294)

The tension relating to company's compensation policy was also linked to how the asset management team was rewarded compared to distributors. The strong historical orientation of the company toward its clients base and network of distributors created a tension with the KDL subjects who specialised in managing assets. They manufactured and managed products and their expertise was encapsulated in the incremental knowledge base. However, the dominating culture and corresponding reward scheme was designed to reward the sales network based in Italy, while the asset managers were downplayed. This generated some frustrations among the staff as mentioned by this portfolio manager:

"Ok; but the thing is the structure of the company… A normal company, distribution of the revenue is right, the management is on top and there would be an inverted pyramid. High management gets a lot, middle management get so much. The distribution in the management of the product is paramount and that is why you distribute the cash. This organisation is inverted. The management of the product is not the major concern of the company. The sale of the product, the distributor and the money that is made is all going to the distributor. So the skills for managers are not viewed as an important business function of this company. Maybe it is the new business model in finance, you see other companies are struggling to collect assets, they're closing down, narrowing down their offerings, cutting wages…" (DLTPM2-10665)

When it needed some new talent, the company would rather recruit a new person instead of promoting one of its own staff internally. This contributed more to the feeling of lack of consideration. The lack of prospects, in terms of progression within the company, was mentioned in several interviews. This general sentiment of lack of consideration was strengthened by the lack of trust the company was showing in participants' regards.

Following the latter, the company was missing out on its own staff's potential. This quotation from the participant illustrated this point:

> *"When they* [senior executives] *look for ideas they tend to go for a new fund and go outside to other managers when often, I think they should look in-house. They're smart people in here. I don't know if it is a thing with Italian companies, but they see those big American Asset Managers as being the best and the best go forward; often a novel idea may come from someone that is here. They are quite well positioned in taking the best ideas from some of the biggest managers, but they can go a level further and look for something completely different." (DLTPM5-9903)*

5.6.3 KDL subjects and technology intensity

While the company was scaling up on information and technology by operating substantial investments in systems such as MYSIS or DataWarehouse, some of the KDL subjects did not adhere unreservedly to this move. The impulse toward a high-tech organisational style for the company stemmed from the Managing Director who was a fervent believer in this type of organisation. However, some of the participants struggled with basic uses of software and hardware as illustrated hereafter:

> *"My own weaknesses are IT, I have a one-year old at home (....) and they have no mental barrier when it comes to IT, or the rate of change. Where somebody my generation was brought up differently, so I never got in at the ground level in terms of IT and technology. This is I sadly lack and I have difficulty in catching up." (DLTC5-14952)*

Collaboration, knowledge sharing and incremental knowledge base

Three contradictions were identified between collaboration and knowledge sharing and the object. The first tension was due to a language problem. Very few of the financial advisors in the foreign-based network spoke English and very few of the Irish-based participants involved in asset management interviewed spoke company's country of origin language. Thus, the dynamic involved in generating collective knowledge stemming partially from the collaboration with the distributors was limited. The second tension combined this linguistic drawback and the lack of exchange in relation to compliance issues. This could become problematic for a company listed on the Stock Exchange as summarised by this participant:

> *"And, the one thing that I would like to work on, would be… from a compliance perspective would the relationship with the group (in Country)*

compliance team… I am here for four months and I have barely spoken to any of them. In my old job, we'd have constant calls and meetings and I travelled all over the world to meet different teams and everybody was very close. Here, I do not know anybody in the team [based abroad]. And a lot of our rules come from the Group Company. So as well as the Irish rules, we have to roll out Group rules and we don't get really that much help from the Group. (…) I mean everybody has more regulations to comply with because everybody is in the EU, so they have to implement the EU rules, but they are also a listed company on the Italian stock exchange. So you have all these stock exchange rules that are 'humongously' burdensome… So we have to implement them as well since we are a group company and there's the language barrier; very few of them actually speak English and maybe I have to learn [foreign language]…" (DLTC8-16530).

Third, while a clear intent toward making collaboration and knowledge sharing was one of the themes of the company, two of the participants who were in charge of identifying staff's needs, possible synergies and improvement in existing systems and infrastructure appeared isolated from the other part of the group. Moreover, the ambitions for developing an open business model feeding on global intelligence was still hesitant as illustrated by this quotation:

"We are acting as isolated entities. We feel more Irish than global, because when I was working for E-bay it is like there were no barriers between the States and here. We had an intranet, but it was a global intranet. Like one day the CEO of e-Bay wanted to talk to everybody, they sent an e-mail with a video and she was speaking. A video is more effective." (DLTS1-11599)

5.6.4 Tertiary type of contradictions

Tertiary contraditions occur when a culturally more advanced object and motive is introduced into the activity. In the case of DLT, the unprecedented impulse toward the transformation of the firm into a more technologically and innovation-driven one is a source of tension as well as a source of progress. The new foundations on which the more advanced object and motive which is an innovation- and technology-driven incremental knowledge dynamic according the interviews, and from which the firm derived its knowledge-based competitive and sustainable advantage, were not embraced unconditionnally by the participants. The knowledge-based

innovation impulse stemmed from the strong leadership of senior executives who were deeply convinced about their vision and was summarised in the following statement:

> *"All businesses are in a point of inflection. That is why it is important to understand what is your value. I am not saying that every company has to become a technology company, because everything that we do is going to be better, more efficient but not because…. Financial services, as I always say, there is 1.0 in the 1990s. In the 1990s you just need the maths. In 2.0 is the last decade and you need the technology to process more and faster. The next decade that is ours, the one that we are in at the moment is where analytics, digital media, cognitive computing… they are becoming fundamental for what you are doing because they are going to add to make better decisions, more educated decisions and they are going to scale up your businesses." (DLTC1-29896)*

Some participants suggested that changes implemented within the company were too great, and externally sourced. The organisation knowing base was firm-specific and built organically by participants who felt that their contribution was not appreciated at the right level. A general sentiment of distrust towards such an ambitous top-down move was found among participants:

> *"In terms of company culture it is… They would like to say that it is entrepreneurial and innovative, etc. a lot of this is completely unrealistic, we're only sixty people for a small firm but it looks good on the paper. Good aspirations but I think we don't follow through a lot of… but no company's perfect." (DLTC5-22173)*

> *"I know what it is valuable in finance, because really in finance it is something you have to polish up but really there's not much innovation, it is just how you can sell the product. A bond is a bond, equity is an equity. (…) And that is just wrapping things up… Innovation…. I don't know (…) Right now we don't have the understanding for CDS[31] or other sophisticated products and now we're going to have Data Warehouse; it doesn't make any sense. When you don't have basic industry standard… practices are not there. You know there's really good guys coming in and… you know this really takes time you know…. and people put their foot on the brake as well…. Anyway, I just find it very difficult to grasp*

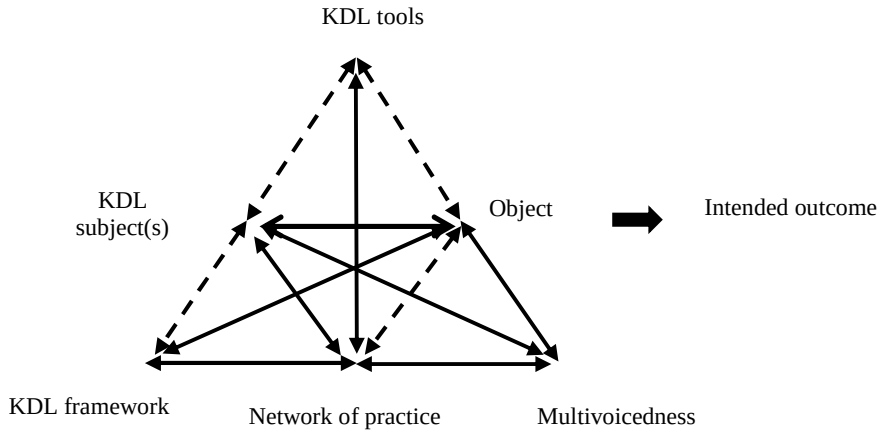
[31] CDS: Credit Default swap

how innovation has anything to do with a dysfunctional mechanism. When it is not functioning, you cannot utilise it to its potential." (DLTPM2-14149)

5.6.5 Conclusion

Figure 5-9 summarises the identified tensions and contradictions for the case of DLT.

Figure 5-9 Contradictions and tensions impacting the object



Based on Figure 5-9, we can observe that tensions and contradictions arise from several relationships. Based on Engeström (1987), Cook and Brown (1999) and Nonaka and Takeuchi (1995), we can conclude that DLT had several opportunities for generating more knowing. However, the study showed that the company was following its own strategy to transform itself into a *high-tech* firm while implementing an aggressive technology-based development that was not addressing these tensions and contradictions. Thus, more of the latter could be expected in the future.

5.7 CONCLUSION

This case has confirmed that the conceptual framework introduced in Chapter 3 could be implemented whilst providing data to support the understanding of the dynamics involved in

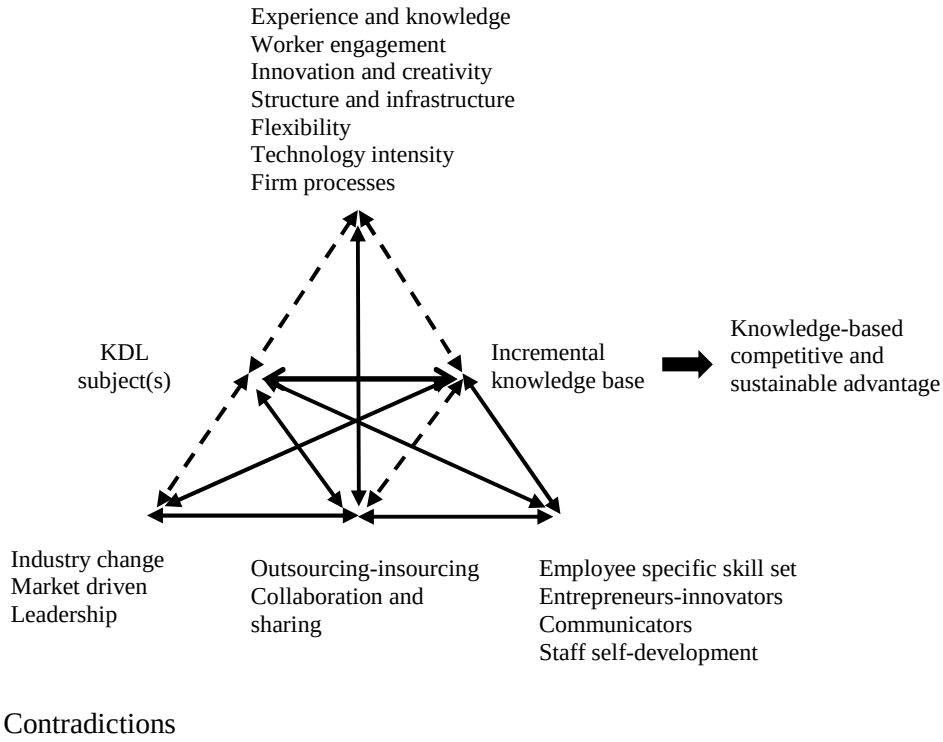
the emergence of organisational knowledge intensity and identifying tensions and contradictions that limit the previous.

The mechanisms were encapsulated in the study of the different mediated relationships while the dynamics were embodied in the object-intended outcome, leadership and innovation and creativity for DLT. The implementation of activity system analysis has allowed the exploration of both aspects of organisational knowing that consisted of personal knowledge and collective knowledge. The case of this company was quite original based on its drive for implementing organisational philosophy that would be commonly found in information and technology sectors. Moreover, DLT was particularly interested in themes such as intellectual capital and, at the time of the study, the organisation was exploring ways to measure it. KDL subjects' own history and disposition towards knowing, doing and learning and their emotional connection to the organisation, influenced the development of their ability to interpret and find solutions to identified existing problems. This was encapsulated in their experience and knowledge and the worker's engagement. The historically and culturally inherited knowing and doing tools and artefacts proper to the organisation influenced the way learning subjects integrated and restituted knowledge, or knew, did and learned. These conditioned the way DLT's knowledge base was constructed as it determined how individuals integrated knowledge.

While DLT's unusual strategic intent constituted a strong motivator for improving the emergence of organisational knowing and its dynamic, strong inhibitors were identified in the form of tensions and contradictions the firm was fraught with. However, DLT was not considering these as they were as it was not endowed with a tool to identify these tensions and contradictions, nor had the intention to do so. This underscores the extent to which the power of this tool pertaining to activity theory is ignored. DLT was missing out on the opportunities of improving the KDL dynamic through incremental or continuous improvement supporting knowing emergence rather than creation.

Figure 5-10 summarises the subject-object mediated relationships and tensions and contraditions for DLT.

Figure 5-10 DLT's general activity system



5.8 LIMITATIONS

The first limitation to identify is that the activity theoretical lens used in this study does not capture the relation of power between subjects. The 15-persons target sample identified for DLT's study, operated at different hierarchical levels and none of them were shown in this study. The only way to refer to the hierarchical level was to mention this literally in the results and quotations.

A second limitation arises from the inability to mention or identify rigourously the relative importance of the different themes as they shape the object and the intended outcome.

A third limitation is that this study does not provide particular valuable information in relation to financial activities. With a view to reaching the level where collective and personal knowing crystallise, the focus was about having the interviewees describing how they came to do what they were doing with financial issues, without targeting a particular part of their work. While it allowed the identification of organisational knowledge-intensive characteristics underpinned by the modelling of DLT's activity system, the final outcome is quite a broad and general understanding on knowing-based actions. While this level of abstraction was sought, it is acknowledged that it does not provide much insight on the financial activity itself.

6 - KIPOS LIMITED CASE

This chapter reports on the findings for a conventional asset management firm, Kipos (KPS). This company fitted the case selection criteria: it was a medium-sized firm involved in asset management. The fieldwork relating to this case study was undertaken between September and October 2013 and included an intensive week of interviewing carried out in the premises of the company.

This chapter starts with an overview of the firm's cultural and historical context. Subsequently, the organisational KI characteristics are introduced before investigating the mechanisms and dynamics at the origin of OK emergence and /or creation in KPS. Tensions and contradictions affecting the emergence of organisational knowledge are presented in the following section and the chapter closes on a concluding section.

6.1 CULTURAL AND HISTORICAL CONTEXT

Based on interview data, the documentation made available and other electronic sources, the following insights relate KPS cultural and historical context. Five characteristics were identified and established the cultural and historical background within which the participant's actions unfolded. (i) The origin and structure of the company outlines a history of sustained restructuring. (ii) A difficult business environment over a 10 years period culminated in redundancies that (iii) forced a change in the business model. (iv) The high dependence on people was raised on many occasions as a shared concern in the organisation. (v) The last point introduced hereafter is one that transcends the three previous points and outlines KPS' concern for long-term stability.

KPS origin and structure

The history of KPS was one of sustained restructuring. Kipos was an institutional asset manager formed in 1980, headquartered in Ireland, with sales offices in New York, Boston and San Francisco. KPS had evolved from a manager of predominately domestic balanced mandates to an international specialist boutique [differentiated specialist strategies on both a segregated and unitised basis] with a focus on institutional and sub-advisory relationships. The firm had a global client base managing mandates in the UK, Europe, North America and Asia. At the time of the study, development prospects were extremely promising and

confirmed in the first half of 2014. Asset under management increased by 39% (€7.5 billion), and revenue increased by 41% (€10.6 million).

Originally, KPS was the Investment Management Division of Bank Ltd, which was itself a subsidiary of another bank. Kipos Ltd was formed in October 2010 after an n^{th} restructuring of the global corporation to which KPS belonged. At the time of the study, KPS was the only dedicated Asset Manager in the Kipos Group.

Redundancies

Consistent with a history marked by many restructurings, several redundancies occurred. Based on evidence, the last 10 years (since 2003) times were very difficult for the company; it went through a massive downsizing and only 50 employees out of the original 100 were still working for the organisation. This was directly related to bad performances and an adverse environment in the industry. The following quotation provides details on the history of redundancy:

> *"There was the big crisis but there were a series of smaller crises before that. Just before I joined in 2003, there was a change in the management; the CEO left and there was a 20 people redundancy. At that time the atmosphere was very positive because we everybody were new in our job. So, there was no sort of feeling of bitterness or… we weren't a profitable company and these were necessity to make… we keep going the next 5 years and the business did not really grow; we keep on tricking and it was clear that our parent company [Name] was not really committed to own us anymore. We were in the part they were trying to divest; there was a period of 2 years maybe where we shrunk the business, there were further redundancies; (…) And then ultimately the business was sold and then, we had a tough period for nearly 9 months and immediately after that, we were still not growing assets and we'd have another redundancy; that was probably the toughest redundancy, 9 people were let go you know because it was a very difficult time in the environment. (…) (KPSPM5-31906)*

These redundancies that stretched over the course of 10 years combined with regular capital restructuring left visible psychological *'scars'* on the participants as illustrated by this quotation:

> *"It is; but once you are getting through the process, you damage even the people who stay for a reason. We got through that; that is this part of being dynamic that is difficult." (KPSC2-10587)*

Those 10 years tended to create a negative culture which all participants referred to.

Niche strategy approach and sub-contracting

KPS business model emerged firstly as a niche strategy and second in direct distribution to the introduction of sub-contracting. The shift of the operations toward a niche strategy approach dated back to 2000s. Building on the feedback from the demand, the product portfolio was organised in three main specialties managed by specialist teams as explained by this senior executive:

> *"It [feedback from the market] confirmed our views that a dividend-based value strategy was something of value and something we should look to institutionalize more and put more resources onto it. And that was led by the feedback from the Irish market. At the same time, we had a number of these environmental strategies and that stage, we were running alternative energy and water funds, which have been in place since 2000, primarily at that stage for our retail investors in Europe. But, as part of this sort of specialization move we wanted to go away from balanced down to specialist products, we looked at the institutional appetite for those type thematic funds which was something new at the time. And we had positive feedback on that from the international market." (KPSC1-1831)*

Most of the participants interviewed were working within the different specialities or niche strategies: dividend-based equities, environment-based equities and multi-asset strategies. The other change that was integrated into KPS business model was sub-contracting as the new distribution model. Consistent with the mutations observed in the industry, KPS gradually changed its way of gaining access to the market toward sub-contracting. KPS was a small player and was not endowed with the resources enabling access to large markets. In this new business model, KPS would be the manufacturer and developer while the sub-contractor would be the distributor. Subcontractors are typically big companies endowed with a large base of customers.

People-centricity

People-centricity highlighted the dependence of the organisation on key individualities. The participants mentioned this on many occasions whether in relation with the level of the industry or for KPS. A senior executive explained how the asset management industry was highly reliant on key workers and the consequence that may ensue if they leave the organisation:

> *"In most businesses, it is about the people like the… say for example, one of our competitors would have lost a key chief investment officer or the person that is responsible for the funds that perform very well, as a result of that they would loose hundred or millions if not billions. (…) The company I used to work for, they were hugely successful, they were the most successful asset manager in Ireland by long long way and… they'd had a great international reputation, and it was built on what they call fundamental investment management, so basically on detailed analysis of stocks and buying small… and high conviction so they were buying small number of stocks in a big market. They had difficulty in the succession planning; as a result four people left and went to the competitor and that destroyed the manager, that destroyed the business, like the business would have slanted by 80% over 4 to 5 days…" (KPSC2-27313)*

Senior executives and portfolio managers showed an acute awareness of the importance of those key people who make the difference between success and failure to the company. They acknowledged the dependence of KPS on a small group of people, particularly for the qualitative strategies and the information and technology:

> *"(…) Particularly for the likes of us where you have fundamental-driven actively managed fund, fund managers leaving is an issue because when they leave, the client says "who's going to manage our fund and how is it going to manage that risk?" (…)" (KPSPM5-24446)*

Stability and long-term view

On of the core characteristics of KPS which was emphasised in all communication and evident in the participants' profiles (Appendix 20) and in the interviews was employees' experience. The company placed a strong emphasis on its stability. Despite many restructurings the company remained committed to asset management for 32 years in total while the investment team had an average of 11 years of experience and the executive committee an average of 20 years. In October 2010, key employees were granted parent company shares in consideration for signing new employment contracts. These shares were locked away for five years and in the case of an employee leaving, the shares were forfeited. The most experienced members of the portfolio management team and senior management team participated in this retention package. Finally, the portfolio management teams were organised in pairs where both portfolio managers were completing exactly the same work. This strategy of teams working in pairs provided stability; if one of the portfolio managers decided to leave, knowledge would stay thanks to the other member of the team.

The cultural and historical context complete, the following section addresses the first level of analysis and attempts to identify the KI characteristics of KPS.

6.2 CHARACTERISING KPS' ORGANISATIONAL KNOWLEDGE BASE

This section is guided by the following research question:

> *RQ1: What are the organisational knowledge characteristics of asset management firms?*

The following sub-division provides some methodological details describing the process involved in identifying the sample of interviewees. The second section produces the list of characteristics emerging from open coding, axial coding and selective coding loosely informed by the lens of organisational knowledge-intensiveness.

6.2.1 Bounding the collection of the data

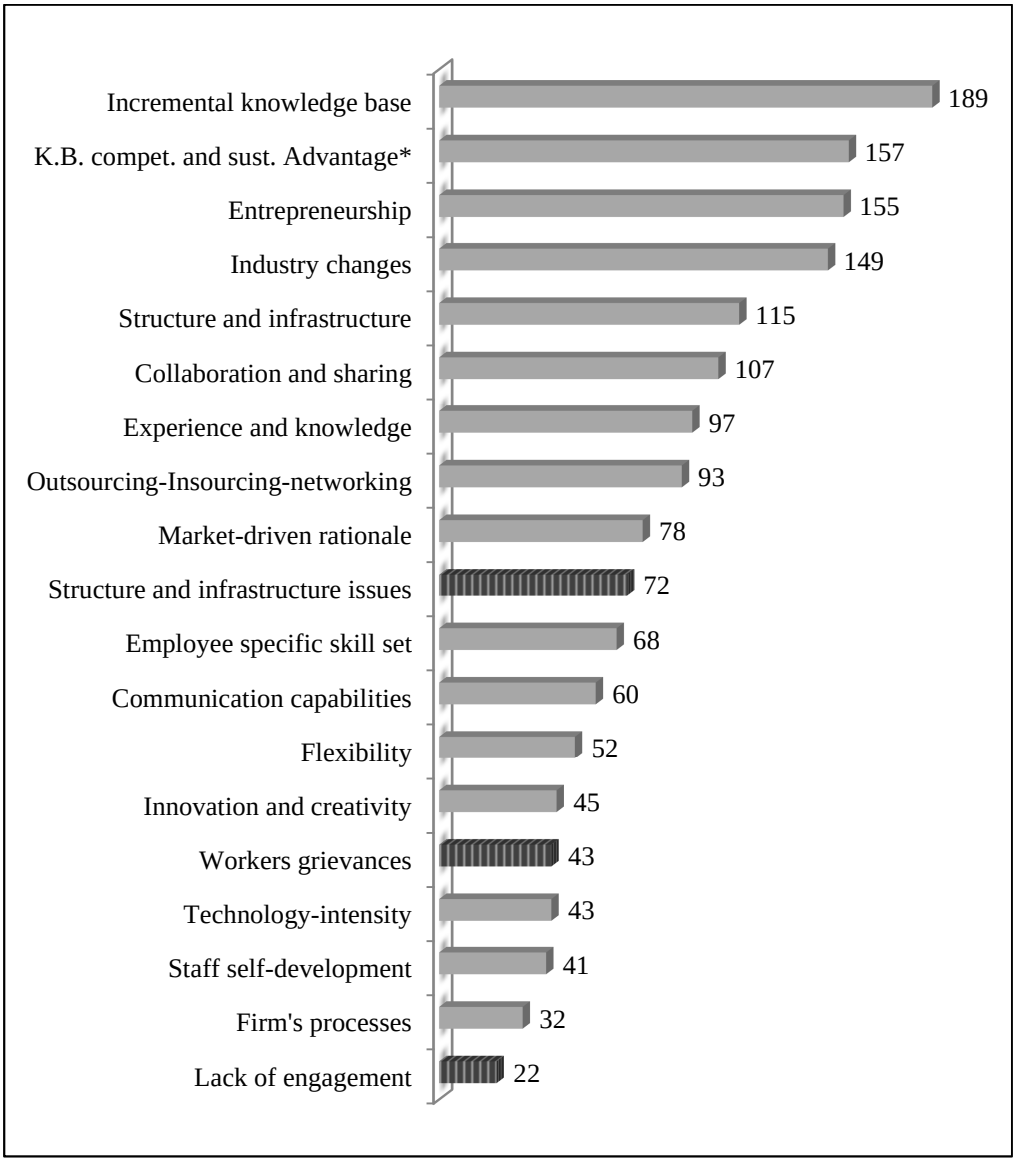
Preliminary meetings with the head of the company followed by several exchanges by emails led to the identification of the target participant group for this study and an agreement on a timetable for the running of the interviews (Appendix 8). A group of seventeen participants were identified originally. One participant was removed from the sample, as the substance of the interview was not relevant to the study. All interviews for this case study were conducted on-site and were face-to-face interviews. They were recorded using Audionote on a tablet, transcribed verbatim and sent to the interviewees for confirmation. Interviews lasted between 1 and 2 hours and occurred in a room made available within the premises of the company. A visit of facilities was organised where the researcher had the opportunity to observe the physical lay-out of the offices and was made comfortable for the interviews. Documentation (Appendix 10) was also provided or collected on the company's website and completed the base of evidence. The predominant means of information gathering was the interview supported by document analysis.

6.2.2 KPS organisational knowledge characteristics

This initial coding was set to identify KPS organisational knowledge characteristics. Each interview was analysed through the lens of organisational knowledge-intensity (Section 2.6.1.2) with a major focus on *action*, interpretation that was also underpinned by the implementation of the Eight-step-model of questioning (Table 4.6). Sequences were identified in each interview and abstracted according to the KI lens to embody an organisational knowledge characteristic. A process of code reduction enabled the identification of 91 themes

(Appendix 20) that were reduced to 45 (Appendix 21). This operation was repeated with the last stage of coding, the selective coding being oriented toward the modelling of KPS activity system as suggested by Figure 3.6. Nineteen major organisational knowledge characteristics were identified for KPS (Appendix 22). Definitions were gradually conceptualised to best represent each identified theme (Appendix 24). The last stage of coding is displayed in order of decreasing importance in Figure 6-1.

Figure 6-1 Themes emerging from selective coding (KPS)



* Knowledge-based competitive and sustainable advantage

The codes represented in Figure 6.1 represent KPS organisational base. The figures at the end of the bars indicate the corresponding number of code applications[32] made while analysing the interviews. They correspond to the number of times interviewees mentioned them. The display of the codes in Figure 6.1 are set out in order of decreasing importance and knowledge-based issues appear in darker grey colour in the chart.

Based on Figure 6.1 we can observe that the most important concern is increasing KDL (*'incremental knowledge base'*) that ranked in first position among the subjects. This is followed by respectively the *'knowledge-based competitive advantage'* and *'entrepreneurship'*. The first *'negative'* theme emerges respectively in the 10th position (*'structure and infrastructure issues'*), 15th position (*'workers'* grievances'), and 19th one (*'lack of engagement').* These knowledge-based issues outline the orientation of the coding process toward implementing activity system analysis. All the themes shown in Figure 6.1 will be developed in the following sections.

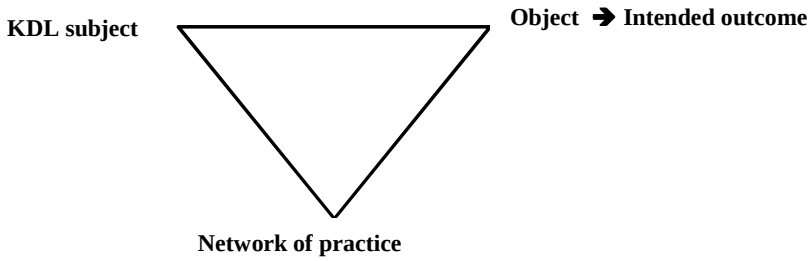
Informed by the first level of analysis, we now turn to the second level. The themes identified in Figure 6.1 were used to gradually model the KPS activity system and were distributed between the nodes of the AS triangle (Yamagata-Lynch, 2010) following the Eight-step-model for translating activity systems (Table 4.6). The three following sections explore respectively the core activity triangle, featuring subjects, object and network of practice, the organisational knowing emergence and creation in social context and at the individual level.

6.3 GOAL-DIRECTED OBJECT AND INTENDED OUTCOME, KDL SUBJECTS AND NETWORK OF PRACTICE

Relying on AT lexicon, KDL subjects corresponding to the 17 participants identified as the sample for this case are presented. A brief overview of these staff members is introduced hereafter. Second, the network of practice encapsulates the external and internal community to which KDL subjects belong and with whom they interact. The object and the intended outcome are addressed subsequently. These three elements represent the core of the activity system (Figure 6-2).

[32] Code frequency

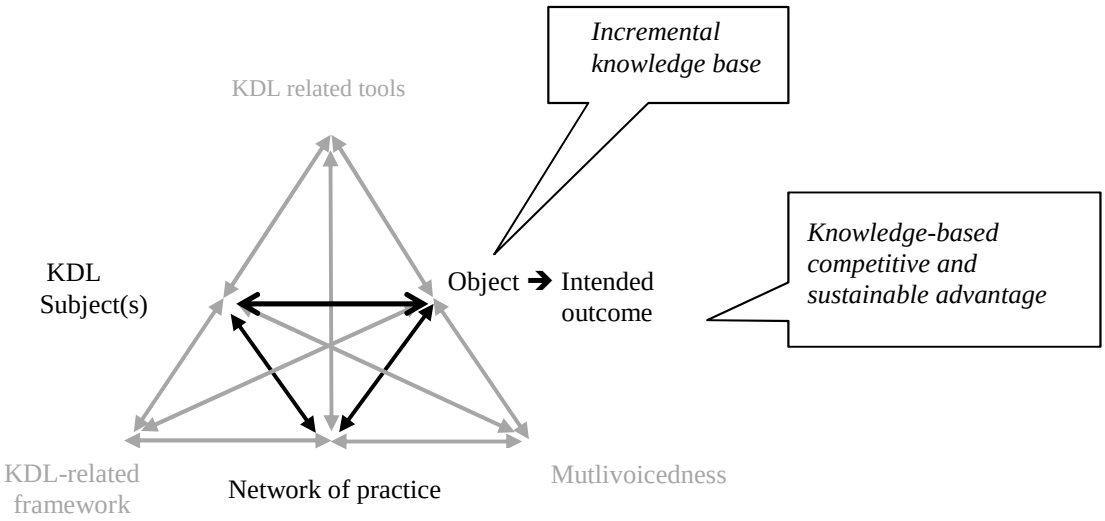
Figure 6-2 Core of the activity system



6.3.1 The goal-oriented object and intended outcome

Based on the KPS organisational knowledge characteristics identified in Section 6.2, the *'incremental knowledge base'* emerged as the goal-oriented object of activity while *'unique products and methodologies'* and *'value creation and efficiency'* epitomised the intended outcome. Figure 6-3 represents the object and intended outcome as part of the core of the AS for KPS.

Figure 6-3 Goal-oriented object and intended outcomes for KPS



KPS goal-oriented object: *'Incremental knowledge base'*

The problem space (Van Der Riet, 2011) that was identified for the case of KPS and salient in participants' actions was to constantly improve their level of knowing on different markets, products or the industry. These goal-oriented actions consisted of understanding, testing, learning asset management related aspects. Given that the KPS' group of interviewees were mostly involved in qualitative strategies, they emphasised the need to acquire a deep understanding of their specialised markets and where their product would stand in the value chain. These insights were to be would gained through company visits, trade shows and strong relationships with specialised brokers. They were learning constantly in order to be able to perform their work (Drucker, 1994, Scarbrough, 1993), engaging in Argyris and Schön's (1978) single and double loop learning:

> *"Yes, this is the advantage of probably having the application over several years. NT would often give out to us that we are the most demanding clients and we notice things first and this is because we have all the data validation. It is continuation learning that allowed us to build... if anything does go wrong, or if we're missing anything, (…) we learn from that and we make sure that it won't happen again. But we do not do it on our own, KPSC4 do it for the business as well. So we are continually trying to learn, especially under…" (KPSC2-20988)*

Moreover, confirming the KDL dynamic, subjects mentioned that they had to make decisions in the sense of Tsoukas and Vladimirou's (2001) judgement making as illustrated hereafter:

> *"There are two schools of thought (…) One says be incredibly smart and be incredibly process-oriented and they've done studies in investing where if you have a check list and you answer all the checklist before you make an investment; statistically those investors are better whether it is private equities or public equity. There's another school that says it doesn't matter how smart you are 'cause anybody can learn the information. The hard parts are absolutely based in psychology; you have to buy when other people are selling; you have to take a long view when other people take a short view. Those are really hard decisions to make." (KPSPM2-6139)*

The phrase retained for summarising the goal-oriented object here is *'incremental knowledge base'*.

The intended outcome: *'knowledge-based competitive and sustainable advantage'*

In the case of KPS, the identified '*knowledge-based competitive and sustainable advantage'* encapsulated two main facets that are introduced hereafter: (i) Unique investment strategies and methodologies, and (ii) Value creation and efficiency.

(i) Unique products and methodologies

The most evident aspect was the delivery of products and constant improvement of strategies and methodologies that were unique to the firm. Consistent with Starbuck's (1992) esoteric knowledge, KPS managed to develop a unique expertise in the field that was difficult to replicate. This also involved an original team structure such as the binomial teams formed by portfolios managers and the concentration in their hands of research and asset allocation. This is illustrated by the following quotations:

> *"Yeah, I think we have a very unique approach, we have a Barbel-type approach where we have the push strategies and we have the pull strategies. (…) We have a very focused niche; I think asset management will be moving towards a very focused niche type of products." (KPSPM4-27728)*

> *"Our company is very different to any other asset manager where you have fund managers and you have analysts. Here, we are the analysts and we are the fund manager. We have to know the whole thing. It's not only the theme, you know each and every company and they know answers and what drives them." (KPSPM4-3950)*

Moreover, while deliberately turning business operations toward targeted products, KPS was aligning its business with industry changes, acknowledging at the same time that the specificity of the product was compensating for the lack of brand. Consistent with Sheehan and Stabell (2007) the perception the industry could have from KPS reputation was introduced as important. This is explained below:

> *"To survive, you have to become specialist and you have to move into the international market, it is a geographic thing, but that was just because of all what was happening in Ireland. It was the recognition that you had to have a very deep specialization to succeed without a big brand. We never had a brand. In the local institutional market, you have to have a very deep specialization, a clear niche and that is what we did." (KPSC1-9853)*

(ii) Value creation and efficiency

Based on the interviews, the concerns for value creation and performance delivery were central to driving all activities. The subject perceived the fact that the company had a business focused on certain types of strategies only provided an opportunity to generate a higher value than businesses involved in broader environments. Efficiency was also a concern that stretched to the quality and the speed at which information was communicated:

> *"I would say that one of the primary jobs, the core, for all of us in the (…) team is handling and disseminate that information as effectively and efficiently as possible. So, knowing not spending too much time on a topic or a stock if it's not going to be useful or a big position in the fund; so, trying to waste too much time I suppose." (KPSPM5-3406)*

6.3.2 The knowing, doing and learning subjects

Data on the KDL subjects was compiled from Requests for Proposals documents, the job descriptions provided to the researcher, and the interviews. With regard to the latter, questions establishing the personal and professional identity of participants were asked and used as *'ice-breakers'*.

Sample description

Of the 22 individuals selected for the interviews, a total of 16 participated. 6 potential subjects could not take part, as they were not available and a rescheduling was not possible. A description of the sample is provided in Appendix 19. It was composed of 5 females and 11 males, had a third level education level and 60% of the group had additional professional qualifications of which 25% had the Chartered Financial Analyst qualification. The level of total experience was substantial with 93% of participants having accumulated more than 10 years of experience in the industry and 75% being part of KPS for a minimum of 5 years. 62% of the participants only worked within 2 to 4 different organisations. The charts displayed in Appendix 20, display evidence that the company had a very stable staff structure.

Consistent with a CHAT perspective, primary participants were singled out from secondary participants and allowed within method triangulation. The first group was involved directly or indirectly in managing assets while secondary participants were more concerned with supporting functions. The group of participants is introduced hereafter and, to preserve their anonymity, only male gender is used and function titles are omitted.

Primary participants

KPSC2: He had extensive experience spanning over more than 20 years within the industry and within the organisation. This senior executive had the overall responsibility for investment process and performance of KPS's assets under management across the various asset classes and specialist equity portfolios. He constantly challenged portfolio managers' investment thinking. He chaired the firm's quarterly asset allocation committee where contrarian views were exchanged on the global, regional and thematic outlook that informed the 'house view' for client portfolios' asset allocation, and bottom up stock selection across portfolios. Other responsibilities related to compliance issues, supervising procedures surrounding risk limits, portfolio construction methodologies, portfolio liquidity etc. He was also responsible for the overall human resources structure and financial packages of the KPS investment team.

KPSC4: With a background in accounting, this senior executive was involved in compliance since its inception in Ireland back in 1986 and spent 13 years with KPS. Based on his interview, his current level of experience and knowledge resulted from a long learning curve gained between U.K. and Ireland. He was in charge of aligning the company and its subsidiaries with all the relevant regulator's rules and requirements. He had to make sure that all staff members were aware of and updated on their duties and obligations regarding compliance.

KPSC6: Building on a background covering diverse areas in financial industry all over the world, this manager totalled a 4 years experience in compliance within KPS. Bounded with the same outcomes as KPSC4, he mentioned that at a high level, his role was to make sure the company was working in line with all the regulatory requirements stipulated by the Central Bank and the Securities Exchange Commission in the US. Besides, he was involved in client reporting, managing relationships with fund administrators, and the legal side of communication.

KPSC7: This manager accumulated 25 years industry experience with the same firm, KPS. He started as an investment analyst in 1988 and became responsible for all economic research in 1990. Since 2008, he was put in charge of the company's communication and the management of one investment strategy. He worked with the environmental team, advising them on macroeconomic issues such as the outlook for economic growth, interest rates and exchange rates around the world, covering both developed and emerging market economies.

KPSPM1: He was a portfolio manager responsible for the development of investment strategy as well as the day-to-day management of this strategy. He was working with the firm

for 5 years and had a cumulated experience in the industry of 13 years. Prior to joining the firm, he worked for various fund management companies in the world.

KPSPM2: He has the same responsibilities as KPSPM1. He joined the organisation 3 years ago and had 12 years' investment experience in the industry. He had extensive specialist knowledge and experience in investing in one of the environmental strategies including both global public listed equities and private equity. Prior to joining the firm, he worked as an analyst in two other companies.

KPSPM3: He was a senior portfolio manager who spent 5 years within KPS and had 18 years industry experience. He was involved in two different funds where he was responsible for the development of investment strategy and portfolio management. He was a senior member of the team and an investment professional with over 16 years' of investment management experience.

KPSPM4: He was a portfolio manager with 14 years' experience in the industry and 5 years' in KPS. Previously, he occupied a function of analyst in two other companies where he was in charge of non-specialised equities. On joining KPS, he decided to narrow down his focus on environmental strategies.

KPSPM5: He was a senior portfolio manager and was in the company for 11 years, which totalled his industry experience. He was responsible for the development of investment strategies as well as the day-to-day management of two strategies. He started in KPS as an analyst and worked in different departments before being promoted to portfolio manager.

KPSPM6: He was portfolio manager with 14 years' experience in the industry and in the company. He was responsible for the development of investment strategy as well as the day-to-day management of the strategy. He decided to specialise in environmental strategies in 2004.

KPSPM7: He was portfolio manager with 13 years experience in the industry and in the firm. He was working on quantitative strategies. His experience involved the management of due diligence as well as portfolio construction and then quantitative management.

KPSPM8: He was a senior portfolio manager specialising in quantitative strategies for 13 years within the company and had 26 years industry experience. He was a highly experienced equity manager having managed substantial portfolios in different countries, specialising in different geographic zones.

KPSTM1: He was the trader of the investment management team with 7 years' experience in the industry experience and 6 spent within the firm. Prior to occupying this function, he was involved in performance and measurement.

Secondary participants

KPSC1: He was a senior executive working in KPS since 1992. He had extensive experience of 27 years in the industry and 21 with KPS. While his job description mentioned that he was responsible for the overall management and performance of all the AUM in the organisation and investment across all specialist equities and multi asset classes, KPSC1 was not retained as a primary participant. Actually, this previous aspect of his function was delegated to one of his colleagues who was in charge of all the portfolio management including the structuring of the team. The senior executive was more focused on marketing and sales.

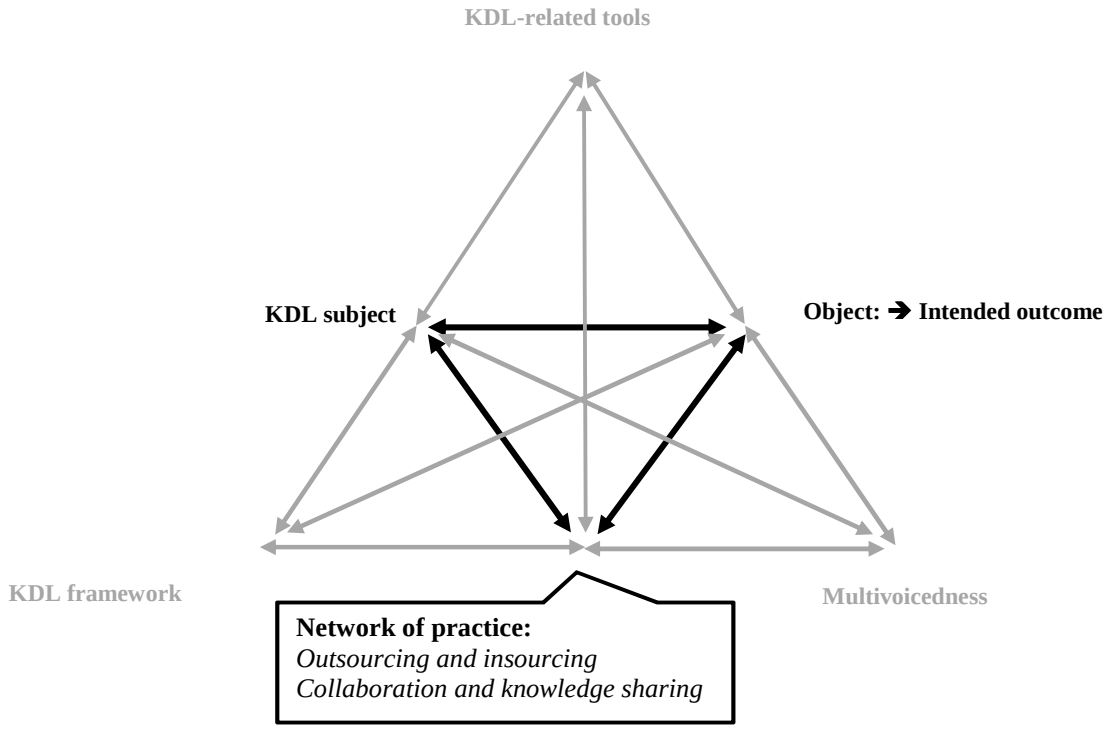
KPSC3: While being part of the company for the last 20 years as an accountant, this senior executive was specialising in finance for 5 years only. He was not involved in investment strategies but had quite a diverse role. His functions encompassed the day-to-day operating activities, the development of a financial and operational strategy and the on-going development and monitoring of control systems.

KPSC5: He was a senior manager with 23' years experience in the industry and 4 years currently in the organisation. His role was to identify and promote investment products in the Irish and UK institutional markets.

6.3.3 The network of practice

The theme that was identified and related to the network of practice was *'outsourcing and insourcing'* (Figure 6.4).

Figure 6-4 KPS' Network of practice



Two themes have been identified and mediate the subject-object relationship in the network of practice: outsourcing, in-sourcing and networking; collaboration and knowledge-sharing.

Subject-object relationship mediated by outsourcing, in-sourcing and networking

Subjects exchanged ideas and gathered external knowledge from brokers, consultants and client companies and attended conferences. KPS' subjects were also interacting with competing firms that were partners at the same time. The balance in this relationship was found through sharing know-how or information. Data providers were also part of this network.

> *"If we're not familiar with the technology ourselves, maybe we have a discussion with an analyst, someone who's more familiar with that technology. As I said we don't have a science background in this space. There's a lot more people knowledgeable in that technology than I am, so yes, we would ask… there are very good analysts out there working with brokers, someone that would have the expertise." (KPSPM6-1913)*

The new players in this network of practice were the sub-contractors with whom the firm was engaging to turn its business around. Interacting with external players was an important matter as some portfolio managers involved in specialist investment needed insights from a science background that they did not necessarily have. While most of interactions with business partners occurred officially, participants occasionally informed their knowledge base using personal acquaintances as instantiated hereafter by the Compliance Officer:

> *"I am an associated Compliance Officer, so that allows for a lot of networking. So I have build up sort of compliance-based network in terms of the people I can lift the phone to. And they would do the same; you've got your network." (KPSC4-11608)*

Subject-object relationship mediated by collaboration and sharing

Collaboration and knowledge sharing consisted in gathering knowledge, ways of working and improving it through interacting with other parties whether located inside the organisation, or outside the organisation (Brown and Duguid, 2001). Portfolio managers were in networks that comprised the members of the organisation with whom participants interacted to complete their goal-oriented actions. More specifically, the binomial investment teams and the Investment Committee constitute the closest operating environment. A most salient feature in this regard, is the organisation of binomial teams or portfolio managers that implied intense collaboration (Swart and Kinie, 2003b) and led to the emergence of collective knowing for a particular environmental investment strategy. A high degree of trust and dependence

supported subjects' relationships (Pyöriä, 2005) that enhanced the necessary nature of knowledge sharing. Next to a formal collaborative structure, informal exchanges characterised the way the interviewees were working. According to participants, the dynamic involved teaching and learning while doing at different levels: the binomial team, the overall qualitative strategy team and that of a broader group. This dynamic is illustrated by this quotation:

> *"Every week we rotate, for example, next week I will give an update on water, what we've done in the portfolio, why we've done it, why we decided that we took some money out of this area and we in this other area. Because, there is always a chance that it is going to resonate with somebody else." (KPSPM1-17146)*

> *"The distinction between the two when you are in team like this, there is no real distinction. We generate ideas through constantly researching from specialist brokers, from talking to individual companies we already speak to, from attending conferences and trade shows, through articles, specialist articles (…). You get ideas from what is new up and coming in the world of [Name of a specialist fund]." (KPSPM3-3818)*

While the previous outlined an intense collaboration among the investment team, such dynamic leading to the emergence of collective knowing existed in other areas of KPS. This company had the particularity to be headed by a group of 4 senior executives that embodied 4 different areas of expertise central to the running of KPS, and who worked together very closely. The four areas viewed as complementary represented 4 orientations: (i) investment, (ii) market, (iii) operations and financial accounting, (iv) and compliance and regulation. This particular distribution of roles was not self-evident in the official organisational chart but worked effectively:

> *"If you take the four individuals, I mean you take the four of us. We have been working together for a long time and that is the star fit and everybody knows strengths and weaknesses of each other and that works well." (KPSC1-62185)*

6.3.4 Conclusion

The core of the activity system analysed in this section underscores the object-oriented activity: increase the KDL dynamic in order to generate a knowledge-based competitive

advantage. Evidence showed that KPS' subjects endeavoured to achieve this while interacting within their network of practice.

The next two sections are dedicated to the study of the mediated relationships between subject and object leading to the emergence of personal knowledge and the emergence of collective knowledge.

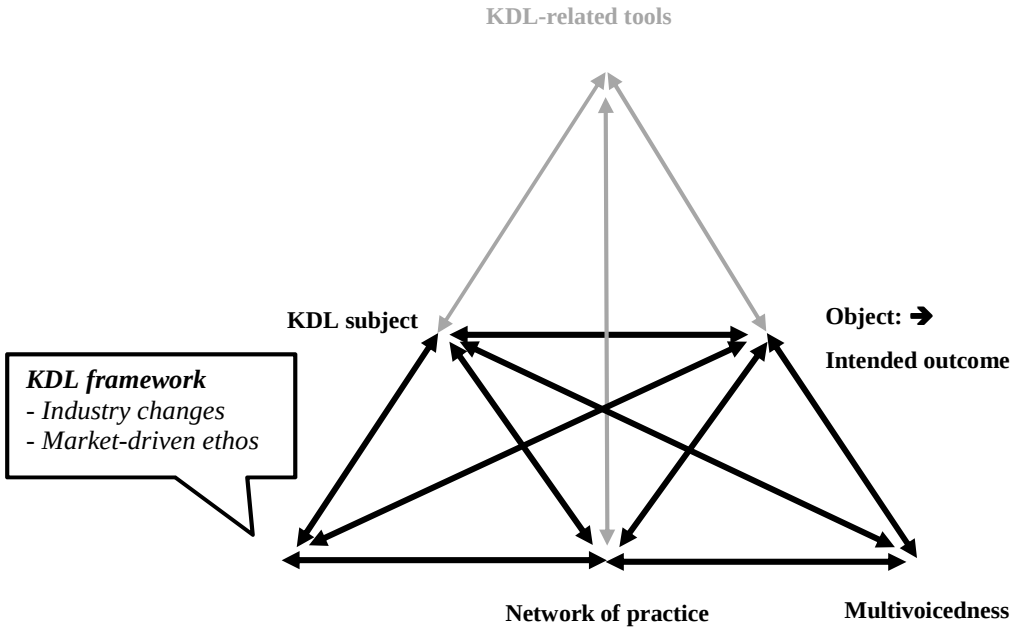
6.4 EMERGENCE AND CREATION OF ORGANISATIONAL KNOWING AT A COLLECTIVE LEVEL

The underlying mechanisms relating to the emergence and creation of knowing in socialised contexts are located in the lower part of the triangle of the activity system. The following paragraphs introduce successively the relationships mediated by the KDL framework and the multivoicedness.

6.4.1 Subject-object relationship mediated by the KDL framework

Explicit and implicit rules influenced the dynamic involved in the incremental knowledge base. Industry changes and market driven rationale were identified as constituting the restraining or enabling framework within which the incremental knowing, doing and learning dynamic was occurring in social context (Figure 6-5).

Figure 6-5 Relationships mediated by KDL framework for KPS



Subject-object relationship mediated by industry changes

Participants mentioned that the KDL framework was influencing their knowing, doing and learning actions. More specifically, the mutations that occurred in the asset management industry impacted significantly the knowing, doing and learning dynamics in the case of KPS. Participants acknowledged that a combination of changes in prevailing business models, the outbreak of 2001 and 2008 crisis and the subsequent substantial development of financial regulation forced a change in the content of the incremental knowledge base as they had to integrate these uncertainties in their work (Ditillo, 2004). Subjects had to learn new ways of learning, doing and knowing about different products and markets than the ones they used to operate in (Swart et al. 2003). This meant that the company's members had first to identify an area of expertise worthy of development and second orientate their KDL actions towards this new knowledge field. According to the participants, the crisis just accelerated the process of mutation and the amount of firms struggling forcing asset managers to explore more global markets instead and become more specialised. As this subject mentioned:

> *"To survive, you have to become specialist and you have to move into the international market, it is a geographic thing, but that was just because of all what was happening in Ireland. It was the recognition that you had to have a very deep specialization to succeed without a big brand. We never had a brand. In the local institutional market, you have to have a very deep specialization, a clear niche and that is what we did." (KPSC1-9853)*

For the previous ten years, the prevailing business model was based on a triangular relationship involving a client, the fund manager and the consultant and it was evolving into a dual relationship downplaying fund managers' roles. Consequently, these had to progressively disinvest from acting directly with clients and introduce more sub-advisory managed assets in their business model to survive in the long run. At the time of the study, KPS had more than 50% of its assets under management distributed through sub-contracting to large distributors. This allowed the firm to access more customers. Besides modifying the fees distribution, the other consequence was a change in the knowing, doing and learning dynamic that involved *'educating'* the intermediaries about the products KPS was distributing underscoring that the KPS was selling a capacity to produce rather than a product (Winch and Schneider, 1993). The following quotations support theses two points:

> *"No, I think that it is more and more dynamic now, the players are changing. You had this relationship in the past where you had the client, you had the fund manager and you had the consultant or an advisor or it was this kind of triangular relationship. (…) So, you have these guys*

moving… this has happened over the last 10 years. What has happened now is that the consultants are starting to develop products management themselves and sell directly to the client, cut out fund managers here. Or, maybe use the fund manager product in their investment offering. So there is this huge dynamic shift. (…) So that is a huge shift, because in the past it has been this triangular relationship." (KPSC1-51645)

"Coming back to your sort of networking, [Sub-contractor] they probably made half a million this quarter promoting the water fund. Now they are getting 30% of the fees. But, this is how a small organisation based in [Ireland] can punch above its weight. We have seen very, very strong flows coming through with these guys. (…) We talked with JP Morgan this afternoon about launching a product through the JP Morgan platform. So that is some example of advisory; we provide the product and the support, they brand it but we are absolutely involved in the whole sales process and working with theirs. So, the difference is rather that our sales people dealing directly with the pension funds, what our guys need to do is to reorganize some sales to sell and support others' people's sales team. So, [Sub-contractor] has 3 or 400 sales people, [another sub-contractor] so many thousands. So, it is about educating the sales people rather than selling to the end clients. So, that is how we need to reorganize." (KPSC1-32848)

Subject-object relationship mediated by market driven ethos

The market-driven rationale shaped the way operations were conducted. More than ever, gaining new clients and holding on to the previous base were paramount for KPS. This challenge forced the emergence of collective KDL dynamic. Two particular instances were driving this imperative. The first one was concerned with building a strong brand and reputation (Sheehan and Stabell, 2007) to obtain industry recognition. To do so, KPS strove to display the highest governance structure and a strong operational infrastructure where they invested substantially. The second vector was building long-term relationships with clients (Swart and Kinnie, 2003a) as illustrated by the following quotations:

"(…) In terms of corporate governance, it is what you call the best practices and we try here to be in those best practices, considering the size of our firm, the activities that kind of things… But, we're all the same, clients are now focusing more than they use to on the corporate governance in the firm. And part of that is what committee, what decision-

making path they have, what are their terms of reference, all that kind of stuff… I suppose, the legal, the regulatory requirement and now more than ever coming from the client side as well" (KPSC4-15558)

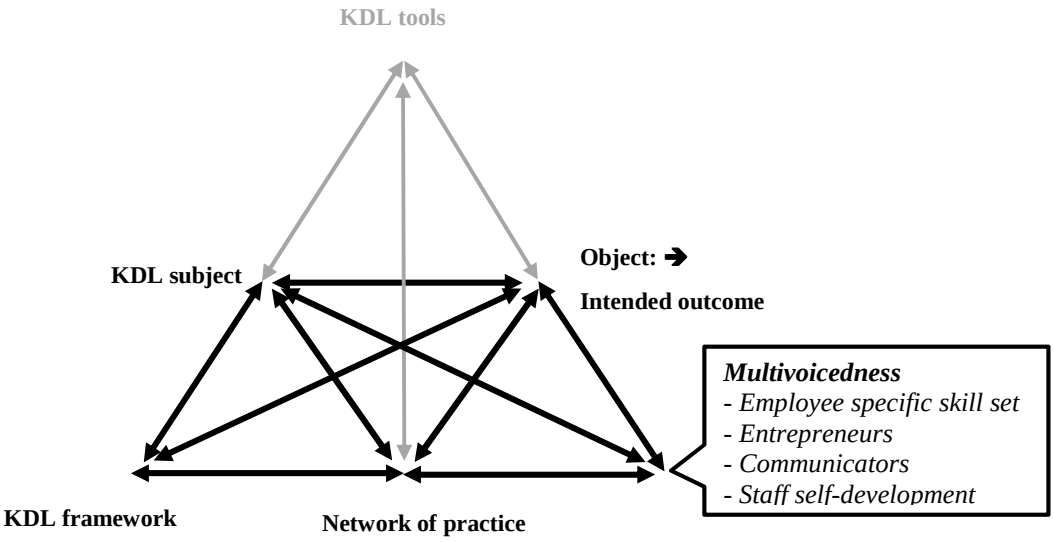
"Generally when you look at our client base, they tend to be with us for a long period of time and if they're with you for a long period of time, there's a lot of trust, there's a lot of familiarity required, there's a lot of relationship building. So from the time that we first meet somebody to the time that can actually invest, it can be 3 years." (KPSC5-1729)

"Clients I do a lot; I was in the States last week. I do a lot of client facing stuff so that would take up a lot of my time, probably more of my time this year than other years, because people they like to see the people who make the portfolio." (KPSPM8-15643)

6.4.2 Subject-object relationship mediated by multivoicedness

Multivoicedness or the different roles participants played or had to play in the company shaped the emergence of knowledge in collective environments. Four roles were identified and mediated the relationship between subjects and object; these were summarised as *'entrepreneurship'*, *'employee specific skill-set'*, *'communicators'* and *'staff self-development'* (Figure 6-6).

Figure 6-6 KPS: relationships mediated by multivoicedness in the ZPD



Subject-object relationship mediated by employee specific skillset

Subjects' specific skillset related to what was expected from them in the work that they had been recruited for. Primary data showed the following capabilities as being the most salient: the ability to deal with complexity (analytical skills), multitasking, being able to conceptualise ideas and develop a philosophy of investment and the ability to deal with huge volumes of information (Reinhardt et al., 2011). Understanding correctly the information was introduced as important for making decisions (Scarbrough, 1993) although subjects criticised the important volume of data they had to handle. These specific skills had an impact on the incremental knowledge base as they dictated how the latter was formed, hence its content as instantiated hereafter by two portfolio managers:

> *"We are in the world of water, we're focused on these names, the ones we own, the ones we don't own and constantly create models, we monitor their numbers, their figures, we speak with management teams, we travel and do company sites visits, we go to trade shows where we see the products and understand the product, how they work and where they fit into the value chain and what they mean…" (KPSPM1-1751)*

> *"We research the themes constantly, there are long term drivers for the themes, and there are medium term drivers for the theme. So, when you look at the long-term drivers, we are not traders, we own stocks with the kind of vision that we will own it for the next two to three years. But, depending on the share price movement, we can buy or sell in and out of the stock. That's depending on the decision-making process. But, in general, what we do is we look at the themes, their long-term drivers, their medium-term drivers, the medium-term driver probably will impact our trades more and, then we research stocks." (KPSPM4-3329)*

Subject-object relationship mediated by participants acting as entrepreneurs

This theme emerged strongly in the case of KPS. It translated in subjects' capabilities in making informed and clear decisions, displaying autonomy in problem solving (Swart et al. 2007), showing curiosity, commitment and resilience in their actions and their capacity of interpretation (Wang and Ahmed, 2003, Alvesson, 2004). These different behaviours impacted how knowing, doing and learning occurred. The following quotes illustrate some of the previous points:

> *"Properly incorporating the right information into the right decisions. You can also be imperialized by too much information and not to be able*

to make decisions. I mean there is so much we don't know." (KPSPM2-5208)

"I have all the incentive in the world to perform really well. And, to perform really well you need be really smart and interested in the incremental information and synthetize it. (…) Look if you are not self-motivated in your own business… you can't have this work from 9 to 5." (KPSPM2-23267)

"The hardest part of the job is when performance is bad, you're under pressure. And, it is not external pressure, nobody is putting it on you but it's there. But luckily I've been through that so I know exactly what it is and how it feels and I got through it; there are worse things in life…" (KPSPM5-12973)

Subject-object relationship mediated by participants acting as communicators

Subjects' quality of communication informed the knowing, doing and learning dynamics involved in KPS knowledge base. This role involved being both a good communicator and a good listener. To a certain extent, this could be compared to being endowed with soft skills. Based on the data, a *'good'* communicator consisted in being able to pass a targeted message, or *'sell'* an idea or concept. A good listener involved being able to read the body language or to be able to draw informed conclusions from communication performances of third parties. Both aspects were intimately related. The following quotes illustrate this point:

"You have to be a good listener and you have to be a good talker. I mean, we talk to companies and brokers, they do 80% of the talking and we do 20%; we ask the questions, so we've got to ask the right questions. But then we must listen to what they say and understand the key bits of information it's relating. You know, it's like your read a twenty-page document; there might be only one page which is important and relevant. So going back to what I said in the start, it to try to skip through the 17 pages and get to the one page you want, it is similar when you're asking questions you know…" (KPSPM5-11739).

"So, my role would be to represent that team to big clients and consultants. (…) 'Sell' the team, 'sell' the firm, 'sell' the performance, 'sell' the stability" (KPSC3-10665).

Subject-object relationship mediated by staff self-development

In the case of KPS, staff self-development referred to learning subjects' ability to *'market'* themselves (Reich, 2002), manage the evolution and improvement of their skills or develop transferable skills (Wang and Ahmed, 2003). This theme also involved being aware of their personal value and employability. This particular emphasis shaped the knowing, doing and learning dynamic and impacted as such the emergence of collective knowing. Participants expressed on many occasions their concerns for improving their skills or developing transferable ones, an endeavour that involved continual learning (Robertson and Swan, 1998) confirming the importance of apprenticeship (Greenwood, 2009). While locating this endeavour within personal goal achievements, it benefited KPS as participants would be actually upgrading their whole capabilities. The following quotations illustrate this point:

> *"And, that means that I had to educate myself on the product…" (KPSPM1-5063)*
>
> *"Yeah, I think you have to evolve all the time. The moment you stop, you stop learning new things, you start going backward very quickly." (KPSPM3-11524)*
>
> *"From that and from the company; the company was KPSI at the time. And I left here… then I had two decisions at that point of time: either I find another bond portfolio management job or I reinvent myself into something else." (KPSC5-27733)*
>
> "KPSPM7*:* KPSPM6 *always has the same questions as me 'how did you get into that job?' You can't do microbiology in* [University] *unless you're smart, you don't get in, so there are only 20 of us doing it.(…).*
> RESEARCHER*: So with the skills and assets you developed…*
> KPSPM7*: You have to because, because with the job that we do, because it's systematic, and you're running number and you have to be focused in what you're doing. In microbiology, you run a lot of experiments and DNA analysis and stuff like that. But it all sounds like really amazing and fun doing DNA analysis but back then you were, you did everything.*
> Researcher*: And would you say this thing that you were doing in microbiology is what gave you that strength in operations?*
> KPSPM7*: I think so; you had to be careful and check everything; maybe…" (KPSPM7-9066)*

6.4.3 Conclusion

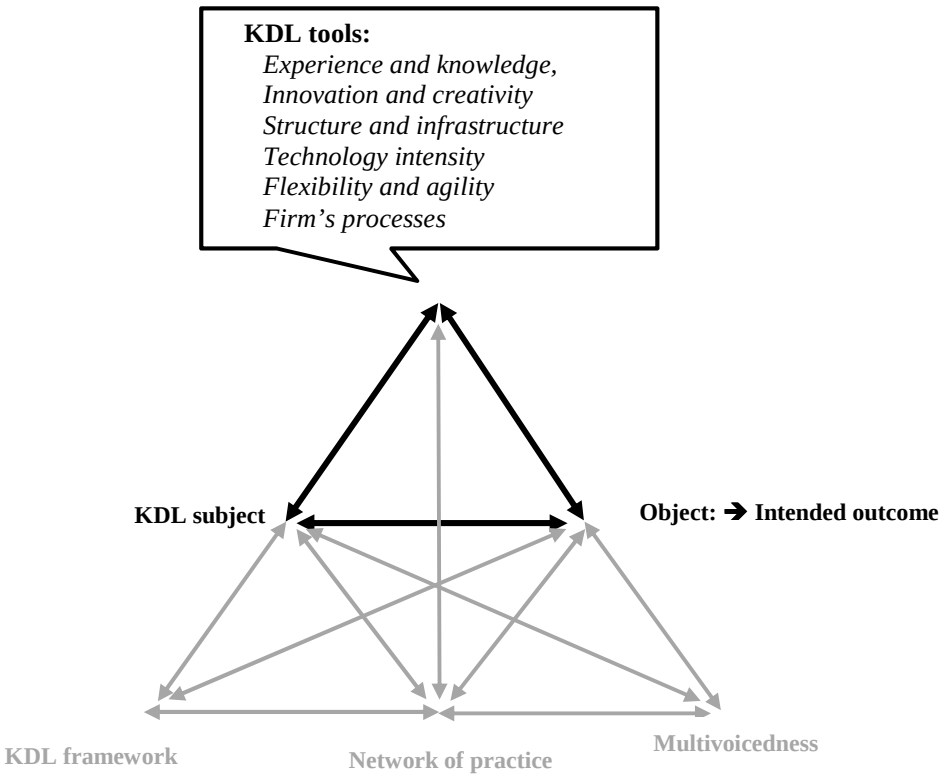
This section on organisational knowing emergence and creation in a socialised context evidences the underlying mechanisms characterising relationships. These typically involve the relation between the subject and the object and a mediator that determines the way the subject informs the distance between their levels of knowing and the one out there that they seek to integrate. Second, this section highlights that *'entrepreneurship'* was a strong attribute for KPS. This encapsulated creativity, autonomy (Winch and Schneider, 1993, Robertson and Swan, 1998), research and action (Swart, 2007).

At this stage of the case study, the different mediated relationships participating in the emergence and creation of organisational knowledge in the ZPD were developed. Attention turns now to the second level where knowledge is internalised and exteriorised at the personal level (IPA).

6.5 ORGANISATIONAL KNOWING EMERGENCE AND / OR CREATION AT THE PERSONAL LEVEL

In order to understand the underlying dynamics involved in the emergence of personal knowledge in KPS, the attention focused on the upper part of the triangle. It envisaged how participants processed what they learned through mediated action and subsequently developed an individual consciousness through social interactions (Yamagata-Lynch, 2010). The relationship between the subject and the object was mediated by six knowing, doing and learning tools and means identified in the interviews: *'experience and knowledge'*, *'innovation and creativity'*, *'structures and infrastructures'*, *'technology-intensity'*, *'flexibility and agility'*, *'firm's processes'* (Figure 6-7).

Figure 6-7 KPS KDL-related tools mediated relationships



6.5.1 Subject-object relationship mediated by the KDL tools

Subject-object relationship mediated by experience and knowledge

The participants' level of expertise and experience accumulated while working with the different investment themes in KPS, impacted the incremental knowledge base and hereby the knowledge-based competitive and sustainable advantage. KDL subjects' deep knowledge of the industry in terms of knowing the different steps involved in asset management operations (Robertson and Swan, 1998, Greenwood, 2009) were also important in supporting KPS's knowing, doing and learning. The two following quotations outline the portfolio breadth of knowledge they use in their everyday work:

> *"You can talk to Kazakhstan or whomever, you can talk about all the investment; setting up the portfolio from back to forefront, the custodian, the front administrator through the investment manager, the front office; you understand the full cycle. I think an awful lot of people come to the industry, particularly those who end up in the asset management side and they have never understood the full cycle, when they buy a trade all the*

way through, all the way, it works down to the custodian level. And I think that is really important. There are quite a few people here that have that; it has been one of our strengths." (KPSC1-50853)

"I've done everything; I started like a research analyst back in 87, from 1990 on I managed Japanese equities and that was on a combination of fundamental and quantitative so what's called core satellite, where the core is quantitatively managed; so you can have 70% of your portfolio using [data processing tool], where you get to know [data processing tool] for the first time. So, your 70% run on the basis of that and then the 30% is managed on a bottom-up based, so you do stock research. So, I would have done that for the best part of 8 years. Between 1988 and 2000, I managed Japanese, Irish and Far Eastern equities again from a purely bottom-up basis." (KPSPM8-12359)

KPS firm's command on specialist strategies also supported the shaping of the goal-oriented object and the intended outcome. Thus, doing and learning were grounded in the expert knowing (Makani and Marche, 2012) developed by participants as illustrated by this portfolio manager:

"So, we are specialists, we're the [specialty] people, we just look at nothing but water stocks, 24h/5 days a week. Basically, it's equities and we have a universe of stocks, we do not look at everything, we are very specific at what we are looking at; they have to have a certain amount of [specialty] in them. We have a very pre-defined collection of stuff we are looking at." (KPSPM1-1020)

Subject-object relationship mediated by innovation and creativity

The capability of the firm in improving its current circumstances and adding value while implementing novel solutions and ideas (Swart, 2007) consisted principally in product innovation and incremental process innovation. Innovation in the sense of Engeström's (1995) innovative learning and occurred as a one-time breakthrough from time to time such as the introduction of entirely novel investment strategies or orientating the business model towards sub-contracting. Thus, innovation as such was quite a rare operation. However, small cycles of improvement in the way of doing things were common and characterised subjects' ways of working. For example, one of the biggest product innovations implemented by the firm was the introduction of the new environmental themes in 2000. These were gradually refined and constantly improved as these two portfolio managers mentioned:

> *"We are in the world of* [specialty], *we're focused on these names, the ones we own, the ones we don't own and constantly create models, we monitor their numbers, their figures…" (KPSPM1-1753)*

> *"We have an investment process; it is a time-tested investment process which is improved… we review it every year and we try to improve that; it is a time-tested investment process applied all through the three strategies, though the whole environmental strategies have one investment process, we apply that process to select stocks that would go into the portfolio." (KPSPM4-11699)*

Innovation and creativity concerned also other areas of KPS. Hence, the company had the particularity of having its own Information and Technology department that was looking after most of the technological systems and equipment. Building on the unique expertise this department had, KPS created in-house instruments facilitating the running of operations (Alvesson, 2004, Scarbrough, 1999). For example, the company had an original Client Management Relation (CRM) system that gradually took that became very central in the running of day-to-day operations shaping as such a knowing, doing and learning dynamic. This is illustrated by the following quotations:

> *"For example, we were very, very strong in CRM system, which is geared specifically to our business rather than other CRM systems that would meet only 66% of our requirements whereas ours meet 95% of our requirements." (KPSC1-44381)*

Subject-object relationship mediated by structures and infrastructures

This mediator was often mentioned during the interviews. In the case of KPS, the physical environment, the history of stability developed in the cultural and historical context and an acute awareness of the need for compliance influenced the subject's knowing, doing and learning actions. Following the participants, the physical layout of the organisation's open floor offices facilitated communication and ideas sharing between the investment team and all hierarchical levels (Alvesson, 2004, Greenwood, 2009). These were reduced and relationships were made easy as exemplified by these two managers as illustrated by these two quotations:

> *"We are sitting beside each other; so we are constantly 'Did you see this? Did you see that?' And behind us, there are KPSPM3 and KPSPM4 who are looking after the [Name] fund; and then, the two other people, PM5 and KPSPM6 who are looking after renewable energy. So everybody who is in the environmental strategies, we're all sitting 'one, two, one, two' in*

an open plan environment because at the end of the day, all the themes have the same drivers and we feed in the [Name] team because, irrigation is a huge user of water; the [Name] team owns irrigation companies because it is what they invest in." (KPSPM1-15378)

"And that the advantage of here it is relatively flat; I mean there is senior hierarchy and all that… But, yes you can knock on anybody's door and speak to him or her. So it is kind of refreshing compared to a big company." (KPSC6-16665)

As already mentioned, KPS was an asset manager characterised by a very low turnover leaving the firm with a stable structure that was favourable for increasing gradually its knowledge base within a positive working atmosphere and a supportive firm culture (De Long and Fahey, 2000). The first quotation below illustrates the stability of the firm emphasising in turn how the company tried to hang on to its expertise and the sentiment of staff about working with the same people over a long period of time. The third quotation underscores KPS's philosophy for learning from the outside (Swart and Kinnie, 2003b).

"But also will they sort of fit… there's quite a strong culture here, it's reasonably friendly, it's quite open; a lot of people I mean a lot of people working here left and want to come back. I mean there's 10 people who used to work here, left and came back, that tells you something on the company as well." (KPSC7-36470)

"Oh yeah, there are very happy and it is great that we have stayed together, you know the core people for such a very long time." (KPSC4-2485)

"The company would be very supportive of you know, going to trade shows, seeing the products, meeting the companies, the companies would come to Dublin we would go and do site visits and often get the tour of plan of company that we own." (KPSPM1-5124)

The structure of organisations of the investment team in pairs, combined with the strategic choice of specialist products from the company informed the ways of knowing, doing and learning as illustrated by this quotation from a portfolio manager:

"And you are given the opportunity to build your skills, to be focused; you are focused in what you are looking at, in terms of your universe and how you define it. I just think that your ability to generate Alpha, your

> *outperformance is higher. Because, as a function of being focused and the level of due diligence you could in as a specialist in higher than… I think it is harder to do well in a broad environment versus when you are a specialist and focus." (KPSPM1-9770)*

Other elements relating to the structure and infrastructures of KPS shaped the knowing, doing and learning incremental dynamic. Participants emphasised the privileged background provided by the small size of the firm where they had to be involved in more diverse activities (Scarbrough, 1993) than they would within a larger structure, where they evolved in a more *'family'* business type of environment as this manager stated:

> *"But as you work on so many different things that you do get exposure on all the different parts of the company, which is a positive… on various projects, you would speak to different people, the PM or whatever it is. That is the interest of working in a small company, on a small team." (KPSC6-10097)*

Subject-object relationship mediated by technology-intensity

The available technology, corresponding operational systems and the proficiency in which the subject would use these (Sulek and Marucheck, 1994) mediated the relationship with the object. Technology-intensity for KPS was more conventional than in the case of DLT. This was restricted to a self-evident intense use of software such as Excel or other dedicated systems. KPS IT department operated in improving the efficiency of the company as a whole. This is illustrated by the following quotation from a senior executive:

> *"I mean I am a "best and breed" type of guy so I believe in 'get the best and breed'; I'm not sure an in-house, IT is going to build a 'best and breed' investment system. I think you have to go and buy those out of shelves externally. The IT has built some fantastic systems for us but they are more on the operational side." (KPSC2-7802)*

In terms of being technologically skilled, participants showed different levels of proficiency in using dedicated software and IT resources. For example, the participants more involved in quantitative strategies and trading were generally better equipped than the ones working on qualitative strategies. This was an important issue, as it would determine the ability to obtain information feeding knowing, doing and learning.

Subject-object relationship mediated by flexibility

The extent to which and the way KPS would anticipate and respond to changes occurring in its environment (Drucker, 1996) was another element mediating the relationship between subject and object. Flexibility encapsulating also anticipation and adaptation was a quality found within subject teams and in the organisation as a whole. The following quotations illustrate how flexibility is attached to the size of the company and how participants had to adapt amending as such their knowing, doing and learning dynamic:

> *"We are small company here, you have to be flexible." (KPSC4-9991)*

> *"So I have to keep, you know very much tuned with what's coming down, how it is going to impact our business and how we may be able to adjust." (KPSC4-4984)*

> *"I'd like to think so... You know, in a broad sense, the framework of what we do does not change hugely, dramatically over time, but it evolves slowly over time but on the month-to-month, day-to-day, week-to-week, things can change dramatically and you have to be up to speed with that and you have to be willing to push yourself to keep up with that." (KPSPM3-11809)*

There was an acute awareness on the prevailing unpredictability of the environment. KPS addressed this learning with what was needed to adapt to new circumstances when required (Drucker, 1994, Reinhardt et al., 2011). This lead to an evolution of the goal-oriented object or the knowing, doing and learning dynamic, that would locate in an alternative domain. This is illustrated hereafter by a senior manager:

> *"(…) And we did, we structure that fund differently, we broadened the universe actually. We were kind of purely focused on renewables before but we have broadened to include more energy efficiency names and that included more bigger cap companies and industries, more bigger companies, more names, more investment opportunities." (KPSPM6-5057)*

> *"To give you an example, we are currently… there is a project going on, to change the name of the [Name] Strategies, to drop the [Name] out of the name. It is actually a very big exercise because all the products have legal names and registers and so on." (KPSC1-55151)*

Subject-object relationship mediated by firm's processes

KPS firm's processes consisted of all the systems, procedures and investment processes that were in place and that provided a common framework within which knowing, doing and learning occurred. These intangible processes (Swart et al. 2003) provided a relative stability to the firm while improving transparency and reliability of operations. They acted as daily routines that guided subjects' actions (Lee, 1999, Winch and Schneider, 1993). They mediated the relationship between subjects and object determining in this instance the mental map within which the subject would develop a way of approaching the object. For example, processes in place were particularly important for the [Name] Equity team involved primarily in quantitative analysis. Using proven models of analysis, the team was able to identify where value was created:

> *"I mean the advantage of what we do is that it's very clear where the added value comes from. Because we have a universe to invest in, we have a universe that we create and then we have portfolio that we create, it's very possible to measure each contribution." (KPSPM8)*

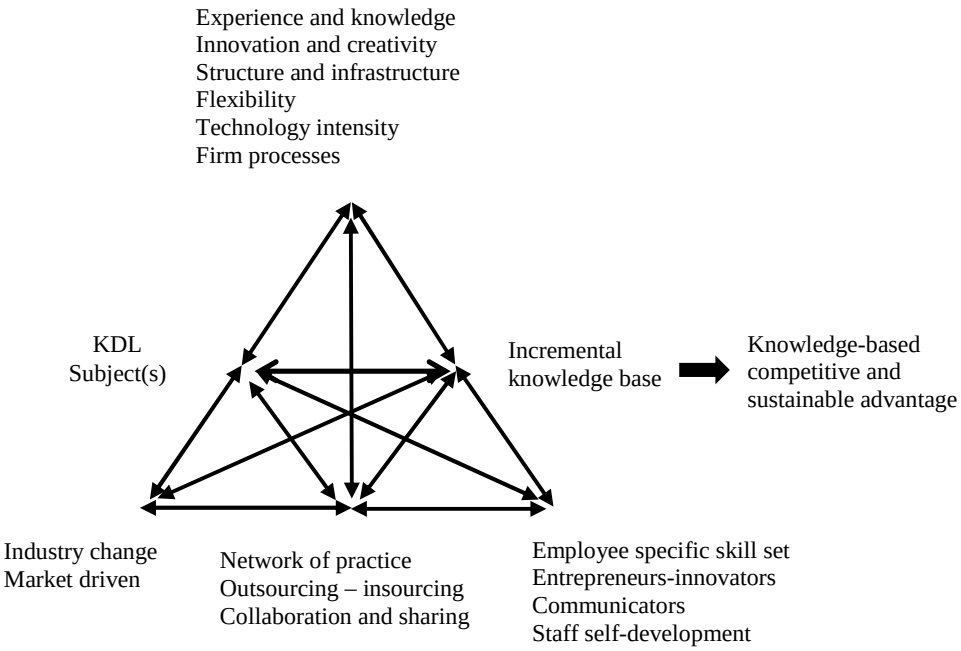
These processes acted as a framework that guided knowing, doing and learning dynamic, but that were flexible. This was particularly the case for the teams involved in environmental strategies. Ultimately, the final decision were down to the participants in this instance as illustrated hereafter:

> *"Ultimately, we put an amount of emphasis on this upside-downside model but this model is only as good as the inputs as we have, these targets, price targets… And, they are very much based on our fundamental understandings of those companies and how they traded in the past and where the growth they might trade in terms of valuation in the future. So, it is qualitative with an overlap of quantitative." (KPSPM3-23336)*

6.5.2 Conclusion

In the case of KPS, the themes of *'structure and infrastructure'*, *'collaboration and sharing'* and *'experience and knowledge'* were among the most mentioned by the subjects. This implies that these three items played a significant role in shaping the object. The following Figure 6-8 summarises the different mediators encapsulated in the different mediators.

Figure 6-8 General activity system for KPS



So far, the study of the mediated relationships featuring the mechanisms behind organisational knowing emergence and creation was achieved. The next section develops briefly the inherent systemic tensions and contradictions identified for KPS. These act as impulse for change and are considered as dynamics that can stimulate OK creation (Engeström, 2001) if addressed properly. While not performed in a comprehensive fashion, the following section introduces some of those tensions and contradictions.

6.6 TENSIONS AND CONTRADICTIONS

The two following sub-sections introduce the identified tensions and contradictions that may impact negatively or positively the creation and emergence of organisational knowledge. The areas concerned are the following: (i) structure and infrastructures, and KDL subjects, (ii) structure and infrastructures, and incremental knowledge base, (iii) tertiary type of tensions.

6.6.1 Structure and infrastructure and KDL subjects

The first group of tensions were identified in the upper triangle of the activity system and are encapsulated with the theme *'structures and infrastructures issues'* (Figure 6-2). Identified

tensions appeared deeply rooted in the history of the last ten years of the company and were culminating at the time of the study. Substantial anger and bitterness showed in acrimonious comments made by some of the interviewees and outlined the resentment of portfolio managers towards their hierarchy and some of the business development team members. A lot of the negative feelings that emerged from the interviews crystallised around compensation issues, general working conditions, insignificant tokens of appreciation, feelings of being treated unfairly and staff's contributions not appreciated properly. In addition, most of the power was concentrated in a few hands representing the two central aspects of KPS's operations: sales and investment. Three examples of secondary types of tensions (Engeström, 1987) are introduced in the following paragraphs.

Lack of engagement from subjects

Lack of engagement emerged from existing tensions among informal groups. KPS's structure evolved gradually in the last decade to present at the time of the study a rather lean hierarchy that consisted in 2 to 3 levels and that structured around the very core of the business. Next to this, there was an acute perception among the portfolio managers that a literally *'untouchable'* group went through the different crisis unharmed while some of the interviewees felt to bear the burden of sacrifices:

> *"(…) But in the six months, maybe a year before that, the senior management all disappeared exactly at the same time together; nobody spoke of where they were going, but it was clear that they were going to meet bidders for the company. But this went off during 9 months; so, it left a bit of vacuum and everybody who stayed looked around and sort of knew that we were not the Golden Circle. There's a Golden Circle here maybe 15 to 20. (…)" (KPSPM5-31906)*

> *"It's why they say… we don't hear about the higher level, but there's a higher level of management that take 5 or 6 people look after themselves and then there is the other level and you, but anyway… we hope the rewards will start coming. But that wouldn't hurt on the little things…" (KPSPM6-14255)*

Lack of appreciation from the top management

Portfolio managers did not feel valued for their contributions whether in terms of compensation or in terms of company benefits. While the implementation of a substantial cost-saving policy was not questioned, the way it was decided and implemented were acrimoniously lived by the portfolio managers. A deep and seemingly aggravated rupture

between groups inherited from the difficult history of the company and the way the solutions and actions were handled weighted heavily on the day-to-day business. It was expressed in different manners by the staff with examples that may appear trivial but that were more symptomatic of a persistent malaise. The latter translated in participants complaining about inadequate compensations, the fact that the company could make efforts to show that make portfolio managers were appreciated and equip them with personal laptops or tablets, or grant fund managers with preferred sources of information such as Bloomberg. The following quotations illustrate some of these concerns:

> *"Here's the answer. You have to create incentives for people to desire to outperform, and I think that at the firm thinks that they have that. The firm thinks that we all think that it's a great place to work as a company and the compensation is ok." (KPSPM2-24103)*

> *"I'll tell you actually, it is one of the great problems of KPS. For cost reasons, a couple of years ago, they've got rid of Bloomberg. I think that is absolute bullshit. The industry standard in Bloomberg, everybody here, on the investment side, grew up on Bloomberg. Now we have 'a' terminal for Bloomberg, that people can scroll over but that's not the same as having it on your desk on your laptop at home that we don't have either. And, we have Reuters that is awful; one and a half person understands it, KPSC7 or maybe a little bit KPSPM4, and KPSC7 does not manage portfolios. It is embarrassing. It is a crossed thing. They decided that Reuters is cheaper and so they instructed us that that is THE industry tool…" (KPSPM2-10687)*

In addition to the chosen profit centres for cost-saving purposes, a widespread feeling of unfairness in the way this was done came into play which reinforces the feeling of not being granted an adequate consideration.

> *"Yes; I mean… Managers still keep their company cars; getting brand new company cars as every year, I mean two or three getting their company cars… And we have also a good policy as I'm not doing them all but we do have a club for which they pay, subscription for gyms and sporting memberships. So that's good but I thought that's a kind of luxury I thought that could be cut as it's not as crucial as maternity leave. So they kept that, so people could have their golf membership, their gym membership." (KPSPM6-16856)*

Another divide prevailing within KPS was between the sales side or business development and the asset management side. In this instance, portfolio managers felt that success was attributed to the sales sides while failure arose from poorly performing products. Following the participants, this bore the C.E.O.'s strong imprint as his professional background has been, and still is in business development for more than twenty years. This is instantiated hereafter:

> *"(…) A lot of it has also to do because there was the cultural shift between senior management who were involved in the sale of the business and the rest of us, and then the gap… since then… I think it is increasing." (KPSPM5-31906)*

> *"And that's all about they care here...* [Business development]; (…) *if we win new business, it's the sales that is always brilliant thanks to… but if they don't sell the product, it's the product that is not good enough and that's 100% the perception all the time. It's never pointed out that the only reason you have got a chance to sell is because the product figures were there and that the way it is here; and that is the CEO…" (KPSPM7-17460)*

Company's culture

A major tension identified as impacting negatively the emergence of collective knowledge was related to the working culture and the lack of cohesion within the company. This was particularly blamed on the C.E.O. Obviously, participants expected more contact and encouragement from him. Again, there were allusions to the pre-crisis working situation. Participants longed for the positive and light working atmosphere of the past and resented the new direction given to the operations where they perceived sales as being paramount. A particular grief seems directed against the C.E.O. was that he did not seem to be a *'people person'*. These elements are illustrated by the following quotes:

> *"It stopped being a fun place, it because…and because we're so obsessed with sales, I think that KPSC1 as a CEO has no interest really in, as a person… he's not a people person. It wouldn't occur to him to say to somebody 'congratulations I heard you had a baby' or 'well done on that'. It doesn't even enter his head, something like that… And as a result of that, there's no great…People get on very well professionally but there is not a huge hem… the company would never go away on a bonding week end; I'm not suggesting we do, but…" (KPSC7-34444)*

"I mean this human aspect is not important anymore first of all in this company; I think it is totally unacceptable. I would go as far as I've been here 10 years, I don't know if the senior management knows everyone by their first and second name and I think that is very bad. (…) So, I know people because of that and also because there used to be very good social life in KPS when I joined 10 years ago. (…) What I am saying is that… and I say it out loud, is that I use to talk to IT and middle office and you build relationships, you build good camaraderie where that it not there anymore." (KPSPM5-26721)

6.6.2 Structures and infrastructures and goal-oriented object

Lack of diversity in the knowing, doing and learning patterns

This tension within the structure and infrastructure of the company had two origins that are explored successively: (i) a lack of diversity in the staff composition and (ii) a lack of diversity in the age structure. These two characteristics were impacting the incremental knowledge base negatively in the short and longer terms.

First, one of the strengths of the company was its very stable workforce synonymous of long-term engagement and credibility for clients. This had also its limitations as it prevented the integration of new ideas and new ways of KDL. With two exceptions, all participants were Irish as one of the participants underscored and tended to develop the same approach in work. Moreover, KPS had a tendency to recruit the same people it had to let go in the past when downsizing, reinforcing as such a pattern of similar thinking and behaviour as illustrated hereafter:

"If I have a criticism about us, it is that we re-hire people that have left; in some ways that makes you think that sometimes we're missing out on experiences of people who haven't worked here before and who would tell us 'oh, you still doing that that way, but now everybody else is doing this x, y, z'. I think we should be a little bit more often. Even if I am here since 25 years, I am kind of institutionalised; I still think that we're a little bit too inward looking. I don't think we have good industry contacts and networks in our peers. KPSC1 *does actually, not the others" (KPSC7-37463).*

"However, I do think that there is benefit in bringing in people from the outside because you're working together for so long and you get into your comfort zones, you know, you are not challenged enough over the years.

But then, in particular in the area I am in, compliance, bringing people from the outside or from the other companies, they bring different experiences, they would have seen other ways of working and they can compare these with what we do here, that we do it better or maybe not so good, you know. They bring fresh ideas…" (KPSC4-2617)

The second tension in relation to the staff structure relates to the age pyramid. There was a group at the head of the company who were due to stay another 10 to 15 years, and the second level of managers below who would stay another 15 to 20 years. The portfolio managers group was in its mid-thirties with young children and were looking out for promotions. The issue arose from the fact that the structure appeared to be unlikely to evolve anytime soon as it was made clear that no recruiting was planned in the near future. This left little room for promotions for the youngest generation as this senior executive mentioned:

"The other thing that can be an obstacle is the sameness of the company, because if you take [Executive Committee] *I'd say, I don't know, but I'd say the youngest is 45 and the oldest is 49, all white, all Irish, 3 out of 4, male; if you look at the next level down which counts 10 – 12, sometimes called the G12, all of them are male, all them are Irish, all of them are between 40 and 50. And I think that is a problem; we think too alike, I think diversity is good for companies and we don't have it and I think also there's an issue about promoting opportunities. And opportunities, people are saying 'well, all the management team are aged 48 or 49, so they're not going to retire anytime soon; they're not going to retire before 15 years or 20 years. So where do I go?' So you're looking at potential organisational relationship issues; I think it is very high on the list." (KPSC7-38659)*

6.6.3 Tertiary type of contradictions

A tertiary type of contradiction emerged from the intention of the top management to focus the company towards a more sales-driven model, based on their perception of industry trends. However, this strategic intent was being resisted. The interviewees were still 'traumatised' by the previous downsizing waves that the company went through in a decade and were hoping for a return of times where portfolio managers had the lead on operations and a good working atmosphere. On one side the top management wished to stimulate a more entrepreneurial spirit and behaviour and keep some distance with the staff expecting them to behave like independent and responsible workers. However, there were some pockets of resistance of

employees behaving as institutionalised or employees that were likely to develop a civil servant mentality.

> *"You know, there is people who I'd see that they believe that you're entitled to this, entitled to that; that's what I call institutionalised people." (KPSC3-26746)*

> *"There are constraints on resources in KPS, and there are necessary constraints and they were put in for very necessary reasons and the reason we're all here for the job is because we put those constraints in. But you run the risk of developing a civil service mentality where every time people say 'it can't be done because we don't have resources'; well find a way to get it done. You know, don't come up with the problem, come up with the solution." (KPSC5-2208)*

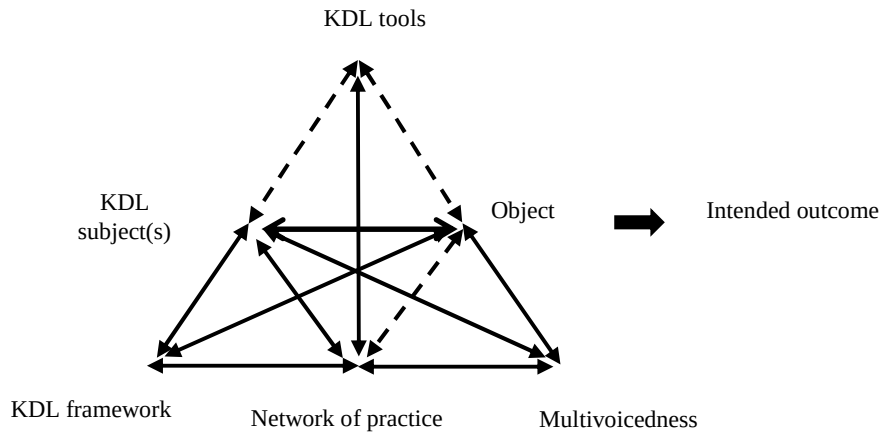
This resistance to change affecting the incremental knowledge base was evidenced by participants' inability to seize the opportunities available during the very rapid growth phase the company was going through, and to adapt to the rhythm of change instead of resisting it:

> *"You know that there is always something to give out about. One of the frustrations, you know, we are going through a very rapid growth phase and different parts of the organisation are moving at different speeds to keep up. So, not everybody is keeping up with the story the way we would like them to. But, that is just where we are right now. We try to bring that along and it is the few institutionalised pockets and people who want to do in the old way…" (KPSC1-58057)*

6.6.4 Conclusion

A summary of these contradictions and tensions are provided in Figure 6-9.

Figure 6-9 KPS' contradictions and tensions



Based on Figure 6-9, we can observe that tensions and contradictions exist in several mediated relationships suggesting that the company missed out on several opportunities to improve its KDL or simply create a new one.

6.7 CONCLUSION

This case explored the underlying mechanisms and dynamics at the origin of the emergence and creations of organisational knowledge using activity theory. Organisational knowing emerges and is created from the interplay between personal and collective knowledge (Cook and Brown, 1999). While subjects' own circumstances, together with their emotional connection to the company determined their knowing, doing and learning actions; this also influenced the mechanisms and dynamics supporting organisational knowing emergence and creation. Among the strongest mediating elements that supported the latter, participants' entrepreneurial quality, their experience and knowledge, the structures and infrastructures of the company were identified (Figure 6-2). However, specifically in the case of KPS, the cultural and historical context played a substantial role. The entirety of participants were still overwhelmed by the past redundancy plans of the organisation and resented how the consequences were handled. In addition, part of the cultural evolution of the company, the presence of informal groups of interest tended to structure KPS's knowing, doing and learning dynamics.

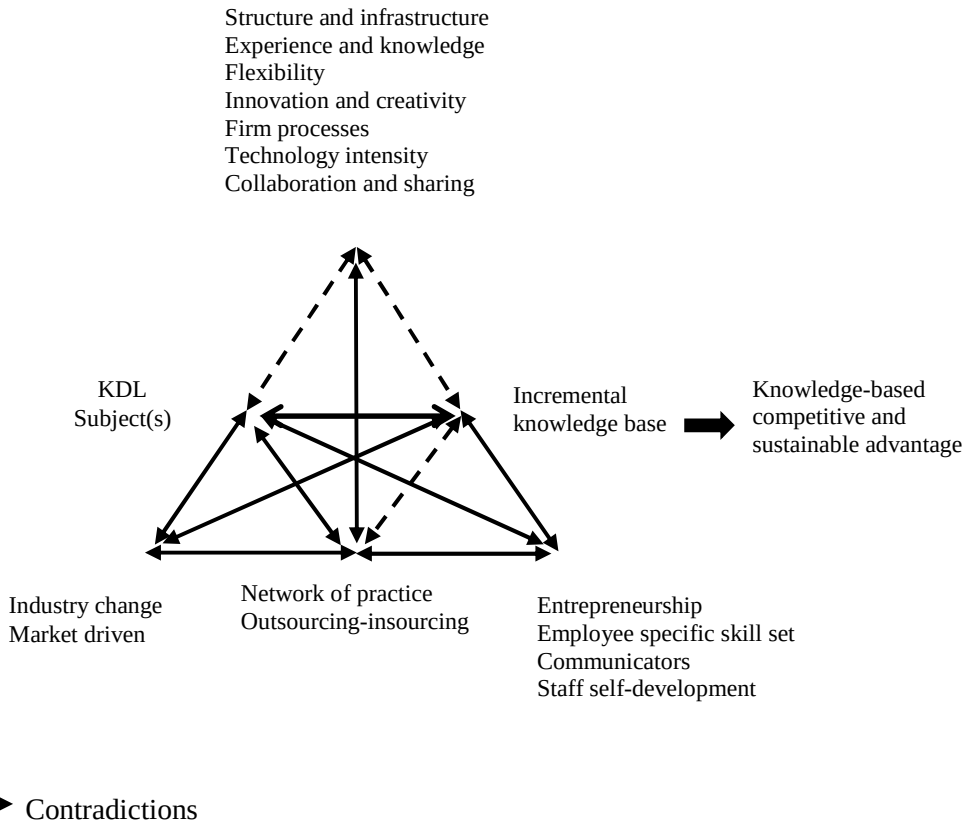
Another important point is that at the time of the study, KPS was operating a change in its business model. In this regard, being endowed with a substantial sale force was introduced as prerequisite for survival in the long run. And, it had become obvious that the survival of the company was compromised if it remained focused on its original approach. Moreover, the consolidation and restructuring movement that intensified as a consequence of the financial crisis left KPS facing much bigger and stronger global competitors. The mutation that was occurring in KPS business was consistent with the importance of the entrepreneurial roles participants played (multivoicedness). The latter constitute a within case triangulation.

The first element of the new business model was to progressively disinvest from pension funds and develop a niche investment strategy. Second, KPS moved away from the Irish institutional market to an international one with sales teams scattered in the US, Europe and Asia. At last, the firm reconsidered its purely direct contact with investors and introduced sub-contracting where it relied on a distributor or intermediary that provides access to a substantial market while the KPS keeps control on asset management. This represented today 50% of its operations. Recent data available on the company website suggested that the new business model was particularly successful as the company doubled its AUM between 2013 and first semester 2015.

In terms of tensions and contradictions, the emergence of personal knowledge was affected. Indeed, most of tensions were identified in the upper triangle of the activity system and concerned structures and infrastructures. Again, these occurred against a backdrop of difficult history and strong internal group identities that had not been addressed and worsened as time passed.

Figure 6-10 summarises the subject-object mediated relationships and tensions and contraditions for KPS.

Figure 6-10 Contradictions and tensions impacting



6.8 LIMITATIONS

The first limitation to identify relates to the activity theoretical lens and its inability to capture power relations among subjects. This appears only in the analysis of the case and is based both on the official chart and on the researcher's perception of the existence of informal power relations connecting subjects.

A second limitation concerns the relative importance of knowledge-intensive characteristics in shaping the object and intended outcome. The ranking provided in Figure 6-2 is based on researcher's interpretation and the frequency of code application performed during the coding process. During the activity systems modelling, there were no opportunities to mention an order of importance although evidence emphasised that some of the elements in the nodes have more impact than others. This bias was addressed through the tentative ranking shown in Figure 6-2.

A third limitation to outline relates to the breadth of the approach elicited on AT. Engaging with different mediated relationships and tensions and contradictions led to providing an

analysis that could be deepened. Besides a word count that is imposed for this thesis, a preference is given to the theory-method and how it can contribute to the KBV rather than a deep analysis of the case.

A final limitation to identify is that readers who are genuinely interested in the financial aspects suggested by the study of two asset management companies, might be frustrated. The analysis introduced in the case focuses on organisational knowing mechanisms and dynamics rather than financial issues.

The following Chapter presents a comparison between the two case studies introduced in Chapter 5, Delta Limited case and Chapter 6, Kipos Limited case.

7 - TWO-CASE COMPARATIVE ANALYSIS

> *"We see little attention to organisational or executive knowledge per se. The focus is on content, on what should be known rather than on the manner of knowing or learning it"*
>
> (Spender and Grant, 1996: 5)

A two-case comparison (Lijphart, 1971) aims at understanding, explaining and interpreting a phenomenon of interest while identifying similarities and divergence across cases (Ragin, 1987). Accordingly, this chapter brings together the key features of the DLT and KPS cases, which formed the empirical aspects of this thesis and involves considering the elements in common between the cases and the distinctions between them with the aim of answering the research question and building theory. This comparative exercise provides an opportunity to contrast emerging concepts, theories or hypothesis with the literature (Eisenhardt, 1989, Collier, 1993). The chapter opens on a contextual comparison (Section 7.1). The comparative descriptive approach on organisational knowledge creation and emergence using the lens of knowledge-intensity in organisations constitutes the heart of the second section (Section 7.2). The triad KDL subject, network of practice and goal-oriented object dynamic that drives activity systems is presented in a third section (Section 7.3). The fourth and fifth sections investigate in turn the mechanisms involved in OK emergence and creation in the zone of proximal development (ZPD) (Section 7.4) and the internal plane of action (IPA) (Section 7.5). Section 7.6 concludes on the findings emerging from the previous sections while the seventh section (Section 7.7) explores the systemic tensions and contradictions pertaining to the two companies.

7.1 CONTEXTUAL CONSIDERATIONS

This section sets out the backdrop against which the two companies' knowing, doing and learning (KDL) dynamics and mechanisms unfolded. Elements were identified in the organisations' respective cultural and historical backgrounds as the major elements

influencing knowing, doing and learning. In some aspects, the cultural and historical emphasis characterising the activity theory perspective resonates with Nonaka and Takeuchi's (1995) *'Ba'*, described as the shared evolving context within which knowledge was created, shared and used. Participants are at the origin of the evolution of context and meaning (Nonaka and Toyama, 2007). More specifically, the focus is on the comparison that was enabled in emphasising singularities and commonalities. This contextual comparison looks first at the level of corporate firms and then at some specific business characteristics and evolution.

Contextual similarities KPS and DLT

The overall corporate background of the two cases was homogeneous in terms of location, size and activities. Both firms were located in Ireland and belonged to the asset management industry that constituted a turbulent environment (Nonaka and Takeuchi, 1995, Sveiby and Lloyd, 1988) where market anticipation and quick response were introduced as crucial (Stalks et al., 1992).

They had comparable sizes and staff and were considered as small and medium enterprises as defined by the European Commission (2003). They were both business units of non-Irish groups and their core business was to manage financial assets for third parties. The two organisations focused on their core competencies and outsourced the operations not adding value. DLT followed a very aggressive outsourcing strategy contrasting with KPS that kept an in-house information technology department.

While both companies' operations resulted from primarily their employees' work, neither had a dedicated Human Resources Management department (HRM) nor intended to create one. Such a department never existed in DLT which was more concerned with managing its Intellectual Capital[33]. In the case of KPS, the previously existing HRM department was terminated during the last restructuring on the grounds that *'it was a distraction more than anything else'*[34]. This situation regarding the absence of a HRM function in both companies challenges the role of HRM activities in organising the flow of people (selection methods, compensation strategies and career systems) for the development of innovations or the creation of new knowledge as set out in the literature (Scarbrough, 2003). It also contradicts the view that HRM is critical to the management of people in firms embedded in the knowledge age and that firms should design HR architectures that foster knowledge acquisition, knowledge sharing and knowledge application (Intan-Soraya and Chew, 2010).

[33] DLT defined IC as *'the possession of knowledge and experience, professional knowledge and skill, good relationship, and technological capacities, which when applied give organisations competitive advantage' (*DLT Financial Statement, 2013:12)
[34] Extracted from quotation KPSC1-26318

Contextual differences between KPS and DLT

While presenting similar features satisfying the replication logic (Yin, 2009) and providing a valid base enabling a two-case comparison, DLT and KPS constituted also two polar cases (Eisenhardt, 1989, Pettigrew, 1990) in many aspects.

At the root of these differences lay the difference in the organisation's business and ownership structure history. Since inception, DLT posted profits and assets under management (AUM) continually on the rise and recruited regularly. In contrast, KPS history was marked by decreasing AUM and several redundancy waves that left scars on employees' minds.

These two companies' contrasted evolutions were correlated with specific ownership structures. KPS experienced several reorganisations of its capital structure that did not provide an environment conducive to business development. At the time of the study, a restructuring of its capital was planned without redundancy. On the other hand, DLT history was characterised by a very stable ownership structure resting on the same shareholders since inception.

Another point of difference between the two companies concerned their business models. DLT's business model[35] relied on a combination of an original sub-contracting type of structure and niche strategies. However, KPS just started to shift its business model towards sub-contracting while emphasising indirect sales. Their sub-contracting business models implied recognising a decrease in the performance fees that asset managers benefited from. While this situation was the norm in DLT, it was new for KPS.

Finally, the other notable difference between the two companies was in their approach to participating in influencing organisational knowing emergence and creation, laid out in their approaches to managing their knowledge bases. DLT was an active implementer of KM practices and IC principles and senior executives were actively involved in making DLT an asset management firm endowed with a knowledge-based strategy. In contrast, KPS had a very low staff turnover, but was managing its knowledge base in a rather traditional fashion and, besides formal channels, relied on informal and intuitive insights and contributions from staff to create a competitive advantage.

In conclusion, differences in ownership structure business strategy and structure were evident between the two asset managers.

[35] In asset management, the adequate business model to survive in AM was the sub-contracting type Griffin, N., Smith, I., Luscombe, L. & Hawker, N. 2013. Evolving distribution models in asset management. *In:* KPMG (ed.) *The Strategy Group Report.*.

Conclusion

Table 7-1 summarises DLT and KPS contextual similarities and differences

Table 7-1 Contextual dynamics: contrasting similarities and differences between cases

Similarities between cases	Differences between cases
• Location, size and activity	• Evolution of the companies since 2003
• Outsourcing model- Focus on core activities	• Stability of ownership structure
• Performance based primarily on intangible assets	• Business models until 2013
• No Human Resources Department	• Management of knowledge and experience
• Niche strategies	• Technological structures and infrastructures
	• Staff turnover

We can observe similarities in the two case companies but also substantially different profiles. To summarise, KPS and DLT shared the same business models and similar niche strategies. Within a dynamic approach of organisational knowing such as the one suggested in Chapter 3, context plays a central role. Indeed, the cultural and historical context is one of the dynamics involved in organisational knowledge emergence and creation. For example, the waves of redundancy experienced in KPS resulted in the workers being *'fragile'* and quite resentful towards the firm. This impacted their engagement with the firm. In contrast and consistent with Nonaka and Takeuchi's *'Ba'*, DLT was actively involved in creating a context conducive of knowledge creation and capable of triggering a knowledge-based dynamic. *'Ba'* was introduced as the second condition of knowledge creation dynamic (Bratianu, 2015) and it is suggested that an adequate context could be created on purpose to stimulate knowledge creation. In other words, DLT was building the field of interaction facilitating the sharing of members' experience and mental models.

Attention turns now to comparing the organisational knowledge characteristics of the two asset management firms identified through the lens of knowledge-intensity in organisations.

7.2 COMPARING DLT'S AND KPS' ORGANISATIONAL KNOWLEDGE-INTENSIVENESS

Organisational knowledge-intensity has been elicited as the preferred mode of knowledge representation[36] for the study of asset management firms with the aim of modelling their activity systems. A comprehensive review of the literature resulted in the identification of two major orientations of organisational knowledge-intensiveness (firm-centric and person-centric) and outlined that KIOs are qualified as such based on a list of characteristics (Makani and Marche, 2010, 2012). Moreover, asset management firms were identified as an under-researched category in terms of knowledge-intensiveness. Consequently, it is proposed to compare the findings from the two companies' case studies to address this question:

> *RQ1: What are the organisational knowledge characteristics of asset management firms?*

In response to this first sub-research question (RQ1), themes were identified through thematic and axial analysis from the interviews in both companies regarding the features of their organisational knowledge bases. They are summarised in Table 7-2 and are discussed in the following sections.

Table 7-2 Organisational knowledge-based characteristics identified for KPS and DLT

• Knowledge-based competitive and sustainable advantage • Structure and infrastructures • Flexibility and agility • Employees specific skill set • Experience and knowledge • Entrepreneurship	• Communications capabilities • Staff self-development • *Workers' engagement** • *Leadership** • Industry changes • Incremental knowledge base • Outsourcing and in-sourcing	• Innovation and creativity • Market driven ethos • Technology-intensity • Collaboration and knowledge-sharing

**Only in the case of DLT*

Data analysis showed that the two companies shared most of the themes with very few exceptions (two supplementary themes for the case of DLT indicated with a *). However, the meaning[37] and intensity of each theme varied following the firm. They were also identified and compared in terms of code frequencies (Appendix 24). For both organisations, (i) *'incremental knowledge base'*, (ii) *'knowledge-based competitive and sustainable advantage'*

[36] Modes of knowledge representation that belong to the realm of activity theory and is a term introduced by Engeström (1995)
[37] Definitions of the themes identified for both companies can be consulted in Appendix 15 and 16.

and (iii) *'industry changes'* emerged as the most important themes and ranked in the first four positions in terms of code frequencies. Within these four first most important codes, (iv) *'collaboration and knowledge sharing'* ranked in fourth position for DLT (and sixth position for KPS) echoing the genuine interest of this medium-sized company for collective dynamics. Besides being mentioned on many occasions in the interviews, this theme was also underscored in the documentation, introduced as an in-house feature that was patented, and made a reality with the virtual library or the media room. For the case of KPS, *'entrepreneurship'* ranked in third position. This quality was salient in many aspects of the KDL goal-oriented actions the interviewees described and was consistent with the firm's limited reliance on clearly stated in-house working patterns.

7.2.1 Knowledge-based competitive and sustainable advantage

Based on the data analysis resulting in the frequency of code applications, both firms were substantially endowed with the organisational knowledge-intensive characteristic labelled *'knowledge-based competitive and sustainable advantage'*. First DLT and KPS developed *'unique products and methods'* representative of an esoteric knowledge providing a strategic advantage to the firm (Starbuck, 1992, Kärreman, 2010, Assudani, 2009) whereby both firms were applying their distinctive expert knowledge (Sheehan, 2002, Käpylä et al., 2011) conducive to superior knowing and judgement (Kärreman, 2010). These original products and methods crystallised in a geographical and specific product market niches (Swart et al., 2003) in which DLT and KPS specialised respectively. The two firms' esoteric knowledge differentiated also in terms of investment methodologies. DLT's investment process relied on an in-house patented investment method while KPS relied on expert binomial teams in charge of both research and implementation *per* investment themes. Second, the two firms' *'knowledge-based competitive and sustainable advantage*' included a concern with *'efficiency'*, *'quality'* and *'value creation'*. While value creation was mentioned as the driver underpinning knowledge processing (Käpylä et al., 2011), subjects stated that it could be achieved through *'efficiency'* and *'quality'* (i.e. carrying out extra due diligence to generate performance as KPSPM1-9293 mentioned).

Results showed that DLT had a stronger *'knowledge-based competitive and sustainable advantage*' as, in addition to the features it shared with KPS, the company could avail of the image and reputation of a big brand (Alvesson, 2004). DLT's made a particular effort of communicating on its inclination towards innovation within its premises, on the company's website, and in the media. This emphasised DLT's unique image and identity as it was encrypted in its culture. This could be compared with the way knowing could be deeply encrypted in firm's structures and infrastructures (Winch and Schneider, 1993). Consistent

with Alvesson (1993), this result supports the idea that knowledge is a slippery and ambiguous concept and managing the attached rhetoric, image and social processes was important to demonstrate the company's performance and competence and for producing the right impression.

While image and reputation was important (Sheehan, 2002, Sheehan and Stabell, 2007) for both DLT and KPS, the latter could not rest on a big brand and shifted the need for legitimacy on *'non-brand'* credentials or extreme due diligence in this case. Thus, KPS stressed its solid experience, corporate governance, transparency and accountability with its clients. The firm was strongly committed to being irreproachable, displaying practices above industry standards, and being concerned with obtaining accreditation from a self-regulated body (Makani and Marche, 2012) such as the Irish Central Bank[38]. This finding is consistent with the literature that underscores the importance for managers to construct a social identity to demonstrate legitimacy (Alvesson, 2000, Robertson et al., 2003).

Finally, *'knowledge-based competitive and sustainable advantage'* echoes Starbuck's (1992: 712) esoteric knowledge strongly while evidencing its content and how the two firms were using their knowing *'in a way that gave extraordinary strategic advantages'* to both companies. Thus, this theme is firm-specific as it underscores the uniqueness of this esoteric KDL or esoteric knowing expressed through *'unique products and methods'*, *'efficiency, quality and value creation'*, and *'firm's credentials'*. However, in this work *'knowledge-based competitive and sustainable advantage'* is preferred to Starbuck's (1992) esoteric knowledge as it underscores firms' connection with their markets.

7.2.2 Structures and infrastructures

While the *'structures and infrastructures'* theme emerged strongly for KPS compared to DLT, both firms were characterised by flat and flexible structures providing sufficient working latitude (Robertson and Swan, 1998, Alvesson, 2004). For example, interviewees underscored that they were engaging in quite diverse actions that diverged significantly from their official titles and functions (i.e. DLT's and KPS' subjects being involved in diverse activities spanning outside their primary responsibilities). These *'structures and infrastructures'* showed that the two firms were managed according to a team-based management system (Scarbrough, 1999, Greenwood, 2009), although KPS's was less flexible. Indeed, it was overshadowed by an invisible and rigid structure bearing the legacy of the past and some teams (i.e. the Executive Committee) acted as a hermetic group sharing

[38] The Irish Central Bank is not entirely 'self-regulated' as it is part of the Eurosystem led by the European Central Bank. However, the particular hardening of compliance in Ireland is specific to the Irish financial regulator.

little with others. In this study, *'structures and infrastructures'* also encapsulated the business models selected to support firms' development.

However, KPS showed a substantially stronger profile in terms of structures and infrastructures compared to DLT. This was due to the fact that the firm relied on its structure to stimulate its *'knowledge-based competitive and sustainable advantage'* as interviewees stated. Thus, the firm's hierarchical and team organisation, the way it ensured a low turnover, and the pervasiveness of all this in employee's minds and working patterns explained the strengths of this knowledge-intensive feature. In contrast, DLT compensated for weaker *'structures and infrastructures'* by a more substantial *technological-intensive* endowment and *'firm processes'* that supported employees' work. Thus, despite KPS more structured organisational design, it cannot be concluded that this makes the firm more knowledge-intensive than DLT. Both are actually knowledge-intensive, but in a different way.

7.2.3 Flexibility

In both DLT and KPS, the ability to adapt to varied contexts and tasks (Alvesson, 2001), and engage with on-going learning opportunities and communities of practice (Greenwood, 2009) were central. Firms' agility or their inclination to adapt to different situations underscored their need to change on a regular basis (Drucker, 1996, 1995) and learn accordingly (Cohen and Sproull, 1991). Consistent with Senge's (1990) concept of *'learning organisation'* that emphasised their dynamic nature, DLT's and KPS' subjects underscored equally their awareness of both their firm being embedded within a challenging environment and themselves being part of an organisation and the implications for them which was impacting their KDL. The two organisations also provided environments conducive to learning (Scarbrough, 1993). Overall, this finding is in line with Greenwood's (2009) view following which knowledge-intensity resides in the dynamics and processes structuring a KIO.

DLT's better endowment in *'flexibility'* stemmed from making this an overall organisational concern (products and structure). DLT's subjects indicated that the firm (via its top management) was concerned with regularly modifying or upgrading its structure and infrastructures, investing in necessary equipment, etc. to be the leanest and the more knowledge-intensive compared to competition. This required constant learning and adaptation. In contrast, KPS' subjects' testimonies on adaptation and learning were more product-focused providing them with stronger expertise in their fields. Thus, from the point of view of *'flexibility'*, it is concluded that DLT is more knowledge-intensive than KPS as organisational knowledge-intensity exceeds the scope of esoteric knowing and touches on purely organisational aspects such as routines and structures (Starbuck, 1992, Makani and Marche, 2012, von Nordenflycht, 2010).

7.2.4 Firm's processes

'Firm's processes' was a characteristic that emerged from the two groups of subjects' interviews. This feature was expressed in terms of firm-specific unifying working frameworks allowing the continuous generation and synthesis of collective organisational knowing (Lee, 1999). It illustrated how knowing was deeply encrypted in firms' structures and infrastructures providing *'standardised intangibility'* (Winch and Schneider, 1993). The processes of framing KDL and capturing knowledge were informal and consisted primarily of organisational routines and aspects of organisational culture (Starbuck, 1992, Swart and Kinnie, 2003b) and most knowledge was captured either through the exchanges of knowledge among subjects or was embedded in documents (Winch and Schneider, 1993). Consistent with Senge's (1990) *'learning organisation'*, these routines were filled with *'creative agency'* (Feldman and Rafaeli, 2002, Howard-Grenville et al., 2016) whereby *'routines are performed by people who think and feel and care. Their reactions are situated in institutional, organisational and personal contexts. Their actions are motivated by will and intention. They create, resist, engage in conflict acquiesce to domination. All of these forces influence the enactment of organisational routines and create in them tremendous potential for change'* (Feldman, 2000: 614).

While DLT shared some of this informal aspect with KPS, the firm went further and crystallised a significant number of investment-related processes into an intellectual property portfolio. Moreover, DLT went to the extent to formalise and protect KDL processes concentrating on working practices specifically enhancing knowing, doing and learning. However, according to Alvesson (2004), this development can be counter-productive and can constrain the knowledge-based competitive advantage as excessive framing methodologies can limit individual's creativity. In contrast, KPS's situation would be more representative of Feldman's (2000) routines filled with creative agency.

Thus, while it can be recognised at this stage that a firm's processes can be more firm-centric or person-centric and that this organisational KI characteristic is specific to an individual firm, it cannot be deducted which of the two firms was more knowledge-intensive than the other.

7.2.5 Entrepreneurship

In both firms, senior management made clear that they were expecting their subordinates to act as entrepreneurs, behaviour that the subjects interviewed confirmed as their work was characterised by uncertainties (Ditillo, 2004). Another aspect of the subjects' entrepreneurial orientation was their involvement within a network of organisations and communities that

allowed the interactive development of strategic know-how and competencies as well as sharing this within sub-groups and networks. Consistent with the literature and in the case of the groups of subjects, internal and external networks enabled them to identify peers, collaborate with them and develop strong interpersonal networks that extended organisational boundaries (Despres and Hiltrop, 1995, Brown and Duguid, 2001) and participated in strengthening their credentials (Alvesson, 2004).

However, this entrepreneurial inclination was particularly salient for KPS' subjects. Participants were highly individualistic and autonomous in what they were doing (Koslowsky et al., 2012, Wang and Ahmed, 2003). They were trusted for their particular skills and the ability to deliver results and were held accountable for their decisions (Makani and Marche, 2012, Drucker, 1999) while displaying self-control and self-evaluation (Greenwood, 2009). This situation was particularly true for senior management and KPS' portfolio managers as they could draw on extensive experience to exercise judgement and solve problems (Swart, 2007, Swart et al., 2007, Davenport, 2005). Consistent with Wang and Ahmed (2003: 8), subjects interviewed were *'intrapreneurial'* and *'while remaining within a company used their entrepreneurial skills to develop new products or lines of business'*. For instance, KPS' interviewed subjects were the creators of the niche investment strategies that allowed the company to stay afloat and increase its AUM. They were subsequently involved in continually improving and developing these products. Thus, they could be viewed as continuous innovators (Drucker, 1999, Despres and Hiltrop, 1995) or creative professionals (Winch and Schneider, 1993) who solved complex problems through creative and innovative solutions (Swart and Kinnie, 2003b, Swart et al., 2003). Thus, KPS' subjects' actions were highly creative (Drucker, 1959) and their basic task was thinking (Davenport, 2005, Reinhardt et al., 2011). They were involved in *'the perennial processing of non-routine problems that require non-linear and creative thinking'* (Reinhardt et al., 2011: 1).

The creativity and autonomy that characterises KPS' subjects was less obvious for DLT's subjects as their activities were framed within significant in-house processes, and a weaker *'incremental knowledge base'*. Only the Senior Portfolio Manager (DLTPM1), and the Organisation Officer (DLTS2) were involved in particularly creative and innovative actions (Scarbrough, 1993, Ditillo, 2004) building on identified or created opportunities within their field of expertise. Moreover, they availed of a significant degree of autonomy gained through expert power (DLT subjects were poorly endowed in IT skills and DLTS2 gained his expertise through different entrepreneurial experiences in IT as a free-lancer, and DLTPM1 was the only one in the group to be able to develop a macro view on the investment strategies) or in addition, institutionally organised for the case of DLTPM1. Interestingly, DLTS2 was a subordinate employee but had the ability to make decisions with high impact,

as he was the only one in the group of subjects with his expertise. For instance, one initiative and achievement was to create a system of incentive that stimulated knowing-sharing. In conclusion, from the point of view of organisation's entrepreneurial propensities, KPS was more knowledge-intensive than DLT.

7.2.6 Experience and knowledge

Consistent with the literature, for both cases and with very few exceptions, participants were equally highly educated and experienced (Swart and Kinnie, 2003a, Robertson and Swan, 2003, Alvesson, 2004, 2000). Except for one participant, all were endowed with a third level education (Davenport, 2005, Alvesson, 2004, 2001, 2000). However, evidence showed that one of the interviewees in a position of senior manager had extensive experience but no third level education, suggesting that high level of experience can compensate education (Blackler, 1995, Starbuck, 1992). An outcome that might be industry specific and / or country specific was that many of the staff had professional qualifications or were strongly encouraged to obtain some. For instance, portfolio managers were expected to have a Chartered Financial Analysts diploma which was the case for many of the interviewees in KPS, confirming a stronger knowledge and knowing base.

In terms of experience, KPS showed a stronger endowment compared with DLT (Appendix 24). The staff retention policy at KPS was part of their strategy for presenting stronger credentials and compensating for the lack of a brand. In contrast, DLT had a turnover above industry average. In this instance, half of DLT's interviewed subjects had less than 2 years experience within the firm and were juniors in the industry (Appendix 17); they were compensated accordingly. As one senior manager mentioned, DLT did not have a policy of high pay traditionally, contradicting the idea of knowledge workers being paid above average salaries (Starbuck, 1992, Davenport, 2005, Alvesson, 2001), at least in asset management. Both firms had a significant knowledge of their respective industry specialties as participants mentioned. While both firms fared equally on this criterion, it is suggested that KPS was more knowledge-intensive based on its knowledge base and its ability to retain knowledge and build on it.

7.2.7 Employees' specific skill set

DLT's and KPS' subjects had similar conceptual and cognitive abilities (Makani and Marche, 2012), performed knowledge based work (Sheehan and Stabell, 2007, Swart, 2007) using intellectual and symbolic skills (Blackler, 1995, Reich, 2002). Subjects of both firms acted as knowledge workers. Edgar et al. (2015: 489) defined them *'any worker whose job involves a significant amount of gathering, creating and dissemination of knowledge'*. Moreover,

knowledge was simultaneously an input, medium and output for their work (Davenport, 2005, Newell et al., 2002). This knowledge was understood *'as analytic, intellectual, theory-guided activities without saying that it* [was] *a superior form of knowledge'* (Alvesson, 2004: 13).

This *'employee specific skills set'* characteristic was more evident in the case of DLT. The first reason was the existence of the many institutionalised in-house processes that guided subjects' actions reduced their autonomy. In contrast, KPS' subjects were concerned with significant entrepreneurial activities implying important autonomy. DLT's subjects were more involved in implementing these processes that were idiosyncratic to the firm. Besides confirming the necessary co-existence between an organisation and an individual to be able to talk about organisational knowing (Spender, 1996, Druker, 1999), this finding provides a new insight into Starbuck's (1992) esoteric knowledge: it can be more firm-centric (DLT) than person-centric (KPS). A second reason for this conclusion is that DLT's in-house processes compensated for the relatively limited experience of half of the participants.

Consistent with Alvesson (2004), while DLT in-house processes represent a working framework validated through intellectual property and conducive to more harmonious organisational knowledge-intensity, this could in fact hinder subjects' knowing input. The desire to control too much knowing, doing and learning through processes and shift the balance of power from participants to the firm tended to be counterproductive within DLT as participants stated. Finally, although DLT scores higher than KPS on the *'employees' specific skill set'*, this does not make DLT more knowledge-intensive. On the contrary *'employee specific skills set'* tend to be better expressed in a freer environment as *'knowledge workers are informal'* and *'operational autonomy is crucial for knowledge workers to extend their intellect'* (Wang and Ahmed, 2003: 8). Thus, more particularly in the case of KPS and in line with organisational knowledge-intensiveness, KPS' subjects' situation was more consistent with the literature and could create value through advanced knowledge (Alvesson, 2004).

7.2.8 Communications capabilities

This theme or characteristic was not discussed or referred to in the extant literature. Being able to *communicate* was a characteristic both groups of interviewees emphasised. This was introduced as an important knowledge-intensive feature given the intangible nature of their work. Displaying such an aptitude supported the quality and efficiency of knowledge sharing as this involved understanding client problems and queries and providing relevant answers without noise. *'Communication capabilities'* also encapsulated the idea of *'selling'* or *'marketing'* an idea with the aim of convincing peers. Being able to communicate effectively concerned written communications (emails, reports, etc.), oral communications (meetings, phone conversation, conference call), but also addressing the suggested meanings hidden in

messages and body language as one of DLT's senior managers stated. Both groups of interviewees mentioned that they were expecting their colleagues and business partners to get straight to the point, as they had to manage large amounts of information. This feature was slightly more marked for DLT where a particular emphasis was put on technology- and in-house-supported knowledge sharing.

This organisational characteristic was not mentioned as such in literature, underscoring the industry specific nature of this KI characteristic when dealing with intangible and unanalysable problems and issues.

7.2.9 Staff self-development

Subjects from both companies mentioned this factor and in keeping with Robertson and Swan (1998), stating that they gave priority to their own career aspirations. They did this to maintain their employability and career self-reliance (Wang and Ahmed, 2003) showing an acute awareness of their value (Martin and Moldoveanu, 2003). This was evident for participants in both DLT and KPS. DLT's interviewees had a more diverse background in terms of experience. They had worked in different organisations prior to joining the firm and, in some cases, were engaged in creating their own businesses (i.e. DLT Senior Trader DLTTM4). KPS' participants underscored that they were taking care of their transferable and marketable skills within their work in the firm. Underpinning this concern for employability, participants were knowledge-seeking individuals (Swart, 2007), continuous learners (Reinhardt et al., 2011) and were committed to improving their work-related performances through apprenticeship (Greenwood, 2009). For instance, several DLT's junior staff mentioned that they were happy to be in the firm as they had the opportunity to learn a lot and build competence. This learning was intuitive and spontaneous and occurred during work (Nonaka and Takeuchi, 1995). Thus, this finding is consistent with the literature.

7.2.10 Workers' engagement

The *'workers' engagement'* theme was identified for DLT where participants demonstrated a mental and emotional commitment to their work (Wang and Ahmed, 2003). DLT's management understood that their employees were *'more intrinsically motivated, prone to recognition related award'* (Wang and Ahmed, 2003: 6) and attached to fairness in work processes (Davenport, 2005). Thus, subjects in positions of power created opportunities to show their appreciation and consideration for their staff following the example of a senior manager that found time to meet people: *'And then I give a specific job where they* [subjects] *report to just me, because they enjoy that; it is good for them to get the face-to-face time with* [DLTC2]'. In contrast, KPS' case was more characterised by a lack of engagement. Indeed,

staff were dissatisfied with the type of relationship they had with their company hierarchy and felt underappreciated. They were disappointed by the lack of appreciation and shared feelings of emotional fragility. They sometimes deeply resented the firm with whom, at the same time, they showed strong identification. Without making any assumptions on how the quality of work performances could be affected and consistent with Wang and Ahmed (2003), KPS' subjects were highly involved in their professional tasks, similar to DLT's. However, their engagement was not extended to the firm their management embodied, but towards their work and their own employability emphasising their concern for self-development that could be used in a future opportunity (few subjects mentioned their desire to leave the company). In conclusion, '*worker's engagement'* reinforces Feldman's insight (2000) on creative agency and thus, DLT appears more knowledge-intensive than KPS.

7.2.11 Leadership

'Leadership' as a characteristic was identified only for DLT and was consistent with Nonaka and Takeuchi (1995) and Nonaka and al.'s (2006) understanding on the role of leadership supporting organisational knowledge creation. In DLT, leadership was distributed and was supporting the flow of knowing from middle management (i.e. Senior Trader and Senior Portfolio Manager) to the top and down to the rest of the organisation. This leadership offered a framework for knowledge-based actions DLT's CEO and other leaders exemplified. These top managers articulated knowledge visions and engaged in spreading them throughout and outside the firm (Robertson et al., 2003). DLT's CEO was particularly invested in innovation and KM practices. These were particularly present in his discourse and his overall strategic approach to managing his company.

While such a KI feature could not be identified for KPS, another form of leadership was noted[39]. Consistent with Pearce (2004), KPS' subjects had greater autonomy while working in highly integrated and interconnected teams (binomial teams specialising on one aspect of an investment strategy while being integrated in the broader team exclusively responsible for the whole strategy), as their tasks were particularly complex and required high levels of creativity (Swart, 2007). In that case, shared leadership occurred and consisted in a *'serial emergence'* of official and unofficial leaders that simultaneously, constantly and mutually influenced processes within their teams (Pearce, 2004). This shared leadership did not necessarily exclude traditional vertical leadership that was needed for supporting the teams and maintaining a certain balance in work (Pearce, 2004, Jayasingam et al., 2010). Indeed, KPS'

[39] This shared leadership (Pearce, 2004) for the case of KPS became obvious to the researcher during the comparative analysis. KPS' subject insisted so much on the lack of leadership of their top management with one exception that the researcher did not pay attention to the shared leadership that is typical of knowledge workers and that was particularly well represented in KPS.

Chief Investment Officer embodied this traditional leadership and loosely guided the team while preserving space for their creativity. Thus, it may be argued that shared leadership (KPS) besides a traditional type of leadership (DLT) is another characteristic of organisational knowledge-intensiveness. In conclusion, based on both firms' situations, it is not possible to single out the most knowledge-intensive firm between DLT and KPS.

7.2.12 Incremental knowledge base

This theme emerged strongly for the two groups of subjects (first position for KPS and third for DLT in terms of code frequency) confirming, among other things, the centrality of continuous learning conducive to improved knowing while doing. Despite the centrality of learning, the labelling *'incremental knowledge base'* is preferred as it includes the idea of knowing while doing. Similar to Nonaka and Takeuchi (1995), it is argued that the stream of literature concerned with learning in organisations (Argyris and Schön, 1978, Senge, 1990, McGill et al., 1992) seldom mentions the term *'knowledge'* or *'knowing'* and does not provide clear insights on how it is generated or how to create it. Moreover, in relation with the literature, *'incremental knowledge base'* is richer and encapsulates more of the dynamic or the action contained in knowledge-intensity expression as some scholars suggested (Alvesson, 2004, Lee, 1999, Greenwood, 2009). It also captures the continuous learning and continuous interaction with peers that supports organisations' performance (Drucker, 1999).

Thus, in both firms, *'incremental knowledge base'* supported the need for both to enhance their capacities to adapt to various contexts and tasks (Alvesson, 2001) leading to continuous generation and synthesis of collective and organisational knowledge (Lee, 1999). The centrality of *'incremental knowledge base'* for the two firms substantiated Drucker's (1993) statement following which organisations need to change continuously, particularly within turbulent environment and rapid technological change, and create new things. Accordingly, the two groups interviewed underscored that they were involved in continually trying to improve most of the activities they engaged with and developed new applications from successes (Drucker, 1993). For example, KPS was developing a second generation of its own in-house CRM system and had already planned its development into a tablet-friendly version. Delta had transformed a spontaneous behaviour for employees which was established for rewarding themselves when they offered a useful help to a colleague into an online application that enhanced this conduct and extended it to the whole company.

Based on Argyris and Schön (1978), new schemata or mental models overtook pre-existing ones and the subjects were able to (or had to) project themselves in new ways of working. Both companies' subjects learned to solve specific problems based on existing premises (single-loop learning) and this knowing gradually enabled them to position themselves in new

perspectives or paradigms overriding the existing ones (double-loop learning). In the case of DLT, the latter was clearly established within a *'systems thinking'* or the *'discipline that integrate the disciplines, fusing them into a coherent body of theory and practice'* (Senge, 1990: 12). DLT's subjects acknowledged that the firm was endowed with a disruptive kind of character in the industry and was similar to the *'Ryanair of the financial services'* (DLTC7-17770). When interviewed, DLT's senior management stated that their ambition was to make the firm a *'Web 3.0'* type of firm following the example of high-tech firms. The latter illustrated Senge's (1990) view on leaders' role in the learning organisation.

In contrast, no such bounding *'systems thinking'* was clearly identified in the case of KPS. Still, it is in this company's case that the *'incremental knowledge base'* knowledge-intensive feature was particularly salient. This suggests that the absence of a unifying underlying paradigm or a desired looseness was compensated by experience, autonomy and entrepreneurship. With regard to the firm's type of niche strategy (i.e. product-based), KPS' subjects' were endowed with a knowledge that was not the common knowledge shared by everybody in the industry but that was idiosyncratic and personal (Alvesson, 2004); it qualified the firm as being knowledge-intensive as it drew on exceptional expertise that made an important contribution, an esoteric expertise (Starbuck, 1992). Consistent with Kärreman (2010), knowledge at work within KPS was very specific, rare and abstruse and common knowledge could not carry the task of providing identity, ethos, and competitive advantage to this firm.

Thus, while both firms presented a clear organisational knowledge-intensity from the point of view of *'incremental knowledge base'* characteristic, it was particularly marked in the case of KPS. This suggested that when the learning dynamic, and in particular Senge's (1990) *'generative learning'*[40] (or double-loop), is weighted on learning and subjects are organised into autonomous and interdependent [binomial] teams, the firm is more knowledge-intensive.

7.2.13 Collaboration and knowledge sharing

'Collaboration and knowledge sharing' was an important qualifying characteristic for both companies with a stronger emphasis for DLT. Subjects underscored that sharing knowledge was critical to the performance of their respective companies (Swart and Kinnie, 2003b). Next to the intra-organisational level, this characteristic involved being very open to the outside world with multiple links with other sources of knowledge (Alvesson, 2004). Hence,

[40] Following Senge (1990), *'Generative Learning'* is about creating - it requires *'systemic thinking'*, *'shared vision'*, *'personal mastery'*, *'team learning'*, and *'creative tension'* (between the vision and the current reality).

both companies' boundaries were permeable and networking and team-based work constituted natural extensions of their ways of working (Greenwood, 2009, Reinhardt et al., 2011, Drucker, 1993, Reich, 2002). Consistent with Assudani (2009), both firms used geographically dispersed teams engaged in knowledge work similar to theirs and relied on networks for knowing, doing and learning.

Both firms' subjects' work required extensive communication for coordination and problem-solving as their work involved *'an organic, short-term planning and re-planning following gradual problem-solving and problem-encountering'* as opposed to a more long-term planned agenda involving strict rules and methodologies (Alvesson, 2004:24). DLT endeavoured to provide substantial guiding schemata or methodologies supported by a dedicated technological infrastructure to channel, improve and harmonise subjects' activities with a view to stimulating innovation. The same approach was extended to external stakeholders and business partners as DLT was in favour of an open business model[41]. In other words, it displayed an intra-organisational and inter-organisational strategy enhancing *'collaboration and knowledge sharing'* conducive of knowledge creation. This explains why this organisational characteristic was particularly salient in DLT compared to KPS where *'collaboration and knowledge sharing'* was structured formally through regular committees and sub-committees and informally during work situations. Although, similar to DLT, it was supported by specific office layout.

DLT had deliberately institutionalised *'collaboration and knowledge sharing'* through a methodological and technological infrastructure to foster more knowledge-intensity. In fact, the study showed that this aspect was actually hollowing out or limiting its very purpose. DLT's subjects criticised most of the frameworks that were forced on them and to which they had to make regular contributions interrupting what they were doing and distracting their attention. Thus, this finding supports Alvesson's (2004) reasoning seeing such institutionalisation as counterproductive and restricting organisational knowledge-intensity.

7.2.14 Outsourcing, in-sourcing and networking

Consistent with the literature, *'outsourcing, in-sourcing and networking'* combines flatter infrastructures and subjects knowing to give them meaning (Alvesson, 2004). Both firms had business models involving outsourcing and in-sourcing conducive to gaining and sharing knowing. Indeed, as part of DLT and KPS's subjects, KDL was to collaborate with business partners forming a network of partners that could include the clients themselves (Swart et al.,

[41] See CHESBROUGH, H. 2011. *Open services innovation: rethinking your business to grow and compete in a new era*, Jossey-Bass, CHESBROUGH, H. W. 2007. Why Companies Should Have Open Business Models. *MIT Sloan Management Review,* 48**,** 22-28.

2003). As one of DLT's participants mentioned, the firm could collaborate on complementary aspects with a client and compete in the other areas within a same relationship. Thus, both firms relied on geographically dispersed teams to perform knowledge work provided that knowledge was viewed as a resource that could be possessed or created by actors and / or networks in which subjects participated (Assudani, 2009). From that point of view, KPS presented a slightly stronger profile than DLT suggesting that the former had more intense relationships with external parties. KPS' subjects had more autonomy than DLT's ones and engaged in intense relationships with external experts as they managed highly specialised products; where KPS' participants had limited knowledge of engineering and biology, for example. Besides this aspect and in line with industry standards, the firm outsourced cautiously all non-core and non-value-adding services to outside firms. In contrast, DLT had a very aggressive outsourcing and in-sourcing strategy (organised within a patented framework) and was determined to obtain the flattest and leanest possible firm. One of the subjects used the term of *'co-sourcing'* (excerpt DLTC1-6132) to outline the high level of customisation required in the way they outsourced, as they wanted to make sure to control the process involved.

While the two firms displayed different types of *'outsourcing, in-sourcingand networking'*, it is argued that both supported organisational knowledge-intensity. Both made KPS and DLT leaner and more flexible, but beyond that, it is the eagerness and customisation of this outsourcing and in-sourcing that acted as an extension of KDL or a supplementary source of knowing that made these two firms more knowledge-intensive.

7.2.15 Market driven ethos

Both groups of subjects underscored that their firms were primarily customer driven (Sheehan and Stabell, 2007, Nurmi, 1999). Participants were engaged in providing solutions to client's problems (Swart and Kinnie, 2003a) within a relationship characterised by a high level of information asymmetry between them and the client (Sheehan, 2002, Lorsch and Tierney, 2002). This organisational characteristic emerged more substantially in the case of DLT than KPS. DLT's better endowment in this OKI characteristic was deeply ingrained in its culture and discourse that bore the legacy of its founder.

Contradicting the literature (Donnelly, 2006, Swart, 2007), neither groups of subjects had high customer contacts as such. They were providing highly customised solutions (Alvesson, 2004, Swart, 2007), but they were not managing complex relations with their clients. Instead, both firms had dedicated entities in charge of customers' retention and attraction. DLT relied on its extensive network of distributors while KPS had sales teams all over the world. In both cases, participants discussed these sales entities as outstanding professionals who attracted

and retained clients within a relationship characterised by trust and confidence which the clients placed in the knowledge-intensive provider (Lorsch and Tierney, 2002, Lorsch, 2007). In conclusion, the market driven rationale underpinning subjects' work could not be denied. Consistent with Alvesson (2004), the relationships with clients who were investing a substantial amount of money with the two asset managers required a high degree of customisation and involved highly complex relations. This situation called for dedicated distributors while manufacturers (i.e. portfolio managers) could focus on their area of expertise, managing funds in a highly customised fashion, as participants stated.

7.2.16 Industry changes

Participants from both KPS and DLT mentioned that they were performing their work in a market fraught with uncertainties and increased competitive pressures (Windrum and Tomlinson, 1999). They stated that they were working in a *'pressure cooker'* type of environment with unstable jobs, fickle financial markets and rapidly changing technology (Swart, 2007). The fear of losing jobs was particularly pervasive in the post-2008 Irish local economy. Therefore, the theme of *'industry changes'* ranked high in terms of code frequency: it showed in the first place for DLT and ranked fourth in terms of mention for KPS. KPS's participants mentioned on many occasions the redundancy waves that struck the company and they were acutely aware of the uneasy situation the company was going through at the time of the study. In the case of DLT, half of the subjects interviewed had been recruited in the last 24 months, most of them having been made redundant from former financial firms. Moreover, as one of the interviewees mentioned, the industry had changed and was not as predictable as it was before the crisis. In relation to technology changes, most of both companies' subjects recognised that they were struggling with NTIC and were not using them accordingly let alone keeping up with changes; situations that sometimes impacted their work.

Despite these similarities, *'industry changes'* was felt more strongly as a characteristic for DLT than for KPS suggesting that this KI characteristic is firm-specific. First, DLT's subjects were marked by their very recent past as they were unemployed. Second, the CEO's concern to move the firm closer to a *'technology company'* (excerpt DLTC1-29896) was overwhelming and pervasive in the company (i.e. subjects were regularly asked to make suggestions in that regard and participate in the supporting infrastructures). In contrast, KPS' major concern was to adapt its current business model to the one prevailing in the industry and this intent was concentrated in the hands of very few subjects. In this regard, DLT had this business model since inception and was concentrating on the advantages it could benefit from by aligning this business model with the nature of knowledge economies. This finding is

another aspect that qualifies the organisational knowledge-intensiveness of a firm and is firm-specific.

7.2.17 Innovation and creativity

In the study, *'innovation and creativity'* emerged as a knowledge-intensive organisational characteristic that concerned both firms and that hinged both on (i) subjects and (ii) the organisations they belonged to. Both firms were organised around self-motivated and highly qualified individuals (Alvesson, 2004). Both DLT and KPS' subjects used their work specific knowing (i.e. finance, regulation, statistics, etc.) in their activities, but also knowing relating to engineering and science (for KPS) and other fields their business partners were involved in to solve complex problems through creative and innovative solutions (Swart and Kinnie, 2003b, Swart et al., 2003). They also used their IT skills or solicited one of the group members well-endowed in the matter to create dedicated tools supporting their work. DLT's subjects were involved in similar knowing, doing and learning. In addition, they were encouraged to provide suggestions to stimulate the IT-supported collaboration strategy underscoring a non-linear and creative thinking (Reinhardt et al., 2011). In other words, all subjects interviewed were acting as continuous innovators (Despres and Hiltrop, 1995, Alvesson, 2000, 2004, Swart et al., 2003).

However, innovative and creative subjects alone do not qualify a firm as knowledge-intensive. DLT and KPS' workers' skills were combined with a unique organisational context that provided the opportunity to convert specialised knowledge into performance given that *'in the knowledge economy, it is not the individual who performs. (…) It is the organisation which performs'* (Drucker, 1993: 71, Starbuck, 1992, Scarbrough, 1999, Alvesson, 2004). Firstly, both firms provided coordination mechanisms aiming at integrating specialised knowledge endeavouring to enhance those skills (Grant, 1996, Starbuck, 1992) (i.e. greater employee autonomy, binomial teams and open offices lay-out for KPS; patented operating frameworks for DLT). Both asset managers used *ad hoc* organisational forms, more networking and flatter structures facilitating communication for coordination and problem solving (Alvesson, 2004, Scarbrough, 1999). Secondly, KPS and DLT regularly invested substantially in infrastructures supporting communication, collaboration and teamwork. KPS had nurtured and developed an IT department specialising in finance over many years and DLT was investing substantially in IT infrastructure and a new premises to facilitate communication at the time of the study. These developments support innovation and creativity, but this does not explain why DLT is more KI than KPS. Indeed, the study showed that it was actually the propensity firms displayed in developing structures and infrastructures supporting an incremental and continuous knowing, doing and learning that singled out DLT

as the most KI of the two firms: DLT's leadership was particularly determined to create a structure able to nurture and foster knowledge-intensity. This intent occurred through formal and informal reorganisation (partially the case for KPS) and / or investment (both for DLT).

7.2.18 Technology-intensity

While DLT showed a better endowment in terms of *'technology-intensity'*, both organisations studied relied substantially on new technologies for communication or problem solving, (Alvesson, 2004, Sheehan, 2002, Greenwood, 2009) and kept investing in new technologies of information and communication (Stewart, 1997). Both firms acknowledge that IT, combined with knowledge management supported team work and was essential for finding information (Lee and Choi, 2003). Consistent with Reyt and Wiesenfeld (2015), subjects indicated that the drive toward integrating more mobile technologies gradually changed their everyday work. DLT had equipped all participants with tablets and laptops (to improve work flexibility and reduce paper use) and KPS was developing a CRM version for tablets, although participants complained about not being equipped with devices such as tablets and personal laptops.

While new technological endowments can be viewed as a basic for organisations embedded in knowledge economies (OECD, 1996), the theme *'technology-intensity'* identified in the study is to be understood as the medium that increased organisational knowledge-intensiveness. In this regard, DLT was exemplary compared to KPS. Its group of subjects indicated how the firm and themselves were using technology to share knowledge repositories, emails and chat rooms that participated in creating opportunities for collaborative work (Assudani, 2009, Blackler, 1995) and transformed the firm into an organisational structure prone to knowledge generation (Windrum and Tomlinson, 1999). IT created an infrastructure and environment supporting knowledge processes where subjects played an active part (Dalkir, 2005). Consistent with Reinhardt et al. (2011), DLT's subjects' activities were understood as the execution of knowledge-intensive tasks with IT support such as creating, sharing and managing knowing in and between organisations. Accordingly, the authors underscored knowledge actions associated with knowledge roles that encompassed analysing, authoring, disseminating, organising information, networking, etc. In the case of DLT, the various in-house processes all supported by technology framed these tasks, providing as such a very good example of what *'technology-intensity'*, in relation with knowledge-intensiveness, meant. However, Andreou and Boone (2002) stated that the quality of the content transferred overrides the importance of IT investments. This added to KPS' experience and knowledge would make this firm more knowledge-intensive than DLT.

7.2.19 Conclusion

This section has compared DLT's and KPS' knowledge bases as they were established from the insights gained from the literature and derived from the participants' interviews. The following paragraphs summarise the findings that emerged from the analysis.

Based on DLT's and KPS' identified knowledge-based organisational characteristics, the first finding arising from this study is to identify these two asset management firms as knowledge-intensive. Consistent with Alvesson (2004), for both DLT and KPS, knowledge was a salient phenomenon translated in terms of qualities and characteristics that both firms addressed ambitiously and in a productive way in order to cope with their business and their circumstances. This finding is also supported by Greenwood (2009: 35) who states that KI is *'the product of structure, relationships and dynamics in the organisations'*. Both DLT and KPS relied on their intangible abilities to set and enhance KDL to generate improved or new knowing, doing and learning destined to be integrated in products, services or processes while drawing on supportive structure and infrastructures.

Second, the study of DLT and KPS' OKI led to the identification of two types of organisational knowledge-intensiveness: a person-centric and a firm-centric one. This finding supports Makani and Marche's (2012, 2010) typology of KIOs that can be unit oriented (worker dimension) or organisationally oriented. As evidenced by the KPS' subjects' interviews which enabled the OKI profile to be established, this firm exemplifies the first situation. KPS has made the choice to rely on its human assets to consolidate its competitive advantage and the firm's KI characteristics are primarily supported and embodied by its subjects. KPS' person-centric inclination is shown in Table 7-3 that summarises the finding and where the central column featuring individual's KI characteristics is clearly the longest.

Table 7-3 KPS organisational knowledge-intensiveness: a person-centric orientation

Organisation-centric	Person-centric	Shared
• Knowledge-based competitive and sustainable advantage • Structure and infrastructures	• Employees specific skill set • Experience and knowledge • Entrepreneurship • Communications capabilities • Staff self-development • Collaboration and knowledge-sharing • Innovation and creativity • Flexibility and agility • Firm' processes • Incremental knowledge base	• Industry changes • Outsourcing and in-sourcing • Market driven ethos • Technology-intensity

In contrast to and also evidenced by subjects' interviews and documentation, DLT represents an OKI that is more firm-centric. Its management decided to *control* and enhance its KI through established and technology-supported in-house processes. The KI characteristics identified for this firm are primarily supported and embodied by the company structure and processes. This is summarised in Table 7-4.

Table 7-4 DLT's organisational knowledge-intensiveness: a firm-centric orientation

Organisation-centric	Person-centric	Shared
• Knowledge-based competitive and sustainable advantage • Structure and infrastructures • Technology-intensity • Firm's processes • Collaboration and knowledge-sharing • Outsourcing and in-sourcing • Market driven ethos • Leadership	• Employees specific skill set • Entrepreneurship • Communications capabilities • Staff self-development • Workers' engagement	• Industry changes • Incremental knowledge base • Innovation and creativity • Flexibility and agility • Experience and knowledge

We can observe that the majority of the characteristics are more weighted towards DLT as an organisation rather than its subjects.

Based on the previous, it was not possible to identify the *most* knowledge-intensive firm or whether there was any point for such conclusion. Evidence showed that a prerequisite for

both firms was to be endowed with a good / adequate business model supported by financial strength. Thus, in this study, organisational knowledge-intensity is the element that makes the firm over perform (DLT) or helps to turn around a difficult situation (KPS) once the basics are set. Thus, the fourth finding emerging from this study outlines that OKI is firm specific. Both DLT and KPS have a different type of KI that serves a different purpose. DLT and KPS were endowed with a unique KI representative of their esoteric knowing (Starbuck, 1992). This finding differs from the general conclusion found in the literature that views an industry or a whole sector as knowledge-intensive, for example in the works of Windrum and Tomlinson (1999), Swart and Kinnie (2003b), Käpylä et al. (2011) or Kubo and Saka (2002).

Supporting the previous point and as this study was carried out in asset management firms, we can conclude that OKI is not a feature that epitomises a particular specialty or profession but can be deliberately organised within a knowledge-based strategy as demonstrated in the case of DLT and KPS (a clear discourse and reality around OKI existed in both firms although it was more subtle in KPS). Following up on von Nordenflycht (2010) and McGrath (2005)[42], we suggest that knowledge-intensity is not a new phenomenon but that it is its perception that is more recent and that past research should be reinterpreted.

Section 7.2 explored OKI as a mode of knowledge representation, representing a static perspective. This dimension alone that took the form of a list of characteristics does not equate to knowledge creation. Consistent with Cook and Brown (1999), a dynamic approach on organisational knowledge needs also to be considered to generate knowledge and / or knowing. The second level of analysis will combine static and dynamic dimensions of knowledge: the different themes that have been identified through the lens of OKI are used to model DLT and KPS activity systems in an attempt to understand the mechanisms and dynamics supporting knowing emergence and / or creation. At a subsidiary level, the following sections will seek to find out if AT and the framework introduced in Chapter 3 enables this to be achieved. The two subsequent sections address the two following research questions:

> *RQ2: How does organisational knowing emerge and/or is created at the social level (zone of proximal development) in asset management firms?*
>
> *RQ3: How does organisational knowing emerge and/or is created at the individual level (internal plane of action) in asset management firms?*

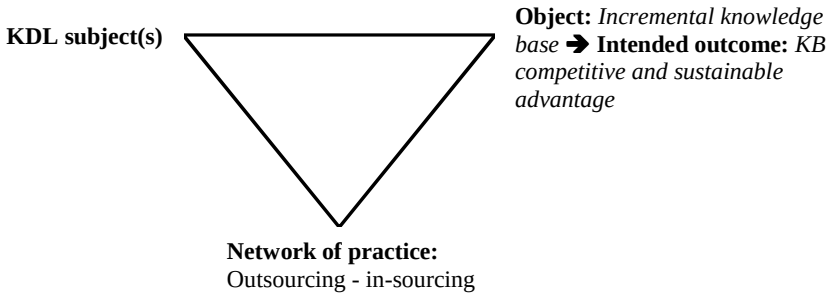
[42] In this instance, see McGrath, P. 2005. Thinking Differently about Knowledge-Intensive Firms: Insights from Early Medieval Irish Monasticism. *Organization*, 12**,** 549-566.

These two sub-research questions will encapsulate the exploration of the mediated actions unfolding at a collective (Section 7.4) and individual level (Section 7.5), but also the tensions and contradictions that hindered or stimulated knowledge creation at a collective or individual level in the two groups studied (Section 7.7). A preliminary section (Section 7.3) introduces a comparison of both KPS' and DLT's core of AS. To conduct such an exploration, a conceptual framework featuring an activity system conducive of understanding the mechanisms and dynamics of OK emergence and creation was constructed (Figure 3.6) and implemented. The following sections introduce the results of the comparison of both DLT and KPS' activity systems with a view to explaining how OK emerges or is created (or not) in both cases. First, the core of the AS encapsulating the subject, the network of practice and the object is presented (Section 7.4). Second, attention concentrates on the cognitive processes and dynamics unfolding at a social level (Section 7.5). The third sub-division replicates the previous point but at the personal level (Section 7.6). At last, the systemic tensions and contradictions as a possible source of OK creation are developed in Section 7.7.

7.3 GOAL-DIRECTED OBJECT AND INTENDED OUTCOME, KDL SUBJECTS AND NETWORK OF PRACTICE

Subjects' actions within the identified unit of analysis aimed at addressing the *'problem space'* that the object embodied. While individuals and their environment mutually transform each other through heuristics and contrarian reflexion (Barab et al., 2004b), subjects were identified as being at the origin of organisational knowing (Grant, 1996, Nonaka and Takeuchi, 1995); a point also recognised in activity theory. The subjects in both firms, who provided a vicarious experience on the studied phenomenon, were considered as the entry point in the activity system analysis (Yamagata-Lynch, 2010) and the object as the destination *'object-intended outcome'* of the two companies activity systems. Thus, these three fundamental elements confirm that knowing is goal-driven and consistent with Tsoukas and Vladimirou's (2001: 982-983) *'from-to'* structure encapsulating *'subsidiary particulars'* [problem space], a *'focal target'* [intended outcome] and a *'person'* [subject] connecting the two through action. This occurs while subjects are parts of a network of practice making actions underpinned by *'collective understandings and experiences'* unfold within the firm. From the perspective of AT, the network of practice embodies the group of peers inside and outside the firm to whom subjects belong, and with whom they identify and interact with. These three core elements are represented within an activity theoretical perspective in Figure 7.1.

Figure 7-1 Core of the activity system



This section compares the situation of the two groups of subjects in relation with the three nodes shown in Figure 7-1.

7.3.1 The goal-oriented object and intended outcome in DLT and KPS

Activity theory views the goal-oriented object as the *'problem space'* that is moulded and transformed into outcomes as it is mediated by tools and instruments (Van Der Riet, 2011). Similarly, Cook and Brown (1999) introduce their concept of *'productive inquiry'* following which it is the idea of seeking a solution (*'productive'*) to a troublesome situation (*'query'*) which underpins workers' actions. Similar to activity theory, the authors suggest that this goal-oriented object is not self-evident and needs to be determined.

In this study, for the two organisations investigated, the goal-oriented object was identified as *'incremental knowledge-base'* that can be understood as organisational knowing emergence and creation. While Dewey (as cited in Cook and Brown, 1999: 3880), saw the production of (abstract and static) knowledge as one of the possible outcomes of engaging in the situated and dynamic activity of productive inquiry, this study has identified a more dynamic stance with incremental knowing, doing and learning. Indeed, participants were primarily concerned with an upward spiral of knowing, doing and learning featuring a constant and regular improvement of their cognitive situations in relation to asset management and the industry. The different coding stages that led to the identification of this theme demonstrated a strong focus on constant learning while subsequent *'enriched'* doing was concerned with adding value to the company's knowing.

The object of the activity gave direction to subjects' actions and was moulded and transformed into outcomes (Engeström, 2001). In a sense, knowing was *'pragmatic'* as Blackler (1995) stated. The intended outcome was identified in the two cases as *'knowledge-based competitive and sustainable advantage'* and confirmed the one pre-figured in the conceptual framework (Figure 3.5.1). The substance of the competitive and sustainable

advantage was, of course, specific to each firm and provided them with a unique competitive edge. Drawing on Starbuck (1992), it was found that both firms' esoteric knowing was concerned with crafting unique and original business solutions or unique investment strategies and methodologies that would remain firm specific in the long run. They were also equally invested in running their operations and delivering performance to clients with efficiency while creating value. Unlike KPS, DLT was also concerned with the establishment of brand-based credentials in line with its headquarters' policy (Alvesson, 2004).

7.3.2 DLT's and KPS' subjects

Within ASA, subjects occupy centre stage as they connect *'subsidiary particulars'* [problem space] and a *'focal target'* [intended outcome] through action (Tsoukas and Vladimirou, 2001: 982). In this study, the two companies' subjects were referred to as *'KDL subjects'* to underscore the practice-oriented dimension of knowing (Cook and Brown, 1999) involved in organisational knowing that encapsulates Brown and Duguid's (2001: 200) *'learn about'* and *'learn to be'*. In both DLT and KPS, the majority of participants had substantial levels of education, knowledge and professional and managerial experience (Starbuck, 1992, Alvesson, 2004, Davenport, 2005) with KPS presenting a stronger profile resulting from its stable, long-tenured employees' profile. In comparison to KPS, DLT had a higher than industry average staff turnover which resulted in a recruitment drive (50% of participants) in the 2 years prior to the study. Both companies had participants involved in diverse and sometimes unusual activities. For example, in both firms, C.F.Os were in charge of strategic aspects of the business exceeding the scope of finance and accounting. To a certain extent, it could be said that KPS and DLT embraced Nonaka and Takeuchi's (1995) *'requisite variety'* because the nationalities of their subjects reflected the global nature of their markets. *'Collective understandings and experiences'* occurring in each firm informed these subjects' actions, as they belonged to a bigger group (Tsoukas and Vladimirou, 2001: 983).

7.3.3 Subject-object relationship mediated by the network of practice

The network of practice was characterised in the study by (i) *'outsourcing, in-sourcing and networking'* and by (ii) *'collaboration and knowledge-sharing'*.

(i) Consistent with Brown and Duguid (2001), subjects in both firms learned while acting in concert with close groups or team members within the organisation and more particularly within the sample selected for the study[43], but also with some other members outside the

[43] Subjects were selected in relation to their actions and how these participated substantially in performance generation in the firm (Sections 5.3.2 and 6.3.2).

organisation (Brown and Duguid, 2001). Subjects engaged with the object while being part of a network that was enhanced by outsourcing and in-sourcing. While DLT outsourced all non-value adding activity, KPS retained some non-core activity (i.e. IT department). In-sourcing indicated a tight partnership between the service provider and client allowing the sharing of gained knowledge. These relationships with a wider network (consultancy firms specialising in compliance and law, fund administration, software companies, private equity firms, etc.) shaped the subjects' cognitive development and thus the incremental KDL. This mediated relationship between subject and object was more intense in the case of KPS because of the nature of their work. Due to their primarily qualitative investment strategies and a specialisation in institutional clients, participants were in charge of investing in companies with whom they had to keep close contact. KPS' subjects mentioned that they gained insight through networking, using their personal relations and professional channels. In contrast, DLT had active collaboration with traditional business providers treating these relationships like business partners, blurring the boundaries of the firm. Their aim was to have supplementary sources of knowing, to be the closest to decision-makers in order to improve incremental KDL. However, DLT's subjects had more limited contact with the client base than KPS; the firm had quasi-integrated relationships with its other business partners within the firm which operated as a larger network of interconnected financial services.

DLT is a good example of Brown and Duguid's (2001) network of practice. They provided a thorough understanding on nature, actions and consequences of a network of practice (particularly in terms of identity), underscoring its unique character and importance in the working environment. Most of the literature combines the context with the network of practice (Spender, 1996, Cook and Brown, 1999, Tsoukas and Vladimirou, 2001), and none, to this author's knowledge, provides a satisfactory visual representation of this wider *'context'*. Nonaka and Takeuchi (1995) did provide a visual support and had a more elusive and prescriptive approach with their group, organisation and inter-organisational levels of the ontological dimension of the knowledge spiral. To these dimensions, they superposed a structure of knowledge creating crews providing an unclear and artificial statement on such communities of workers. This approach, in terms of network of practice and context (developed in Section 7.5) within an activity theoretical perspective and their graphic visualisation, is an original contribution in this thesis.

(ii) '*Collaboration and knowledge sharing'* is indisputably an essential *modus operandi* for knowledge-based actions (Swart and Kinnie, 2003b) and substantially influenced how subjects related to the object of activity. This mediating artefact was of particular importance for DLT who made it one of the major aspects of its knowledge-based strategies. Besides supporting technological collaboration and knowledge sharing, DLT was also concerned with

capturing the knowledge exchanged in order to share it with whom ever wanted. As such, the firm was engaging in Nonaka and Takeuchi's (1995) combination stage of the SECI model whereby concepts were systematised into knowing systems. The point of creating repositories of knowledge for DLT was to use this for training / learning purposes as the last stage of the SECI, internalisation suggests. Moreover, making the contents of knowledge repositories available to all the staff is consistent with the redundancy required for knowledge creation (Nonaka and Takeuchi, 1995, Spender, 1996). Collaboration and knowledge sharing was equally important for KPS where it arose in informal situations. Thus, the impact of this mediating tool was stronger on DLT's incremental KDL than KPS's one.

7.3.4 Conclusion

This section demonstrated that organisational knowing emerges and that it is dynamic.

Organisational knowing emergence and creation

Based on the results of this study, it is argued that within an epistemology of practice, the phrase *knowing or organisational knowing* better reflects the idea of action and practice. Second, organisational knowing is not necessary *created*, it can simply emerge through learning.

In line with the rationale underpinning AT, the core of the activity system makes sense if considered as an ensemble functioning in concert. Within Cook and Brown's (1999) concept of *'productive inquiry'*, learning is central. It is always ongoing and is externalised through knowing and doing (Lave, 1993). The *'incremental knowledge base'* featuring a KDL dynamic underscored in the findings was consistent with Lave's (1993) approach following which learning is an active process that can be defined as a creative and collective interpretation of past experiences. It also echoes Nonaka and Toyama's (2007) *'kata'*, implying a gradual learning and knowing phenomenon. As evidenced during this study, no particular breakthrough innovation occurred nor was mentioned in the interviews. Instead, working practices as they emerged and evolved over time were investigated as they emerged during the interviews. In this regard and following up on Lave (1993), Nonaka and Toyama (2007) and Cook and Brown (1999), knowing appeared to be primarily an emerging phenomenon in this study.

This idea of organisational knowing emergence that has crystallised in the intended outcome (*'knowledge-based competitive and sustainable advantage'*) under the form, (for example, of improved investment strategies delivering better performances but also in the way of improving them) underscores the idea of knowing emergence rather than *only* the Nonakian knowledge creation so central in the literature (Nonaka and Takeuchi, 1995, Nonaka et al.,

2006, Bratianu, 2015, Little and Deokar, 2016, Vick et al., 2013, Salisbury, 2008). This incremental knowing is similar to *'Kaizen'* or the continuous improvement epitomised by small cycles of knowledge creation that leads to product, service or process enhancement. Although this incremental knowing constituted the main part of everyday actions according to the subjects interviewed in the two firms, Engeström (1995) mentioned that this has been overlooked by Nonaka and Takeuchi (1995). Of course, examples of Nonakian knowledge creation were found in this study, but they are more of a final outcome of constant learning, doing and knowing. Instances involve KPS' orientation of its business model towards sub-contracting and DLT's patented in-house processes of investment. These types of innovations (as in Nonakian knowledge creation) were more of an exception in the asset management sector according to one interviewee. In the case of DLT and KPS, interviewees exchanged continuously on everyday actions and how they could improve current products and processes illustrating the *incremental knowledge base*. Thus, in contrast to the Nonakian *'knowledge creation'*, knowing can simply *emerge*. This finding validates the phrase *'knowing emergence and creation'* contained in the main research question. Consistent with the *Kaizen* approach, it is assumed that knowing emerges first prior to becoming a new knowing that can be integrated in a tangible or intangible good. Thus, organisational knowing is also emergent.

The dynamic nature of organisational knowing

From an AT perspective, it is the object and intended outcome that gives direction and purpose to subjects' actions as they emerge within a socialised context and at a personal level. The latter stance can be viewed as emergent and stemming from interviewees' interests and concerns. Within a Nonakian approach, it is the *'knowledge vision'* that orientated knowledge creation and stimulated subjects' intellectual passion (Nonaka and Takeuchi, 1995, Nonaka and Toyama, 2007). This vision was restricted to the managerial level and was introduced as external to the process of knowledge creation. This Nonakian top-down approach overlooked the subject's perspective on the problem and thus ignored the phase of questioning. According to Engeström (1995: 380), Nonaka and Takeuchi's (1995) framework *'does not seem to account effectively for sequences of formulating and debating a problem, in which knowledge is represented as an open, multifaceted problematic'* [emphasis in the text]. Indeed, the interviewees in both case companies regularly pointed out how they were exchanging, debating and arguing to identify a problem/solution and enact it. This is of importance as the intended outcome can encourage or hinder the subject to participate in future activities (Yamagata-Lynch and Smaldino, 2007) and thus affect the *'the intellectual passion'* described by Nonaka and Takeuchi (1995).

An important consequence of this difference is that as Blackler (1995) stated, organisational knowing is *'provisional'*. According to Engeström (1995), through questioning, the object

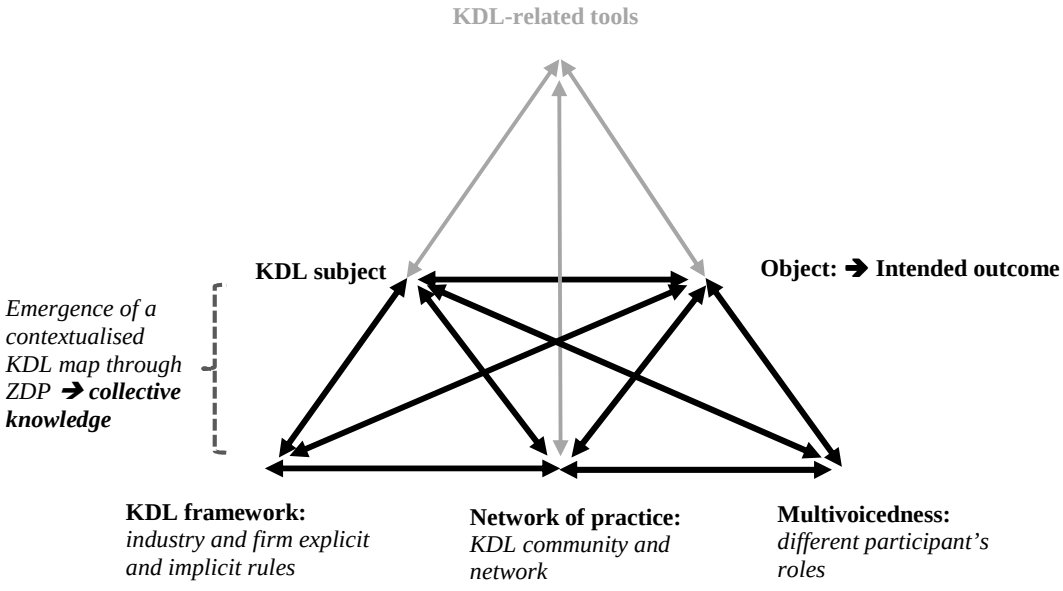
and intended outcome evolve according to the dynamic nature of knowing as it is socially constructed and constantly developing through ongoing and inevitable tensions pervasive to systems of knowing and doing (Blackler, 1995). Thus, Tsoukas' (2016) '*understanding-backward-Living-forward'* dynamic is acknowledged. In contrast, the hierarchical Nonakian *'knowledge vision'* appears more rigid and less open to discussion or evolution.

The next section provides a comparison on formation of socialised organisational knowing as it occurred in DLT and KPS.

7.4 EMERGENCE AND CREATION OF ORGANISATIONAL KNOWING WITHIN THE ZONE OF PROXIMAL DEVELOPMENT

This section will concentrate on understanding the emergence and /or creation of a contextualised KDL map (Figure 7-2).

Figure 7-2 OK emergence and creation within social context *(based on Figure 3.6)*



The coding process was undertaken to identify both DLT and KPS knowledge bases through the lens of OKI and was also underpinned by the modelling of their corresponding activity systems. During this process, the themes that emerged were distributed around the different nodes of the activity system triangle. In this section, the focus is on the modes mediating the relationships between subjects and object in a social context and a comparison of how

cognitive and intellectual capacities were mobilised, used and enriched collectively in the cases of DLT and KPS is introduced. Table 7-5 shows the mediators identified for the two firms.

Table 7-5 Comparing KPS' and DLT's KDL framework and multivoicedness

Nodes of the AS	KPS mediators	DLT mediators
KDL framework	• Industry change • Market driven ethos	• Industry changes • Market driven ethos • **Leadership***
Multivoicedness	• Entrepreneurship • Employee specific skill set • Communicators • Staff self-development	• Entrepreneurship • Employee specific skill set • Communicators • Staff self-development

**Theme that is specific to DLT*

With the exception of *'leadership'* that was identified only for DLT, both firms shared six mediating items. These mediated relationships between subject and objects are introduced in the following paragraphs.

7.4.1 Subject-object relationship mediated by KDL framework

Drawing on Wittgenstein (1958), MacIntyre (1985), Gadamer (1989) and Maturana and Varela (1988), Tsoukas and Vladimirou (2001: 977) identified this context respectively with *'a form of life'*, a *'practice'*, a *'horizon of meaning'* or *'a consensual domain'*. These different expressions illustrated particularly well the organisational context within which the interviewees informed their cognitive development while they acted, constructed and modified it gradually, according to an unfolding reality. The identified knowing, doing and learning framework showed that for both companies, interviewees were acting within a binding and guiding context that could be understood in different ways. Two mediators were identified for the two companies: (i) *'industry changes'*, (ii) *'market driven ethos'* while a third mediator, (iii) *'leadership'* was singled out only for DLT (Table 7-5).

(i) In both firms, the on-going mutations, high velocity of change characterising the industry and increasingly complex regulatory environment framed subjects' actions, as these were unfolding in an operating environment fraught with uncertainty. The study showed that respondents in DLT were more reactive in relation to this mediator than KPS. This was consistent with the DLT's senior executives' orientation to implement an open business model and subjects' sensitivity to uncertain employment conditions. Both elements were

continually shaping the way participants had to update, amend or enrich their current knowing and knowledge base collectively. KPS was addressing its object through a more planned approach towards amending its business model.

(ii) The relationship between subjects and object mediated by *'market driven ethos'* strongly influenced the emergence and creation of knowing for the two firms. In KPS this mediator was more significant because its subjects regularly interacted directly with clients. Based on the study, the strong rhetoric attached to client-centricity in DLT did not compensate for the absence of direct relations with clients.

(iii) *'Leadership'* emerged in the case of DLT as a distinctive mediator. It denoted a strong top down guidance inspiration in terms of drive, behaviour and commitment, clear vision and direction from executives who originated from inside and outside the firm. This leadership style echoes Nonaka and Takeuchi's (1995) *'knowledge vision'* that inspires employees' *'intellectual passion'* to enable knowledge creation. However, evidence suggested that KPS also generated new knowledge which resulted from KPS' participants shared leadership based on expert power (Pearce, 2004, Jayasingam et al., 2010) which the subjects explained during the interviews. So, the top down *'knowledge vision'* approach recommended by Nonaka and Takeuchi (1995) may not be the only way in which leadership mediates knowing emergence and creation.

For both companies, the KDL framework supported but also constrained the emergence and creation of a contextualised knowing, doing and learning. This partially reflects Cook and Brown's (1999: 388) *'interaction with the world'*[44] in which knowing is concerned with people's interaction with the things of the physical world. Context appears to be structured by *'rules'* existing specifically for the achievement of specific goals as Tsoukas and Vladimirou (2001: 980) explained[45] which confirms Engeström's (1993) statement on rules (Section 3.5.1). This study also showed that the object (incremental knowing) is more affected by the framework when it is part of a day-to-day business.

7.4.2 Subject – object relationship mediated by multivoicedness

Multivoicedness concentrates on the different roles participants are expected to or have to play in the organisation (Engeström, 2001). Contrasting with Nonaka and Takeuchi's (1995) prescriptive approach[46], the activity theoretical perspective provides a flexibility that enables

[44] Cook and Brown (1999:388) encapsulate both the social [community of practice] and the non-social world in their concept of *'interaction with the world'*. They are separated in this study.
[45] Tsoukas and Vladimirou (2001:980): 'Rules are prescriptive statements guiding behaviour in organisations and take the form of propositional statements, namely 'If X, then Y, in circumstances Z'.
[46] Nonaka and Takeuchi (1995:124) dedicated the fifth chapter of their book to the *'Middle-up-down Management Process for Knowledge Creation'* and suggested a middle-up-down model of

focusing on the different work roles employees have to be involved in when addressing the object. In this study, four different roles and functions were identified for KPS' and DLT's interviewees in regard to how they acted to improve organisational knowing, doing and learning that is encapsulated in the object of the activity: (i) *'entrepreneurship'*, (ii) *'employee specific skill set'*, (iii)*'communicators'*, and (iv) *'staff self-development'*.

(i) Given the substance of their work that involved finding innovative solutions to complex problems (Swart et al., 2003, Despres and Hiltrop, 1995, Scarbrough, 1993) or preventing issues, it is argued that subjects acted as entrepreneurs[47], shaping the object accordingly. This situation was particularly salient for the case of KPS where subjects had an important autonomy for the management in carrying out their activities and responsibilities (Robertson and Swan, 1998, Koslowsky et al., 2012) while exercising judgements on a regular basis (Swart et al., 2007, Davenport, 2005, Tsoukas and Vladimirou, 2001, Swart, 2007). For example, portfolio managers were in charge of developing their portfolios as they were the experts (Winch and Schneider, 1993, Robertson and Swan, 1998) and they had the lead on this and were accountable for the outcomes (Makani and Marche, 2012). The entrepreneurial orientation was evidenced through participant's strong commitments in their work (Benson and Brown, 2007, Wang and Ahmed, 2003). This entrepreneurial orientation was also found with DLT's participants but mainly at senior positions. It seemed that the in-house decisions-making models that created a strong identity for DLT tended to act as compelling mental maps, overriding participant's personal inclinations. Thus, it could be argued that, based on subjects' entrepreneurial orientation, KPS' incremental KDL was more intense and richer than DLT's one.

(ii) *'Employee's specific skill set'* mediated the way subjects engaged with their work. More specifically, the range of skills specific to the activities participants had to perform, their complex problem-solving abilities (Sheehan and Stabell, 2007) and analytical and theoretical approaches in their work (Davenport, 2005, Käpylä et al., 2011) shaped the way personal knowledge emerged at the social level. This theme resonates with Alvesson's (2003) *'knowledge-intensive worker'* and was more important in the case of DLT whereas KPS's subjects compensated for adopting a more entrepreneurial approach to their work.

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management that takes the best of the two traditional top-down and bottom-up models of management provided that *'everyone in a knowledge-creating company is a knowledge creator'*. Thus, they proposed to crystallise this approach with the *'knowledge creating crew'* that *'refers to all the individuals engaged in knowledge creation within the company'* (Nonaka and Takeuchi, 1995:151).

[47] See MALERBA, F. (ed.) 2010. *Knowledge-Intensive Entrepreneurship and Innovation Systems: Evidence from Europe,* London, New York: Routledge.
BYERS, T., DORF, R. C. & NELSON, A. J. 2011. *Technology venture: From Idea to Entreprise,* New York, McGraw-Hill.

(iii) The third role subjects played and that was equally evidenced in DLT's and KPS' activity system was an ability to communicate. This was determined by subjects' ability to share a message efficiently without the *'noise'*. Communications capabilities influenced then how and what subjects learned before acting. Communication encapsulated *'selling'* or *'marketing'* an idea (i.e. convincing staff of the benefits attached to the introduction of a new software), *'teaching'* new knowledge and being able to understand and to provide an adequate answer. This theme influenced also the object in terms of quality of knowledge exchanged and transferred.

(iv) Finally, the object was also influenced by the interviewees' orientation for taking care of their own professional development paths as they gave priority to their career aspirations (Robertson and Swan, 1998), developing necessary skills and behaviours related to their work (Scarbrough, 1993), as they did not trust or expect anyone to do this for them (Lorsch, 2007, Lorsch and Tierney, 2002). Thus, subjects were concerned with maintaining their employability, cultivating transferable skills underscoring the importance of apprenticeship (Greenwood, 2009), increasing their value on the market, etc. These efforts of self-improvement positively influenced organisational knowing emergence and knowledge creation and impacted the goal-oriented object in terms of breadth of knowledge participants were willing to collect, integrate or share with other members of the group.

7.4.3 Conclusion

Consistent with the principles and concepts of AT, the development of cognitive abilities occur first at the social level (Vygotsky, 1978) and substantiates the collective dimension of knowing and its embeddedness within a context (Tsoukas and Vladimirou, 2001, Choo and de Alvarenga Neto, 2010, Nonaka and Toyama, 2007, Baralou and Tsoukas, 2015). The latter highlights this contextualisation through the socialisation phase of the SECI model but gives no indication about the *'language-mediated domain*[s] *of sustained interactions'* that are concerned and within which individuals draw distinctions (Tsoukas and Vladimirou, 2001: 978). These *'language-mediated domain*[s]*'* are actually represented by the mediators in AT and encapsulated within the three nodes Engeström (1987, 2001) developed, based on Vygotsky's work. (i) The KDL framework can be assimilated to Tsoukas and Vladimirou's (2001) *'rules'*. (ii) The network of practice is compared to Brown and Duguid's (2001) insights. Surprisingly, while mainstream literature agrees on the centrality of the individual in the knowledge-based theory of the firm, he or she is seldom considered in its different roles. This study develops substantially this aspect with a third node: (iii) the multivoicedness, concept that reaches into the literature on knowledge work and workers. Finally, the strength of a KDL contextualisation within an activity theoretical perspective is the opportunity to

single out the internal (IPA) from the external operating framework (ZDP), the network of practice and the different roles subjects played within the same methodological perspective.

This finding put the stress on *understanding* the context in order to adapt to it, emphasising knowing as interacting with external conditions (Cook and Brown, 1999). This contrasts with the Nonakian model concerned with *determining* the *'conditions enabling knowledge creation in order to improve innovation and learning'* where *'Ba is a shared space for emerging relationships'* (Nonaka, 1994, Nonaka and Takeuchi, 1995, von Krogh et al., 2000, Nonaka et al., 2006: 1185) but again, with no indications on *'what space'*.

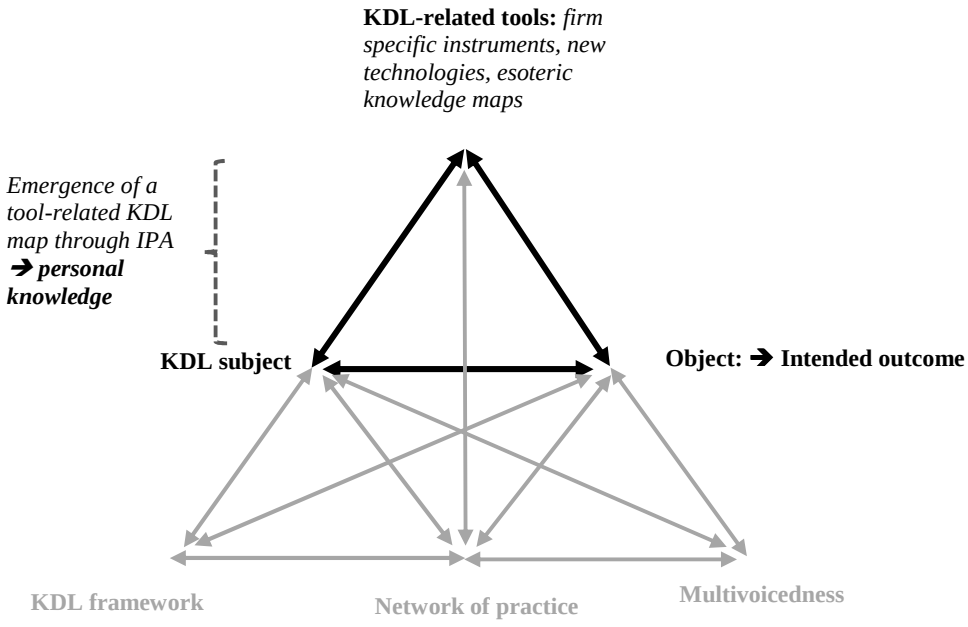
Given that all human knowledge is socially constructed (Hasan, 2002, Blackler, 1995), shared cognition emerged through interaction between and among individuals (Barab et al., 2004b, Brown and Duguid, 2001) and is represented in the lower part of the triangle of AS. As Twining and Miers (1991: 131) remarked *'a rule prescribes that in circumstances X, behaviour of type Y ought, or ought not to be, or may be indulged in by persons of class Z'* and underscored that how a subject in a particular role (multivoicedness) would act in relation to a particular context (KDL framework). In line with AT, this subject acts and behaves while being part of a group; in this study, the network of practice. Following Vygotsky's research, restricting the understanding of child development to what he or she can do independently from others is not sufficient and is just about studying *'what has <u>been learned</u> or already matured, rather than what is <u>being learned</u> or in process of development'* [emphasis added in the text] (Guy, 2005: 65). Vygotsky (1978) identified the ZPD as *the potential* for development of the child learning while cooperating with others and not only on their own (Section 3.2.2). The focus is thus on *the potential* or *the distance* between two states of knowing. In this study, this distance between two states of knowing is breached by what subjects learn from their interaction with the environment, with the network of practice and while playing different roles in their organisation. This approach contrasts with the input-output approach which the conversion of tacit knowledge into explicit one (Nonaka and Takeuchi, 1995) exemplifies. This section underscored *how*, as subjects were knowing, doing and learning while interacting passively or actively with other elements and persons, and within specific circumstances, a contextualised knowledge map formed, a map within which personal knowledge is formed. It also confirms the notion of knowing emergence introduced earlier and its dynamic nature.

Attention turns now to the comparison of the emergence of personal knowledge in the internal plane of action between KPS and DLT.

7.5 EMERGENCE AND CREATION OF ORGANISATIONAL KNOWING WITHIN THE INTERNAL PLANE OF ACTION

In this study, KDL subjects process what they have learned at a social level through mediated action and develop individual consciousness through social actions. Although the coexistence and interdependence of personal and collective knowledge is widely acknowledged in the literature (Cook and Brown, 1999, Tsoukas and Vladimirou, 2001, Spender, 1996), very few scholars have identified or paid attention to a sequence in which subjects know, do and learn in organisations. Understanding if the development of cognitive abilities originates at the contextual level or individual one is of importance for developing knowing or generating new knowing. This concern with the primacy of a dimension of learning over another one is one of the cornerstones of Vygotksy's theory-method. This is confirmed in the works of Nonaka and Takeuchi (1995) who, in their SECI model, identified that learning and internalisation processes occur while interacting with peers (socialisation) before individuals integrate and externalise their learning (externalisation). It may be noted that the activity theoretical perspective used in this study also integrates a KDL framework that Nonaka and Takeuchi (1995) refer to as a *principle*: *'ba'* but which they exclude from their basic visual model. Thus, this section compares how cognitive and intellectual capacities were mobilised at the intra-psychological level, used and enriched collectively for DLT and KPS. The attention focuses on the relationships between KDL subject and object mediated by the KDL tools that led to the emergence of a tool-related KDL map (Figure 7-3).

Figure 7-3 OK emergence and creation at the personal level *(based on Figure 3.6)*



With the exception of *'worker engagement'*, both companies shared similar mediating tools identified in the data, although different in their intensity, and set out in Table 7-6.

Table 7-6 Comparing DLT's and KPS' tools and artefacts

DLT	KPS
• Experience and knowledge	• Experience and knowledge
• Innovation and creativity	• Innovation and creativity
• Structure and infrastructure	• Structure and infrastructure
• Technology intensity	• Technology intensity
• Flexibility	• Flexibility
• Firm processes	• Firm processes
• **Worker engagement***	•

**Theme that is specific to DLT*

7.5.1 Subject-object relationship mediated by the KDL framework

A comparison of the different tools- and artefacts-mediated relationships between objects and subjects is introduced hereafter.

(i) Subject-object relationship mediated by experience and knowledge

The way subjects related to the object was influenced by the subject's knowing, doing and learning based on the foundations of their own experience and knowledge. Experience and knowledge was also a tool that impacted how participants internalised knowledge gained at the social level and at the personal level. Thus, the more experienced subjects were in terms of *'having been through the whole lifecycle'* in asset management as DLT's Senior Portfolio Manager mentioned, the more they could positively influence the object. In this regard, KPS' group of participants presented a stronger profile compared to DLT. Several of them shared their lived experience as they were working their way out of crisis. The knowing, doing and learning that unfolded leading to improved KDL, bore the strong imprint of this experience. In the case of DLT, very few participants (except those in senior positions) were in a similar situation.

Moreover, the nature of KPS products (specialising in qualitative investment strategies) reinforced this experience effect. KPS' group of participants were endowed with *'niche'* knowing about environmental strategies and an extensive and varied knowledge gained through years of practice performed within the same company. This KDL rested entirely in the hands of the subjects to guide their goal-directed actions whereas in the case of DLT, this knowing was diluted between the hands the network of financial advisors, and a pervasive

technology aimed at capturing this KDL. In relation to the latter, it was noted that the technology could be supportive in strengthening KDL but also counterproductive as it acted as a distraction for participants. Indeed, they had to spend time *'learning'* this technology and then *'fuel'* it with knowing. Given the pace of change imposed by the CEO, subjects confessed they hardly had time to deal with this and all their workload.

In conclusion, the quality of the incremental KDL and subsequently the derived knowledge-based competitive advantage could clearly be traced to KPS subjects. This was not that obvious in the case of DLT, and during the fieldwork, it became evident that it was not clear who or where, between the network of financial advisors or DLT, was at the origin of DLT's success. As a matter of fact, the CEO was pretty much aware of this and was determined to make his firm the one at the origin of performance. However, in both cases, the centrality of the individual in the knowledge-based approach of the firm (Grant, 1996, Nonaka and Takeuchi, 1995) was confirmed.

(ii) Subject – Object relationship mediated by innovation and creativity

Innovation and creativity rests altogether on individuals and organisations (Drucker, 1993, Scarbrough, 1999). The analysis also showed that this mediator in the case of the two firms corresponded to their propensity to organise supporting systems conducive to incremental KDL. In other words, it concerned the firm's drive for improving and creating new knowing. From that point of view and based on evidence, DLT's object and intended outcome were shaped by an ambitious technology-driven innovative rationale backed by a pervasive rhetoric around innovation. In contrast, KPS' creativity and innovativeness was more subject-driven. Thus, the incremental KDL was affected differently in the two firms. It was particularly enhanced for DLT as it was concerned with KDL in relation to managing assets but also identifying and developing conceptual tools and maps supporting knowing-sharing at all levels in the firm. In contrast, KPS presented a more *'conventional'* profile and concentrated its efforts primarily in expanding and improving its products and investment strategies.

(iii) Subject – Object relationship mediated by structure and infrastructure

This relationship explores how the subject is influenced by legal (licences, compliance…) and competitive (business model, financial strength, staff turnover…) infrastructures as well as the physical lay-out of the firm as she or he addresses the incremental KDL. For example, working in open plan offices facilitated cooperation and contrarian debates on ideas and led to improved KDL in both firms.

The impact on KPS' and DLT's structure and infrastructures were similar as subjects improved their firm's competitive advantage through team-based work and intense collaboration. A noticeable difference between the two firms was that DLT was better

equipped with state-of-the-arts facilities and equipment and also had better financial strength, preventing distractions that could arise from the concern of losing one's job, providing a better tool for incremental KDL.

However, DLT presented *'weaker'* team structures than KPS that better equipment could not overcome. Indeed, the levels of experience and knowledge within the firm's teams were quite different. In DLT, these were characterised by a knowledgeable leader (i.e. Senior Portfolio Manager or Senior Trade Manager) and very junior staff. For instance, the Senior Portfolio Manager stated that he had to spend a significant amount of time training the rest of the team to raise competency levels instead of focusing on his own work. In contrast, KPS' binomial team-based structure to which different committees and sub-committees were added were more harmonious in terms of experience and knowledge, which provided a solid ground for KDL. This confirms Cook and Brown's (1999) view which suggests that each member of the group are specialised in an epistemic work that only they can do while the others in the team do different work which is complementary. However, this outcome is only possible with similarly experienced and knowledgeable team members, as exists in KPS.

(iv) Subject – Object relationship mediated by technology-intensity

Technological infrastructure and endowment of the firms influenced how the different participants contributed to the object of the activity. Technology-intensity determined access to *'global intelligence'* and other needed information that could be obtained through available technology and adequate skills. From that point of view, DLT stood out and was very active in aligning its operations with a technology-intensive working environment. KPS had a supporting technological framework due to its Information and Technology department that was acting in lieu of an external business partner. However, the influence of technology-intensity in shaping the incremental KDL was limited by participants' capabilities in using it in both firms. The most extreme instance was a very senior participant who confessed that he'd rather use paper than trying spending hours trying to make sense of his computer. Thus, technology-intensity was double-edged. For some participants, it was indeed a mediating artefact that really influenced the incremental KDL. For other participants, technology-intensity became itself on the object of their goal-oriented actions (Barab et al., 2004b) impacting negatively the object. This was a liability for both firms and more particularly for DLT who was investing so heavily in new systems. Indeed, subjects mentioned that they hardly had time to acquaint themselves with the changes.

(v) Subject – Object relationship mediated by flexibility

This mediated relationship indicated how incremental KDL was influenced by the firm's ability to adapt to new circumstances. Flexibility helped determine how and where knowing,

doing and learning should concentrate to improve the object and the intended outcome. KPS relied on well-established and proven ways such as updating products and services and changing labels of existing products[48]. DLT demonstrated a very proactive way for being flexible, particularly since 2003 and the appointment of a new CEO. While flexibility was a very strong overarching theme in the running of the firm, the strategic intent was to make the most of the opportunities available in the knowledge economy and with business partners. Based on evidence, DLT appeared more flexible or at least made flexibility a salient overarching theme of its culture and participants were more prompt in adapting to change (Drucker, 1996, Cohen and Sproull, 1991). In contrast, for KPS, flexibility emerged out of necessity. This was substantiated first by the paradox for this company of having a very low turnover and a high level of complaints among staff (compared to DLT). Second, while the choice for flexibility and agility was made clear by senior executive, a proportion of *'institutionalised'*[49] subjects tended to resist. Thus it could be argued that KPS' object was impacted negatively by this resistance to change.

(vi) Subject – Object relationship mediated by firm's processes

Firm's processes or firm specific unifying framework determined the object of both firms. These processes participated in the emergence of the tool-related KDL map at the personal level. These improved the organisations' stability as it improved the transparency and reliability of operations. In other words, firm's processes are compared to organisational emergent or creative routines (Feldman and Rafaeli, 2002, Feldman, 2000). While both companies were endowed with these routines, DLT brought this a step further and translated these routines in visual conceptual maps that were placed at the centre of value creation and innovation. DLT's IPR portfolio provided many examples of how those routines have been captured, studied and improved before being integrated in firm's overall ways of working and enhancing learning. While the latter suggested that DLT was better endowed with stronger firm's processes, too pervasive methodologies could actually be counterproductive (Alvesson, 2004) and limit creative routines, thus impacting negatively incremental KDL. In contrast, KPS's subjects were engaged in more informal routines / processes they developed gradually and revised when necessary (Starbuck, 1992). This way of doing has a positive influence on KDL for this firm.

(viii) Subject – Object relationship mediated by workers' engagement

This mediating artefact has been identified only in the case of DLT. The way the incremental KDL was addressed and the resulting outcome was influenced by the emotional connection of

[48] Changing labels was a significant investment in time and money as they were legally registered.
[49] Expression used by a Senior Executive

employees towards their organisation (Wang and Ahmed, 2003), and their willingness to work outside their comfort zone (Alvesson, 2000). Workers' engagement was about the *'extra step'* participants were willing to make but that they could have avoided without any prejudice, to make a stronger contribution to the incremental knowing, doing and learning.

7.5.2 Conclusion

This section developed how different mediating artefacts influenced subjects' cognitive development as they addressed the object and increased both firms' KDL. This second phase in individual's cognitive development is the one where knowing, doing and learning is momentarily finalised in individual's minds and is exteriorised (Vygotsky, 1978, Nonaka, 1994, Grant, 1996, Spender, 1996). Indeed, knowing is the subject's prerogative as eventually, she or he is the *'primary (if not exclusive) wielder and repository of what is known'* (Cook and Brown, 1999: 385) and *'all knowing is personal knowing'* (Polanyi, 1975: 44). Both firms shared similar mediators with the exception of *'worker's engagement'* identified for DLT only. The comparative analysis showed that these mediating artefacts impacted with different intensity in shaping firms' respective incremental KDL.

The following section draws conclusions on the interrelatedness and interdependency of KDL emerging at the social and individual levels and introduces some findings.

7.6 CONCLUSIONS ON THE EMERGENCE AND CREATION OF KNOWING IN THE ZDP AND THE IPA

This section showed how collective and individual knowing interacted in a mutual interdependence to generate an improved or new knowledge-based competitive and sustainable advantage through an enhanced incremental KDL for both DLT and KPS. This study concluded that DLT had a more active management of some of the mediators it was aware of such as technology-intensity or collaboration and knowledge sharing. The firm was striving to put in place or at least determine its mediators in a way that supports organisational knowing creation that was substantiated by the firm's rhetoric for innovation. KPS was less ambitious in its undertakings for improving its current KDL and rather operated gradual changes to fine tune its processes and settings for improving knowing, doing and learning as a way to obtain overall better performances on their products. However, the firm relied on the experience and knowledge of its subjects to enhance its KDL dynamic. This supports the fact that KPS had a better human resources retention strategy which eventually impacted its

incremental KDL. Finally, this study underscored that innovations in asset management were limited while few dramatic changes unfolded in order to support a KDL dynamic. Thus, instead of creating knowledge in a Nonakian way, knowing emerged gradually from day-to-day activities consistent with continuous improvement.

The emergence of an individual consciousness originates in a contextualised dimension or within collective knowledge (Lave and Wenger, 1991). In activity theoretical language, shared cognition gained in the ZPD was subsequently internalised within the IPA, whereby *'intermental'* and *'intramental'* levels are indissociable (Vygotsky, 1978, Cook and Brown, 1999, Engeström, 2001, Spender, 1996). First, a contextualised KDL map encapsulating a framework of action, a network of practice and considering the different roles subjects have to play in their work, emerged while they were addressing the object. Second, based on subjects' socialised cognitive development, a tool-related KDL map formed while attending the object. Thus, subjects of the two companies *'learned'* and *'knew'* and performed manipulations with an internal representation of objects prior to *'doing'* or initiating actions with these objects for real.

This finding is consistent with Tsoukas and Vladimirou's (2001: 975) definition of organisational knowledge[50] as they drew on Polanyi's *'profound insight concerning personal character of knowledge'* and Wittgenstein's argument on intersubjectivity following which human knowledge is fundamentally collective. These authors integrated personal and collective knowledge to which they added context and historicity. In their definition, they also emphasised the *action* individuals are engaged in while making judgements, providing a complete understanding of their view on organisational knowing. Similarly, Cook and Brown (1999: 388) introduced aspects relating to the interdependence to individual and group's knowledge as well as the context through the *'interaction with the world'*. They also put forward the active nature of knowing underscoring that *'knowing is about a relation'* meaning that *'it is about interaction between the knower(s) and the world'*. Similar prescriptive statements are found in the works of Spender (1996), Brown and Duguid (2001), Nonaka (1994) or Nonaka and Takeuchi (1995). In relation to the Nonakian approach, the authors went to the extent of proposing a model delineating the stages of knowledge creation and how personal and collective knowledge interplayed.

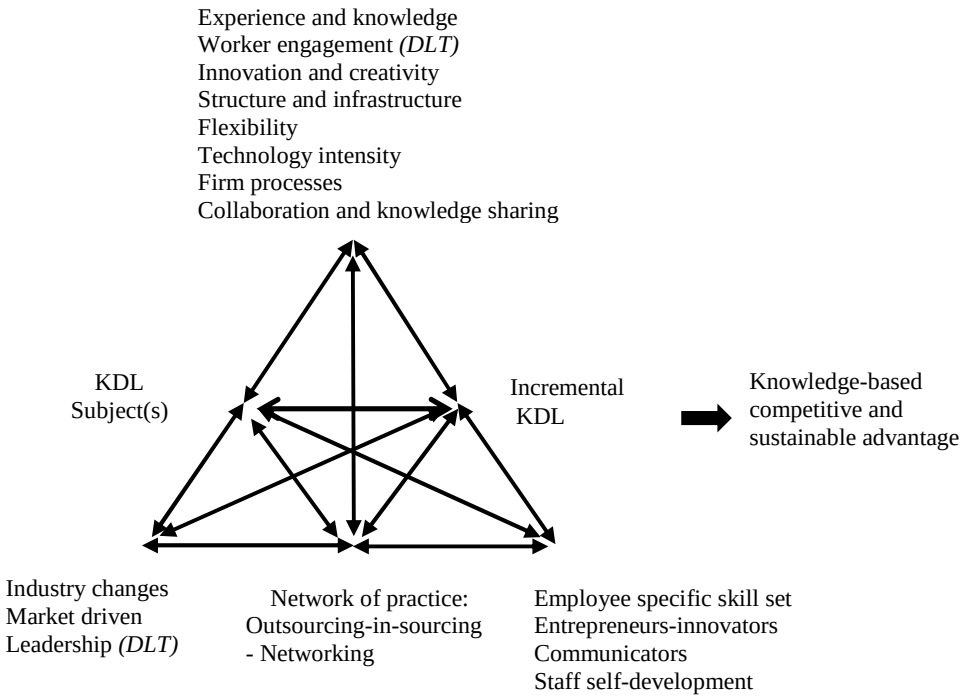
However, these works fall short of suggesting an incursion in the intricacies of the mind and how cognitive development is formed and more particularly how it is mediated. References to context are clear but never *'determined'* in terms of what this context is or what it is made of.

[50] *"The capability members of an organisation have developed to draw distinctions in the process of carrying out their work, in particular concrete contexts, by enacting sets of generalization (propositional statements) whose application depends on historically evolved collective understandings and experiences"* (Tsoukas and Vladimirou, 2001: 983).

With the exception of Tsoukas and Vladimirou (2001) who outlined the constraining and enabling nature of *'rules'* and against the vagueness of these assertions, the activity's theoretical view introduced in this thesis equips the investigator with a method of identifying the operating framework within which subjects act. This approach *extracts* the *group* from the context in which it is usually encapsulated (Tsoukas and Vladimirou, 2001, Cook and Brown, 1999) and gives it existence within the network of practice. Activity theory also envisages subjects as a group when needed (a group relation with an object can be studied as well). So far, Nonaka and Takeuchi adopted a similar stance the collectiveness encompassed in the ontological dimension of their model and the context in the *'ba'* principle although without the depth activity theory provides on mental functions. However, none of the authors considered Engeström's (2001) multivoicedness and the different roles workers play in an organisation contributing to the incremental KDL. Contributing further to this finding, activity theory made clear *how* individuals *'draw distinctions'* (Tsoukas and Vladimirou, 2001: 983) and *what* inform these or rather *'how to determine what influences individuals judgment making'*, according to their terminology.

Finally, the activity theoretical perspective implemented in this study explained *how*, provided that *'learning is inevitably implicated in the acquisition of knowledge, but also implicated in the acquisition of identity'*, people not only *'learn about'* but also *'learn to be'* (Brown and Duguid, 2001: 200). Consistent with Nonaka and Takeuchi (1995) *'learning by doing'* and Senge's (1990) adaptive and generative learning, individuals are transformed as they shape the environment where their actions unfold. This is consistent with Davydov (1999) who stated that the activity emerged through a reciprocal process that transformed the subject, the incremental knowledge base and the in-between relationships and their context. The activity encompassed within itself cultural transformations of its own structures (Engeström and Miettinen, 1999). Hence, subjects became more experienced and knowledgeable, learned and acted within an internalised given context, and so on; the incremental knowledge base evolved accordingly and, subsequently participated in shaping subjects' own circumstances and the way they relate to the object while using KDL tools. Subsequently, following Cole and Engeström (1993), upon institutionalisation of the activity, this becomes a founding base within the culture. The evolution of subjects, the incremental knowledge base and the mediated relationship that connected both parties became part of the founding culture on which a future evolution will form. A summary of all the mediators involved in the incremental KDL is provided in Figure 7-4.

Figure 7-4 Summary of all mediators for KPS and DLT



Attention turns now to the last step of analysis as indicated in the conceptual framework, the study of systemic contradictions and tensions.

7.7 SYSTEMIC TENSIONS AND CONTRADICTIONS AS A SOURCE OF OK CREATION

Another important finding in this study pertains to the role tensions and contradictions play in knowing emergence and creation. Indeed, with few exceptions (Nonaka and Takeuchi, 1995, Cook and Brown, 1999, Tsoukas, 1996), the notion of disruptions, discrepancies or more simply, issues occurring in organisations as a source of dynamism stimulating knowing emergence and creation, is mostly ignored in the literature on knowledge management. In contrast, it is central in activity theory (Engeström, 1987, 2001). Nonaka and Takeuchi (1995) stated that a necessary condition for promoting the knowledge spiral is fluctuation and creative chaos that stimulates the interaction between the organisation and the external environment. Cook and Brown (1999) introduced the concept of dynamic affordance whereby activities are both actions and practices and they acquire their shape and meaning from their organisational contexts. Within an activity theoretical perspective, Blackler (1995) stated that

knowing is viewed as provisional and contested. It is provisional as developments in systems of knowing unfold constantly as inevitably tensions emerge within these. Knowing is contested as issues of domination and subordination characterise organisational environments. Contradictions result from accumulated tensions within and between activity systems (Engeström, 2001) and understanding the underlying contradictions of an activity system is critical to understanding the system itself (Barab et al., 2002a). Contradictions crystallise in tensions that may hinder subjects' cognitive development if not addressed. Thus, these can encourage or prevent development, or trigger a change in the nature of the activity (Barab et al., 2002a). Moreover, tensions and contradictions provide a practical and philosophical impulse for change (Engeström, 2000). They do not occur accidentally or arbitrarily (Engeström, 1996), and unfold naturally in historically and culturally embedded activity systems (Engeström, 2001). The tensions and contradictions identified for the two companies were firm-specific. A summary of tensions and contradictions for the two companies is provided (Table 7-7).

Table 7-7 Summary of tensions and contradictions identified for DLT and KPS

DLT	KPS
Tensions and contradictions occurring in the ZPD	
• Lack of cohesion between participants • Language issue (Italian and English) • Lack of exchange between distributors in DLT's country of origin, and compliance and fund managers in Ireland	• Lack of cohesion between a large group of participants and the leader • Feeling that the *'human'* side of the firm is gone
Tensions and contradictions occurring in the IPA	
• Compensation issues • Tension between distributors and fund managers • Age pyramid issues • Lack of recognition from hierarchy • Lack of trust from hierarchy • Issues with technological skills • Staff retention • Limited staff experience • Unsustainable pace of work • Tension between organisation strategic intent towards innovation and high tech and under-valued employees	• Compensation issues • Tension between distribution and fund managers • Age pyramid issues • Lack of engagement / high level of resentment • Divide between groups inherited from redundancy history • Feeling of unfairness emerging from cost-cutting policy • Lack of diversity in staff composition • Tension between new strategic direction of the company and *'institutionalised'* staff

The following developments underscore for both KPS and DLT, how tensions and contradictions undermine OK creation or emergence and how the firm addressed these while underscoring how this affected the object.

7.7.1 DLT's tensions and contradictions

Tensions and contradictions affecting OK emergence and creation for DLT

Two major tensions were identified in the ZPD that could affect organisational knowing emergence and creation. While interactions with external partners were actively encouraged (Drucker, 1993, Reinhardt et al., 2011) and institutionalised through the bias of well-established routines (Starbuck, 1992), they did not overcome a perceptible resentment from KDL subjects. Indeed, DLT tended to rely on external sources when there was a need for novel ideas (Alvesson, 2004) instead of using and valuing its own creative resources. This could be viewed as a centripetal dynamic that was weakening DLT's knowing, doing and learning. The second tension stemmed from the interactions between the Home Traders and the local Irish staff. While the relationships between manufacturers and sellers were introduced as extremely important (Swart and Kinnie, 2003b) by the interviewees, most of the asset managing and compliance staff across the two countries did not exchange information. This was further exacerbated by a significant lack of communication resulting from the reality that the home and host staff did not speak the same language. In addition, communication occurred through limited channels and this gap between Irish-based manufacturers and DLT's home-based financial advisors was aggravated by a compensation structure favouring the financial advisors. This tension suggested a certain loss of knowledge and weak internal bonding that decreased the dynamic and content of incremental KDL.

At the level of the cultural and cognitive development occurring at the personal level (within the IPA), the tensions identified were impacting the persistent staff turnover, including turnover from home country staff. Lack of human resource planning resulted in a skewed age and knowledge profile. These different impediments prevented the company in consolidating its incremental knowing, doing and learning dynamic.

Staff voiced reasons for the persistent turnover as dissatisfaction with their career prospects and compensation levels; an unsustainable pace of work resulting from being under-staffed[51] coupled with a chasm between the CEO's vision for technological driven firm with no training support for staff to attain this. Subjects, particularly the junior ones within the group of participants, expressed their dissatisfaction with the compensation policy and introduced the perspectives of evolution within the firm as non-existent. The consequence was an unsustainable pace of work which the staff mentionned. Eventually, some of the employees left.

[51] DLT appeared under-resourced in terms of staff.

DLT's response to tensions and contradictions

In relation to the tensions and contradictions identified for DLT, it was noticeable that these were simply ignored, suggesting that opportunities for developing or creating KDL were lost. Nevertheless, these tensions and contradictions were partially addressed with a substantial technological and firm's processes support (Swart and Kinnie, 2003b, Sulek and Marucheck, 1994). In a sense, this could constitute an example of both new and improved KDL. The new one is encapsulated in new ways of working forced by new technological systems and the improved KDL emerge from better communication and knowledge sharing. However, this solution was not based on contrarian debate and questioning was limited in its impact on KDL (Engeström, 1999). Indeed, participants were asked to integrate substantially new working patterns emerging from the integration of new IT systems, when they were already struggling with basics such as Microsoft Word or Excel or mobile technologies as participants mentioned. So, a significant resistance was found between the innovation and creativity rhetoric of the company and the participants who did not embrace fully this strategic intent. Moreover, the general fragility of the experience and knowledge limited the full potential of DLT's technological drive and ambitions. It can be argued that DLT's situation results from the absence of a human resource management strategy.

7.7.2 KPS' tensions and contradictions

Most of the contradictions and tensions that emerged in the case of KPS were rooted in its cultural and historical context marked by several waves of redundancy, the company people centricity, the changes of ownership occurring within the same group of shareholders and the strategic policies adopted to facilitate these upheavals. The interviews provided evidence of the residual trauma resulting from the redundancies and spoke of the *'nicer times'* prior to the upheavals. Based on participants' statements, KPS did not confront issues living in hope of better times and creating a schism by cutting employee's benefits while preserving some substantial advantages for a core group of people.

Based on interviews, participants missed stronger or perhaps more equitable leadership that did not favour groups sharing the same professional orientation (sales) as the CEO, and they missed being valued or recognised by their superiors. Instead of considering this tension, senior executives expected entrepreneurial behaviour from their employees while the latter were just doing their jobs. This situation translated into a *'distraction'* or loss of energy in feeding the knowing, doing and learning dynamic at an individual level. This limited the participant's intent to work outside of their comfort zone (i.e. *'lack of engagement'*). Overall, many opportunities of *kaizen* were missed, let alone generating new knowing.

KPS suffered from weak human resource planning regarding age and diversity and demonstrated resource dependence on a small pool of known professionals. Although staff turnover was not a problem, there was little evidence of succession planning for senior staff, all of whom will retire in the next ten years. This will have a major impact on KPS' knowing. This was another example of tension ignored, with the corresponding loss of knowing generation.

KPS management recognised staff dissatisfaction and reacted by introducing a stock option scheme as a retention strategy to secure its knowledge base, according to the CEO during an interview. The Chief Investment Officer, leading the team of portfolio managers stated that this scheme was to make his team members happier in their jobs and that this would deal with the prevalent dissatisfaction among staff.

So, it is concluded that KPS address very partially its tensions and contradictions and that it was missing out in terms of synergistic outcomes on its incremental KDL.

7.7.3 Conclusion

This section has described the tensions and contradictions identified within DLT and KPS and endeavoured to outline how these were addressed in order to improve or create knowing. Consistent with Barab et al. (2002a), investigating underlying contradictions provided an understanding of the system itself. The new qualitative forms of activities supporting an incremental KDL that should have emerged as solutions to the contradictions of the previous form were not observed in either firm, perhaps to a lesser extent for the case of DLT. This finding outlines how organisational tensions and contradictions are perceived as negative and how managers are ill-equipped to acknowledge these in a structured manner. Thus, it can be concluded that for both firms the potential residing in emerging tensions and contradictions was mainly untreated.

The comparative and analytical part of this two-case has been completed at this stage of the chapter. The remainder discusses some specific aspects introduced in the previous sections.

7.8 CONCLUSION

This chapter compared the two case studies presented in Chapter 5 (Delta Limited) and Chapter 6 (Kipos Limited). This chapter has addressed the understanding of the mechanisms and dynamics underpinning the emergence and creation of OK while relying on the methodological perspective of CHAT. Informing this main research objective, three

secondary questions enabling the study were identified and guided the structure of this chapter. RQ1 was concerned with identifying the static dimension of knowledge or organisational knowledge as an attribute that organisations possess. RQ2 and RQ3 focused on the dynamic dimension of knowledge or understanding how knowing (as something organisations do) emerges and / or is created in the social context (RQ2) and at the personal level (RQ3) using activity theory. RQ1 corresponded to a preliminary level of analysis aiming at addressing the two subsequent questions (RQ2 and RQ3).

The first question endeavoured to establish suitable modes of knowledge representation that allowed the two following questions to be addressed. Drawing from the field of organisational knowledge-intensity, the knowledge-intensiveness of DLT and KPS was studied. Based on this analysis it is concluded that both firms were knowledge-intensive in their own way. DLT presented a knowledge-intensity more centred on the firm while KPS was more centred on the individuals. This first finding contrasts with a literature on OKI that tends to be too generalist in seeing entire economic sectors as knowledge-intensive, such as in the work of Windrum and Tomlinson (1999), or based on certain types of firms such as information and technology or consultancy companies (Swart et al., 2003). However, the results did not allow the most knowledge-intensive firm between DLT and KPS to be identified. The empirical study demonstrated that firms belonging to 'old' sectors can *become* knowledge-intensive as soon as they concentrate on how knowing, doing and learning can be improved and become the basis of their competitive and sustainable advantage.

In order to attend to RQ2 and RQ3, the implementation of the activity theory-method was informed by the results of the first research question that participated in the modelling of DLT and KPS activity systems and to the identification of inherent systemic tensions and contradictions. The study of the mediated relationships between subjects and objects aimed at understanding how human cognitive capacities developed and formed in organisations and if they led to knowledge creation. Several findings emerged from the two-case comparative study. The second finding is that the two activity systems modelled for DLT and KPS were very similar and differed on a couple of themes only.

Third, this two-case comparison emphasised the dynamic nature of knowledge encapsulated in the phrase organisational knowing for both firms and how they addressed it in their own ways. DLT rooted the improvement of KDL on its in-house processes and technology endowments while KPS relied on its subjects' entrepreneurial inclination and expertise. This was evidenced in the mediated relationships that addressed the object of the activity (the incremental KDL). These mediated relationships are mechanisms and dynamics underpinning knowing emergence and creation and are one of the cornerstones of AT. This methodological

perspective put the emphasis on knowing as action contrasting with a literature that concentrates mostly on static aspects of organisational knowledge.

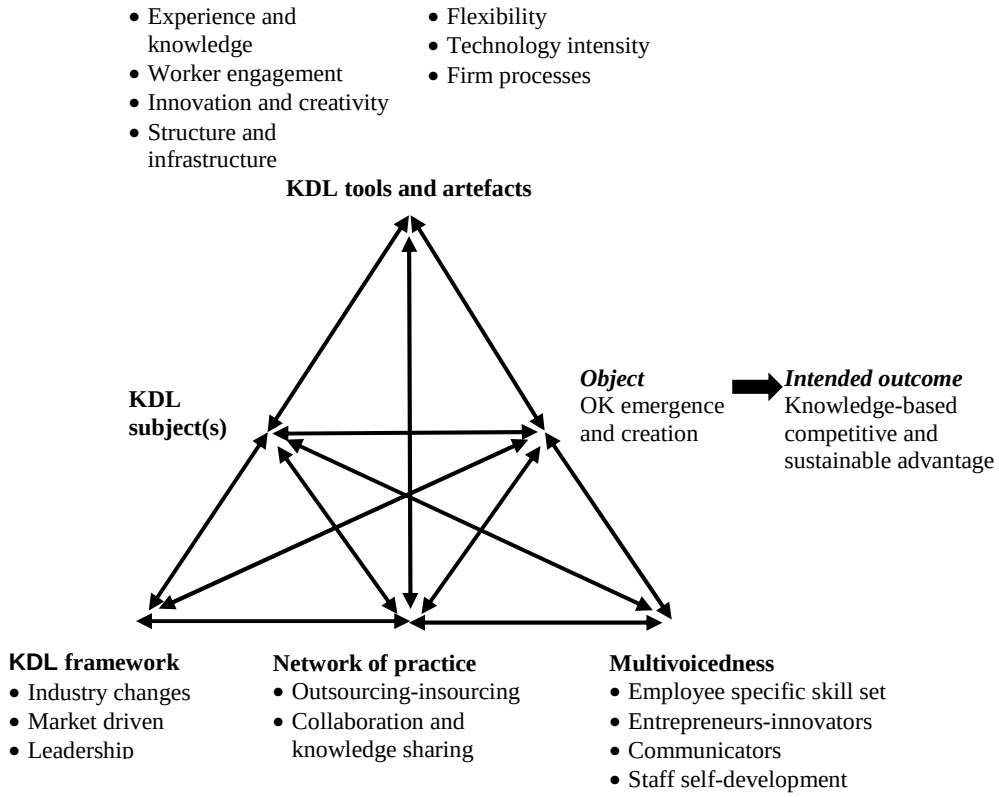
Fourth, this study highlighted that organisational knowing emerges on a regular basis rather than being created, suggesting knowing improvement rather than knowing creation. This was encapsulated in the object that featured an incremental knowing, doing and learning but was also contained in the processes involved in the mediated subject-object relationships. This finding was observed for both DLT and KPS. Both firms improved their KDL on a regular basis and created knowing exceptionally (although DLT had an edge in terms of knowing creation). This finding contrasts with a widespread view in KIF literature which either directly or indirectly asserts that KIFs are only concerned with creating knowledge. Similarly, this highlights the bias of the KM literature and its emphasis on either / or strategies for knowledge reuse or knowledge creation.

Fifth, the activity theoretical lens allowed a conceptualisation and visual representation of a social context so often mentioned in literature (Tsoukas and Vladimirou, 2001, Nonaka and Takeuchi, 1995) but never clearly structured or accounted for. The network of practice was identified as an evolving group of peers sharing the same interests with the subject while the context was approached in terms of enabling or constraining tangible or intangible elements. DLT showed more awareness in its contextual environment that supported the incremental knowledge base. More specifically, it relied on a strong client-centric culture and leadership and a solid network of business partners. While these played a substantial role in the case of KPS, the influence on the object was less decisive.

Sixth, always concerning the social dimension of knowing, this two-case comparison using AT highlighted the different roles subjects had to embody during their work and that shaped the emergence and creation of organisational knowing, doing and learning (multivoicedness). KPS's subjects role-plays were marked by their entrepreneurial inclination while DLT's subjects were performing their jobs more by the book. This focus on the different ways subjects engage with learning and knowing is seldom emphasised in literature.

The following Figure 7-5 summarises he findings.

Figure 7-5 Summary of the mediated relationships for DLT and KPS



Tensions and contradictions are not show on Figure 7-5 as they are firm-specific. Their identification and development constitutes the seventh finding of this research.

At this point of the thesis, theoretical (Chapter 2), conceptual (Chapter 3) and methodological frameworks (Chapter 4) were presented and informed the empirical study carried out in two asset management firms. Chapter 5, 6, and 7 introduced the empirical research. The next chapter summarises this study and its findings and concludes this thesis.

8 - CONCLUSION

> *"Complex theorising is conjunctive: it seeks to make connections between diverse elements of human experience through making those analytical distinctions that will enable the joining up of concepts normally used in a compartmentalised manner."*
>
> Tsoukas (2016: 1)

This concluding chapter brings together the theoretical arguments and empirical findings of the previous ones. The first section summarises the research project. Section 8.2 presents a general finding concerning a KBV using activity theory-method. The two following sections introduce the findings pertaining to a theory of knowledge (Section 8.3) and a theory of the firm (Section 8.4). From a more abstract perspective, Section 8.5 positions this thesis within the stratified ontology of critical realism, the philosophical underpinning of KBV and Nonaka and Takeuchi's (1995) work. The chapter closes on the limitations of the study (Section 8.6), future research directions (Section 8.7) and a final word (Section 8.8).

8.1 SUMMARY OF THE PROJECT

8.1.1 Research background

The knowledge-based theory of the firm has been identified as a major concern because knowledge is recognised as the main resource of production in knowledge economies (Drucker, 1993, OECD, 1996). This field of study has been regularly criticised for its positivist understanding of the concept of knowledge in organisations and its failure to grasp its dynamic nature (Nonaka and Takeuchi, 1995, Spender, 1996, Toulmin, 1999, 2001, Tsoukas, 1996, 2005). However, an important body of knowledge on the static view of knowledge has developed as exemplified in the works of Andreeva and Kianto, 2012; Swart and Kinnie, 2003a; Alvesson, 2004; Makani and Marche, 2010; Kianto et al., 2014; Massingham, 2014a among others and thus we have a substantial understanding on the static nature of organisational knowledge. The active part or practice-based approach to knowledge

has attracted less attention but is recognised in the works of Cook and Brown (1999), Orlikowski (2002) and Nag et al. (2007). Parallel to these discussions on the nature of knowledge, the co-existence of personal and collective knowledge and the precedence of the former over the latter has continued to divide scholars (Grant, 1996, Spender, 1996a). In response, Cook and Brown (1999) suggested a consensus which has crystallised the complementarity and interdependence of the static and dynamic nature of organisational knowledge and its personal and collective dimensions. While the field of KBV was gradually developing, no conclusive coordinating and / or binding mechanisms between the different concepts have been suggested. Articulating all these knowledge dimensions is imperative if the KBV is to progress (Grant, 1996).

Nonaka and Takeuchi (1995) advanced our understanding with their theory of knowledge creation that clearly delineated mechanisms (i.e. SECI) and dynamics (i.e. *'ba'*) supporting knowledge creation. Cook and Brown (1999: 393) furthered this development in KBV by highlighting that this kind of approach shifted the focus from accomplishing operations on existing knowledge to making something new. They encapsulated the mechanisms into their *'generative dance'* between epistemologies of knowledge and practice, the dynamics with the concept of *'productive inquiry'* and, to a certain extent, *'dynamic affordance'*. At this stage, a theory of organisational knowledge was finally beginning to consolidate while being substantially underpinned by discussions on knowledge integration and creation (Choo, 1996, Grant, 1996, Tsoukas and Vladimirou, 2001, Grant and Baden-Fuller, 2004, Andreeva and Kianto, 2011, Little and Deokar, 2016). However, the question of the theory of the firm, its boundaries and the identification of a relevant unit of analysis remained unanswered.

In 1996, Spender made a major contribution when he sketched the theoretical bases of a comprehensive dynamic knowledge-based theory of the firm. He argued that such a theory rested on the combination of a theory of the firm and a theory of knowledge. This contrasted with Grant's (1996) approach combining a theory of the firm concerned with its nature and boundaries *and* a theory of organisations concerned with coordinating mechanisms. Spender (1996) repositioned the discussion within a proper theory of knowledge that focused attention on the level of cognitive capabilities. In addition, he explored several alternatives from which to approach the theory of the firm. In relation to the fundamental question of mechanisms, he made them a concern for both his theory of the firm *and* theory of knowledge. Separately, Tsoukas and Vladimirou (2001) argued that a theory of knowledge should concentrate on the generation and utilisation of knowledge *and* that a theory of organisation was needed to understand *organisational* knowledge with their *from-to* structure. Finally, Spender (1996) and Tsoukas and Vladimirou (2001) positioned the firm as a body of knowledge providing equal standing to the organisation and the individual. This approach contrasts with the a more

individualistic view of the KBV (Grant, 1996) considering the firm as a knowledge integrator instead of a body of knowledge (Spender, 1996).

In conclusion, it is acknowledged that contributions from many authors contributed to the foundations for a dynamic knowledge-based theory of the firm. However, none of these contributions have provided a satisfactory proposal that encapsulates supporting mechanisms and dynamics for an intertwined relationship between a theory of knowledge and a theory of the firm.

8.1.2 Research problem

This thesis set out to address this challenge: to further the KBV following up on the works of Spender (1996), Cook and Brown (1999), Tsoukas (1996) or Tsoukas and Vladimirou (2001). Recognising that the positivist lens has not enabled progress in the KBV, an alternative theoretical and methodological frame was adopted. Following up on Spender (1996), Tsoukas and Vladimirou (2001) and Tsoukas (1996, 2005) and consistent with the epistemological perspectives that Toulmin (1999, 2001) and Tsoukas (2016) introduced, this thesis elicited the Marxian dialectic materialism and Wittgenstein's legacy. As a consequence, this study develops Spender's (1996) idea of the firms as an '*activity system'* and Tsoukas' (1996) view of firms as a distributed knowledge system by adopting an activity theoretical perspective (Vygotsky, 1978, Engeström, 1987, 2001). It is suggested that such a perspective places mechanisms and dynamics centre stage in the creation of organisational knowledge broadly understood. This approach embraces Cook and Brown's (1999) argument that knowledge is used as a tool in the context of a situated activity. Secondly, the study pursued the critical realist perspective also rooted in Marxian dialectical materialism (Allen et al., 2013), which endeavours to understand those deeper lying mechanisms that are taken to generate empirical phenomena (Alvesson and Sköldberg, 2009, Reed, 2009). Finally, asset management firms were identified as a relevant empirical field of inquiry.

In conclusion, an overarching research question that guided this thesis was identified:

> *How can we understand the mechanisms and dynamics of organisational knowledge emergence and creation in asset management firms using activity theory?*

This main research question was informed by three secondary questions.

> *RQ1: What are the organisational knowledge characteristics of asset management firms?*

RQ2: How does organisational knowing emerge and / or is created at the social level?

RQ3: How does organisational knowing emerge and / or is created at the individual level?

8.1.3 Research strategy

AT is a theory-method that is dedicated to the study of real-life situations in complex environments (Yamagata-Lynch, 2010), and that lends itself to adaptation (Cripps Clark, 2012). Therefore a conceptual framework based on its principles was designed to fit the needs of this study (Chapter 3).

This framework endeavoured to encapsulate both aspects of a theory of knowledge with an emphasis on Cook and Brown's (1999) epistemology of practice embodied in the term *'knowing, doing and learning'*. To represent the static nature of knowledge, the flexible theoretical lens of organisational knowledge-intensity was elicited. The theory of the firm was approached in terms of series of mediated subject-object relationships and a manageable unit of analysis characterised by shared goal-oriented actions (mechanisms, dynamics and bounded unit of analysis). In this research, the latter encompassed subjects endowed with decision-making power able to influence the performance of investment strategies and driven towards the same object and intended outcome.

The first research question (RQ1) aimed at establishing the knowledge bases of the companies selected for the study in terms of the knowledge-based organisational characteristics they possess. It also allowed the positioning of the discussion at a required level of abstraction (that is not asset managing issues *per se*) and in the KBV field. RQ2 and RQ3 addressed the unfolding of subject-object mediated knowing, doing and learning and their outcome in terms of cognitive capabilities. These and the companies' knowledge-based organisational characteristics were represented in their activity systems. Supporting the modelling of these AS, the Eight-step-model for translating activity systems (Table 4.6) was implemented.

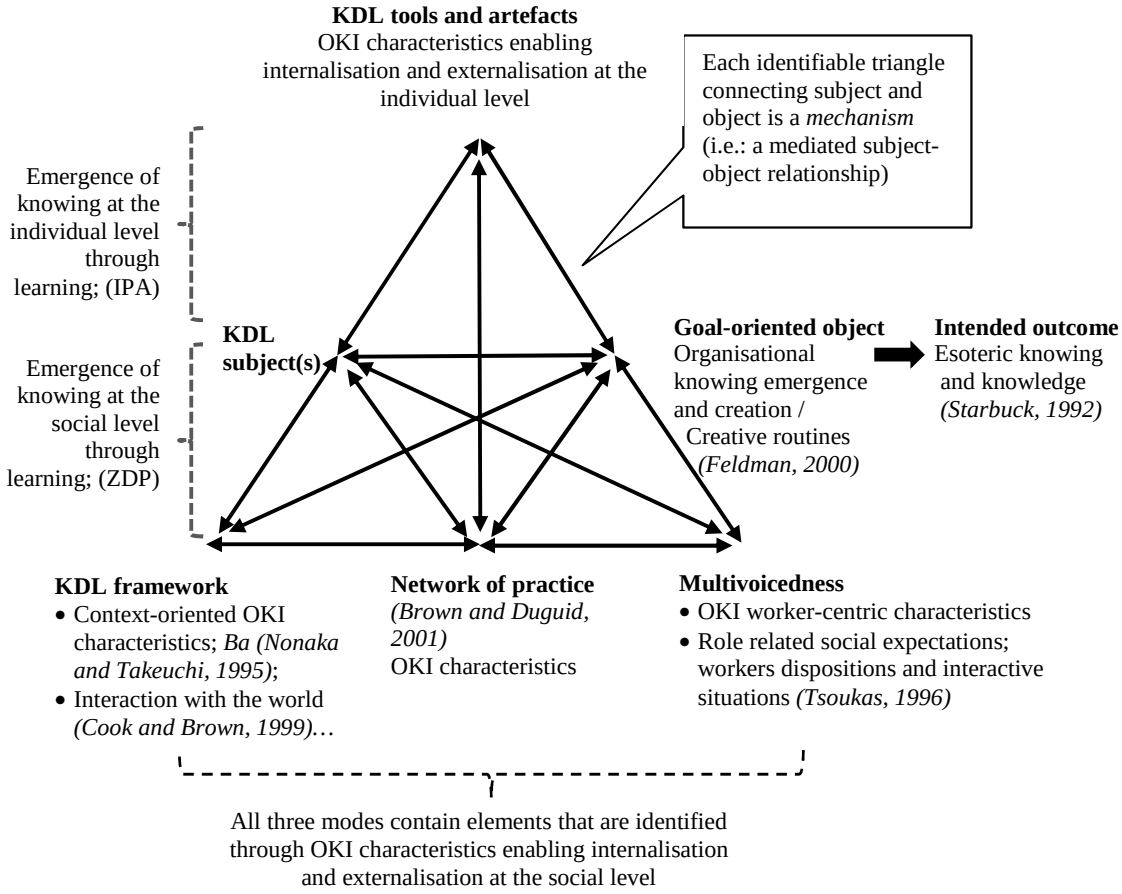
Finally, the two-case comparative case strategy (Lijphart, 1975) provided another rigorous methodological support next to the activity theoretical one enabling the focus on two cases identified as polar (Eisenhardt, 1989). This combination between two-case comparative study research and activity system analysis provided an example of methodological fit between two methods that is consistent with Yamagata-Lynch (2010). The findings emerging from this study have answered through the three sub-research questions the main research question introduced in the previous section. Considering the complexity and scope of this study,

straightforward answers corresponding to each question could not be formulated. Instead, these answers span over the three following Section 8.2, 8.3, 8.4 and 8.5.

8.2 A KNOWLEDGE-BASED VIEW OF THE FIRM USING ACTIVITY THEORY

This thesis identified a way in which individual knowledge advanced as a result of the development of collective knowledge from a learning perspective and to operationalise how knowing is integrated, emerges and / or is created. It considered the development of knowing in organisations in action as it is shaped by circumstances that are internal and external to the firm. This conceptual framework allowed a consideration of organisational knowing that is *holistic* and *dynamic*. This tentative and exploratory methodological perspective proved applicable as demonstrated in the KPS' and DLT's case studies. While subjects translated their constructed cognitive abilities through goal-oriented actions, findings from the two firms supported this through demonstrating enhancing and binding mechanisms. The activity system triangle emphasised how KPS' and DLT's knowing was integrated collectively and individually while being modelled by tools and artefacts, a framework and multivoicedness. The following Figure 8.1 shows how AT can be used within the scope of KBV and indicates some examples that reconcile the activity *theory-method* and the theories supporting KBV.

Figure 8-1 A KBV using AT



Consistent with Yamagata-Lynch (2010), activity theory was able to *'bring order to chaos'* and enables us to make sense of a large and eclectic body of literature based on the findings mentioned in Chapter 7. Figure 8.1 does not provide a comprehensive view on how the literature can be placed in the different nodes of the triangle. It makes tentative suggestions based on our understanding of the cases. Moreover, besides the goal-oriented object, this figure does not show the dynamics summarised in Section 8.4.3 as they have to be considered within an expansive learning cycle (Engeström, 2001), briefly introduced in Chapter 3 (Figure 3-4).

On a general level, the findings of this study support Grant's (1996) statement that the *primary* role of the firm is to integrate specialist knowledge from subjects into their work: the investment strategies for KPS and DLT and also into facilitating knowing and knowledge creation for DLT. However, this study has found that this is also the primary role of individuals in the organisations as it dictates their actions. Thus, Spender's (1996) approach

on organisations as activity systems is confirmed, whereby it is a firm's knowledge and its ability to generate knowledge that determines competitive advantage.

The approach on a dynamic knowledge-based theory of the firm using activity theory supports Tsoukas' (1996) view of a firm as a distributed knowledge system. First, as he draws on Penrose's (1959) insight that a firm is more than the resources *per se*, it is in fact the services rendered by the resources that are important, the author underscores that these resources are not given (i.e. like knowledge types) but *created*. Accordingly, this study's primary focus is on *'knowing'* as it emerges and is shaped by mediators and crystallises in goal-oriented actions. This contrasts with an approach concerned with knowledge types and how they move from one state to the other as in the works of Nonaka and Takeuchi (1995). Second, this study emphasised that knowing is partially derived from the broader industrial and societal context as the firm is embedded in its environment (Section 7.4.1).

This major finding based on a Vygotskian approach of KBV addresses Tsoukas' (2016) *'Understanding-backward – Living-forward'* and forms the basis of a truly *dynamic* knowledge-based theory of the firm.

8.3 FINDINGS RELATING TO THE THEORY OF KNOWLEDGE

This section introduces the findings concerning the discussion on organisational knowing and knowledge, on personal and collective knowing, knowledge creation versus knowing emergence and creation and the mode of knowledge representation based on OKI.

8.3.1 Organisational knowing and organisational knowledge

Most existing research recognises knowledge as an attribute that an organisation possesses (Makani and Marche, 2010, Van Den Berg, 2013). This study, in contrast, emphasises knowing as something organisations and its members do (Blackler, 1995). This work draws on the complementarity of both dimensions - knowledge as a possession and knowledge as a practice - (Ryle, 1949, Foucault, 1972, Tsoukas and Vladimirou, 2001, Cook and Brown, 1999), but foregrounds the active part of organisational knowledge (Orlikowski, 2002, Nag and Gioia, 2012). The perspective of a dynamic view of the knowledge-based theory of the firm that is developed in this work focuses primarily on knowing, doing and learning and is unprecedented in the field of KBV to date.

Contrasting with a linear and objectified approach to knowledge (Nonaka, 1994, Nonaka and Takeuchi, 1995), this study concentrates on the *ways* knowing is *formed* and sees knowledge as a tool of knowing (Cook and Brown, 1999). Knowledge types are instrumentalities that

evolve following the context, the individual and the group to which she or he belongs, and what she or he does in this group. Knowing is represented by the mediated relationships between subject and object (mechanisms) and knowledge instrumentalities by the mediating nodes (KDL tools, KDL framework, multivoicedness and network of practice). Drawing on Vygotsky (1978) and Engeström (1987, 2001), this learning / activity perspective is captured in the activity system triangle that has been adapted for this work (Section 3.5). This dynamic and holistic view on learning, doing and knowing is difficult to grasp (Guy, 2005, Yamagata-Lynch, 2010) compared to an objectified view of knowledge that moves from one state to another through opaque processes. The learning perspective on organisational knowledge presented in this work has not been directly addressed in research to-date and therefore this empirical work is a first attempt in this regard.

8.3.2 Personal knowing and collective knowing

The findings from this research confirm the co-existence of both personal and collective dimensions of knowing (Spender, 1996, Nonaka and Takeuchi, 1995, Cook and Brown, 1999). Section 7.4 has demonstrated how organisational knowing is formed shaped by mediators, as it emerges at the social level within a space referred to as the zone of proximal development. The ZDP is represented by the bottom part of the triangle on Figure 7-2 (Section 7-4) that introduces a KDL framework, a network of practice and multivoicedness. With regard to multivoicedness (7.4.2), this constitutes another finding that is rarely if ever referred to in the KBV (Tsoukas, 1996). Knowing emerges from a multi-voiced community with different viewpoints, histories and interests. This finding confirms Tsoukas' (1996: 22) insight on the behaviour of firm's members. He argues that social practices within a firm have three dimensions: *'role-related social expectations'*, *'dispositions'* that are linked through *'interactive solutions'*[52]. While firms have greater (or at least a certain) control on normative expectations where they endeavour to bring consistency to their members' behaviours across context, firms have little control on their subject's dispositions that are derived from past socialisations that occurred outside the firm. This study identified at least four different roles subjects adopted during their work. Three of them, *'employees' specific skillset'*, *'entrepreneurs-innovators'* and *'communicators'* are *'role-related social expectations'* (Tsoukas, 1996) and correspond to the firm's normative expectations. The fourth one, *'staff-self -development'*, substantiates Tsoukas' (1996) argument that some behaviours are outside a firm's control and that are underpinned by subjects' will to stay or leave the firm (Tsoukas' (1996) *'dispositions'*), at least in this two-case comparative study. Indeed, KPS and DLT's subjects acknowledged the lack of career prospects in their firms and their concern to build

[52] This third dimension is developed in the following section on knowing emergence.

their employability to find better positions in other firms. Moreover, this study identified a *'lack of engagement'* for the case of KPS where subjects expressed their frustrations and distances with their company.

Once organisational knowing is formed at the social level, it is internalised by subjects and externalised within the internal plane of action, space where individual knowledge takes life as it is mediated by KDL tools and artefacts (Section 7.5 and Figure 7-3).

While a consensus exists on the precedence of knowing occurring first at the social level and second at the individual level, few authors provide clarity about these levels, in particular, the collective or social dimension (Section 7.6). Although Nonaka and Toyama's (2007) *'Ba'* and Cook and Brown's (1999: 388) *'interaction with the world'* stress the relational nature of knowing as the interaction between the knower and the world, they provide no particular insight on how this occurs. However, Engeström (1987, 2001) did provide substance to context by visualising the zone of proximal development within which collective learning and knowing emerge (Figure 3.2, Section 3.2.3).

8.3.3 Knowledge creation, knowing emergence and creation

This study challenges one of Nonaka and Takeuchi's (1995) fundamental insights of the KBV: their emphasis on organisational knowledge creation. This empirical study outlines the phenomenon of *knowing* emergence that is more aligned with the idea of learning introduced as central in the development of cognitive abilities (Vygotsky, 1978, Luria, 1966, 1979, Toulmin, 1999). As Engeström (1995, 1999) stated, Nonaka and Takeuchi have overlooked the phase of small cycles of continuous improvement and have focused instead on innovative learning. This study showed that firstly, creation occurs on particular points of inflection in companies business such as in the case of KPS (Section 6.1). Secondly, it takes the form of new learning and knowing (i.e. KPS' subject learning new types of strategies or having to teach them to sub-contractors). No creation as such occurred during the time of the empirical study even among the most innovative within the firm. Instead, subjects indicated that incremental steps in learning while doing took up most of their time. This finding is encapsulated partially in the object of both firms studied, that is *'the incremental knowledge base'* (Section 7.3.1). Thus, participants were concerned with improving their learning, knowing and doing contrasting with the Nonakian focus on knowledge creation. Thirdly, and consistent with Weick and Roberts (1993), this study confirms that knowledge and thus knowing is emergent: this cannot be possessed by a single agent; it partly originates outside the boundaries of the firm and it is always constructing and evolving without being complete at any point (Section 7.3). Indeed, drawing on Tsoukas (1996: 22) who stated that particular '*interactive situations*' instantiates normative expectations and firm's members' dispositions,

this study showed that knowing is primarily emergent as it was continually (iteratively or not) constituted through the activities undertaken within the two companies studied. And, because of the companies' openness, it could not be self-contained. Hence, DLT and KPS' knowing had to evolve and was shaped with the reality the two companies were facing. Supporting the idea of a firm as a distributed and decentred knowledge system, the author argues that firms are faced with *'radical uncertainty'* and that *'they do not and cannot know what they need to know'*. This was dictated by unfolding circumstances such as the need to learn how to educate sub-contractors to market KPS niche strategies or to anticipate regulatory changes and integrate these into DLT strategies (Section 6.4.1). Thus, this research has demonstrated that in most instances in day-to-day work, knowing emerges and contributes to the incremental knowledge base. Knowing emergence is encapsulated in the object of the activity that features an incremental knowledge base (Section 7.3.1).

This finding about knowing emergence rather than knowledge creation contrasts with the widespread view in knowledge management literature that emphasises strategies for knowledge reuse and / or creation (Nonaka et al., 2006, Andreeva and Kianto, 2011, Arling and Chun, 2011, Chen and Huang, 2013, Baralou and Tsoukas, 2015, Bratianu, 2015, Zapata Cantu and Mondragon, 2016). It also contrasts with significant literature on knowledge-intensive firms which either directly or indirectly asserts that KIFs are primarily concerned with creating knowledge (Sveiby and Lloyd, 1988, Nurmi, 1998, Leiponen, 2005, Martín de Castro, 2007, Andreeva and Kianto, 2011, Little and Deokar, 2016). It is proposed that one of the reasons for the popularity of the phrase knowledge creation is its strong rhetorical appeal, supported by a positivist epistemology. Indeed, within this realm, knowledge is objectified and lends itself to characterisations that are usable with statistics leading to generalisations in line with the canons of social research (Starbuck, 1993). This view is supported by Kärreman (2010) who stated that scholars have preferences for clear and well-tidy theories.

8.3.4 Modes of knowledge representation using the organisational knowledge-intensity lens

While addressing RQ1, this thesis has also contributed to the field of organisational knowledge-intensity. The findings have concluded from this study that both firms were knowledge-intensive in their own ways, making OKI a firm-specific attribute. However, it cannot not be said (as in the cases of Garden Company, an American manufacturer (Starbuck, 1992) and Watchtell, an American law firm (Starbuck, 1993)), that KPS and DLT were *'highly successful'*. However, KPS and DLT demonstrated their efforts to stimulate and improve learning and knowing in many ways. These findings support Starbuck's (1992: 716)

idea of esoteric knowledge and highlighted the dependence of KPS and DLT on an *'exceptional and valuable expertise'* that *'dominates commonplace knowledge'*. Esoteric expertise has a strong monopoly power that erodes as this expertise becomes less esoteric. Moreover, knowledge is both an organisational property and an individual one (Starbuck, 1992). Esoteric knowing and knowledge was encapsulated in the *'knowledge-based competitive and sustainable advantage'* theme for both firms and exemplifies this esoteric expertise. Despite the same labelling for the DLT and KPS, this theme's sub-meanings were specific to the unit of analysis and the firm.

Finally and confirming Makani and Marche's (2010: 272) possible orientation of KIOs, this study suggests two types of OKI, a person-centric (KPS) and an organisation-centric (DLT). However, beyond these two orientations, this study does not support that firms can be qualified as KIFs based on their specialisations, as suggested in pre-determined classifications and typologies such as in the work of Makani and Marche (2010). Based on Tables 7-3 and 7-4, the study also does not concur with Käpylä et al. (2011) who suggested overlapping intellectual capital tripartite and prescriptive structure (human, structural and relational capital) on OKI (Section 7.2.19).

8.3.5 Conclusion

This section has presented different findings relating to a theory of knowledge that have furthered the field of KBV and concurred with establishing the foundations of a dynamic knowledge-based theory of the firm. While considering knowledge as a tool for knowing, this study focuses primarily on organisational knowing. It has demonstrated an articulated interdependence between collective and personal knowing and the precedence of the former on the latter. The empirical findings support a phenomenon or organisational knowing emergence rather than knowledge creation. Finally, OKI has been established as firm-specific and resists classification attempts.

8.4 FINDINGS RELATING TO THE THEORY OF THE FIRM

Based on the literature (Spender, 1996), the second pillar of a [dynamic] knowledge-based theory of the firm is a theory of the firm. Despite attempts to conceptualise a knowledge-based firm and understanding and predicting its structure and behaviours (Grant, 1996), no satisfactory solutions have been agreed upon. In this regard, this thesis has contributed to the question of the unit of analysis (Section 8.3.1), the binding and coordinating mechanisms (Section 8.3.2) and dynamics supporting these mechanisms (Section 8.3.3). The findings presented hereafter address RQ2 and RQ3.

8.4.1 The question of the boundaries of the firm: the unit of analysis

This study contributes at two levels: the identification of an adequate unit of analysis and the boundaries of the firm.

One major contribution of this study is the identification of a unit of analysis that is manageable within a dynamic knowledge-based approach of the firm. This was defined in terms of a series of goal-oriented actions that represent an object-oriented activity based on collective experiences, and described by multiple participant sources. To finalise this unit of analysis, another element was added for this study, the requirement for these actions are to participate substantially in performance generation (within asset management firms). The founding principle is neither that neither all the firm's members nor only the group of portfolio managers were concerned with the goal-oriented action in this study. Instead, the subjects that constituted the unit of analysis were identified based on a shared goal their actions addressed with no regard for the hierarchical level or the specialisation subjects worked into. Consequently, this unit of analysis for the two firms encompassed an eclectic group composed of portfolio managers, but also compliance managers / officers, chief financial and operations officers, etc. They were all impacting *substantially* in a direct or indirect way the value creation of their firms.

The activity theoretical lens implemented in this study allowed the level of the action to be singled out from the activity and the operation (Section 3.4.2). Consistent with this level of action, the focus on knowing instead of knowledge is to concentrate on subjects' actions as a way to determine an adequate unit of analysis enabling the study of organisational knowing emergence and creation. These actions are then confined within an activity system (in Vygtosky and Engeström's way) that becomes the unit of analysis. Thus, it is not individuals, group(s) of individuals, business units or departments or entire firms that constitute the relevant unit of analysis within a knowledge-based approach on the firm. It is the *goal-oriented action* that determines the unit of analysis (Section 5.3.2 and 6.3.2). This entails that this unit of analysis may change upon the arrival of new subjects who are concerned with the goal-oriented action or when they are not anymore. As Tsoukas' (1996) stated, the situation is constantly evolving in the face of radical uncertainty, as do groups in activity theory.

Following up on this first finding, identifying a relevant unit of analysis for the study of organisational knowing emergence and / or creation constitutes the basis for identifying the boundaries of the firm. A knowledge-based firm can be conceptualised in terms of *systems of activity systems* (Engeström, 2001) that share multiple objects. This finding finds a certain echo in Grant's (1996: 120) *'product-knowledge constellation'*. Within an object-oriented activity (here broadly defined as: managing financial assets ➔ Grant's *'product'*) that

concerns directly or indirectly a certain group of individuals, the KDL actions (➔ Grant's *'knowledge'*) operated share the same goal.

8.4.2 Binding and coordinating mechanisms

Two major findings supporting a *dynamic* KBV emerged from this study: a first level of binding and coordinating mechanism and a second level that allows considering the time issue.

First, through the lens of activity theory, this study has enabled us to identify mechanisms that give insight on how knowing emerges or is created. This fundamental mechanism is the mediated relationship Vygotsky singled out and that Engeström (1987, 2001) visualised (Figure 3.2). Within an activity theoretical perspective there is no pre-determined abstract type of knowledge. The mediated relationship is a mechanism that centres on understanding how cognitive capabilities develop while the subject completes her or his action. Moreover these mechanisms show how personal and collective knowledge are naturally intertwined and how one feeds from the other. Provided that daily work situations imply some kind of repetition, activity theoretical mechanisms can be compared to Feldman's (2000) routines filled with creative agency. This finding contributes to knowledge as few suggestions are made in the KBV, and when they exist, they are difficult to operationalise. Instances include Cook and Brown's (1999) creative generative dance between an epistemology of possession and an epistemology of practice or Grant's (1996) four coordinating mechanisms of which are organisational routines. While the awareness of the importance of binding mechanisms is not to be questioned, scholars' contributions remained general and inconclusive. Nonaka and Takeuchi (1995) attempted to address the issue through the SECI and the knowledge spiral that result in movements of knowledge types within a four-fielder matrix (SECI) and along different group levels within the organisation. In their model, types of knowledge circulate while changing in nature. How this occurs is not clear.

Second, this thesis has addressed the issue of time through Leontiev's (1978, 1981) hierarchical structure of the activity and clearly singled out three levels such as those delineated in Figure 3.5 and Table 3.2. Thus, the activity is driven by a long-term object-related motive (a knowledge-based competitive and sustainable advantage for DLT and KPS). This macro level is a concern for the community as it was in this study's group of interviewees. The following level is the level of the actions that are relatively short-lived with a clear-cut beginning and end (Engeström, 1996). These actions that are located at the individual or group level are characterised by a need state and are goal-oriented. In this study, they consisted in improving learning and knowing as the object stated. Finally, at the micro level, the operations are determined by pre-existing conditions such as the technological

infrastructure or subjects' experience and knowledge. These are automatic operations carried out by a machine or routinised human. In this study, learning, knowing and doing occurred from the highest level to the lowest and vice-versa (Engeström, 1987).

The second finding contrasts with Nonaka and Takeuchi (1995) who combine knowledge creation at the individual level, group level and the organisational level. These constitute different knowledge levels in the ontological dimension of their spiral of organisational knowledge creation: individual, group, organisation and inter-organisation. However, they treat these levels as if they fitted naturally together when these dimensions represent different times and scope issues. The SECI unfolds in an undifferentiated manner along the four entities treating macro, meso and micro levels in the same way and overriding the question of time (Tsoukas, 2016). Cook and Brown (1999) introduced a distinction between the level of action and the level of practice, highlighting a meso and a macro level of analysis without discussing the issue.

8.4.3 Dynamics supporting organisational knowing emergence and creation

Scholars (Tsoukas, 1996, Cook and Brown, 1999, Feldman, 2000, Feldman and Pentland, 2003) agree on some kind of force that gives an impulse or that drives knowledge/knowing emergence and creation. However, the existing literature has not singled out mechanisms (in Grant's (1996) sense) from dynamics. The latter are more subtle and delicate and reach into what Tsoukas (1996) calls organisation's members' *dispositions* and Luria's (1973) higher mental functions. In emphasising these dynamics, this thesis divorces from a Cartesian approach denying contextual and human features (Toulmin, 1999, Tsoukas, 2016). Dynamics supporting or able to support the mechanisms emerge from three different origins introduced in the following sections.

The dialectical concept of contradictions and tensions

First, this study contributes to knowledge with the stress it puts on tensions and contradictions that are historically rooted (Engeström, 1987, 2001). This idea of discrepancies or gaps between two states has been introduced in literature but never fully developed with the exception of Cook and Brown (1999) who thoroughly studied the matter. Instances are found in Brown and Duguid's (1991) canonical and non-canonical practices, Tsoukas' (1996) tension between normative expectations, dispositions and interactive situations or Nonaka and Takeuchi's (1995) fluctuations and creative chaos. In this regard, drawing on Ortega y Grasset's (as cited in Cook and Brown, 1999) facilities and frustrations, Cook and Brown (1999) develop the concept of dynamic affordance arguing that they play an essential role in how knowledge is created, transferred and used in firms. They also hold that activities are shaped and gain a meaning from their organisational contexts. Despite the rich account the

authors provided on the importance of these dynamic affordances that are similar to other contributions and support the idea of knowledge as emergent (Tsoukas, 1996), they remain at the level of the theory and do not provide an operational method to make use of systemic tensions. For example, Nonaka and Takeuchi's (1995) suggestion of *'top management's ambiguity'* as a tool to introduce chaos and stimulate creativity is difficult to use as such.

Activity theorists made tensions and contradictions a central element of their theory-method and provided a way to identify these in a structured manner as they see them as sources of development that potentially afford the development of knowing, doing and learning while unresolved contradictions might prevent it. Moreover and breaking from positivist underpinnings, historicity is introduced as one of the founding principles of activity systems and these are culturally and historically embedded and change over time (Engeström, 1999, 2001) (Section 7.7). According to Engeström (1999), an expansive transformation is complete when the object and motive of the activity system is reconceptualised and understood in a broader way. And, contradictions and tensions depicted in the cycle of expansive learning lead to the evolution of the dominant activity into a more advanced form after each cycle (Figure 3.4) (Hasan, 2002). These changes occur in the long run as the activity adjusts incrementally and regularly as suggested by Cook and Brown's (1999) dynamic affordances. This is best illustrated with the case of KPS who introduced the environmental investment strategies around 2000 as an answer to an accumulated quaternary type of tensions. Subsequently, the company entered a long period of consolidation and refinement of the new product. Another example illustrating how knowledge can emerge from addressing accumulated tensions and is underpinned by culture and the history of the organisation is evident in the case of DLT. A secondary type of contradiction stemmed from the tension between distributors located in DLT's country of origin and manufacturers located in Ireland. In order to allow better compatibility and knowledge sharing, DLT implemented several programmes supported by technologies and patented processes. These became, in turn, part of the cultural and historical heritage participating in feeding the dynamic of knowledge creation (Section 5.6).

Object-oriented activity and goal-oriented actions

The second dynamic that constitutes another finding and that this study puts forward as it draws on an activity theoretical framework are the object-oriented activity and goal-oriented actions, two different hierarchical levels with their intrinsic dynamics (Section 3.4.2) (Leontiev, 1981). In this study, the long-term object-oriented activity strengthens a knowledge-based competitive and sustainable advantage while the short-term level encapsulated in the goal-oriented action corresponds to subjects to improve their KDL. While the latter has been developed (Section 7.3.1) in relation with Cook and Brown's (1999)

productive inquiry as they draw on Dewey, the former echoes Nonaka and Takeuchi's (1995) knowledge vision and *'ba'* that belongs to a macro level of activity. However, these authors do not distinguish between macro and meso levels ignoring as such the question of time.

Dialectic between the activity level and the action level

Finally, Yamagata-Lynch (2010) underscored the evolutionary aspect of the activity and stated that it emerged from a reciprocal process transforming the subject, object, their relationships and their context. At one point it is institutionalised and becomes a new tool within the culture. Thus, the dialectic between the general and the particular (respectively the activity level and the action level) is what gives organisational knowing emergence its dynamic (McCarthy, 1994 in Tsoukas and Vladimirou, 2001). In this study, this is encapsulated in the action level embedded in the activity levels, or the short-term, clear-cut identified actions embedded in the evolving long-term object of activity, and how the action level was participating in achieving the object and how the object was influencing the actions. Spender (1989) described such a process of how knowledge and management practices flew within networks of managers, how these were *'learned'* and how they were then *'digested'* (to echo the *'recipe'* metaphor) at the local level.

8.5 CONCLUDING REMARKS ON THE FINDINGS

The findings of this thesis support a dynamic and holistic knowledge-based view of the firm building on the insights developed in literature (Grant, 1996, Spender, 1996, Tsoukas, 1996, Nonaka and Takeuchi, 1995, Cook and Brown, 1999, Brown and Duguid, 2001, Tsoukas and Vladimirou, 2001) and the conceptual framework introduced Chapter 3. This thesis makes a contribution that is unique in terms of epistemology and ontology in the following ways.

Locating this thesis contributions using the stratified ontology of critical realism

To position this thesis within the literature, we rely on the stratified ontology of critical realism (Johnston and Smith, 2010, Zachariadis et al., 2013). The stratified ontology consists of three overlapping domains that are used hereafter to locate this study. Consistent with Figure 4-1, the domain of the real encapsulates the domain of the actual that involves the domain of the empirical. Thus, a contribution made in the domain of the actual involves the domain of the empirical. For example, based on this study, Cook and Brown (1999) are located in second domain with their *'generative dance'*, and the domain of the empirical with their epistemologies of possession and of practice. This thesis contribution spans over the three fields and makes an unprecedented contribution in the domain of the real:

- The *'domain of the empirical'* focuses on observable and experienced phenomena and is the level where positivist research is found (Blaikie, 2000). Examples from the literature include Makani and Marche (2010), Swart et al. (2003), Reinhardt et al. (2011), Windrum and Tomlinson (1999), Käpylä et al. (2011). **This thesis (i.e. OKI characteristics).**
- The *'domain of the actual'* is a subset of the *real* and includes the events generated from both exercised and unexercised mechanisms (Zachariadis et al., 2013). Examples from the literature include Grant (1996), Brown and Duguid (2001), Nonaka and Takeuchi's (1995) tacit and explicit knowledge, Spender (1996), Cook and Brown (1999), Tsoukas and Vladimirou (2001), Tsoukas (1996), Feldman (2000). **This thesis (i.e. the goal-oriented actions, concept of multivoicedness).**
- The *'domain of the real'* encapsulates objects and structures with inherent causal power and liabilities resulting in mechanisms that may not be visible. This is where this thesis makes its biggest contribution. **This thesis (i.e the subject-object mediated relationship)**. In contrast with Nonaka and Takeuchi (1995), the cornerstone of this thesis are the generative mechanisms epitomised by the subject-object mediated relationship.

Striving to understand the generative mechanisms at the origin of organisational knowing emergence and creation restores the lead of ontology over epistemology. This contrasts with mainstream literature, following Reed (2009),that constructs reality through established ways of knowing. The author referred to this situation as *'epistemic fallacy'*.

Locating this thesis' contributions within the KBV philosophical background

This research deviates from mainstream research, as it is fundamentally oriented toward practice, using a theory-method, activity theory, that studies work practices in complex learning environments. This differs from theory *and* method where the challenge is to *'translate'* the theory into a method if one wishes to operationalise the precepts. In most cases, the traditional methods of inquiry prevailing in the field of social sciences are implemented creating a distortion between reality and theory (Reed's (2009) epistemic fallacy). Despite their well-developed and original model of knowledge creation, Nonaka and Takeuchi (1995) designed a model that is prescriptive in that *'dictates'* how knowledge *should* be created, not *how* it is created. Based on Tsoukas (2016), the theoretical approach developed in this study rests on a complex system of picturing (in the sense of Harré (1985)) that encapsulates three dimensions: (i) an open world ontology (i.e the world is continually changing); (ii) a performative epistemology (i.e knowing resides in action); and (iii) a poetic praxeology (the practitioner is a non-trivial agent who is shaped as he shapes the world he is acting upon while making judgements).

A final word on Nonaka and Takeuchi's (1995) work

The ground breaking contribution Nonaka and Takeuchi (1995) made to organisations and management studies is not questioned in its importance and magnitude. By coining the phrase organisational knowledge and setting the bases of a new lexicon encapsulating terms such as tacit / explicit knowledge, they provided scholars with a language to talk about knowledge in organisations (Spender, 2013). With claims on the dynamic nature of their theory, they developed a language that has a strong rhetorical appeal and a model that is particularly attractive as it prescribes how to create knowledge.

However, based on this study, it is clear now that their claim about the dynamic nature of their theory of knowledge creation is misleading. Elaborating a theory with principles (that are by nature restrictive) and deriving a model that attempts to articulate the theory into praxis is typically constitutive of Reed's (2009) epistemic fallacy where epistemology dictates the ontology. Accordingly, Nonaka and Takeuchi's (1995) ontology suggests that we consider knowledge as a justified true belief. This leads us to our final remark. Through their work, the two authors, like many others in the field, attempted to address the fundamental question of *'what is knowledge'* to construct a dynamic theory of knowledge creation. Perhaps, the fundamental question is a *how*-type of question as Toulmin (1999) suggested…

8.6 LIMITATIONS OF THE STUDY

The first limitation concerns the limited opportunities for generalisation that a sample of two case studies allows. Incidentally, the two-case comparison was more fruitful for the study of OKI than the implementation of AT. In relation to OKI, the concern on generalisability may be witnessed by the fact that the two cases were extreme in that one asset manager was managing its knowledge base in a very conventional fashion with no particular knowledge-based rhetoric other than delivering better value to clients. The other company instead was actively involved with managing its knowledge base as documentation and interviews evidenced. Consistent with the findings developed Section 7.2.19 and the rationale underpinning AT, generalisation was not sought. Instead, a rich picture could be drawn from the contrast between such polar cases: indeed, it allowed elements of *'togetherness'* and *'separateness'* that appeared as inherent features of their activity systems and their dynamics and mechanisms underlying knowing emergence creation. As such, the two firms shared similar objects and intended outcomes.

A second limitation arises from the complexity of the activity theory-method and its application to practice. AT is a method that is not easy to come to terms with (Guy, 2005).

The benefits that can be derived from the implementation of the conceptual framework developed in this study as a tool for managing organisational knowing are not self-evident and might not attract a lot of interest from time-constrained practitioners.

A third limitation lies in the interpretative lens implemented in this qualitative, exploratory and explanatory study. While guided by a conceptual framework (Section 3.4), the Eight-step model (Table 4.8) and clear research questions, the interpretative bias related to the researcher cannot be ignored. This was addressed by regularly comparing data with the guiding methodological tools.

A fourth limitation arises from the scope of the task and the choice of two firms to investigate. Coming to terms with activity theory and eventually constructing a tentative conceptual framework was in itself a time-consuming exercise. Making the choice to investigate two companies (withoug mentioning the pilot case) with AT was a supplementary stretch that was difficult to handle. While the comparative exercise conducted in Chapter 7 was interesting and was conclusive for the study of OKI, the outcome is less evident when it comes down to AT.

8.7 DIRECTIONS FOR FUTURE WORK

This research suggested the bases of a dynamic knowledge-based theory of the firm within a conjunctive philosophy that departs from mainstream literature. It has revisited the theory of knowledge and consolidated the theory of the firm. Based on this study and its findings, suggestions for future work are introduced hereafter.

The next step to undertake is to consolidate this activity theory-method in organisations that present different dimensions. This study has shown that for both the units of analysis identified in DLT and KPS, the object and intended outcomes were similar because the two firms were comparable in terms of size and development. This does not mean that this result can be generalised to all firms. For instance, a firm that is struggling for survival might be motivated by another outcome and object. A firm in the pharmaceutical industry or in creative arts might have different concerns and a different OKI profile. This thesis emphasised a theoretical and methodological perspective that requires more testing and more consolidation. Always in relation with the conceptual and analytical framework, each nodes of the triangle of the activity system can be developed, in particular in regard of the relative importance each items identified in the node weight in the shaping of knowing.

A major development to consider is the use of the methodological perspective introduced in this study as an actual tool for managing knowing in an organisation. This was successfully

implemented in education and medical care environments within the framework of development work research, as instantiated by Engeström (1987), Yamagata-Lynch (2003) and Barab et al. (2002b).

In relation to the theory of the firm, further research is needed to conceptualise a firm in terms of network of activity systems. Different units of analysis would have to be determined in an organisation following the principle of a series of goal-oriented actions that are binding groups of workers together. This could support then a possible knowing and knowledge management strategy in the firm.

This research supports also an opportunity to reflect on OKI as a distinctive field of its own. Further research could consider OKI more than a lens for interpretation than a definite list of characteristics that would qualify a firm as knowledge-intensive. In particular, the question of esoteric knowledge (Starbuck, 1992, Kärreman, 2010) and its improvement in relation to a knowledge-base competitive and sustainable advantage could be revisited. Starbuck (1992) opened a very important field of research. OKI constitutes perhaps a language that is more open and flexible to talk about knowledge and knowing in organisations compared to phrases such as tacit and explicit knowledge.

8.8 A FINAL WORD

The use of activity theory as a conceptual and analytical framework to study organisational knowledge creation (and destruction) marked a departure from pertaining dominant approaches. Indeed, while activity theory has attracted some interest in literature on organisational knowledge (Blackler, 1995, Blackler, 1993, Spender, 1996), no substantial development was found in literature. One reason that can explain this is perhaps that AT does not come ready packaged as a tool or method that can be implemented in design, analysis and evaluation (Guy, 2005). Indeed, the complexity of its philosophical and epistemological underpinnings, which at times translate into somewhat obscure terminology and arguments, may have deterred many from engaging in activity theory based organisational knowledge initiatives. While it is hoped that this thesis succeeded in bringing more light to the concepts and principles of activity theory and their potential within the field of KBV, much remains to be done to make these accessible to the wider community of researchers in the field.

This work have been possible because the researcher has gradually questioned, challenged and gathered step by step what can constitute the bases of a dynamic knowledge-based theory of the firm using AT while paying tribute to the founders in the field. This whole exercise can

be summarised as constant emerging knowing that led to a final new tentative theory while engaging within an original philosophical approach. As Von Foerster (2014) stated:

> *'Emergence is my ability to see newly'*

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APPENDICES

Appendix 1 – Attributes characterising KI in organisations: the firm centric approach 298
Appendix 2 – Attributes characterising KI in organisations: the person-centric approach ... 300
Appendix 3 – Attributes characterising KI in organisations: shared characteristics 303
Appendix 4 – Texts for establishing contacts 305
Appendix 5 – Potential benefits of the study 306
Appendix 6 – Description of the project 308
Appendix 7 – Interviews timetable for DLT 310
Appendix 8 – Interviews timetable for KPS 311
Appendix 9 – Interview guide 312
Appendix 10 – List of documentation for the two companies 315
Appendix 11 – Consent form 316
Appendix 12 – DLT Coding level 1 318
Appendix 13 – DLT Coding: 2nd level – 68 codes 321
Appendix 14 – DLT selective coding 19 codes 323
Appendix 15 – Definitions finalised for DLT's themes 324
Appendix 16 – DLT staff interviewed profile 327
Appendix 17 – DLT supporting tools for building an incremental knowledge base 330
Appendix 18 – Extract of excerpts for *'incremental knowledge based codes'* 331
Appendix 19 – KPS staff interviewed profile 334
Appendix 20 – KPS Open coding: 91 codes 337
Appendix 21 – KPS selective coding: 65 codes 339
Appendix 22 – Selective coding (KPS): 19 codes 343
Appendix 23 – Comparison of DLT and KPS knowledge bases 344
Appendix 24 – Extract from definitions construct: comparison between KPS and KDL 346
Appendix 25 – Pilot case 350

Appendix 1 - Attributes characterising KI in organisations: the firm centric approach

Attributes	Authors
Knowledge as the major asset is embedded in organisations	
• Knowledge most important input; knowledge-intensive or less capital-intensive; large amount of knowledge in use	Starbuck, 1992; Robertson and Swan, 1998; Nurmi, 1998, 1999; Käpylä et al., 2011
• Sell intangible product and processing of knowledge to create value to the customer	Käpylä et al., 2011
• Production of qualified products and / or services	Alvesson, 2000, 2001
• Organisation that produces and sells knowledge	Nonaka and Toyama, 2007, Makani and Marche, 2012
• Direct application of expert knowledge	Sheehan, 2002; Käpylä et al., 2011
• KIF sells a capacity to produce rather than a product	Winch and Schneider, 1993
• KIS products contain a high degree of tacit ('intangible') knowledge	Windrum and Tomlinson, 1999
• Centrality of esoteric knowledge that provide a strategic advantage to the firm	Assudani, 2009
• Centrality of intangible assets	Swart *et al.*, 2003
• "Standardised intangibility" central to knowledge-based organisations	Winch and Schneider, 1993
• Non-standardisation of organisation production	Sveiby and Lloyd, 1988
• Knowledge resides in physical and non-physical capital, firm's routines and, in organisational culture	Starbuck, 1992; Swart and Kinnie 2003b
• Much knowledge is captured either through the exchange of knowledge among knowledge workers or by embedding this knowledge in documents	Winch and Schneider, 1993
• Continuous generation and synthesis of collective, organisational knowledge	Lee, 1999
• Integrate and diffuse knowledge throughout the value chain	Greenwood, 2009
• Production consists of complex non-standardised problem-solving	
• Organisations are socially-distributed systems and knowledge work	Blackler, 1993, 1995
Learning organisation	
• More learning-intensive than other service industries	Nurmi, 1998, 1999
• The more knowledge-intensive the firm, the more learning-intensive	Autio, 2000
• The exploitation of esoteric knowledge rests in organisational learning	Kärreman, 2010
• Importance of learning and working environment	Reich, 2002, Alvesson, 2004, Scarbrough, 1993
• Capacity to adapt to various contexts and tasks	Alvesson, 2001
• Focus on on-going learning opportunities and communities of practice, encourage continuous learning	Greenwood, 2009
Flatter and more flexible structures and infrastructures	
• Flatter, flexible, networked structures	Robertson, 1998
• Does not work properly as structured, departmentalised, hierarchical organisation	Nurmi, 1998, 1999
• Less hierarchical structure, new and flatter systems of management	Greenwood, 2009
• The traditional command-and-control structures will have to be jettisoned in favour of more flexible team and project-based management approaches; reduced layers in the organisation	Scarbrough, 1999
• Socio-ideological control that addresses values, meanings, and ideas,	Kärreman and Alvesson, 2004

including identities • Use of adaptable, ad hoc forms, need for extensive communication for coordination and problem-solving	Alvesson, 2004
Size and growth of KIFs	
• Small firms	Starbuck, 1992
• Extensive infrastructure	Winch and Schneider, 1993
• Large firms employing substantial numbers of people	Alvesson, 2004
• Growth patterns different from traditional organisations	Swart and Kinnie, 2003
Importance of image and reputation	
• Image-intensity: importance of large size and big name and rhetoric associated	Alvesson, 2004
• Knowledge is a slippery and ambiguous concept that calls for *'management of rhetoric, image and social processes'* to help *'demonstrate competence and performance – as well as the significance of producing the right impression'*.	Alvesson, 1993, 2001:863
• Importance of reputation	Sheehan and Stabell, 2007
• Organisations accredited by a self-regulatory body	Makani and Marche, 2012

Appendix 2 – Attributes characterising KI in organisations: the person-centric approach

Attributes	Authors
Overwhelming reliance skilled, experienced and educated people / knowledge workers	
• High dependency on people (professional, leader, manager and clerical staff; High professional skills, high level of managerial skills	Sveiby and Lloyd, 1988
• Knowledge is a valuable stock of expertise and knowledge resides within people; Exceptional and valuable expertise dominates the workplace; Experts with formal education and experience equivalent to a doctoral degree; expertise gained through formal education; Experts are at least one-third of personnel	Starbuck, 1992
• Expertise of their [KIFs] staff; Assets are people's organisation; Firm employs often professionalised knowledge workers	Winch and Schneider, 1993
• Symbolic analyst dependent organisations; High developed conceptual and cognitive abilities	Blackler, 1995
• Knowledge-intensive workers	Alvesson, 1993
• 40% of the workforce are highly educated people	Stewart, 1997
• Exceptional and rare expertise, high cognitive skills, highly qualified specialists, highly educated usually to a PhD level	Robertson and Swan, 1998
• Human capital, key source	Swart and Kinnie, 2003; Swart et al., 2003; Alvesson 2001
• Highly skilled, well educated, qualified employees	Swart and Kinnie, 2003; Davenport, 2005
• Value creation through advanced knowledge; Competitive advantage lies in effective use of human resources; Highly qualified individuals doing knowledge-based work using intellectual and symbolic skills, large proportion are third level educated, relevant experience	Alvesson, 2000, 2001, 2004
• *'Stars'* are key asset in KIFs, the only meaningful asset particularly for firms that are highly knowledge-intensive; complete reliance on outstanding professionals. Highly talented and motivated professionals	Lorsch and Tierney, 2002, Lorsch, 2007
• People are seen as the ultimate repositories of knowledge and the key source of value creation; Focus on the value of the intelligence and engagement of the firm's employees	Greenwood, 2009
• Trust and longevity	Pyöriä, 2005
• Human capital (intensity)	Swart and Kinnie, 2003, Von Nordenflycht, 2010
• High cognitive skills	Makani and Marche, 2012
• High salaries	Starbuck, 1992; Davenport, 2005
• Paid above average salaries, have high status, gold collar workers	Alvesson, 2001, 2004
Autonomy and independence	
• Power stems from ability and reputation	Sveiby and Lloyd, 1988
• Professionals resistant to being managed	Winch and Schneider, 1993
• Individual autonomy	Robertson and Swan, 1998
• Importance of esteem over status	Nurmi, 1998, 1999
• Independent-minded individuals	Lorsch and Tierney, 2002, Lorsch, 2007

• High degree of autonomy downplaying organisational hierarchy	Alvesson, 2004
• Highly individualistic and independent; autonomy	Wang and Ahmed, 2003; Koslowsky et al., 2012
• Intelligent, self-control and self-evaluation	Greenwood, 2009
• Knowledge workers are intrapreneurial; *'Knowledge workers are individuals who while remaining within a company use their entrepreneurial skills to develop new products or lines of business'.*	Wang and Ahmed, 2003:8
• Knowledge workers are self-managing, they work on their own initiatives, and are responsible for their own contributions	Drucker, 1999
• Worker is held accountable for decisions	Makani and Marche, 2012
• Shared leadership based on expert power	Pearce, 2004; Jayasingam et al. 2010
Knowledge-intensive workers' specific skill set	
• Complex problem-solving abilities	Sveiby and Lloyd, 1988, Sheehan, 2002, Sheehan and Stabell, 2007
• Complexity and variety of tasks	Scarbrough, 1993
• Focus on novel and complex work processes	Swart et al., 2003
• Work activities mostly characterised by uncertainties	Ditillo, 2004
• Exercise of judgment and problem-solving	Swart, 2007; Davenport, 2005; Cortada, 1998; Swart et al. 2007 ;
• Use of analytical and theoretical approaches in the work	Davenport, 2005; Käpylä et al., 2011
• Workers use novel knowledge to solve complex problems	Makani and Marche, 2012
Creative and innovative workers	
• Creativity; Highly creative workers	Sveiby and Lloyd, 1988; Drucker, 1959
• Continuous innovators	Drucker, 1999; Despres and Hiltrop, 1995
• Creative professional	Winch and Schneider, 1993
• Solve complex problems through creative and innovative solutions	Swart and Kinnie, 2003b; Swart et al. 2003
• Attraction to challenging tasks calling for considerable creativity and initiative	Alvesson, 2000
• Creative undertakings	Scarbrough, 1993
• Work orientated towards innovation	Ditillo, 2004
• Non-linear and creative thinking	Reinhardt et al., 2011
Continuous learners	
• Career aspirations are given priority	Robertson and Swan, 1998
• Knowledge cannot be taught through education and training but it can be gained from direct experience complementing education	Nonaka and Takeuchi, 1995
• Knowledge workers are highly individualistic in terms of giving priority to their personal growth	Wang and Ahmed, 2003
• Importance of apprenticeship	Greenwood, 2009
• Knowledge-seeking individuals	Swart, 2007
• Continuous learners	Drucker, 1994; Reinhardt et al., 2011
• Intensive training and development required in the workplace	Scarbrough, 1993

Workers' engagement	
• Inquisitive workers; they are likely to be motivated by challenging tasks that attract their personal interest	Alvesson, 2004, Wang and Ahmed, 2003
• Individuals mentally and emotionally committed to work; highly involved in work	Benson and Brown, 2007; Wang and Ahmed, 2003
• Importance of fair work processes	Davenport, 2005

Appendix 3 – Attributes characterising KI in organisations: shared characteristics

Attributes	Authors
Technology-intensity	
• Use of high-tech machines and unusual routines	Starbuck, 1992
• Investment in and use of NTIC	Stewart, 1997
• IT is instrumental for facilitating communication for coordination and problem-solving	Alvesson, 2004
• IT facilitating knowledge work	Sulek and Maruchek, 1994
• KIS can be users, carriers or integral producers of new technologies; Important role played by technology in transforming "post-war" organisation structure of vertically-integrated knowledge generation	Windrum and Tomlinson, 1999
• NTIC important for sharing knowledge in KIFs	Swart and Kinnie, 2003b
• Technological tools such as shared knowledge repositories, emails and chat rooms create an opportunity for fostering collaborative work in a dispersed setting	Blackler, 1995; Assudani, 2009
• Technologies help achieve global reach in KIOs	Greenwood, 2009
• Importance of the use of technology to solve clients' problems	Sheehan, 2002
• Prevalence of mobile technologies that are wearable; Mobile devices and mobile computing are key enablers of role integration for knowledge workers	Reyt and Wiesenfeld, 2015
Client-centric or market-driven	
• Focus on the client not the customer	Sveiby and Lloyd, 1988
• Provide solutions to their clients' technical problems;	Winch and Schneider, 1993
• Primarily customer-driven	Nurmi, 1998, 1999
• High customer contact	Alvesson, 2004, Donnelly, 2006, Swart, 2007
• Client-centric	Sheehan, 2002, Sheehan and 2007,
• Outstanding professionals who attract and retain clients. Importance of the quality of the relationship with clients characterised by the level of trust and confidence the client has in the knowledge-intensive provider.	Lorsch and Tierney, 2002, Lorsch, 2007
• Provides problem solutions	Swart and Kinnie, 2003a
• Idiosyncratic client services (need for high degree of customisation; highly complex relations)	Alvesson, 2004
• Information and power asymmetry with their clients	Alvesson, 2004, Lorsch and Tierney, 2002, Lorsch, 2007
• High level of information asymmetry between the firm and the client	Sheehan, 2002
Collaboration – communication - knowledge-sharing	
• Networking and knowledge-sharing; team-based work	Drucker, 1993, Reich, 2002, Swart, 2007; Reinhardt et al., 2011
• Importance of innovation networks to connect with the wider knowledge base of the economy; they are the glue that holds the expanding economy together; transfer of experience and technologies;	Windrum and Tomlinson, 1999
• Sharing knowledge is critical to the performance of KIFs	Swart and Kinnie, 2003b
• KIFs often collaborate with other similar organisations to provide services for clients. In some cases, these form networks of partners	Swart et al. 2003

which may include the clients themselves.	
• Need for extensive communication for coordination and problem-solving	Alvesson, 2004
• Firms increasingly use geographically dispersed team to conduct all kinds of knowledge work; Knowledge is viewed as a resource that can be possessed or even created by actors and / or networks in which they participate	Assudani, 2009
• Recognize knowledge-sharing mentoring; Multiple links with the outside	Greenwood, 2009
Context and market conditions	
• Services firms operating in highly specialised local market niches with little competitive pressure while others operate in highly competitive markets	Windrum and Tomlinson, 1999
• Large firms with clear and set procedures versus small firms that focus on bespoke services versus and supplying services to few clients, thus creating a highly unpredictable and unstable market environment	Swart and Kinnie, 2003b, Swart et al. 2003
• Greater knowledge-intensity is associated with faster international growth among high-tech firms	Autio, 2000
• Context- dependency	Drucker, 1993; OECD, 1996
• Importance of organisational context for knowledge creation, sharing, learning and working	Reich, 2002; Scarbrough, 1993; Alvesson, 2004; Assudani, 2009; OECD, 1996

Appendix 4 – Texts for establishing contacts

LinkedIn message (first approach)

Dear *Name*, I am a PhD researcher investigating organisational knowledge creation in asset management and investment banking. Would you be kind enough to participate to my research (phone interview + online survey)? Results can be sent you subsequently.

Yasmina Khadir-Poggi
Trinity College Dublin

Email – first contact

Dear Madam, Dear Sir,

I am a PhD student from Trinity College Dublin and I am currently investigating the field of organisational knowledge in Ireland-based asset management firms. You can have more information on my LinkedIn profile (address)

The completion of my research involves the possibility to interview an investment management team (no more than one hour / face to face or phone) and to conduct a subsequent online survey. In return of being granted the permission to do so, I will provide you with a report that includes the following:

- ✓ A detailed state of inherent contradictions and tensions existing between identified poles of activity and that weigh on the firms performances,
- ✓ The particular areas fostering the processes of knowledge and value creation,
- ✓ A perspective on your firm or unit located in a dynamic trend of expansive learning
- ✓ A knowledge-intensity systemic profile of your investment team.

Your firm would greatly benefit from such an audit on knowledge-intensity as it relies on a conceptual model that has not been used to date and introduced an original and holistic approach on the phenomenon.

I would be more than happy to provide you with more information if you are interested by this opportunity.

I look forward to hearing from you,

Regards,

Yasmina Khadir-Poggi
PhD student,
School of Business, Trinity College Dublin
College Green, D2, Ireland

Appendix 5 – Potential benefits of the study

POTENTIAL BENEFITS OF THE STUDY

Outcome of the study and benefits for the company

- ✓ The participants will get an increased awareness (= training) and a different approach on organisational knowledge creation and its potential outcome. Therefore, it is an opportunity to bring new insights and novel approaches to work and creation into existing teams.
- ✓ Specific and tailored investigation of the knowledge base of the company and possible identification of new sources of value creation (argument is that each firm is unique). The company will benefit of a study grounded in an original approach (holistic and dynamic) that has been not implemented to date (and to the researcher's knowledge) in financial companie. It partially overlaps and completes the more known concepts of intellectual capital or knowledge assets and knowledge management and brings the logic further as it focuses on the underlying mechanisms of knowledge / value creation. This novel approach looks into the extra existing dimension that relates IC and KM.
- ✓ Access to the final outcomes and results of the research (entirety of the PhD available + the resulting final paper).

Internal use of the results

Your company may use the perspective that is Activity Theory (and the interpretation that I make of it) as a continuous method that could drive the company through different stage of evolution (incremental evolution). It is also useful as a tool to anticipate issues arising and find a solution (= knowledge creation). The final ambition would be that this approach instils value and knowledge creation as an integral part of the company's culture (= knowledge company).

Potential use for the Irish Association Investment Management

I believe that the IAIM provides overviews and recommendations to the Investment Management sector among other things. I am not familiar with all the specifics, but I feel that the holistic and dynamic approach on which the study relies on can be a powerful tool that may participate in rebuilding the credentials of the sector (i.e. be again or a stronger pillar that participate in rebuilding Irish Economy) . It may constitute an avenue to make the sector integral part of the knowledge economy (reconstruct itself with this theme as a driver): what is the knowledge base / assets of the Irish Investment Management industry? How does it create (or destroy) value for itself? etc. It can put in place also a kind of survey / auditing process based on this approach in order to gain all this data on a continual base and, subsequently make recommendations. These are potential outcomes of the IAIM

PRACTICALITIES OF THE RESEARCH

Rationale of the research

Objective of the study: identify underlying mechanisms and dynamics of knowledge-based value creation rooted in company's activity system grounded in knowledge economies; it consists into identifying systemic tensions, contradictions and knowledge-absences emerging from day-to-day usual business and see how they addressed or not and how the business model adapts or not.

Instead of relying on a top down or outside-in approach, we suggest relying on an inside-out one. The **intellectual capital** perspective is based on a thorough study of the firm where intellectual, relational and structural assets are identified and improved by "specialists". **Knowledge management** is often restricted to implementing best practices in order to capture knowledge and make it property of the company (the data base approach) and,

stimulate people in being more creative. Those two perspectives are more or less institutionalised today and form one of the basic components of the current business paradigm. They have in common to address "positive" issues, the ones you can see and address (i.e. knowledge management comprises strategies and practices enabling a firm to identify, create and share valuable insights, ideas and experiences and intellectual capital is a top-down understanding of knowledge assets). They are a necessary condition but incomplete of knowledge-based value creation.

The basic assumption of this study's approach is that all decisions and eventually the final outcome (value creation and related profits) are **mediated** through a number of elements emerging from the system to which individual relates and the general socio-economic and technological environment in which he lives and interacts. At the heart of this activity system lie **systemic contradictions and tensions** as well as **knowledge-absences** originating from the usual running of operations in changing environment. In short, there are "uneasy grey" zones that are not necessary identified but that individual and the firm address or not.

Knowledge-intensity that is, the extent to which a company creates value (or destroy it) with its knowledge base (intellectual capital and knowledge management practices) reflects the way a firm / an individual addresses a systemic tension or contradiction. These occur naturally in the system as it is alive and mutates constantly as it is emerging from what the individual are and do and, from the external environment to which it much also adapt. The problem then is to identify those tensions, contradictions and also knowledge-absences (especially in the current time). So, we suggest that value is created when a firm (through its individuals) is able to identify all this and address them properly. In short, it is about the ability to think out of the box as there is not necessarily an existing model or ready-made solution for any arising issue. And most of all it is about identifying, seeing and acknowledging them that make the difference between a company that make it most of the existing times and the ones that struggle.

The perspective I am bringing in is about addressing the unseen or "negative knowledge" that is current part of the day-to-day business. It is in these twists and turns that lay at the heart of knowledge creation / value creation, where a company make the difference thanks to individuals able to capture this. This perspective envisages the firm as a living entity that evolves regularly under the influences of internal and external forces (well if the company is willing to embrace them). It is an original and unique approach that comes within the scope of better established IC and KM.

Process of the empirical study

1) Identify the activity system (i.e. the bounded system within which studied activity unfolds,) ➔ How are decisions and the final outcome constrained / encouraged or boosted by:
    - The existing means or instruments (technology, infrastructure, emerging organisational knowledge map…)
    - The existing regulatory context, the informal and formal cultural approaches on the (local / European?) way of doing business, and anything that appears like a frame
    - The existing vertical and horizontal division of labour,
2) Identify the different levels of tensions, contradictions and knowledge-absences and how they are eventually addressed.
3) Evaluate how the previous are addressed and understand in what extent value is created.

Appendix 6 – Description of the project

Yasmina Khadir-Poggi
Ireland- poggiy@tcd.ie

Organisation knowledge emergence and creation: A study on investment firms and securities houses

Description of the empirical study

Objective of the research:

- Understand the underlying mechanisms and dynamics of organisational knowledge emergence and creation in a holistic and dynamic manner using activity theory perspective. The research focuses also on identifying systemic tensions, contradictions and general knowledge-absences and studying the way these are addressed by decision-makers. This original approach aims at identifying new routes for value creation within organisations part of the knowledge economies.

The details of the two parts empirical project are the following:

1) Interviews

- **Contents and object of the interviews**
  - Understand the historical and cultural dimensions of the activity system,
  - Identify the activity systems in which the individuals are involved,
  - Identify subsequent tensions, contradictions and knowledge-absences
  - Investigate how the above is addressed by decision-makers,
  - Investigate which media is used in achieving the object of activity and how it influences the final outcome (i.e.: intended outcome),
  - Gain insights on the ways of making decisions and implementing them within complex and hostile socio-economic environments and within the knowledge age.
- **Focus of the study**
  - Teams involved in an activity such as trading, asset management, fund management or investment banking
- **Targeted individuals for interviews within teams**
  - People at managing level and above that are part of the teams (no matter the size).
- **Practical details**
  - Interviews can be performed over the phone or face to face. They will be recorded and subsequently transcribed.
  - A preliminary consent form is sent to the interviewees; acceptation to participate validates the consent.
  - A copy of the transcripts is sent to the interviewees for confirmation and amendment if any. If no feedback is sent, this will be considered as a confirmation.
  - A total confidentiality on private details is guaranteed.

2) Study of documentation provided by the company in addition to public information freely available

- **Documentation on the company (if it is possible for each case)**
  - Organisational chart
  - History and culture
  - Minutes from some of the meetings of the team involved for the last three months (of course if possible)
- **Documentation on the interviewees**
  - Job descriptions

- LinkedIn profiles if authorisation of interviewees if given
- Portfolio of achievements if any

Please, feel free to contact me for further details at poggiy@tcd.ie or through my LinkedIn profile ie.linkedin.com/in/yasminapoggi/.

Appendix 7– Interviews timetable for DLT

Appendix - List of interviewees- Delta Asset Management Limited – Ireland

22/11/2013

Interview Dates: Monday, December 2 to 6 - 2013

Location: Delta premises

Code ID	Interview date and time		
	03.12.2013	**04.12.2013**	**06.12.2013**
DLTC1	9.30-11am		
DLTC2	10am-11.30		
DLTC3			12-1pm
DLTC4			9-10am
DLTC8			2-3pm
DLTS2		11.30-12.30	
DLTPM2		2-3pm	
DLTPM1		10.30-11.30	
DLTTM4			11-12
DLTC6		4pm-5pm	
DLTPM3		3-4pm	
DLTPM5			
DLTC5		9-10am	
DLTS1			10-11am
DLTC7*			

Scheduled in January 2014

Appendix 8 – Interviews timetable for KPS

Appendix - List of interviewees- Kipos Ltd. – Ireland

22/09/2013

Location: KPS premises

Participants	23.10.2013	24.10.2013	25.10.2013	29.10.2013	30.10.2013
KPSC1	11.00 – 1.00pm				
KPSC3	1.30– 2.30pm				
KPSC2		4.00– 5.00pm			
KPSC7		9.30 – 10.30am			
KPSC4		10.45 – 11.45am			
KPSC6		1.30 – 2.30pm			
KPSTM1			4.00 – 5.00pm		
KPSC9					2pm (10am Eastern time NYC) Cancelled
KPSPM1			9.30 – 10.30am		
KPSPM2			1.30 – 2.30pm		
KPSPM3			10.45– 11.45am		
KPSPM4			2.45– 3.45pm		
KPSPM5				9.30 – 10.30am	
KPSPM6				10.45 – 11.45am	
KPSPM8				12am – 1.00pm	
KPSPM7				2.15 – 3.15pm	
KPSC10				3.30pm (GMT – based in NYC) Cancelled	
KPSC5					9.30 – 10.30am
KPSC8					10:45– 11:45am

Appendix 9 – Interview guide

INTERVIEW GUIDE

What are the underlying mechanisms and dynamics of organisational knowledge creation in Asset Management firms?

Thanks for accepting to participate to this project; Credentials and anonymity of the project results. This research project is part of a PhD undertaken in the School of Business, Trinity College Dublin. It focuses on the study of knowledge-intensity mechanisms within Asset Management / fund management firms or units.

[Warming up questions] (*Cross reference with documentation)*

*a. How many years have you been working in finance?**
*b. At this management level?**
*c. In the current firm?**
*d. In how many companies did you work since you are in finance, included this one?**
*e. What is your nationality?**
*f. What is your education level?**
*g. Any professional qualifications?**
h. What proportion of your working time do you spend on strategies?

About yourself and your job

1. (P) [53] Can you describe in details your position and role (different tasks) within this firm? To whom do you report? How did you get to your present job internally?
2. (P) Can you tell me about your past experiences and roles and in what extent this impacts your current work?
3. (P) How do you view / envisage yourself within this working relationship with the company?
4. (KI) What are the primary inputs you use in achieving your objectives and what are the final outputs? I.e. what kind of "raw material" do you use in your work and what is the nature of production?
   (A) Can you describe precisely the "problem space" you are addressing in your work? What is the raw material you are dealing with? What sort of Activity are you interested in? /
5. (A) What is the intended outcome or objective from your work?
6. (KI) Can you tell me about the value creation process involved in your speciality?
7. (KI) How do you think ***you*** create value? *Where do you create value in your current activity?*
8. (KI) How does if fit into the whole value creation process of the company?
9. (KI) What would be your strongest skill or ability in your work? Your weakest?
10. (A) Do you think the overall value creation process or your specific contribution can be improved? If yes how
11. (KI) Would you say that you work involves some kind of expertise and / or innovation? If so, in what extent / intensity? Can you elaborate?

[53] (P): participant; (KI): knowledge-intensity; (R): rules; (C): community; (O): object of activity; (D): division of labour; (T): tools

12. (A) How does this activity and desired outcome impact your general and professional knowledge? *How does this affect you as a professional and individual?* (KI) If you feel that you increased your level of knowledge and expertise, can you describe how this happened?
13. (P) What aspects of your work are the most constraining? Or is there any particular issue that you think impacts negatively your performance?
14. (A) What do you think of the future of this activity in relation with the current socio-economic and technological context?
15. (KI) Based on your knowledge and experience, can you tell me what key characteristics a firm should have in order to be a successful one (internal / external)? Ie: what are the key qualities or elements a company like yours should possess in order to be successful?
16. (KI) Can you describe the individuals' qualities, capabilities and abilities you think are determinant for the success of your organisation? Ie: if you would hire someone to make strategic decisions, what characteristics, qualities would be looking for?

About the other people (community and division of labour)

17. (D) Can you tell me about the people inside and outside your company with who are involved primarily in achieving this activity and the objective with you? *With whom do you work and exchange on a regular basis?*
18. (P) How do you relate (hierarchically) to the other members involved in your work?
19. (C) Are all the individuals you relate to inside your firm part of your "assigned" team, or does they include some "personal" acquaintances? i.e. (C) Are all external individuals, professional relations involving financial transactions?
20. (D) What is your opinion about the way tasks are shared internally? Do you think it can be improved?
21. (D) In what extent and how does this division of labour influence the way you satisfy your objective?
22. (C) In what extent does this community affect the way you achieve the objective?
23. (C) What is the impact of the current environment on all this?

About the means and the rules

24. (T) Can you tell about the means, instruments, tools, methods, etc. with which you achieve your activity? Any problems with any of those? Would you need other things?
25. (T) In what ways, if any, the elements you described affect positively or negatively the way you achieve the objective and the objective itself?
26. (T) Can you tell me in what extent those means participate in anticipating or dealing with novel issues or opportunity arising from the external environment?
27. (R) Can you tell me about any cultural norms, rules and regulation governing the achievement of this activity in a positive or negative way? If any, how do those rules affect the way you achieve the objectives?
28. (R) In what extent do those rules affect the way the community satisfies the objective?

Contradictions

29. (KI) Generally speaking, what are the issues or problems that you encounter the most often? Where do they originate?

30. (KI) How do you address them?

About your organisation

31. Can you tell me about the evolution of your organisation since 2006 or since you are involved into it? If any, can you tell me about the big changes that occurred since then and the reason for it? *(What are the major changes that happened and why? What were the intended and actual consequences?)*
32. How would you characterise the current business and economic environment in which your organisation is involved?
33. How would you describe the culture / middle within which you are working into / within which your firm is embedded into?
34. What do you think of your firm's business model in relation with the current environment?
35. Can you identify a significant area where you think your firm does not yet have the capability to cope? / or has a ready-made answer or process? If there is, then what do think it is likely to happen?

Objective: profile

Would you allow me to use your Linkedin profile?

Thank you for your time

I will send you the transcript if you wish.

Appendix 10 – List of documentation for the two companies

List of documentation used for the study of DLT

- Delta Limited company description 2013
- Delta Limited company description 2013
- Delta Limited Financial Statements 2012
- Delta Financial Statement 2014
- DelSynC Product Development Process
- 'A patenting capability-maturing programme for Delta's report (discussion paper provided by a consultant specialising in IP who was met during a meeting organised by DLT)
- 'Turning innovation into assets' on FinanceJobs.ie
- Delta Investment Process Framework 2.0
- Turning innovations into assets (PowerPoint presentation used for some clients)
- Virtual Library presentation
- Delta Group Social report 2013

List of documentation – KPS

- Public data available from the internet on company website
- Positions and job descriptions relating to each participants
- Request For Information on Agribusiness Securities (2013)
- Request for Service Proposal for Enhanced Global High Dividend Yield Equity (2013)
- Request For Proposal on Water
- 2012 US Asset Management Compensation Report
- Evolving distribution models (2013) – KPMG report
- KPS code of ethics
- Operations overview
- Leaflet on Environmental Strategies
- IT applications and architecture overview

Appendix 11 – Consent form

TRINITY COLLEGE DUBLIN
SCHOOL OF BUSINESS
Consent Form

An investigation on organisational knowledge creation in Asset Management firms

Yasmina Khadir-Poggi, PhD Student
Ms Mary Keating, supervisor

I am invited to participate in this research project which is being carried out by Yasmina Khadir-Poggi. My participation is voluntary. Even if I agree to participate now, I can withdraw at any time without any consequences of any kind.

The study is designed to better understand how organisational knowledge is created in asset management firms and the nature of its dependence on socio-economic contexts. First, the historical and contextual location of the activity and the organisation carried out by participants is investigated. Then, an activity system will strive to capture how knowledge-intensity and learning emerges from the course of actions. At last, the focus shifts to actions and decisions made during work and how they are informed in order to create value.

If I agree to participate, I will answer questions in relation with the above preferably within my organisation, in another location of my choice or over the phone if it is more convenient. However I may choose not to answer certain questions. The interview should last no more than one hour and involve a maximum of two meetings if required. The interviews will be audio recorded unless specified otherwise. Recordings will not be identifiable unless permission is given. No particular risks or discomfort should be incurred during the interviews. For less inconvenience, interviews will preferably be scheduled outside working times.

As a participant, I will not benefit directly from this research. However I might gain an increased awareness of the knowledge-intensity processes involved in the work achieved on a daily basis in my organisation. This research may also benefit organisations in general by providing them with an original and holistic approach on the different aspects of knowledge intensity involved in their decision-making processes. It will enrich also the theory of organisations.

Any information or data which is obtained from me during this research which can be identified with me will be treated confidentially. This will be done by attributing codes to interviewees reflecting the country, town plus a number that will be known only by the researcher and her supervisor. The real names will not be disclosed. The data collected will be kept electronically and will be accessible by the researcher, the supervisor and Trinity College Institutional Review Board. The collection and use of the data is placed under the Data Protection Act and the College Good Research guidelines accessible http://www.tcd.ie/info_compliance/dp/legislation.php .

The recordings will be transcribed and the transcripts communicated to you for checking and acceptation. They will be used for the purpose of this research. Portions of the data may be used during conferences presentations and written transcriptions may be made for teaching purposes. Data from this research project may be published in the future. However, the

identities of all research participants will remain anonymous. Individual results will be aggregated anonymously and research reported on aggregate results.

The original recording and all copies will be available only to the present investigators or to investigators in other academic institutions engaged in similar work. Materials that are sensitive will be kept in a secure location in the School which will be locked when the researchers are not present. If copies are made available to researchers elsewhere, similar conditions regarding the storage and use of recordings will apply.

If I have any questions about this research I can ask Yasmina Khadir-Poggi, poggiy@tcd.ie. I am also free, however, to contact any of the other people involved in the research to seek further clarification and information: Ms Mary Keating, mkeating@tcd.ie .

DECLARATION:

- ✓ I am 18 years or older and am competent to provide consent.
- ✓ I have read, or had read to me, a document providing information about this research and this consent form. I have had the opportunity to ask questions and all my questions have been answered to my satisfaction and understand the description of the research that is being provided to me.
- ✓ I agree that my data is used for scientific purposes and I have no objection that my data is published in scientific publications in a way that does not reveal my identity.
- ✓ I understand that if I make illicit activities known, these will be reported to appropriate authorities.
- ✓ I understand that I may stop electronic recordings at any time, and that I may at any time, even subsequent to my participation have such recordings destroyed (except in situations such as above).
- ✓ I understand that, subject to the constraints above, no recordings will be replayed in any public forum or made available to any audience other than the current researchers/research team.
- ✓ I freely and voluntarily agree to be part of this research study, though without prejudice to my legal and ethical rights.
- ✓ I understand that I may refuse to answer any question and that I may withdraw at any time without penalty.
- ✓ I understand that my participation is fully anonymous and that no personal details about me will be recorded.
- ✓ I have received a copy of this agreement.

Signature of research participant

I understand what is involved in this research and I agree to participate in the study.

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Signature of participant Date

Signature of researcher

I believe the participant is giving informed consent to participate in this study

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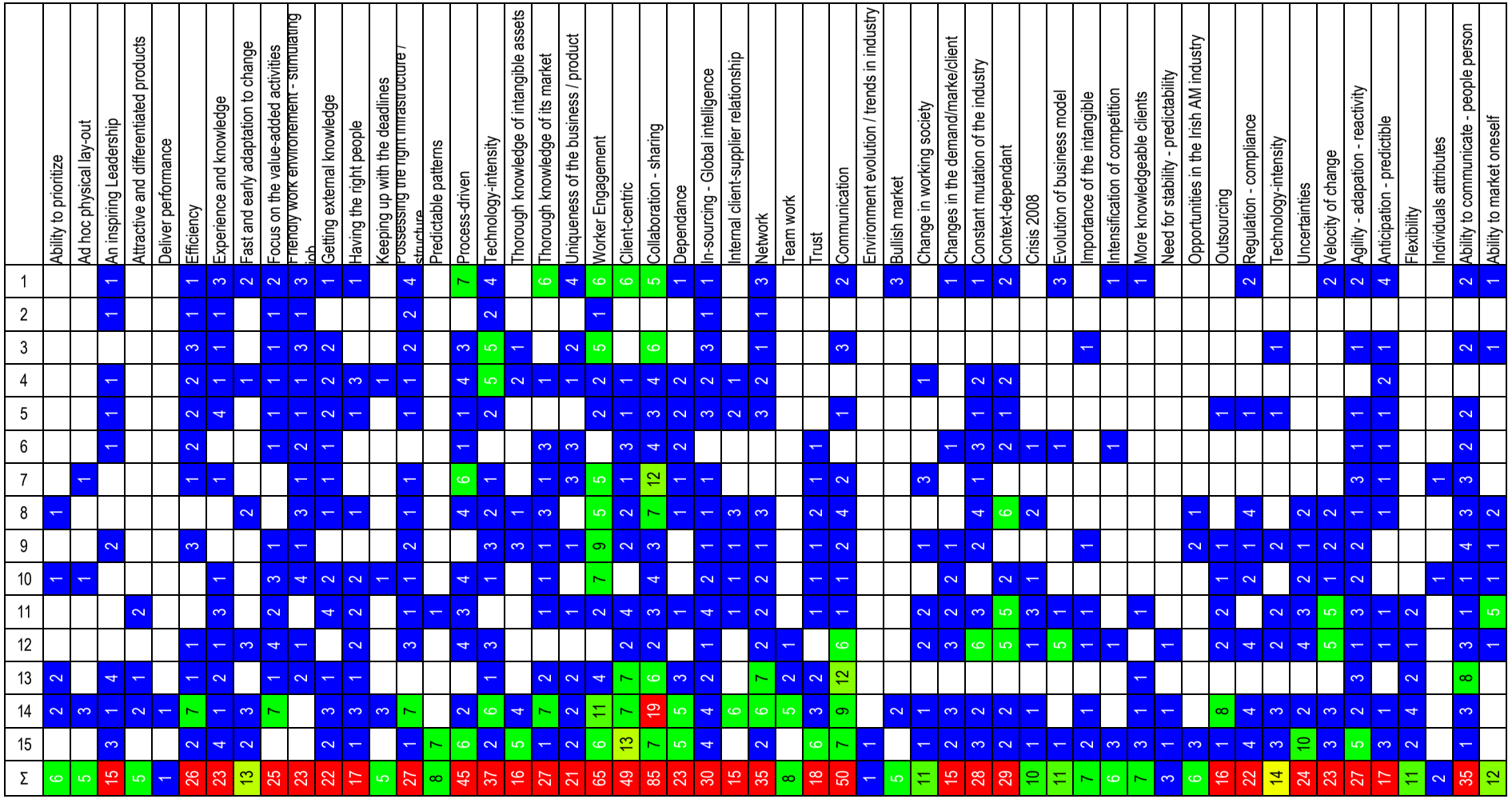
Signature of researcher Date

Appendix 12– DLT Coding level 1



26	2	3	2	4	1	3	4			2	2	3				Ability to stand back - challenge oneself
1					1											Add value - value creation
3				3												Analytical skills
2		1		1												Attention to details
20		4		3	1	2	3	1	1	1				1	3	Being an implementer - make things happen
37		4	4	3	8	3	1	3	2	2	3	1		1	2	Broad knowledge of the business
3	1			1	1											Commitment
18	3		3			1	2		2			1	4	1	1	Curiosity - adventurous
40		2	1	2	3	3	2	5	6	3	4	6	1	1	1	Deal with complexity
12		3	2	1	1	1	2			1			1			Empathy
28	1	2	3	2	3	3	2	2	5	3				1	1	Experience
14		4			1				4			3	1		1	Generate new ideas - strategize
18	1		1	2		1	1	4	3	1		2		1	1	Good listener - understanding
10						1	1		4	1			1		2	Independance / confidence / be one's boss /
29	1	6	2	3	5	2	2		1			1	2	1	3	Multitasking
5	1						1					1	2			Observer
13		1		1	3	2		2			1		2		1	Open to change
8					5	1		1							1	Possess generic and transferable skills
15	1	1	1		2	1	2		2				1		4	Resilience
16	1	2	1	3			4	1		2					2	Rigour
34	4	5	3	1	2	2	1	3	5				2	2	4	Willingness to share knowledge and to learn
1													1			Information - data
11	2	4	1	4												Ability to obtain the right information
27	2	1	2	2		2		3	6	3	3	2			1	Expertise in managing data
6									1	1		2			2	Independant sources of information
8	1								1		1	2	2		1	Information from social networks / media
50	1	6	3	6	2	2	2	6	5	4	3	3	3	1	3	Information-intensity
8		2			1				1				1		3	Creativity
29	5	6	4			1			2	2		2	5		2	Incremental innovation
3			3													Innovative way of doing sthg
3	2	1														Invisible innovation
20	4	5		1	1		2		2	1		1	2		1	Process innovation
1		1														Process management improvement
6	1		1		1							2			1	Product innovation
3	2	1														Knowledge assets
32	5	6	7		5	5	2		1	1						Human capital
3	1	2														Retention issue

9	1	2	1	2	1				1				1			Relational capital
41	15	7	3	1	1	4	2		2				6			Structural capital
1	1															Shared belief in the value of the intangible among workers
1							1									Learning
21	1	2	2		5	1		1	2				3	1	3	Ability to self-develop one's skills and knowledge-base
10		2	4	1	3											Constant learning
6	3	2	1													Experience
67	4	9	7		5	4	4	7	7	3	2	2	5	1	7	Incremental knowledge base
2	1						1									Intuitive decision-making
45	4	4	4	6	3		2	5	2	4	2	3		1	5	Understanding
5			1					1				2	1			Communication issue
7	2				1		2	1					1			Generational gap and issue for adopting technology
19			1	1	1			1		4		5	3	1	2	Infrastructure issue / structure
10			1						5	1		1	1		1	Lack of experience
3		1	1		1											Pace of work
7	5	1					1									Resistance to change
6		1					1		1			3				Retention issue - hope
8	1	2	1				2			1		1				Rythn of growth
28	1	8		3	2	2	5	4			1	1			1	Unbalance between worload and time
2		2														Motivation
																Reputation - image - Governance
8	3	1		2			1	1								Credibility
9		2		3				2							2	Governance - accountability
11	1	2		3			1	3	1							Reputation
2												2				Rhetoric
7	4			1	1										1	Transparency
14		3					5	1	3				2			Reward
37	10	3		3	1	4	1	2	2	6		2	1		2	Risk
21	4	2	1	2	2	1	2		1		1		3		2	Technology
9	3	4	2													Dependance / importance on technology
7		5		2												Investment in technology
	249	321	153	158	155	108	123	135	133	84	65	102	106	26	155	Totals

Appendix 13- DLT Coding: 2nd level – 68 codes

	An inspiring Leadership	Efficiency	Experience and knowledge	Fast and early adaptation to change	Focus on the value-added activities	Friendly work environement - stimulating job	Getting external knowledge	Having the right people	Possessing the right infrastructure / structure	Process-driven	Technology-intensity	Thorough knowledge of intangible assets	Thorough knowledge of its market	Uniqueness of the business / product	Worker Engagement	Client-centric	Collaboration - sharing	Communication	Change in working society	Changes in the demand/market/client	Constant mutation of the industry	Context-dependant	Evolution of business model	Importance of the intangible	Outsourcing	Regulation - compliance	Technology-intensity	Uncertainties	Velocity of change	Agility - adapation - reactivity	Anticipation - predictible	Flexibility	In-sourcing - Global intelligence	Ability to communicate - people person	Ability to stand back - challenge oneself	Being an implementer - make things happen	Broad knowledge of the business	Curiosity - adventurous - Independance	Deal with complexity	Empathy
1	1	1	3	2	2	3	2	1	4	7	4		6	4	6	6	5	2	1	1	1	5	3			2			2	2	4		1	2		3	2	2	2	
2	1	1	1		1	1			2		2				1																	1			1	1	1	1	
3		3	1		1	3	2		2	3	6	1		2	5		6	3									1			1	1		3	2	2			4	1	1
4	1	2	1	1	1	1	2	3	1	4	5	2	1	1	3	1	4		1		2	2								2		2		3		1	1	6	
5	1	2	4		1	1	2	1	1	1	3				2	1	3	1			1	1			1	1	1			1	1		3	2	2		3		4	
6	1	2			1	2	1			1			3	3		3	4			1	3	3	1						1	1	1			2	2	1	2	1	3	1
7		1	1			1	1		2	6	1		1	3	7	1	12	2	3		1									3	1		1	3		1	2	5	7	
8		1		2		3	1	1	1	4	2	1	3		5	2	7	4		1	4	6				4		2	2	1	1		1	3		1	3		5	
9	2	3			1	1			2		4	3	1	1	11	2	4	2	1	2	2		1		1	1	2	1	2	2			1	4	4	4	1	3	2	2
10		1	1		3	4	2	2	2	4	1		1		7		4	1		2		2			1	2		2	1	2			2	1	3	2	3	2	3	1
11		1	3		3		4	2	2	3	1		1	3	2	5	3	1	3	2	3	6	1		2		2	3	5	3	1	2	4	1	1	1	8		3	1
12		1	1	3	4	1		2	3	4	4				1	2	2	6	2	3	6	5	5		4	4	2	4	5	1	1	1	1	3	5	3	3		4	1
13	4	3	2		1	2	1	1			2		2	4	4	7	7	12	1											3		2	2	8	2		4	3	1	2
14	2	10	1	3	7		3	3	10	2	9	4	7	4	13	7	20	9	2	3	2	4			8	4	3	2	3	2	1	4	4	3	3	4	4		2	3
15	3	2	4	2			2	2	1	11	7	5	1	2	7	13	7	7	3	5	3	2	1	1	1	4	2	10	6	5	3	2	4	1	3			3		
Σ	16	34	23	13	26	23	23	18	33	50	51	16	27	27	74	50	88	50	17	20	28	36	12	1	18	22	13	24	27	27	17	11	30	35	30	21	37	25	44	12

Experience	Generate new ideas - strategize	Good listener - understanding	Multitasking	Open to change	Resilience	Rigour	Willingness to share knowledge and to learn	Ability to obtain the right information	Expertise in managing data	Information-intensity	Innovation and creativity	Process innovation	Internal client-supplier relationship	Learning	Ability to self-develop one's skills and knowledge-base	Incremental knowledge base	Understanding	Communication issue	Infrastructure issue / structure	Lack of experience	Resistance to change - Adaptation to technology	Retention issue - hope	Rythn of growth / pace of work	Network	Reputation - image - Governance	Risk	Trust and dependance	Totals
1	1	1	3	1	4	2	4		2	3	4	1			4	7	5		2	1			1	4	3	2	1	149
1		1	1				2			1					1	1	1		1					1				26
	1		2	2	1		2		1	3	7	2			4	5		1	3	1	1			2		1		93
	3	2	1			1			4	3	5	1	1			2	3	2	5	1		3	2	4	2	2	2	103
				1					3	3			2			2	2						1	4			2	65
3		1				2			4	4	2	1			1	3	4		4	1			1			6	2	83
5	4	3	1		2		5		6	5	4	2			2	7	2			5		1		1	1	2	1	125
2		4		2		1	3		3	6			3		3	7	5	1	1		1		4	3	4	2	3	129
2		1	2		2	4	1			2		2	1	1	1	4	2				2	1	5	1	2	1	1	110
3		1	2	2	1	1	2		2	2	1		1		4	4							2	2		4	1	97
3	1		5	3	2		2			2	1	1	1		9	7	3		1		1		2	2	1	1	2	136
2		2	3	1		3	1	4	2	6		1			1	1	6		1				3	2	6	3		145
3		1	2		1	1	3	1	2	3	4				2	7	4	1	1	1			2	7			4	130
3	4		6	1	1	4	5	4	1	6	7	6	6		2	10	4				1	3	11	6	3	3	7	279
3		1	1		1	1	4	2	2	1	8	4			1	4	4				6	1	2	3	8	10	10	213
31	14	18	29	13	15	20	34	11	32	50	43	21	15	1	35	71	45	5	19	10	12	9	36	42	30	37	36	

Appendix 14- DLT selective coding 19 codes

	Collaboration - Sharing	Communication capabilities	Competitive and Sustainable Advantage	Employees specific-skills set	Entrepreneurship	Experience and knowledge	Firm's processes	Flexibility	Incremental knowledge base	Industry change	Innovation and creativity	Leadership	Market-driven	Outsourcing and in-sourcing	Staff Self-Development	Structure and infrastructure	Structure and infrastructure issues	Technology-intensity	Worker Engagement	Totals
1	6	2	14	6	8	5	7	4	13	13	5	2	12	4	4	7	3	4	6	125
2			2	2	2	3		1	3	1		1		1	1	3	1	2	1	24
3	6	4	8	4	5	1	3	3	6	3	7			4	4	4	4	7	5	78
4	4		7	9	4	4	4	1	5	8	5	1	4	5		2	13	5	3	84
5	4	3	4	7	2	7	1	2	3	5		1	1	6		2	2	3	2	55
6	4	2	9	4	4	4	1	1	6	12	2	1	5	1	1	2	6			65
7	12	5	6	11	7	6	6	3	11	9	7	1	2	3	2	3	6	1	8	109
8	8	4	4	7	2	6	4	4	14	12			8	3	4	4	6	2	5	97
9	4	6	9	3	9	4		2	6	8	2	2	4	4	1	3	11	5	11	94
10	6	1	4	7	6	7	4	4	5	6	1		1	4	5	5	2	1	7	76
11	5	2	3	7	4	11	3	7	11	14	2		5	5	9	2	4	2	2	102
12	2	4	5	9	9	6	4	4	7	22	1		7	4	1	4	4	5	1	99
13	10	13	8	4	4	6		5	11	4	4	4	8	7	2	2	3	2	4	101
14	23	8	22	10	7	11	2	5	14	17	11	4	14	13	2	12	15	10	13	213
15	14	4	15	6	4	9	13	7	13	26	12	4	23	7	1	3	8	8	7	184
Σ	108	58	124	96	77	90	52	53	128	160	59	21	94	71	37	58	88	57	75	

Appendix 15 - Definitions finalised for DLT's themes

Codes	**Definitions** *(Alphabetical order)*
Collaboration - knowledge-sharing	The different participants work together, share information and knowledge. This involves trust with other internal business partners and the willingness to share knowledge and or to learn. Collaboration and knowledge sharing is also a disposition that extends to external networks. It also involves internal client-supplier relationships. Implies important relations of trust and dependence among participants and during work. Trust and dependance refered to the degree to which employees can work together without mental restrictions. Trust and the quality of the dependance relations are facilitated by a relevant working atmosphere and good leadership. Importance of having a network and networking while doing business
Communica-tion capabilities	This is part of soft skills and be a people person. This refers to the ability to communicate and listen efficiently such as being able to sum up an idea and explain the core. This implies the ability to understand and connect with an audience in order to provide a relevant answer.
Knowledge based competitive and sustainable advantage	This theme encapsulate the competitive edge the company has develop in order to single itself out from competitors and develop a long term potential for growth and development. *Unique products and methodologies*: Skills, products and methodologies that are unique to the firm.This encompasses the ideas of being able to provide the product the market awaits and that provides a substantial lead on competition.A competitite advantage can also emerge from specific organisational culture and risk management. *Efficiency and quality*: Intent of the different members of the firms in improving the business, projecting themselves in the long run. The firm invest in time, paper and low-skilled work technologies, processes and techniques. Deadlines are fully and rigorously met. The firm demonstrates a committment and focus into delivering performance and being efficient in their actions towards clients. Ability of the firm to adapt its structure and infrastructure in order to foster and nurture the value-adding activity and / or frame better the ones carrying a higher risk potential. It is concerned with crafting tailored business solutions. *Organisation's credibility*: This outlines the importance of perception, image, and the concern of the firm into establishing strong credentials on the market, showing good governance. The firm is aware of the importance of perception and is committed into building gradually its image and brand. Importance of perception, transparency and integrity while creating value.The firm thrives to establish a clear and readable identity.
Employees specific skills set	Staff members multitasking and analytical capabilities;ability to deal with complexity; expertise in managing data and getting the required output. Preference and investment in independent sources of information. Ability to conceptualise and identify a philosophy of investment; Ability to select the right data / information + capacity of analysing, and making most of huge amounts of information.

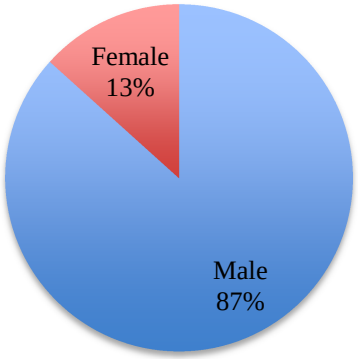
Entrepreneur-ship	Risk taking, opportunity detection, openness to change, ability to stand back, challenge oneself and act autonomously; ability to take a decision and implement it (make it happen); curious and adventurous nature; resilience, astuteness, intuition. Capability of interpretation and establishing a vision.
Experience and knowledge	Experience, knowledge and talent existing among staff members: deep and thorough knowlege of the business, knowledge diversity, expertise. People-driven business, importance of human capital (shared belief in the value of the intangible amond workers). Technology skilled staff.
Firm's processes	In-house processes driving the major activities of the firm. These are driven by solid, well-established, clear and transparent processes that have been created within the firm. Existence of portfolio of Intellectual Property Rights.
Flexibility	Flexibility and agility describe the intent of the firm in improving the business, projecting themselves in the long run. This refers to the agility of the firm to react and adapt to new circumstances rapidly and early enough and in an innovative way. It refers to its renewal capital and its ability to strengthen its capabilities and change the business when required. Evaluating and assessing how the business should adapt.
Industry changes	*Business model evolution*: mutation of the prevailing business models in Asset Management and industry contexts: (i) the development of sub-contracting, and (ii) increasing importance of regulation and compliance (issues of governance and transparency). *Socio-economic evolution*: Changes in the demand and markets (structural and chronic instability since 2006); changes in the working society. Prevailing financial distrust; the fiduciary is broken. Irish market unprecedently open to global competition (ie global players competing with traditional Irish players triggering a need to be innovative). Competetion intensifies and changes occur at a high rythm and on a large scope. Workers needs (work-life balance) and ways of working are evolving too (importance of google and reliance on mobile technologies). *Industry risks and uncertainties*: General economic and financial uncertainties in the industry and for the AM firms. Uncertain climate worsened by the unpredictability of constant new regulation (and resources that must be mobilised to deal with it). This creates an instability for business operations, ownership (changing shareholders), and long term projections. Exposure and sensisitivity to the contemporary business context; legacy of crisis 2008. Awareness of the firm in relation with this context. *Information intensity*: Extensive volume of information available through the internet
Incremental knowledge base	Dynamic approach on learning and constantly building the knowedge base of individuals and the firm whatever the context; building a learning curve. This also involves some level of restitution, willingness to share knoweldge and learn, in the form of continuous improvement or incremental innovation. Heuristics is one of the favoured avenue. Learning processes and understanding.
Innovation and creativity	Capability of the firm in being different and better. This involves incremental innovation (continuous improvement), creativity, invisible innovation (little incremental progress of significant value and impact on the final outcome), open innovation, process management improvement, product innovation. Staff members generating new ideas and strategizing are also part of this.

Leadership	Strong and active leadership - transformational leadership. The leader provide a clear direction and vision e to the employees. Inspiring leadership: leading by showing the example.
Market-driven ethos	The firm is client-centric. It's activity is driven by clients needs and markets. This implies a culture and expertise in understanding clients needs and the ability to deliver customised products and services. Long term relationships buiding. Involves the capability of staff to market and sell the product while being client-centric.
Outsourcing and in-sourcing	Orientation of the firm toward opening its activites and business model to global intelligence. The firm thrive to build tight relationships with its business partners. It tends to base its value-creating process in developing a synergy between its own knowledge base and the external knowledge it harvests.
Staff Self-Development	Ability of staff members to develop their skills and knowledge-base autonomously. They are capable to take care of their own careers path, to market and train themselves while taking control of their own learning process.
Structure and infrastructure	The firm possesses the relevant legal and competitive structure and infrastructure as well as the *ad hoc* structure that allows the business development. This encompasses a minimal required set of skills, a certain financial power and stability and a solid compliant organisation.The Central Bank licence (authorisation) is also important.The firm displays flat hierarchy, a stimulating atmosphere for staff learning and development.
Structure and infrastructure issues	This theme encompasses issues related to the foundation of the business: innovation-minded leaders versus staff with a lack of experience and a lack of perpectives for development; staff motivation issues (due to limited internal horizontal and vertical communication and understanding; lack of understanding and empathy from the hierarchy); staff retention issue; Staff evolution issues (lack of experience; resistance to change and adaptation to technology or lack of belief in the vision). *Unsustainable growth*: Company's growth rate is unsustainble with the current pool of employees. There is a mismatch between workload and time allocation; high pace of work.
Technology-intensity	The firm relies on IT technologies, sofware and hardware. This refers to the technological skills individuals have inside the firm. Also, information intensity or need to deal with huge amounts of information. Indicates substantial investment in technologies
Worker Engagement	Emotional connection of employees towards the firm. Emotional engagement in their activities amidst a rewarding work and environment. Willingness of the employees to operate outside their comfort zone.

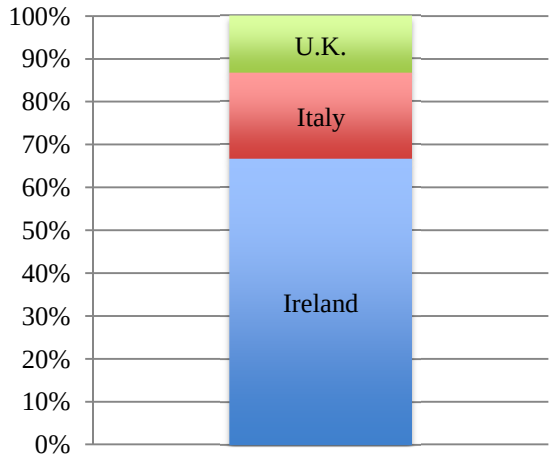
Appendix 16– DLT staff interviewed profile

ID code	Country	Total expe-rience	Exp.at mana-gement level	Years spent in DLT	Nb of previous firms	Education level achieved	Prof. Qual.	Investment Strategies	CFA
DLTC1	Italy	21 to 25	16 to 20	16 to 20	>2	Degree	0	Yes	No
DLTC2	Ireland	16 to 20	5 to 10	>2	2 to 4	Master	2	No	No
DLTC3	Italy	25+	11 to 15	6 to 10	2 to 4	Degree	0	Yes	No
DLTC4	Ireland	16 to 20	11 to 15	>2	2 to 4	Leaving Cert.	1	Yes	No
DLTC5	Ireland	21 to 25	11 to 15	6 to 10	2 to 4	Degree	1	No	No
DLTC6	Ireland	5 to 10	> 5	>2	2 to 4	Master	0	Yes	No
DLTC7	Ireland	25+	16 to 20	16 to 20	5 to 6	Degree	0	No	No
DLTC8	Ireland	5 to 10	5 to 10	2 to 5	2 to 4	Degree	2	Yes	No
DLTPM1	Ireland	11 to 15	> 5	>2	2 to 4	Master	1	Yes	Yes
DLTPM2	U.K	5 to 10	> 5	2 to 5	2 to 4	MBA	0.5	Yes	WIP
DLTPM3	Ireland	>5	> 5	>2	2 to 4	Master	0.5	Yes	WIP
DLTPM4	U.K.	16 to 20	5 to 10	>2	5 to 6	Degree	1	Yes	No
DLTPM5	Ireland	> 5	> 5	>2	2 to 4	Master	1	Yes	WIP
DLTS1	Ireland	5 to 10	> 5	2 to 5	2 to 4	Degree	0	No	No
DLTS2	Italy	5 to 10	> 5	>2	9 to 10	Degree	0	No	No

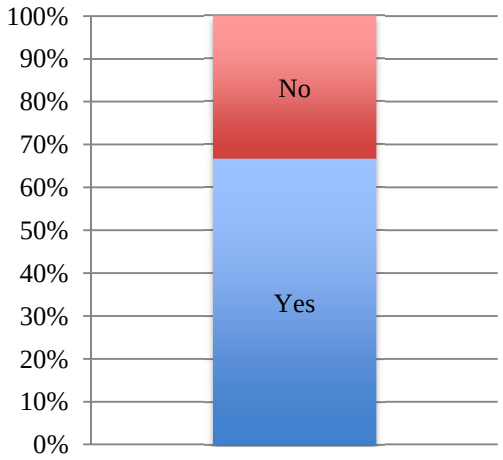
Staff gender



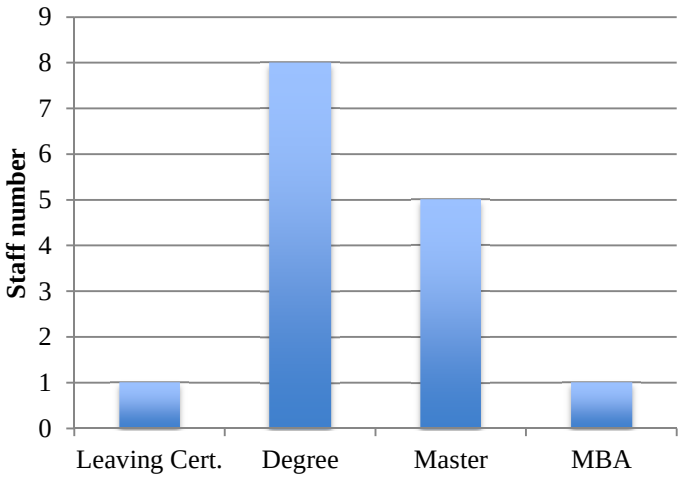
Country of origin



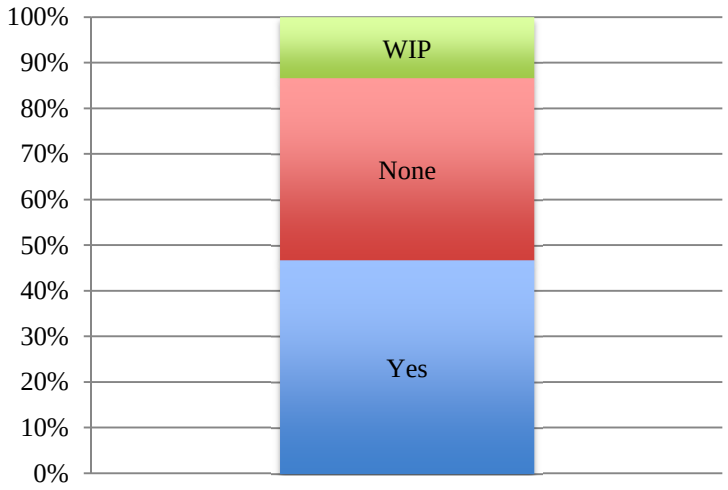
Involvement in investment strategies



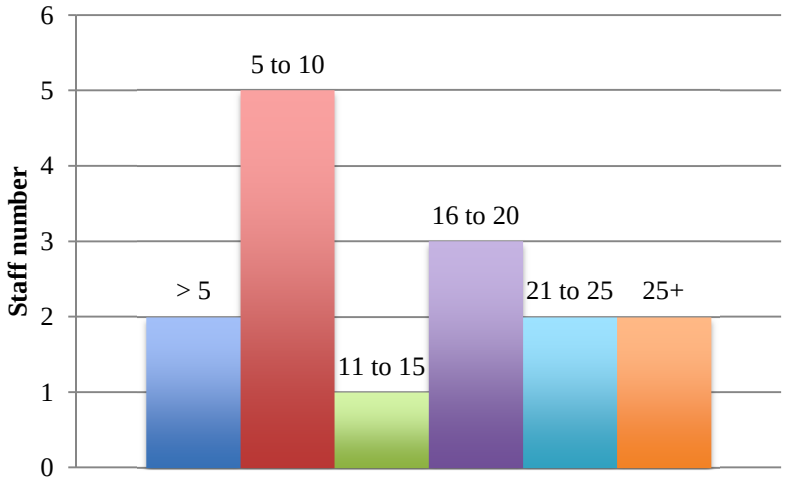
Highest level of education achieved



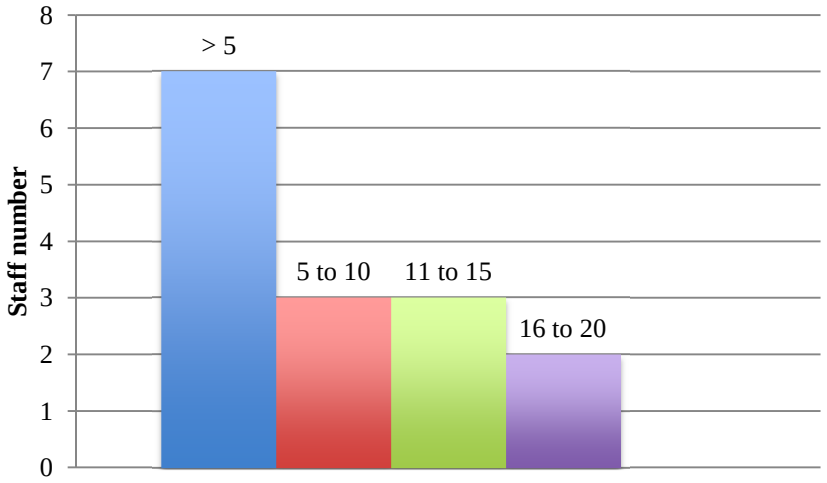
Staff endowment in professional qualifications



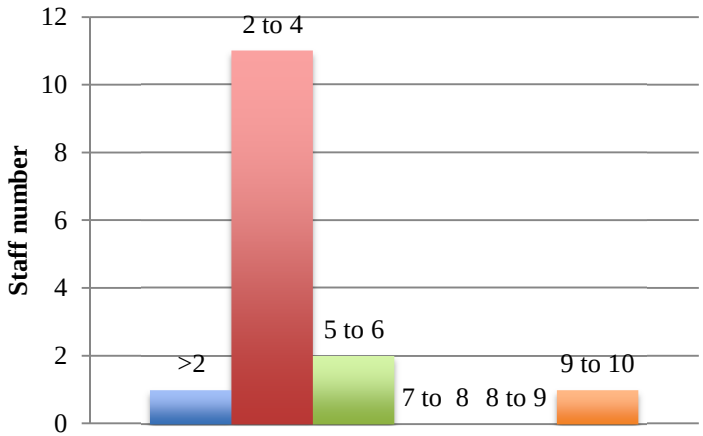
Total years of professional experience



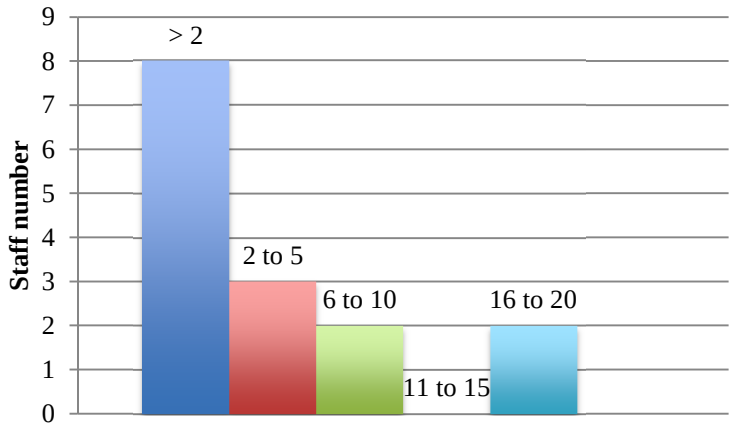
Total years of experience at management level



Number of firms in which staff worked prior DLT



Years of experience in DLT



Appendix 17 – DLT supporting tools for building an incremental knowledge base (extract)

For the investment company, capturing the intangible value of its assets rested on establishing and/or acquiring tools that were formalised in an Intellectual Property Portfolio officially protected. This encapsulated but was not limited to the following:

Tool	Description
Del3	This was DLT's proprietary investment management process composed of 8 stages. Del^3® was a rigorous and disciplined investment process that captured internal and external know-how and expertise. It enabled the investment firm to manage any type of product and investment strategy, thanks to its adaptability and flexibility. This tool provided forums for all teams within the investment area to collaborate and contributes to the investment process.
DelLab	This is a cross-functional working group made up of a small group of people from Delta Irish Operations who were dedicated their time in developing the asset value of innovation in financial services and empowering the Intellectual Property of the company.
DeltaSync	This was a product development system and client solutions supporting device. These were developed, supported and evolved via DeltaSync, their in-house product development process.
Delta virtual library (DVL)	This was a training tool. This consisted in an on-line knowledge bank launched in mid 2013, DLT's conventional library facility, and e-learning access for IT skills development. During 2013, the employees of DLT plus its sister Irish companies completed nearly 8,100 hours of training.
DelCred	This was an internal system of reward. This consisted in an online collaboration tool that the company has developed that enables employees to recognise and reward others who make time to assist colleagues.
Knowledge-Sharing Platform (KSP)	KSP was developed to facilitate the rapid transfer of knowledge across functions and geographies as well as to capture the tacit knowledge of the firms' internal human resources. The KSP was an idea management tool involving local and Group stakeholders and guaranteeing maximum transparency and collaboration among the different stakeholders that often inadvertently work in silos when it comes to managing their relationships even if they are all dealing with the same provider.
Idea System (IS)	External contributions are captured in a cloud-based idea system. This should have become a centralised on-line platform for local and Group stakeholders to improve the collection of information, dissemination of updates and evaluation of new product ideas and services of the various consultants, providers and partners, guaranteeing maximum transparency and collaboration among the different stakeholders.
Content Workflow System (CWS)	The goal of this tool was to facilitate automated workflows involving many users across many departments to consistently achieve defined process goals. It provided a single structured repository containing all significant company documents accessible across the company with a controlled access to documents due to internal and external compliance and audit requirements.
Map Uncertainties	This was a tool that was not finalised. Its aim was to organise a system or process in order to improve the readability of potential risks emerging from the industry.

Appendix 18– Extract of excerpts for *'incremental knowledge based codes'*

Doc. Title	Packg	End	Excerpt Copy	Codes Applied Combined
DLTC1	14522	14860	And as much as important is the leadership, making sure that… I'm not talking about hierarchy here. You need to have people within a framework, processes that are able to demonstrate and to leverage on their own leadership to make sure that things are repeatable. That is exactly where you can see everything….it's just a refining process.	Leadership, Incremental knowledge base, Firm's processes
DLTC1	14861	15546	So, if you go back to the origin, why we have MedinSync, why we have Med3, why we have Map in the Rocks, why we classify the product and we evolve the products based on a number like software. If you look at the product, the name is based-brand high-yield. But in reality you know, the reality is, for an internal coding, you have based-brand high-yield 4.7.5 which means that you have three different codes. The first one tells you how many times the prospectus has been changes, the regulatory documentation has been changed, how many times there have been changes on the investment strategies and so on and the third one, how many managers do you have changed within the portfolio.	Incremental knowledge base, Experience and knowledge, Firm's processes, Innovation and creativity
DLTC1	18946	19213	So when you start from something that is built in the process in your journey, then automatically you're opening up to look at more and more avenues in order to increase your global intelligence, your intellectual capital. When you are in a journey, you are evolving.	Firm's processes, Incremental knowledge base, Experience and knowledge, Innovation and creativity
DLTC1	21227	21341	And then you have people saying that it is a people business and then they're repeating it again, again and again.	Incremental knowledge base
DLTC1	37212	37491	I like to explore what others are doing, I like listening to many people, not only the ones involved in financial services. I look at how our industry is dealing with certain issues because the issues with our clients and consumers are not the problem of financial services only;	Entrepreneurship, Employees specific-skills set, Incremental knowledge base
DLTC1	17628	17849	Well, for 2008, we had actually more inflows than outflows, because we had always every quarter positive inflows, simply because, number one transparency, you know communicating to your client, explaining to your clients;	Firm's Credibility, Incremental knowledge base, Communication capabilities
DLTC1	33498	33676	You need to explain to people and to let people understand what is your vision and you need to be able to explain the people what is the value for them in buying in this vision.	Communication capabilities, Incremental knowledge base

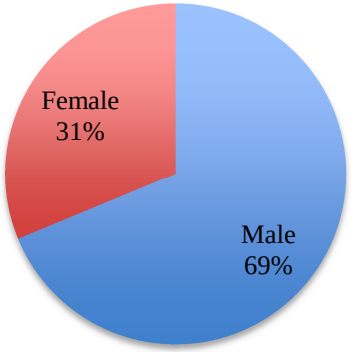
DLTC1	34837	35313	Being curious is about questioning things around you. I have nothing special than anybody else; I think that I am a good practitioner at what I am doing. If I look at more successful people, if I look at our group founder, he's a man that became a billionaire starting from a salesperson, you look at this person, and you look at how he speaks, I know him for many years now. Then if you don't ask questions, if you don't try to understand, you need to learn from this people.	Staff Self-Development, Entrepreneurship, Incremental knowledge base
DLTC1	22466	22776	Then it means that maybe it's not the right one. That is also driving the priority in investment of the company. So if you think about the market, more than 85% of the value is explained by the intangibles. But we need to be able to determine what is the intangible and that's why it is important to search it.	Efficiency and quality, Incremental knowledge base
DLTC2	5433	5615	So what we do is that we manufacture the product here and then it is up to the Home Traders in their discussion with the client to recommend what is the best product of the client.	Collaboration - Sharing, Incremental knowledge base, Communication capabilities, Outsourcing and in-sourcing
DLTC2	14527	15015	And the media as well because we have a lot of interactions with the distributors, so have the technology in there, we can make presentation and have regular interactions with the distributors. So, we have a lot of the funds team, especially C3, the head of investment because he is Italian, he spends a lot of time giving presentations to Home Traders and distributors in Italy explaining the products that we are trying to sell and increasing their knowledge so they can stand better.	Information-intensity, Collaboration - Sharing, Incremental knowledge base, Market-driven, Innovation and creativity, Employees specific-skills set, Communication capabilities
DLTC2	22568	22869	So, lot of the time I spend is bringing people along with the vision that we have, trying to explain to them why we are doing things, trying to make sure that we are working together because everybody can fall into their silos and get buried into the day to day, especially with the regulatory stuff.	Incremental knowledge base, Communication capabilities
DLTC2	38583	38872	The portfolio manager has been giving training on derivatives last week and other senior regularly to this kind of in-house training, they try to educate their team. And they're probably a lot of the value added in the company and that is why they spend so much time training their teams.	Collaboration - Sharing, Incremental knowledge base
DLTPM1	16313	16621	I believe in giving a man a shovel rather than give him a bag of food. So, I try to teach how to know, how to learn, do it themselves. the hard part is sometimes is that sometimes they're not following the way things should be done, or missing things. I trying to get the best and the ideas out from people.	Communication capabilities, Employees specific-skills set, Incremental knowledge base, Leadership
DLTPM1	20845	21001	They are the two pillars on which the investments are built. When we are explaining to retail network, we go through this which explains the other details.	Incremental knowledge base, Communication capabilities

DLTPM1	13144	13382	Sometimes I do thinks that is wrong but the great or good is to share it and to do with what we have. So the answer to your question is that I probably gone a bit further than average but I do not regret it because it is the greater good.	Collaboration - Sharing, Worker Engagement, Incremental knowledge base
DLTPM1	11227	11347	I feel I can connect the dots a lot. And then also my ability to teach and work at a team member. So as the team member.	Communication capabilities, Collaboration - Sharing, Incremental knowledge base, Employees specific-skills set
DLTPM1	4572	4899	So what is different about that compared to what other people do? Other people might focus on fundamentals alone, some add some position. We put much emphasis on the three. Another part of our edge is that we put a lot of focus on the sentiment or how people perceive the market and when do we think that is gone to extremes.	Competitive and Sustainable Advantage, Market-driven, Incremental knowledge base
DLTPM2	5441	6035	PM2: From a fixed income perspective as I used to work on the sale side, not for a very long time but the curve is very steep. I always go back to that…. when I was constructing the portfolio, you have to know a lot of the names within the space and this is where I learned a lot of the intricacies of the credits, specifically on the high yield. Because the high yield has expanded hugely and it is has been a very important facet of the portfolio. It was an immature asset class 5 years ago compared to today. The learning curve there was very steep but it is very relevant to what I do now.	Incremental knowledge base, Information-intensity, Experience and knowledge
DLTPM2	2249	2997	Three discipline which is particularly broad. Everything else within the fixed income universe, we do it. That is a unique opportunity in the market; it is extremely broad. I know that by experience; dealing with larger organisations, you would have PMgs who would be siloed. You would be sovereign, you would be regionally affected….. sliced and diced because you would have more resources. As here, we are only four people managing the funds, 80 funds. In addition to managing three funds which the other guys have input to, as it is predominantly fixed income then it fall into my domain, in addition to the actual management of the funds we run an overlay strategy [asset allocation] over the challenge umbrella, portfolio umbrella. But also…	Employees specific-skills set, Information-intensity, Incremental knowledge base, Competitive and Sustainable Advantage, Flexibility, Experience and knowledge, Structure and infrastructure
DLTPM2	6355	6641	Then I moved to City until to 2007, there was more responsibility there and we were doing more report work. So I'd work more closely with traders on the treasury desk because City would have huge amounts of cash … I learned attention to detail again; you get a feel for how people work.	Incremental knowledge base, Experience and knowledge, Efficiency and quality

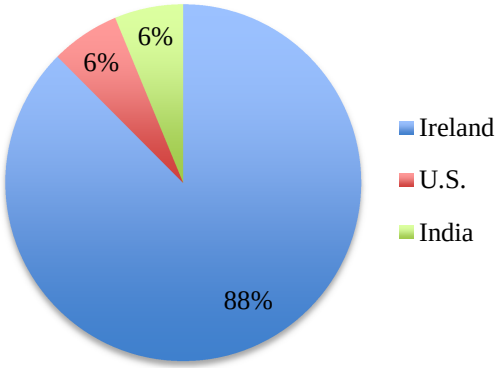
Appendix 19 – KPS staff interviewed profile

ID code	Country	Total expe-rience	Exp.at mana-gement level	Years spent in KPS	Nb of previous firms	Education level achieved	Prof. Qual.	Investment Strategies	CFA
KPSC1	Ireland	25+	21 to 25	20+		Degree	0	No	No
KPSC2	Ireland	25+	21 to 25	20+	2 to 4	Degree	2	Yes	Yes
KPSC3	Ireland	25+	16 to 20	20+	2 to 4	MBA	4	No	No
KPSC4	Ireland	25+	11 to 15	11 to 15	2 to 4	Degree	3.5	Yes	No
KPSC5	Ireland	21 to 25	11 to 15	2 to 5	2 to 4	Degree	0	No	No
KPSC6	Ireland	11 to 15	>5	2 to 5	2 to 4	Degree	2.5	No	No
KPSC7	Ireland	25+	21 to 25	20+	1	Degree	1	Yes	Yes
KPSPM1	Ireland	11 to 15	5 to 10	2 to 5	2 to 4	Degree	0	Yes	No
KPSPM2	U.S.	11 to 15	>5	2 to 5	5 to 6	Master	1	Yes	Yes
KPSPM3	Ireland	16 to 20	5 to 10	6 ot 10	2 to 4	Degree	1	Yes	No
KPSPM4	India	16 to 20	5 to 10	6 to 10	5 to 6	MBA	1	Yes	Yes
KPSPM5	Ireland	11 to 15	5 to 10	6 to 10	1	Master	0	Yes	No
KPSPM6	Ireland	11 ot 15	5 to 10	11 to 15	1	Degree	1	Yes	No
KPSPM7	Ireland	11 to 15	5 to 10	11 to 15	1	Degree	1	Yes	No
KPSPM8	Ireland	25+	21 to 25	11 to 15	2 to 4	Master	0	Yes	No
KPSTM1	Ireland	5 to 10	> 5	6 to 10	2 to 4	Master	1	Yes	No

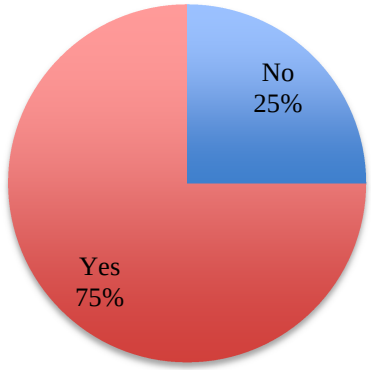
Staff gender



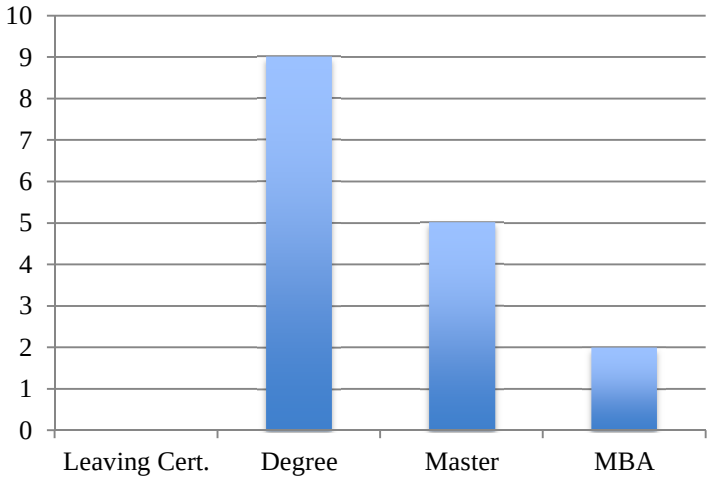
Country of origin



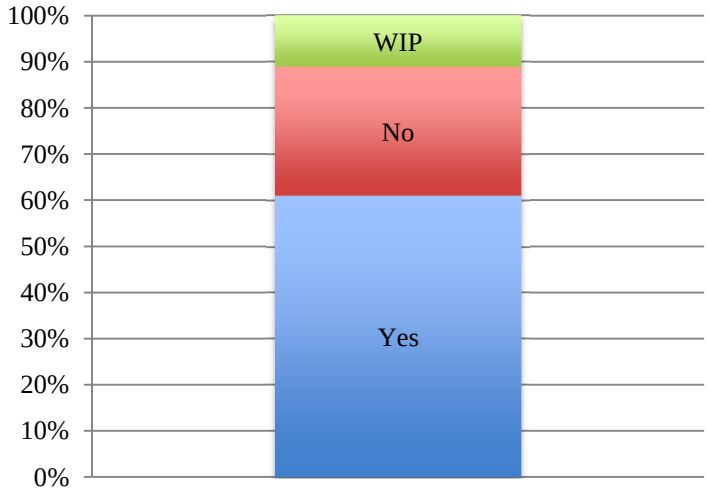
Involvement in investment strategies



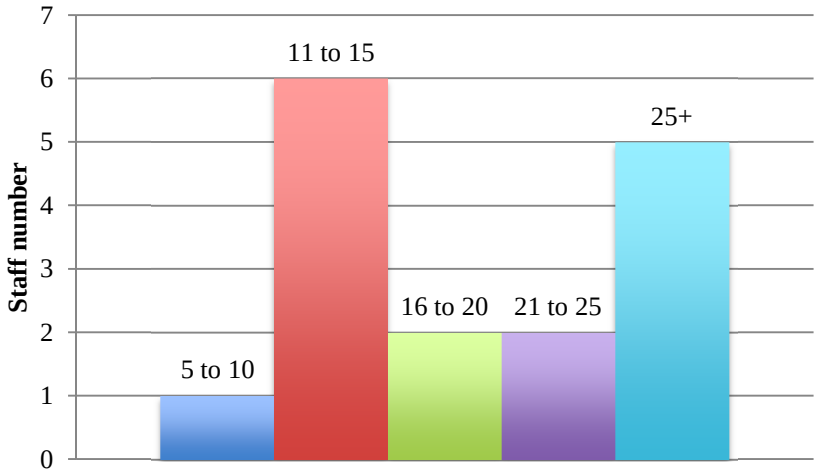
Highest level of education achieved



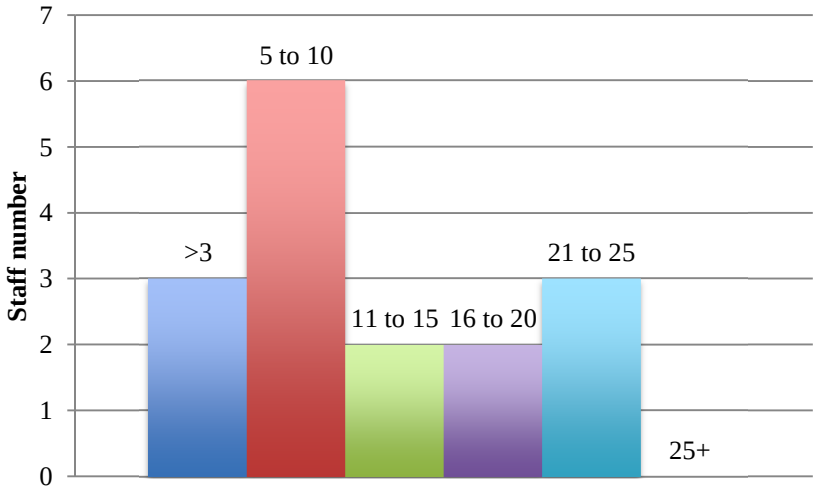
Professional qualifications



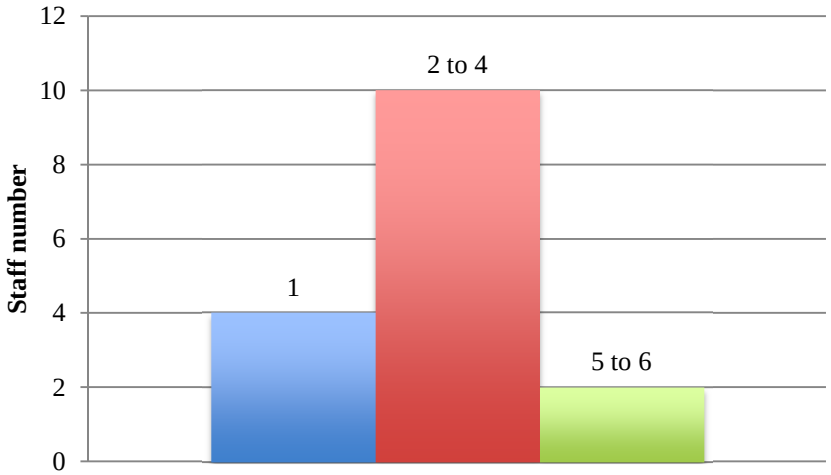
Total years of professional experience



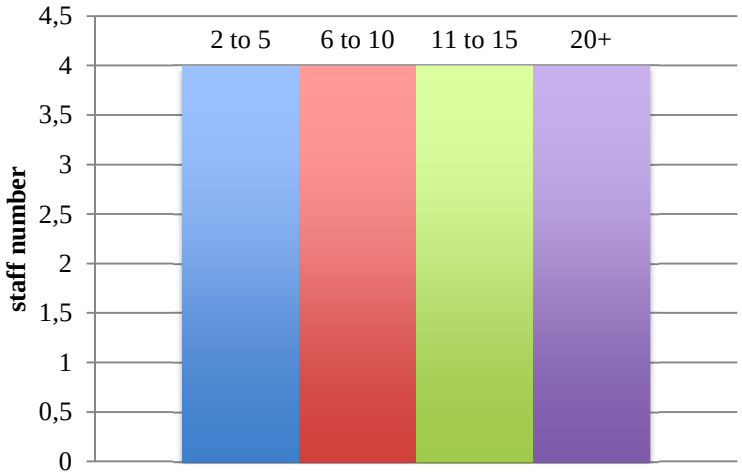
Total years of experience at management level



Number of firms in which staff worked prior KPS



Years of experience in KPS



Appendix 20 - KPS Open coding: 91 codes*

Id	Titles	Description
2	External Network - networking	
3	Internatl Client-supplier relationship	
4	Personal network	
5	Trust	
6	Dependance	
7	Collaboration - sharing	
8	Communication	
9	Limitations and challenges	
10	Frustration sentiment / angry	
11	Lack of curiosity / willingness to build knowledge	
12	Lack of tech skills	
13	Resistance to change	
14	Sharing knowledge	
15	Resource issue	
16	Lack of leadership	Management failure to address issues
17	Structure and Infrastructure issue	Corporate culture
18	Redundancies and trauma created	
19	High / unsustainable pace of work	+ Split between fund management and marketing/sales
20	People attitude - behaviour - engagement	Lack of entrepreneurship spirit / Lack of engagement
21	Retention issue - People dependance	Lack of perspectives / opportunities
22	Generational gap - category gap	Lack of a middle manager???
23	Comm./ Empathy / understanding gaps	Perception about the lack of perception of management / Lack of recognition Strong resentment
24	Time management	
25	Lack of perspectives / opportunity	
26	Lack of diverisity among the staff	
27	Sources of information and management	Risks
28	Potential underused - loss of opportunities	Asset that is not used efficiently / Lack of oversight and scope (too focus on certains aspects and overlooking the other ones) / Loss of opportunity
30	Ad hoc lay-out - facilities	
31	Efficiency - Deliver perf.	
32	Business technology-intensity	Investment in technology
33	Getting external knowledge	Getting dependant and independant knowledge (but with personal interpretation)
34	Low turnover in staff	Staff stability
35	Niche knowledge - knowl - Exp	
36	Process driven	
37	Thorough knowledge of the business	including people / Client centrered
38	Transboundaries work	Working within and outside the organisation
39	Focus on the value-added / risk activities	Tailored business solutions
40	Structure and infrastructure	Flat - simple -minimalist
41	Worker engagement	
42	Client-centric	Long term relationships - familiarity
43	Be compliant - control	
44	In-sourcing - Suppliers... relationships	About keeping control -
45	Diverse - variety of work - rich	
46	History-driven outcomes	

47	Business stability	if too much interventions ==> blurs the impacts of the decisions
48	Anticipation and adaptation to change	Evaluation - assessment
49	Outsourcing	
50	Leadership	
51	Good / stimulating work environement / communit	Good quality of the relationships
52	Intangible asset	Intellectual property
53	Unique business / product / methodology	Unique skills that are unusual in the business
54	Reputation - image - credentials	Governance
56	Bullish market	
57	Change in the market / demand	
58	Compliance / product regulation	
59	Velocity of change	
60	Restructuring - Redundancies	
61	Crisis 2001 -2008	
62	Transparency	
63	Industry mutation - business model change	
64	Context dependant	
65	Industry knowledge intensity	
66	People centric - dependant	Importance of key people - individualities
67	Uncertainties - stress/pressure	
68	Importance of perception	
69	Information-intensity and importance	Volume + content importance
70	Innovation	
71	Incremental - invisible innovation	
72	Product innovation	
74	Learning / work intensity	
75	Understanding - perception - add value	
76	Testing - heuristics	
77	Incremental learning	Learning continuously
79	Primary data	
80	Information from social networks / media	
81	Information sources	
83	Ability to market / sell the company	Build a profile, a reputation / Relationship building
84	Ability to make a decision - judgement	
85	Ability to market oneself / manage its skills evolution	Awareness of one's personal value
86	Creativity	
87	Transferable skills	
88	Technology skilled	
89	Willingness to learn and share	
90	Rigour / attn to details	
91	Soft skills - Communication - understanding	+ social interaction
92	Committment - conviction	work dedication
93	Agility - adapation - reactivity	Stay up to date
94	Curiosity - Autodidact - Independance	Entrepreneurship - accountability
95	Deal with complexity - Analytical skills	Multitasking / Conceptualising - philosophy of investment / Ability to select the right data / information
96	Ability to stand back - challenge oneself	Capacity of interpretation -/ Competition / drive for efficiency / Cold head
97	Experience - knowledge = Expertise	Deep knowlege of the business / Knowledge diversity

***** This version of open coding is related to the loss of data that occurred when Dedoose system had a major failure.

Appendix 21 – KPS selective coding: 65 codes

	Anticipation and adaptation to change	Be compliant - control - best practices	Business stability	Business technology-intensity	Client-centric	Efficiency - Deliver perf.	Focus on the value-added / risk activities	Getting external knowledge	Good / stimulating work environement / communit	Niche knowledge - knowl - Exp	Process driven	Reputation - image - credentials	Structure and infrastructure	Thorough knowledge of the business	Transboundaries work	Unique business / product / methodology	Collaboration - sharing	Network / networking	Trust and dependance relationship	Ability to make a decision - judgement	Ability to market / sell the company	Ability to market oneself / manage its skills evolution	Ability to stand back - challenge oneself	Agility - adapation - reactivity	Committment - conviction	Curiosity - Autodidact - Independance	Deal with complexity - Analytical skills	Experience - knowledge = Expertise	Soft skills - Communication - understanding	Technology skilled	Transferable skills	Willingness to learn and share	Change in the market / demand
KBITM1				3		4	1		2				3		3		2	2	1			3			1	6	4	4		4	1	2	1
KBIC5		1	4		11	4	4	1	1	1		8	2	1	2	5	1	7	3	1	9	3	4	4	3	3		5	8		1	4	1
KBIC6	4	12		1	2		5	3	6		1	4	2	1	3	2	1	1	1	2		1	2	3	4	2	3	1	1	3	1	1	
KBIPM8	6	7	4	5	4	6	8	2	2	1	6	2	1	1		3	7	1	8	6	1		7	1	7	1	6	2	2	1	1	1	
KBIPM7		2		2	1	1		1	6		2	2	3		1	1	8	3	4	1	1	3	2	3	5	3	4	3	2	2	4	7	
KBIPM6	1	1	1			2		3		4	1					3	5	2	1	2			1		3	1	5	2		1	2	1	1
KBIPM5			1	1		6		8	2	1				1	4	1	4	2	1	5		2	2		2	2	5	4	6			3	
KBIPM4			2	1	1	4	1	4	2	1	2	4	1	4	1	4	5	2		4	1				4	3	3	6	1			4	
KBIPM3	3	1		1		2		2	1	2	2	1	1	3	3	4	10	2	2	7		5	5	6	4	8	4	3			3	4	2
KBIPM2					1	2	1	6			1					2	4	4	1	4	2	3	4	1	2	6	5	3	4	2	1	4	
KBIPM1	1	2			2	5	4	6	4	6	1	2	2	3	2	6	9	5	2	3		3	1	2	6	4	5	8	8		1	9	
KBIC7	3	2	1		1	1	4	1	4	1		5	6		1	1	7	2	2	2	4	1	4	1		1	4	2	5			2	2
KBIC4	5	6	1	1	1	2		6	2		1	3	1		1		3	3	1			1	1	1	3	2	2	2	3	2		4	
KBIC3	4	5	2	5		14	10	2	2	1	5		3	1	1	4	3	1				1	1	3	2	1	6	6	2	2		3	2
KBIC2	2	4	2	2	1	11	2	2	1	1	1	5	8	2	1	2	6	1	3	9	2	2	1			1	2	5	9				
KBIC1	18	1	4	3	4	4	9	5	1	10	5	8	6	5	1	8	12	5	10	2	1		2	5		4	1	8	1	1		1	11
Totals	47	44	22	25	29	68	49	52	36	29	28	44	39	22	24	46	87	43	40	48	21	28	37	30	46	48	59	64	52	18	15	50	20

Compliance / product regulation	Context dependant	Industry mutation - business model change	Information-intensity and importance	People centric - dependant	Innovation	Incremental learning	Testing - heuristics	Understanding - perception - add value	Comm./ Empathy / understanding gaps	Frustration sentiment / angry	Generational gap - category gap	Lack of diversity among the staff	Lack of leadership	Lack of perspectives / opportunity	Lack of tech skills	People attitude - behaviour - engagement	Potential underused - loss of opportunities	Redundancies and trauma created	Resistance to change	Resource issue	Retention issue - People dependance	Sources of information and management	Structure and Infrastructure issue	Work density and variety	Risk and uncertainties	Totals
	4		3		1	5		1	1		2				1		2	2						3	1	73
	1	1				3		2	1	1			2		1	3	1		1				2			121
3	1		3		1	3																	2		1	87
	5		3		5	8	8	4	3	4								2					3		3	158
	2				1	2		1	4	2			1										2	2		94
	5		1		3	3			4	7	1		2		1	4		1		2	1	1	1			80
	1	1	2	4	1	5	3	5	5	11	5	1	3	2	1	2		2			9		4	2	1	133
1	2		3	4	3	9	4	1																1	3	96
1	4	1	1	3	4	6	3	5	1	1												1	1	2	1	126
	4		4	2	2	12	3	6	7	8						1	2		2	4	2	2	1		1	126
1	3	1	1		6	17	2	10														1		1	1	157
2	2	2	2	1	1			2	1	1	1	2	2	1		1	1	1	1	1			1	2	1	99
3	4		2		1	6						1								1			1		1	78
3	2	1	2	3	9	6		3	2	1		1	1				1	2			2	1			3	135
1	1			7		1		6	2	3							1	1	2	1	1		3	1		119
2	18	10	2	14	7	8	2	7		3						1	1		3	1	3		7	1	14	260
17	59	17	29	38	45	94	25	53	31	42	9	5	11	3	4	12	9	11	9	10	18	6	28	15	31	

Towards selective coding (KPS): 45 themes

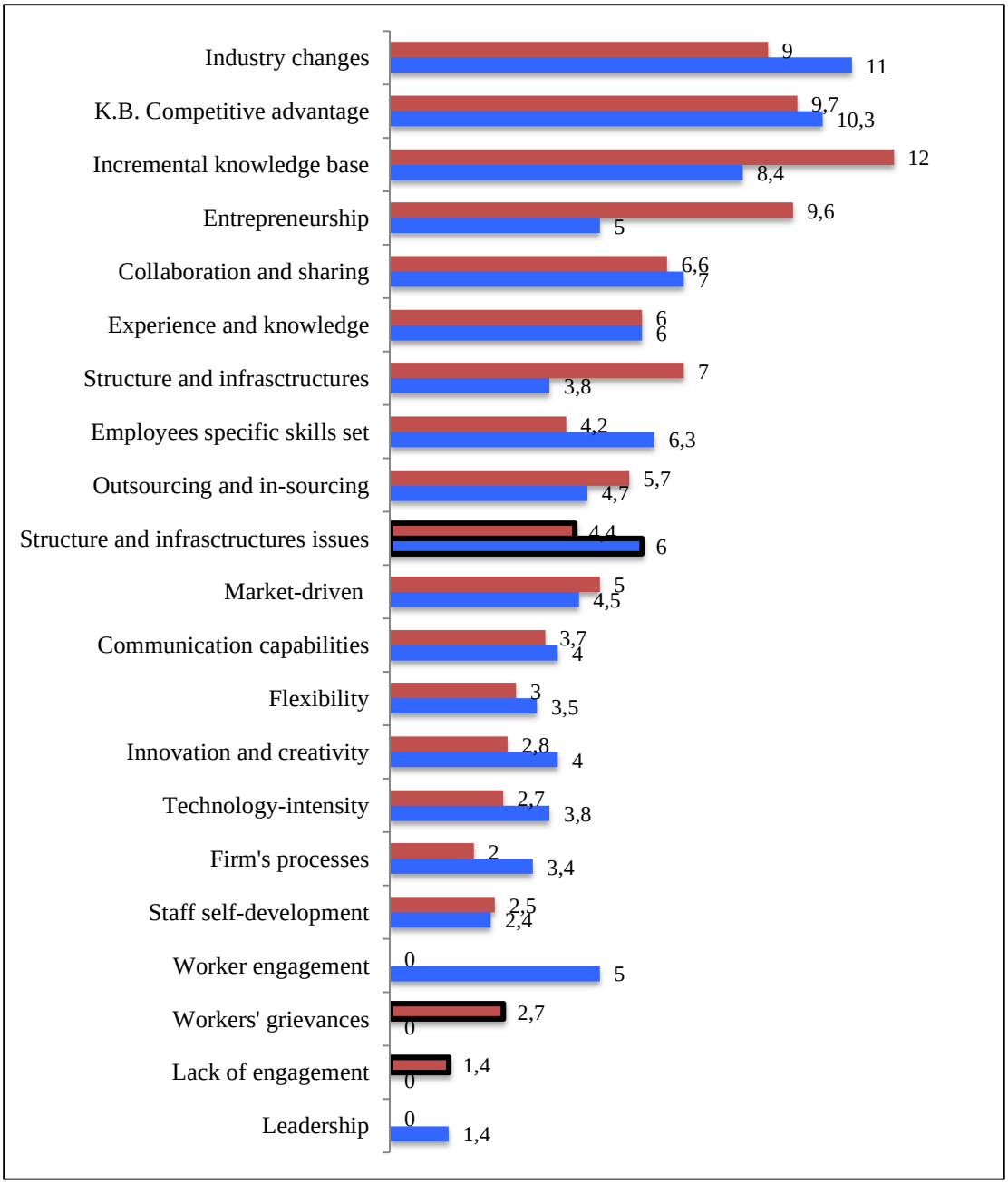
45 codes	Anticipation and adaptation to change	Be compliant - control - best practices	Business stability	Business technology-intensity	Client-centric	Efficiency - Deliver perf.	Focus on the value-added / risk activities	Getting external knowledge	Good / stimulating work environement / communit	Niche knowledge - knowl - Exp	Process driven	Reputation - image - credentials	Structure and infrastructure	Thorough knowledge of the business	Transboundaries work	Unique business / product / methodology	Collaboration - sharing	Network / networking	Trust and dependance relationship	Ability to make a decision - judgement	Ability to market / sell the company	Ability to market oneself / manage its skills evolution	Ability to stand back - challenge oneself	Agility - adapation - reactivity	Committment - conviction	Curiosity - Autodidact - Independance	Deal with complexity - Analytical skills	Experience - knowledge = Expertise
KPSTM1				3		4	1		2				3		3		2	2	1			3			1	6	4	4
KPSC5		1	4		11	4	4	1	1	1		8	2	1	2	5	1	7	3	1	9	3	4	4	3	3		5
KPSC6	4	12		1	2		5	3	6		1	4	2	1	3	2	1	1	1	2		1	2	3	4	2	3	1
KPSPM8	6	7	4	5	4	6	8	2	2	1	6	2	1	1		3	7	1	8	6	1		7	1	7	1	6	2
KPSPM7		2		2	1	1		1	6		2	2	3		1	1	8	3	4	1	1	3	2	3	5	3	4	3
KPSPM6	1	1	1			2		3		4	1					3	5	2	1	2			1		3	1	5	2
KPSPM5			1	1		6		8	2	1				1	4	1	4	2	1	5		2	2		2	2	5	4
KPSPM4			2	1	1	4	1	4	2	1	2	4	1	4	1	4	5	2		4	1				4	3	3	6
KPSPM3	3	1		1		2		2	1	2	2	1	1	3	3	4	10	2	2	7		5	5	6	4	8	4	3
KPSPM2					1	2	1	6			1					2	4	4	1	4	2	3	4	1	2	6	5	3
KPSPM1	1	2			2	5	4	6	4	6	1	2	2	3	2	6	9	5	2	3		3	1	2	6	4	5	8
KPSC7	3	2	1		1	1	4	1	4	1		5	6		1	1	7	2	2	2	4	1	4	1		1	4	2
KPSC4	5	6	1	1	1	2		6	2		1	3	1		1		3	3	1			1	1	1	3	2	2	2
KPSC3	4	5	2	5		14	10	2	2	1	5		3	1	1	4	3	1				1	1	3	2	1	6	6
KPSC2	2	4	2	2	1	11	2	2	1	1	1	5	8	2	1	2	6	1	3	9	2	2	1			1	2	5
KPSC1	18	1	4	3	4	4	9	5	1	10	5	8	6	5	1	8	12	5	10	2	1		2	5		4	1	8
Totals	47	44	22	25	29	68	49	52	36	29	28	44	39	22	24	46	87	43	40	48	21	28	37	30	46	48	59	64

Soft skills - Communication - understanding	Technology skilled	Transferable skills	Willingness to learn and share	Change in the market / demand	Compliance / product regulation	Context dependant	Industry mutation - business model change	Information-intensity and importance	People centric - dependant	Innovation	Incremental learning	Testing - heuristics	Understanding - perception - add value	Comm./ Empathy / understanding gaps	Frustration sentiment / angry	Risk and uncertainties	Totals
	4	1	2	1		4		3		1	5		1	1		1	63
8		1	4	1		1	1				3		2	1	1		111
1	3	1	1		3	1		3		1	3					1	85
2	1	1	1			5		3		5	8	8	4	3	4	3	153
2	2	4	7			2				1	2		1	4	2		89
	1	2	1	1		5		1		3	3			4	7		66
6			3			1	1	2	4	1	5	3	5	5	11	1	102
1			4		1	2		3	4	3	9	4	1			3	95
		3	4	2	1	4	1	1	3	4	6	3	5	1	1	1	122
4	2	1	4			4		4	2	2	12	3	6	7	8	1	112
8		1	9		1	3	1	1		6	17	2	10			1	154
5			2	2	2	2	2	2	1	1			2	1	1	1	85
3	2		4		3	4		2		1	6					1	75
2	2		3	2	3	2	1	2	3	9	6		3	2	1	3	127
9					1	1			7		1		6	2	3		109
1	1		1	11	2	18	10	2	14	7	8	2	7		3	14	243
52	18	15	50	20	17	59	17	29	38	45	94	25	53	31	42	31	

Appendix 22 – Selective coding (KPS): 19 codes

	Collaboration and sharing	Communication capabilities	Employee specific skill set	Entrepreneurship	Experience and knowledge	Firm's processes	Flexibility	Incremental knowledge base	Industry changes	Innovation and creativity	K.B. competitive and sustainable advantage	Lack of engagement	Market-driven rationale	Outsourcing-insourcing	Staff self-development	Structure and infrastructure	Structure and infrastructure issues	Technology-intensity	Workers grievances	Totals
KPSTM1	2		4	7	6	1		8	7	1	5	1		**2**	4	5	9	5	1	67
KPSC5	3	9		19	5			9	4		11	6	20	8	4	3	1		1	106
KPSC6	2	1	4	7	4	1	5	4	7	1	7		6	5	2	17	2	3		77
KPSPM8	11	3	6	14	3	6	6	17	8	5	15		6	2	1	10	3	7	4	129
KPSPM7	9	3	6	10	4	2		9	2	1	2	1	4	3	4	10	2	4	3	79
KPSPM6	6		6	6	4	2	1	4	8	3	4	2		4	2		4		7	63
KPSPM5	5	6	5	10	4		1	11	7	1	7	5		11	3	3	11	3	8	106
KPSPM4	5	2	3	9	6	2		19	8	3	9		5	5		3	1	3		86
KPSPM3	11		6	16	7	4	4	18	7	4	6		1	5	8	3	3	3	1	109
KPSPM2	5	4	5	13	5	1		21	7	2	5	1	1	9	4		3		13	102
KPSPM1	10	8	5	8	13	1	1	28	7	6	13		3	12	4	8	2			133
KPSC7	8	6	5	10	2		3	3	9	1	7	2	7	3	1	10	8			85
KPSC4	4	4	2	2	3	1	5	8	9	1	**2**		5	8	1	9	3	3		69
KPSC3	3	2	6	5	7	5	5	9	20	8	30			3	1	10	5	7	2	123
KPSC2	7	9	4	9	5	1	2	6	5		15	2	7	3	2	12	6	2	1	104
KPSC1	16	3	1	10	19	5	19	15	34	8	20	2	13	10		12	9	3	2	218
Totals	107	60	68	155	97	32	52	189	149	45	157	22	78	93	41	115	72	43	43	

Appendix 23 - Comparison of DLT and KPS knowledge bases *(% of total codes for each company)*[54]



Participating to the comparison exercise, the following table provides a comparative ranking of the different organisational knowledge base elements based on their code frequencies. Different colours were used to emphasise the comparison of elements 3 by 3.

[54] Read: Code frequency for industry change in the case of DLT represents 11% of its own overall code applications

Comparative ranking of the 21 codes based on code frequency for DLT and KPS

Codes	DLT	KPS
Industry changes	**1**	**4**
Knowledge-based competitive and sustainable advantage	**2**	**2**
Incremental knowledge base	**3**	**1**
Collaboration and sharing	**4**	**6**
Employees specific skills set	**5**	**11**
Experience and knowledge	**6**	**7**
Structure and infrasctructures issues*	*7*	*10*
Entrepreneurship	**8**	**3**
Worker engagement	**9**	N/A
Outsourcing - in-sourcing - Networking	**10**	**8**
Market-driven rationale	**11**	**9**
Innovation and creativity	**12**	**14**
Communication capabilities	**13**	**12**
Structure and infrasctructures	**13'**	**5**
Technology-intensity	**14**	**15'**
Flexibility	**15**	**13**
Firm's processes	**16**	**17**
Staff self-development	**17**	**16**
Leadership	**18**	N/A
Workers grievances*	N/A	*15*
Lack of engagement*	N/A	*18*

**Negative aspects of OKI*

Appendix 24 – Extract from definitions construct: comparison between KPS and KDL

	MAML	KBI	Theme defined
Collaboration - Sharing	Involves trust with others internal business partners Willingness to share knoweldge / to learn Involves also some teaching; Internal client-supplier relationships	Internal client-suppliers relationship => being professional (do what you have to do because no other way) at working together and sharing Collaboration / collabortive platform / integrative knowledge Involves some forms of teaching and learning / knowledge sharing Turst and dependance relationship: A higher/deeper level of collaboration and sharing that involves a "total" collaboration without reserves. Goes beyond acting "professionally" (which may be more minimalist and trimmed)	The activity of the different participants located inside or outside the organisation, is based on teamwork. This implies significant collaboration performed in a professional manner. The latter is compared to internal client-suppliers relationships. Knowledge is disseminated through formal and informal networks/platforms. Knowledge is willingfully disseminated by participants through teaching and learning roles. This entails a certain level of trust and dependence and unreserved adherance to teamwork among the subjects participating.
Communicators	Ability to communicate - people person; to sell or market an idea or product; to transmit a message efficiently (meaning ability to sum up an idea and explain the core); implies to be able to understand one's audience in order to bring the "right" answer.	Soft skills - Communication - understanding+ social interaction	The theme is best described as being a "people" person. This soft skill consists in the ability to transmit a message efficiently without the "noise". At a certain extent, communication can consist in "selling" or "market" an idea (i.e.: convincing staff of the benefits attached to the introduction of a new software). A pre-requisite to communication is understanding the targeted audience in order to bring the "right" answer.
Efficiency and quality	Use of time / paper / effort saving technologies or processes or techniques; Competitive intelligence (Anticipation and prediction of event - forecasting) uncertainties; respecting deadlines, making the most efficient decisions; rigour (make sure things happen)	Efficiency and performance: This demonstrates the firm committment and focus into delivering performance and being efficient in their actions.	Commitment of the organisation as a whole to deliver performance and act in the most efficient ways. This theme describes the ability of the firm to constantly / regularly adapt its structure and infrastructure or craft tailored business solutions, in order to foster and nurture value-adding knowing, doing and learning dynamics. Efficiency and quality encompasses also the idea of better framing value-adding activities bearing highest risks potential.
Employees specific skills set	And getting the right output / independant sources of information; Ability to obtain the right information in quality and in quantity	Deal with complexity - Analytical skills: Multitasking Conceptualising - philosophy of investment Ability to select the right data / information + capacity of analysing, and making most of huge amounts of information	This theme covers the range of skills specific to the job performed in the industry. This involves analytical skills and being able to deal with complexity: capability for conceptualisation and making most of substantial amount of information, ability to select the right data or information, computing capabilities.

Entrepreneur-ship	Ability to stand back - challenge oneself; Curiosity, adventurous, independance [also implies willingness to learn]; Being an implementer - make things happen [of stragtegy, of ideas]; Resilience	Curiosity - Autodidact - Independance (Entrepreneurship - accountability) Ability to make a decision -judgment; Ability to market / sell the company (Build a profile, a reputation Relationship building); Agility - adapation - reactivity (Stay up to date) Ability to stand back - challenge oneself (Capacity of interpretation - competition / drive for efficiency; Cold head - resilience) Committment and conviction: work dedication rigourous person - attn to details	Entrepreneurship is geared toward identifying new opportunities or preventing issues. Hence, the two cases best describe this themes with: ability to stand back and challenge oneself; being able to exercise judgment and make a decision; being curious, adventurous, independent and autodidact; being resilient; demonstrating a drive for efficiency, capacities of interpretation; learn and adapt constantly; being committed and having convictions; being able to sell and market the company.
Experience and knowledge	Stock approach: Experience, knowledge, talent; People-driven business; importance of human capital; experience and knowledge of individuals; Having the right people [Shared belief in the value of the intangible among workers]	Expertise; Deep knowlege of the businessknowledge diversity; Technology skilled (18 excerpts); Level of expertise of the firm on the different sectors and business they are running.; Thorough knowledge of the business; Niche knowledge and expertise of the firmincluding people; Client centrered	This theme refers to the expertise, experience and talent the participants demonstrate while performing their work. They must show a firm command of field of action. It encompasses also a deep and intimate knowledge or the industry; the subjects have a thorough knowledge of the whole value chain of their specialty preferably gained by field experience.While experience tends to rest with the subject, knowledge may belong also to the firm and encapsulated in different repositories, coding or referencing systems.
Firm's processes	Existence of in-house processes: Activities driven by well-established, clear and transparent processes (that can be used for communication) - process-driven	Process driven; Importance of the number of processes existing in the firm. This is positive for the stability of the firm, providing more transparency, better reliability and challenging the dependance on human capital.	Firm’s processes consist in all the systems, procedures and processes that are in place and that provide a common base for working. These provide a relative stability to the firm by improving the transparency and reliability of operations
Flexibility	Agility - adapation - reactivity; Fast and early adaptation to change; Adaptation to unknown situations or issues or changes; astutness, intuition; Firm's flexibility; People's flexibility	Anticipation and adaptation to change: Describe the intent of the different members of the firms in improving the business, projecting themselves in the long run. Evaluating and assessing how the business should adapt. Adapting and shaping the business	Flexibiltiy is synonymous with the intent of the firm to improve its business, while projecting itself in the long run. This is about its agility and its ability to react and adapt to new circumstances rapidly and early enough and in an innovative way. This relates to its renewal capital and its ability to strengthen its capabilities and change the business when required.
Incremental knowledge base	Dynamic approach: Learning curve / constant learning; How the group constitute its knowledge base gradually along time. Willingness to share knowledge and to learn	Incremental learning Learning continuously; Learning / work intensity; testing-heuristics Willingness to learn and share Understanding - perception - add value	This theme relates to the knowing, doing and learning dynamic. The current state of knowing represents the outcome of the learning curve. It can be summarised as the active portion of experience involved in the current action performed by the participant. Because, knowedge is alive, knowing makes sense as it involves constant learning. Learning is then the engine of the dynamic that leads to innovation.

Industry change	Business model; Growing importance of regulation - compliance; constant mutation of the industry [Change in the business and economic context + trends in the AM industry]; Context-dependency [Change in the business and economic context + trends in the AM industry]	Context dependant (+ Bullish market + crisis 2001 - 2008) Evolution-mutation of the industry (Change in the market, in the demand Change in the speed (velocity of change -7 excerpts) Change or mutation of the business model Compliance / product regulation Information-intensity and importance: volume + content importance	This code related to the mutations occurring in the industry the two firms belong: the unprecedented and dramatic increase in compliance and regulation require extra mobilisation of companies resources; a massive increase in the volume of information particularly connected to new technologies; a mutation of the business model since 2000 that is shifting toward more subcontracting; a shift of the business model where the distributor or sub-contractor takes 70% of profits [where before this amount was going to the fund manager]; acute awareness of the business environment (context-dependency); augmentation of the velocity of change in the business landscape increasing the level of uncertainties; change in the market where clients are more educated and distrustful.
Innovation and creativity	Incremental innovation (Continuous improvement); creativity; invisible innovation (Little incremental progress of significant value and impact on the final outcome); open innovation; Innovative way of doing sthg; Process management improvement; Product innovation; Staff generating new ideas and strategizing	Incremental / invisible innovation / creativityProduct innovation	The capability of the firm in improving its circumstances and adding value while implementing novel solutions and ideas consists principally in product innovation and incremental innovation. This involves incremental innovation (continuous improvement), creativity, invisible innovation (little incremental progress of significant value that impacts the final outcome), open innovation, process management improvement, product innovation. Substantial investment or hardware, software and facilities are supporting the previous.
Knowledge-based competitive and sustainable advantage	Uniqueness of the business / product ; Uniqueness of the organisational culture, business model... Niche approach? Risk management	Focus on the value-added / risk activities: Ability of the firms to adapt its structure and infrastructure in order to foster and nurture the value-adding activity and / or frame better the ones carrying a higher risk potential. It is concerned with crafting tailored business solutions, outsourcing, etc. Unique business/product/methodology: Skills, products and methodologies that are unique to the firm.	Capability of the firm to adapt its tangible and intangible activity framework (i.e.: structure and infrastructure) in order to foster and nurture value-adding activities and / or limit in a better way the ones carrying a higher risk potential. This theme is concerned with crafting unique and original business solutions that stay and will stay firm-specific in the long run. Moreover, the firm strives to be endowed with unique skills, products and methodologies. The performs the previous while demonstrating a committment and focusing into delivering performance and being efficient in its actions towards clients. At last, knowledge-based competitive and sustainable advantage involves establishing strong credentials in terms of image and reputation while demonstrating transparency and good governance.

Lack of engagement		People attitude - behaviour - engagement - leadership issue; lack of entrepreneurship spirit; of engagement; of curiosity and willingness to build knowledge. Resistance to change Low interest in tech skills / lack of tech skills Lack of leadership: management failure to address issues	
Leadership	Inspiring leadership - strong and active leadership	Also, good leadership (good to excellent working relationships with top management - CIO, COO, H2); In short people being happy working in the firm	Ability to inspire and lead effectively other co-workers in achieving excellency in knowing doing and learning.
Market-driven ethos	Client-centricity: the major focus of the activity is on the client's needs and wishes; Customised products tailored for them; Client relationships; Thorough knowledge of the marketReputation - image - Governance; accountability; Rhetoric; transparency; and communication about all that (sell the image..); firms credibility	Client-centricity - Shows how the firm is turned towards its clients, how they are focused on the market; the intentLong term relationships buiding - familiarityDescribes in what extent the firm is stable in terms of staff retention, business model, etc. Show a long term projection/approach. This is important for clients and shareholders (credentials)if too much interventions ==> blurs the impacts of the decisions; Low turnover in staff; business stabilityReputation - image - credentials: Concern of the firms into establishing strong credentials on the market, showing good governance. The firm is aware of the importance of perception and is committed into building gradually its image / brand; importance of perception	This theme indicates how much firm's activity is client-centric. This is reflected by the knowledge of their needs and wishes, their risk aversion. This indicates a thorough knowledge of the market and how the firm is positioned in terms of reputation and image. A concern for transparency, long-term client relationship building is important. Firm's stability in terms of staff retention and low turnover. At last, this theme also refers to staff's capability of marketing and selling the product.

Appendix 25 – Pilot case

Pilot case: AA Limited

1.1 Introduction
1.2 Methodological issues
1.2.1 Bounding the collection of the data
1.2.2 Revising the conceptual framework
1.2.3 Instrumentation
1.2.4 Potential sources of bias
1.3 Analytic approach
1.4 Identifying AA knowledge base
1.4.1 Identifying AA knowledge-related using conventional methods
1.4.2 Exploring three approaches on identifying organisations' knowledge base
1.4.3 Conclusion
1.5 Activity system analysis
1.5.1 AA cultural and historical context
1.5.2 Identifying the seven nodes of the AA's activity system
1.5.3 The participants
1.5.4 Defining the object and intended outcome
1.5.5 Emergence of collective knowledge
1.5.6 Emergence of personal knowledge
1.5.7 Summarising AA activity system
1.5.8 Systemic contradictions
1.6 Conclusions and lesson learned

INTRODUCTION

This first case study AA[55] was initially intended as a pilot in order to provide confirmation of the conceptual approach developed in Chapter 3, and to refine the research design and to test the data collection techniques introduced in Chapter 4. However, the initial pilot was extended to a full case study with similar status to the two cases for the following reasons.

1. As indicated, the pilot case is an opportunity to refine the conceptual framework and methodological approach. A wealth of details is provided on the way the research framework was tested, constructed and improved, and on the final decisions made that will be replicated to the two other cases with the necessary amendments.

2. The use of ASA as a method of inquiry for the study of OKI is novel and to the researcher's knowledge, has not been used yet as such. In line with Yamagata-Lynch's (2010) advice in relation to the use of novel methods such as ASA, as much detail as possible should be provided in order to provide better reliability to the findings. Moreover, the use of ASA is motivated primarily by theory-building where more traditionally, the method is implemented within action research or development work.

3. Finally, this pilot case is developed as a full case because it provided an original finding that contributes to knowledge in OKI and validates further the rationale for using ASA.

[55] AA was chosen as the name to refer to the organisation to protect the anonymity of this firm and the interviewees. AA is preferred to A in order to avoid confusions with the indefinite article.

Given the exploratory nature of this research, the refining of the data collection has consisted of developing a logical approach aimed at defining further the unit of analysis, the logic for sampling of informants, refining the interview guide, the manner the interview process was carried out and dealing with the change process that took place over the course of the research. The conceptual approach guided the data collection and the empirical data provided the basis for the modification of the conceptual approach.

The following chapter is organised into five sections. Methodological issues introduced hereafter describe the decisions made in terms of amendments to the conceptual framework. The following section explains the analytical approach that led to the results. The third section investigates possible limitations related to the use of qualitative conventional methods when undertaking the analysis of AA's knowledge base. Activity system analysis constitutes the core of the fourth section and also the core of this research. At last, this chapter closes on a short conclusion and the insights gained through this case that inform the two other cases.

1.1 METHODOLOGICAL ISSUES

This section aims at formulating explicitly the design decisions made in the course of the study as they impacted the analysis and the findings. The first design decision hereafter is concerned with focusing on the data to be collected and adjusting subsequently the conceptual framework. The section ends with a discussion of the potential sources of biases that have emerged as a result of the study.

Bounding the collection of the data

Bounding the collection of the data involved in the first place defining the activity settings, the sampling path and the way the research has dealt with practical issues.

The Activity System has been identified as the conceptual instrument susceptible to delivering insights into the dynamics of organisational knowledge-intensity. Because of its abstract nature, logic is formulated for establishing the limits. Consistent with the Activity System Analysis, the point of entry for understanding OKI[56], is the participant's experience that had a position within the firm. Those participants were identified as persons with the authority to make a decision that influences the performance of the organisation, and that are directly or indirectly involved in asset management operations. In other words they are understood as individuals making strategic decisions related to investment management with a potential of influencing significantly the results of the firm.

A total of three persons were interviewed in this pilot case study. Two of them were directly involved in asset management activities and are considered as primary participants, the locus of the Activity System. The third person was not making any direct input into the investment strategies and was a secondary participant. Integrating this last person in the sample pertains to an '*opportunistic*' sampling leading to a broadening of the unit of analysis by including an informant that provided a rich source of data triangulation with respect to the actions involved in the goal-directed activity.

For this pilot case study, none of the interviews were conducted on-site. One happened in a location outside the firm that suited the participant. The two other interviews were performed over the Internet using Skype[57], the participants being in remote location at the times they were

[56] OKI: Organisational Knowledge-Intensity
[57] Online communication interface

available. All interviews were recorded using Audionote, transcribed verbatim and sent to the interviewees for confirmation.

Revising the conceptual framework

One of the expected outcomes of this pilot case was to improve and refine the conceptualisation of the conceptual framework. Moreover, it consisted in an opportunity to confirm the relevance of the components of the framework and the chosen strategy of the research.

In the course of the data collection and analysis, the conceptual framework was modified with respect to the specific characteristics of the activity system and the insights gained from the literature on knowledge-intensity, knowledge assets and knowledge creation dynamics. In this pilot case, AA was going through significant restructuration and changes of ownership. The study of this AA case made obvious that prior addressing the contents of the seven nodes of the activity system in terms of organisation knowledge-intensity, a preliminary stage where the firm's *'knowledge base'* could be identified was necessary. The intent was to single out at a higher level of abstraction the knowledge-based actions and the knowledge-related processes, practices and artefacts, addressed in this study as *'knowledge base'*, that participated in the dynamics of OKI.

Subsequently, the identification of the activity system was carried out and more focused definition and labelling of the seven nodes of the activity system reflecting the organisation's knowledge-intensity was made possible. This was improved and amended with the two other cases.

Instrumentation

Research located in critical realism often consists of two stages. The first stage is relatively exploratory as the literature is *'enfolded'* gradually around sequential interview data. At this stage, prior literature and continuous reading guided the selection of interviewees. It also helps the researcher to recognise when something important has been said (Sobh and Perry, 2006). So, this way of proceeding was implemented and participated in refining the researcher's approach on OKI and the method used to understand it. Always according Sobh and Perry (2006), the second stage consisted in incorporating prior theory and initial framework in the research. Consistent with the previous, additional questions were added to the interviews while some original ones were amended. In other words, *'prior theory in realism research can be viewed as additional evidence, that is, perceptions, which can be used to clarify the imperfectly apprehensible external reality by triangulation'* (Perry, 1998 in Sobh and Perry, 2006:1202).

The interview guide evolved over the course of the research. The guide had originally been designed with a semantic pertaining to the CHAT[58] perspective. Moreover, the questions were very detailed and precise. It became rapidly obvious that the interviewees were alien to *'specialist'* vocabulary and that questions should have been labelled differently with more usual terms and defined more broadly in order to stimulate discussion.

The questions were organised around the seven nodes of the Activity System in order to operationalize this research. This required two different approaches to data collection:

- Questions pertaining to the upper triangle of the Activity System were more focused on the personal organisational knowledge while remaining open-ended at the same time.

[58] CHAT: Cultural-Historical Activity Theory

- Questions pertaining to the lower part of the triangle (collective organisational knowledge) involved a certain degree of knowledge of the external environment as well as being fully aware of the firm's strategic designs. In several cases, informants struggled to provide elements of answer.

Moreover, the theme of knowledge-intensity introduced at the beginning of the meetings tended to impact the content of the interview, as the participant would bring in his own interpretation of such a concept to which he was obviously alien. This also was dealt with and introduced differently.

Potential sources of bias

It should be acknowledged that the researcher's position as personally involved with some of AA's employees for many years, though providing an advantage in terms of access to the AA case, entailed the possibility of ethnocentrism. This could have two consequences: (i) failing to pay enough attention to and misinterpret elements that were personally known and (ii) favouring the insights provided by the employees that were the least known. An opportunity to reduce this possible ethnocentrism was first, to spend an equivalent time on the interview processes and second, to stick to the interview guide as much as possible. Another possible source of bias that is also considered an important quality in this research is that the researcher is not a specialist in Asset Management. This prevented any kind of presupposition or orientation in the data collection and analysis processes. However, it was clear that some information could have been downplayed vis-à-vis other ones as the researcher's understanding of the importance of some terms or actions were limited. In order to avoid such bias as much as possible, the researcher requested clarification in the case of unfamiliar terms or actions. A last source of bias identified originates from the researcher's position as a French person interviewing English-speaking participants in English. In order to avoid misunderstanding the meaning informants provided, clarification was requested when necessary. In addition to the concern for validity, a copy of the transcriptions was sent to the participants in order to confirm the content and make corrections if necessary.

1.2 ANALYTIC APPROACH

Dedoose's qualitative online software (2014) was used as a support for storing the data and performing the coding. The coding structure emerged from the implementation of the constant comparative method following Glaser and Strauss (1967). A knowledge-based interpretative lens was elicited to proceed with the coding. In addition, a spreadsheet software was used to set up the tables and representative figures for each construct. This did not have any theoretical implications. It was used as an analytical device to interpret the data with different views and to display the multi-faceted perspectives on knowledge-based issues. Indeed, one source of triangulation within the study was the possibility to compare viewpoints from different theoretical perspectives. First, consistent with an exploratory research, the data drove the outcomes and the open approach determined in terms of organisational knowledge-intensity provided a certain construct. Second, this first set of results was confronted against more established perspectives: the IC[59] and KM[60] lenses. This in itself constitutes an empirical result with theoretical implications and provides an opportunity within triangulation.

[59] IC: Intellectual Capital

Analysis of the case has been iterative. A first and general analysis of the case was carried out in November 2013 in preparation for the interim case summary report. In March and April 2014, a double deep and thorough coding process took place. A rigorous coding was performed and codes were identified and defined as the process was underway, followed by a second reading where transcripts were analysed again and the coding checked, refined and rearranged accordingly. A final round of analysis was done in September 2014, to align the AA analysis on the two other case studies in order to allow a cross case comparison. The final format for the analysis is being developed in the process of thesis writing up. Moreover, with a view of strengthening the reliability of this research, the following steps have been taken to provide a chain of evidence (Yin, 2009):

- Display matrices containing *'rich text'* quotations, sorted by roles, themes and firms for each of the main constructs (see appendix 1). The aim was to provide access to the plurality of views on organisational knowledge-intensity and its dynamics as well as its limitations and issues.
- The source of each quotation was identified by firm, role and participant coded number (i.e.: AAID01-388). There was no documentation made available for this case and the information available on electronic sources was very limited.
- Representative and precise exemplars of the quotes are provided within the analytic text to illustrate conclusions drawn from the empirical data.

At this stage of this pilot case study, the details of the practical implementation of the research strategy and conceptual framework have been delineated. The attention turns now to data analysis.

1.3 IDENTIFYING AA KNOWLEDGE BASE

The aim of this section is threefold. First, it explores and presents the findings of AA's knowledge base using different strategies pertaining to conventional qualitative approaches in order to identify the most suitable for undertaking ASA[61]. Second, it investigates the extent to which the rationale for choosing ASA as the adequate method for understanding OKI underlying mechanism. Last, this pilot case performed on AA was also used as an opportunity to present the details pertaining to the proceedings of data analysis and how the final choices were made to inform the core of this research subject that consists in understanding the dynamics of OKI.

The following section opens first on understanding AA in terms of its knowledge base and introduces the different themes identified at the stage of axial coding. This serves as a base to the following endeavour that investigates the different approaches on organisational knowledge-intensity in literature as introduced in Section 2.2.3. This section closes on a discussion and presents the choice made in relation with ASA.

1.3.1 Identifying AA knowledge-related using conventional methods

The first step of the constant comparative method (Glaser and Strauss, 1967) consisted in *'fracturing'* or *'breaking open'* the data in order to generate abstract conceptual categories that constituted the base of theory building (Punch, 2009). This open coding process led to the

[60] KM: Knowledge Management
[61] ASA: Activity System Analysis

emergence of 62 codes (appendix 2). In the following step, main categories started to emerge and data was interconnected with each other. Thus, in the axial coding stage, 38 themes were identified (appendix 3) and were subsequently refined into 25 codes (appendix 4). Provided their limited number and manageable size, they are included hereafter in Figure 1, and provided an opportunity to refine the data analysis strategy.

Figure 1 25 codes of the selective (first level) coding and their frequency in order of decreasing importance

The themes are ranked following decreasing importance of code applications, and the corresponding working definitions are provided in Appendix 5.

In addition to the blue, red colours were used on Figure 1 to emphasise two preliminary findings. While the blue refers to the element of organisation AA knowledge attributes, the green indicates items referring to AA's external environment and the red to what we refer to, for

the time being, as 'negative' aspects. At that point, it is outlined that while the external environment is mentioned in literature usually as the backdrop against which knowledge-based activities are carried out, the *'negative'* aspects are seldom mentioned.

The selective coding is the third operation that is consistent with constant comparative method. The researcher deliberately selects one aspect of the data as a core category and concentrates on this (Punch, 2009). The selective coding was informed by insights derived from the literature reviewed in Chapter 2. At that stage, it was not clear what approach would be better suited to ASA and the understanding of OKI dynamics. Hence, with a view of contrasting and comparing findings for theory-building purposes, and consolidating within case validity through theory triangulation (Denzin, 1989), three theoretical alternatives were explored. First, the data drove the findings with no prior theoretical lens except for the knowledge-related actions, tools and framework pertaining to knowledge intensiveness. Then, the knowledge-intensive organisation's lens featuring firm-centric and person-centric approaches were used, and lastly the knowledge assets view was explored.

1.3.2 Exploring three approaches on identifying organisations' knowledge base

AA knowledge base

In this section, the data led the results and six major themes were identified. Table 1 provides the details of the transition between axial coding to selective coding stage[62].

Table 1- AA's knowledge base

Themes	Code counts
Generate new ideas - creativity	13
Flexibility and agility	22
Efficiency and performance	13
Unique product and methods	13
Independence and self-confidence	12
Entrepreneurship capabilities	17
Being an implementer / make a decision	7
Deal with complexity	12
Entrepreneurship capital	***109***
Structure and infrastructure	11
People dependance awareness	12
Business technology-intensity	10
Structural capital	***33***
Colllaboration - knowledge-sharing	14
Incremental learning/Innovation	17
Personal and professional network	11
Experience-knowledge	10
Knowing and learning capital	***52***
Client-centricity	28
Reputation and image	9
Market capital	***37***
Resistance to change - poor engagement	10
Structure and infrastructure issue	14

[62] This table aims at showing how the selective coding was performed (items in italic bold) based on the axial coding (items in normal font). Similar tables are designed for KIOs and knowledge assets approaches but are displayed in appendices.

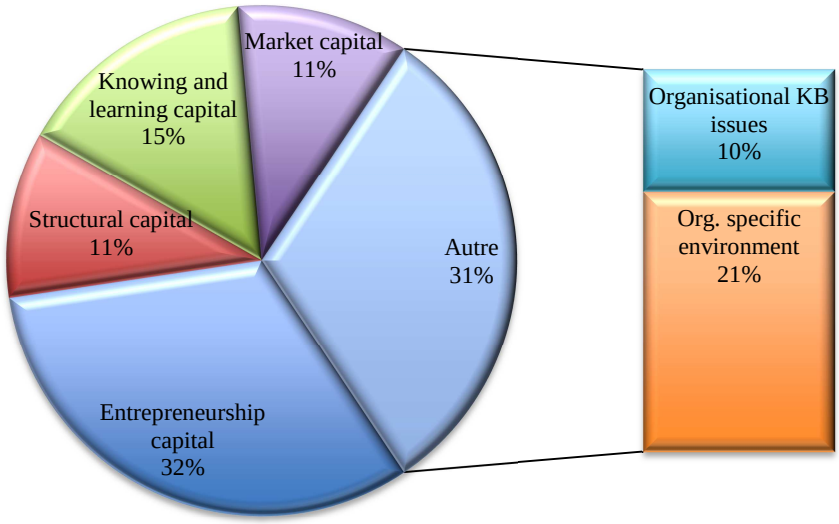
Fragility of the business	10
KB organisational issues	***34***
Business model evolution	17
Mutation of the local industry	20
Regulation - compliance	10
Context-dependant	12
Uncertainties - Instability	13
Organisation's specific environment	***72***

This selective coding version summarises AA knowledge base in 6 different themes:

- **Entrepreneurship capital** outlines the potential of the organisation as a whole to undertake and develop business operations, take on risks and renew its strategy.
- **Structural capital** encompasses firm-specific attributes.
- **Knowing and learning capital** represents learning and collaborative capabilities as well as the amount of knowledge and experience the interviewees had.
- **Market capital** focuses on AA's market or clients centricity.
- **Knowledge-based (KB) organisational issues** is an all-encompassing term referring to any kind of issues AA had to face.
- **Organisation's specific environment** refers to any type of element that impacts significantly and directly the organisation and on which the organisation has no influence. In other words, this refers to the context-dependence.

The following Figure 2 summarises the relative importance of the different themes.

Figure 2 Relative importance of AA knowledge base themes



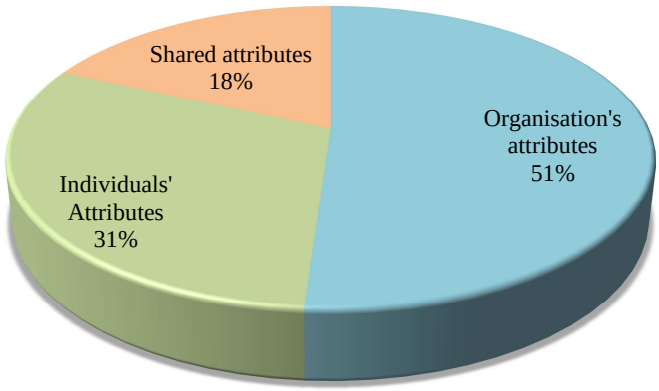
At the time of the study in 2013, AA was a small firm struggling in a challenging environment. It may be argued that the emergence of entrepreneurship capital (32%) and the awareness and major concern about the environment (21 %) as the main themes were consistent with such a situation. It is followed by knowing and learning capital (15%), market capital and structural capital representing respectively 11% each. The major weakness stems from its structure point that is heavily emphasised by the three interviewees and that is at the origin of the current change of ownership (10%). The actions, objectives and attitudes developed by the three

executives are very well represented by their entrepreneurship capabilities and the way they constantly integrate new insights in order to build up the next strategic move.

The KIOs approach: person-centric vs. firm-centric view

In relation with KIOs understanding of organisation's knowledge base presented in the literature review (section 2.2.3), this section introduced an analysis where some themes related specifically to the organisation's attributes, some to its member's attributes, some pertaining to both of the previous. Consistent with this KIOs approach, themes relating to environment concerns and issues are ignored. Based on the axial coding, 25 codes (appendix 4) and their respective meanings (appendix 5), appendix 6 provides the details of the transition between axial coding and *ad hoc* selective coding for this instance. A graphic representation showing the relative importance of these categories is also shown in Figure 3. Both data displaying instruments are comprehensive and integrate the organisational knowledge-based issues and environment specific issues.

Figure 3 Relative importance of AA organisation's specific and individual's specific



This second selective coding based on the duality between firm-centric and person-centric view identified in literature, displayed a different reading. Restricting the analysis to the three aspects suggested by the literature review (section 2.2.3), the person-centric category that encompasses the individual's knowledge-based attributes represent 31% of the overall attributes, the shared attributes, 18% while the organisation-centric ones count for 51%. The shared attributes were primarily composed of learning processes. This was consistent with interviewees' emphasis on the fact that being understaffed compelled them to engage in different activities where they did not have prior training or expertise. So, they found themselves in a situation of constant learners. Participants particularly insisted on their learning curves and how it was central for generating outcomes.

The knowledge asset approach

The third alternative that is suggested hereafter rests on the Intellectual Capital or knowledge assets approach. It is formally understood in terms of human, structural and relational capital and the corresponding selective coding is available in Appendix 7. A more elaborated approach based on Kianto et al. (2014) provides a detailed view on AA knowledge assets (Appendix 8). In both instances, knowledge-based organisational issues and organisation's specific

environment are ignored. Figure 4 provides a distribution of themes restricted to the three pillars of IC while Figure 5 displays a detailed repartition of the different types of capital.

Figure 4 – Selective coding based on traditional intellectual capital approach

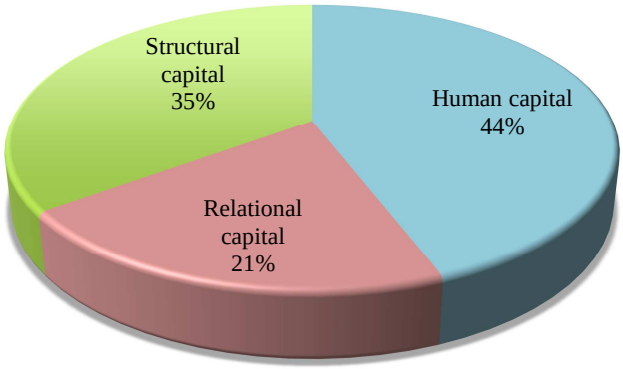
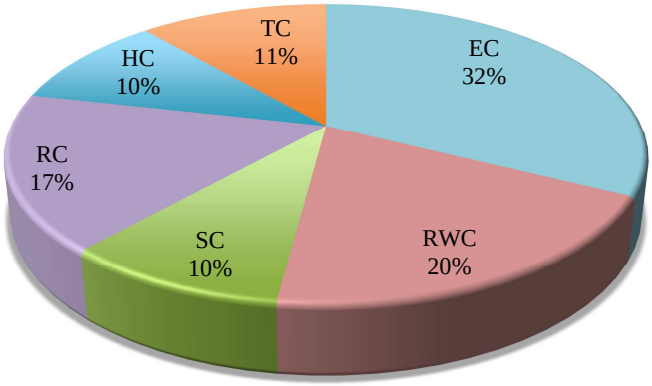


Figure 5 – Selective coding based on detailed knowledge asset approach (Kianto et al., 2014)



* EC: Entrepreneurship capital; RWC: Renewal capital; SC: Structural capital; RC: Relational capital; HC: Human capital; TC: Trust capital

1.3.3 Conclusion

This section presented three instances exploring ways to approach AA's knowledge base that pertain to the '*stock*' or static approach. This is consistent with prevailing approaches introduced in literature that understood knowledge in a '*scientific*' way. While the knowledge base is thoroughly investigated and represented in the previous section, it introduces only a partial aspect of the reality. The limitations of these approaches as well as a possible base for ASA are introduced subsequent to a summary section.

Comparison of the three approaches on AA knowledge base

The implementation of three theoretical approaches provides an opportunity for within case triangulation, and are summarised in Table 2.

Table 2 Summary of the different approaches on AA's knowledge base

Type of knowledge assets	IC (%)		Org. Knowl. (%)	KIOs (%)
	6 types	3 types		
Structural capital	10	35	14	
Human capital	10	44		
Relational capital	17	21		
Renewal capital	20			
Trust capital	11			
Entrepreneurship capital	32		47	
Knowing and learning capital			23	
Market capital			16	
Environment			***21***	
Knowledge-based org. issues			***10***	
Individual's KBA				31
Firm's KBA				51
Shared attributes				18

AA shows a strong endowment in entrepreneurship capabilities that is outlined within at least two different lenses. This result is consistent with the knowledge-based profile of this company: the three participants interviewed were substantially invested in turning around the fate of the company that suffered for the last 10 years from chronic structural instability bringing the organisation to the verge of bankruptcy in the aftermath of the financial crisis. To a certain extent, renewal capital could be integrated to entrepreneurship. This again underscored the case of AA as a struggling organisation that centred its activities on using new resources, interacting with new customers and markets and, eventually combining existing resources, customer base and active markets (Kuratko et al., 2013).

Knowing and learning was also a strong feature that shows in the organisational knowledge and KIO ('shared attributes) lenses. On the opposite side, structural capital appears rather weak for the case of AA. This result appears consistent with the situation of the company that is reflected in its history of restructuration and changes of ownership. This captured rightfully the situation of the company at the time of the study that had to *'reinvent itself'* (AAMD03-2652 quotation) and adapt to a constantly changing environment. While connections may be considered between some knowledge assets (i.e.: relational capital and market capital), the KIOs approach was isolated. It was too generic and opaque.

The interest of using acknowledged analytical frameworks are triple-fold. First, they make available categories of knowledge that are well thought after and validated by scholars' community. Second, this constitutes a very helpful guide when striving to understand firms' knowledge endowments and was very much appreciated in this study. And third, they provide a solid ground for establishing comparisons. However, they are limited in more than one instance.

Limitations of the stock approach

This *'stock'* approach providing a description of AA's knowledge assets consisted finally in a *'positive'* view of these assets limited to the organisation itself. The analysis was restricted to the domain of the visible or the observable implying an incompatibility between a knowledge based view of the firm and issues. However, issues were raised on a very regular basis during the interviews not to say that the interview revolved solely around these. The same remark could be made concerning the business environment within which AA was operating.

The approaches with pre-determined frameworks such as IC tend to force the resulting data into categories that might be partial. This emphasises the organisation-specific type of IC stocks. For example, the incremental learning category was stretched between structural and human assets. In order to occur, a combination between organisational support and individual's intent was necessary.

The number of code applications was a limited instrument to make an assessment about the company's endowment of knowledge assets. Should a company be more endowed with human or structural capital or a balance between the two? What could be the optimal 'amounts' of knowledge here and there? Then the debate derives in consideration that tends to push away the real issue of knowledge creation.

Overall, the different themes appeared unclear and tended to overlap from one approach to the other. The stock approach does not deliver insights in terms of knowledge creation or OKI dynamics. The next section that constitutes the core of this research, endeavours to address these limitations.

1.5 ACTIVITY SYSTEM ANALYSIS

While the description of AA knowledge base was a necessary first level of analysis, it was insufficient to understand OKI dynamics. Indeed, the knowledge stock approach captured the image of the company at a certain point of time in terms of knowledge assets. This was also instrumental in gaining a higher level of abstraction on knowledge related activities. However, very little emerged about how organisational knowledge circulated, was created or destroyed and with which intensity. In order to address the latter, Cultural-Historical Activity Theory (CHAT) perspective was suggested as a methodological perspective enabling the understanding of OKI. The conceptual framework introduced in chapter three, section 3.6 is used as a guide for implementing the method. Therefore, this section starts with delineating the cultural and historical context within which the goal-oriented activity unfolded. The following section is dedicated to the construction of AA activity system and the identification of the goal-oriented activity and participants. Subsequently, the emergence of collective knowledge and personal knowledge are addressed in turn. At last, AA systemic contradictions are investigated.

1.5.1 AA cultural and historical context

Provided that very little documentation was available on this company, the following insights on the organisation were compiled based on the interviews. This private organisation originally started as a one-man operation in 1992 and remained as such for the first 2 years. As one managing director mentioned:

> *'I set up AA originally. So I was the creator and founder of AA. It has mainly started as a one-man operation in 1992. And for the first two years, I was totally on my own before I recruited anybody else.' (AAMD03 – 257)*

For the next 10 years, the company grew organically and counted a total of 8 people by 2003 including some administrative staff and executives. The name and status of the company were tied to a licence that has been awarded by the Irish Financial Regulator that allowed the running of certain financial activities. Subsequent to a period of instability, two changes of ownership occurred in 2003 and 2006 followed by the outbreak of the global financial crisis in 2008. At the time of the study, the organisation was owned by a small group established in 1997 that specialised in managing the personal wealth of clients on an independent consultancy basis. At the end of the fieldwork, again new owners acquired the company in September 2013. This history of restructuration was illustrated by the following quote:

> *"He [the owner] sold the company during the Celtic Tiger in 2003 to a hedge fund company and the company was taken over because of the assets under management. So this has been not really a bad move from AA, but a bad move for the other company that collapsed, and in 2006, AAMD03, me and also another partner bought back the company from [Company X]. So we make the business as it was for one year and in 2007 we sold the company again to a Wealth management company again. The purpose of the purchase for this company was to use the licence and the regulation of AA to develop a product for the Irish market. Unfortunately, the financial crisis came up and the new owner was not able to pay back the full price of AA. So in 2010 /2011 we took over again part of the shares of the company and we were trying to change the company in an absolute return fund management company; it is a new business model. And, it attracted some interest from another company. I cannot say the name because the process is going on at the moment but everything has been agreed." (AAID01-1015)*

These consecutive changes of ownership that occurred within a relatively short time blurred the overall strategic direction of the firm as successive owners set different goals. This is illustrated hereafter:

> *"It is hard to say because of the different ownership changes within AA. It has followed different focuses coming to adapt with other ownership changes. The first change happened 9 years ago and that would have changed the business of direction and then with the other ownership change about 5 years ago, there was an idea to take that to another direction." (AAMD03-3074)*

AA was involved in active investment management from the very beginning. It was initially set up to do active investment management for insurance brokers in order for them to offer the same service to their clients. The firm also created its own fund from the very beginning while managing segregated portfolios for its clients. With the success, AA attracted more demands for integrating the different funds with different risk profiles. By 2003, the company was involved in private investment activities and in pension fund management and totalled 180 million of AUM[63]. In other words, the asset manager acted respectively in institutional, non-institutional markets and was involved in sub-contracting.

At the time of the study in June 2013, the business unit was still struggling for survival as it had been severely challenged by the financial and banking crisis of 2008. At the highest in its

[63] AUM: Assets Under Management

history in 2007, AA was employing 20 persons. In 2013, it counted a total of 4 full-time employees: a Director, an Executive Director, an Investment Director and an Investment Administrator. This constituted the base of the newly formed entity to be integrated within the new and last owner's structure. Three persons identified as decision-makers in the sense of the selection criteria, were actively involved in this process as well as maintaining the current business activities. Two of them, the Director and original founder and the Investment Director belonged to the original structure while a new member, the Managing Director, was joining the team.

1.5.2 Identifying the seven nodes of the AA's activity system

The interview questions were constructed around the nodes of the activity system and the focus was the goal-directed actions. The prerequisite for identifying AA's activity system is first to perform a selective coding that is guided by the seven nodes as suggested by the conceptual framework (Section3.6) and the eight-step model for translating activity system (Section 4.8.2). Accordingly, an *ad hoc* selective coding was achieved to facilitate the implementation of ASA. The details of this selective coding are provided in Appendix 9 while Figure 6 displays their visual representation.

Figure 6 Selective coding for ASA

The red colour outlines the issues while the green highlights the environmental concerns. The selective coding displayed in Figure 6 and the corresponding code applications show that the most recurrent themes were industry changes, entrepreneurs-innovators, structures and infrastructure issues, knowledge-based competitive advantage. This was consistent with the interviews of the three participants introduced in the following section and provided a punctual data triangulation.

1.5.3 The participants

This is the point of entry and the entryway for the researcher to vicariously experience the activities of their participants (Yamagata-Lynch, 2003). The group of participants identified according to the selection criteria constituted another level integrated to the background and company levels. For this pilot case study, three executives were identified as endowed with decision-making capabilities able to influence directly or indirectly the performances of AA: two Managing Directors and an Investment Director:

- AAMD02: He was the Managing Director and was involved specifically in corporate strategic development and in the continuous research and development of AA's investment management process.
- AAID01: He was an Investment Director and was directly managing the funds of the company, established their strategic direction and created new investment strategies when needed.
- AAMD03: He was a Managing Director and was involved in product development and marketing.

The three interviewees had a third level education and one of them also had a professional qualification, the CFA[64]. They were endowed with extensive experience in asset management at a decision-making level and had between 16 to 25 years experience. They worked in 5 to 6 different firms during their whole career and were part of the organisation studied here for at least 10 years. In terms of nationality, one person was Irish, one English and one was French.

1.5.4 Defining the object and intended outcome

The object refers to the *'problem space'* at which the activity is directed and which is moulded and transformed into outcomes with the help of physical and symbolic, external and internal mediating instruments, including both tools and signs (Van Der Riet, 2011). The present study defined the goal-oriented activity as *'incremental learning and innovation'*. This is exemplified by the two following quotations:

> *"Yes, you need knowledge of the financial market, experience in the financial market; you need to understand how it works, you need to understand the different products, you need to understand also what is available today, what to expect from product today" (AAID01-19524)*

> *"But you know there is not a road map for what we are doing. Well there is if you want to buy an American book on how to build a hedge fund and read it, yes there is a roadmap in that sense. But, there is not a roadmap that identifies how best to present what is a pretty unique investment approach and how that is explained to people in a clear and succinct manner. Something like that sort of thing can only be done by, you know, slightly putting layer upon layer of interpretation and presentation in place as we build the story and understand the story and reposition it to present the story" (AAMD02-10250)*

For the case of AA, the goal-oriented actions consisted in learning in order to have the required knowledge on which *'doing'* was based. The three interviewees' actions were geared toward

[64] CFA: Chartered Financial Analyst

gaining insights on the intricacies of tormented financial markets while at the same time trying to reposition AA business model and activities.

The intended outcome referred to in this study as *'knowledge-based competitive and sustainable advantage*', was consistent with this endeavour as AA focused on identifying a new business model and designing new products to turn around the company's fate. The two following quotations showed a rather general intent as the company was going through a major overhaul as indicated in the context:

> *"We are trying to find something a little bit unique a little bit different for us to differentiate ourselves. And really, what we are doing at the moment feels like a reinvention of AA again. And initially, AA commenced with unique ideas for active management, we introduced fees payment to introducers, a lot of new things that AA did 20 years ago and now with new strategies and new direction, it looks like the right time for reinventing AA again." (AAMD03-5240)*

> *"And basically to create value, you need to have a good idea you can sell. You need to create a product that the market need and to analyse first what the market will need. For this we have a lot of skills at the moment." (AAID01-17287)*

1.5.5 Emergence of collective knowledge

The activity system is culturally and historically embedded in a broader context. The mediated action is located within so-called ZPD, which is the distance between the actual level of cognitive development and the potential level of development an individual can achieve (Barab et al., 2004b) when interacting with the environment (Yamagata-Lynch 2010). Thus collective knowledge emerges from historically and culturally situated collective knowing, doing and learning where, following Tsoukas and Vladimirou (2001) sets of generalisation, or explicit and implicit rules are enacted.

The bottom section of the activity system characterises the emergence of the contextualised knowledge map through ZDP (Section 3.6.7). The arrows outline different mediated relationships between the five nodes of the bottom triangle, and constitute for this research background relationships that participate in the whole emergence of collective knowledge. In the case of this pilot study, attention was restricted to the three following mediated relationships: subject-KDL framework-object, subject-network of practice-object, and subject-network of practice-object. The same *modus operandi* was observed in this instance, and the focus was on the mediated relationship between the subject, the KDL tools and the object.

KDL subject(s), framework and goal-oriented object

The KDL-related framework encompassing AA industrial changes and client-centricity mediated the relationship between subject and object. As Appendix 9 shows, industry changes encompassed a business model evolution, the mutation of local industry, the increase in regulation and compliance, intensifying uncertainties and instability and context-dependency. Client-centricity referred to the extent to which the organisation's market drove its operations. The following quotations extracted from the interviews show how subjects knowing, doing and learning was impacted by the industry changes.

"So the most important thing is to be able to analyse what is going to be the next move which basically means it could be completely open or not and think that things are not going to be as they used to be; it is changing all the time." (AAID01-20461)

"It is coming from a lot of things, it is coming from the analysis of information, the conclusion you get from this analysis. Things are changing all the time and it is not finished so to understand these changes you must transform your analysis in quick decisions. The speed is also becoming a big part of the success. (…)" (AAID01-20906)

"And when I started my business that's how it was and it was like that until early 2000. Then you have Bernie Madoff; you have other significant dishonest approaches that began in the business. The focus shifts then to very much more related due diligence and things that would have been taken for granted cannot be taken for granted; they have to be looked into and teeth and eyes and every other checked on to make sure that times are secure and the basified days of the company are what that they claim to be." (AAMD02-16587)

"There [learning] certainly is, because you have to look at what there is at the market right at the moment, you have much more changes than during the first 10 years of AA; there were sort of small improvements and there still just a different version of the same thing when things have moved an awful lot in the last 10 years. The whole industry has changed so much, it is changing at a rapid pace in terms of new strategies, in terms of new funds that are out there and where we are trying to compete. This forces me to really increase your skills and learn new things." (AAMD03-6675)

The dynamics involved in increasing knowing, doing and learning for AA's subjects was also impacted by market concerns as exemplified in the following quotations. These underscored the constraints within which subjects made decisions and how they built the necessary related knowing background. This involved understanding the market and how the organisation was able to match the requirements. It also outlined how the company proceeded with that endeavour.

"The constraints on our ability to succeed relates, if it is what you are getting at, to our ability to present the product in an attractive manner to potential investors. So they will look at a number of different things, they will look at performance, they will look at our ability to present a well-run, well-managed, smoothly-operated operation in which they have confidence and a lot of that therefore relies on good-ending which can be rephrase a strong internal infrastructure. And that is a limiting factor. Our ability to present that is very important; it is as important as the investment performance in many respects." (AAMD02-13942)

"And by that mode of… is one will try inform oneself as to the space in which we are operating and intending to operate in terms of selling our investment product, look at what competition there is in that space how you access the space, what are the key determinant of how that space operates,

and influence this and a lot of that is done simply by reading off the internet, reading of trade, journals etc. Background there will be a lot of reading related to books on the topic in relation to hedge fund development, investment strategies, investment approach, that sort of things. (AAMD02-11251)

KDL subjects, network of practice and goal-oriented activity

In this section, the attention turns to how the relationship between subject and object is mediated by the personal and professional network and collaboration and knowledge-sharing intent. In relation to this, the Investment Director mentioned: *'so the point is to have very good information' (AAID01-11658).* In order to do so, one Managing Director underscored the importance of intra-organisational meetings for identifying '*good ideas'*:

> *"That is something else because it is out of my meetings and discussions and ideas that emerge with people of the likes of AAID01 that good ideas that can be impacting what the future direction of AA is, what it is fundamental to business." (AAMD03-16788)*

Moreover, exchanging and getting extra-organisational insights were also common practice for supporting knowing, doing and learning enhancement. For the case of AA, this involves liaising primarily with personal and professional acquaintances rather than institutions:

> *"Outside, besides working with AAID01 I have a number of people like that you deal with to bounce some ideas to be. They tend to be individuals; they can be working within institutions. They tend to be people like this I would have established relationships with over the years that you can either use as a sounding board to bounce ideas off and comparing them and looking at generating new ideas. That's more the way that I try to work rather than with institutions; you want certain institutions that might be source of information. I do not really work that way. It is really identifying good individuals, that I can have a good relationship with that are involved in a similar area but it might be different in the way they are looking at things and together we can come up with good ideas." (AAMD03-15833)*

The Investment Director sourced his external knowledge from interacting through the Internet:

> *"They [contacts] have different opinions. They see sometimes something I cannot see, so we discuss that by what they publish, sometimes, we have some conference calls about some topics, or sometimes you exchange on forums about any topics in relation with the job, economics, macroeconomic currencies, impact of any potential decisions. So yes. And I do not know personally those people but they are professionals in their area and we just exchange information and points of views." (AAID01-15375)*

For purpose of clarity, underlying mechanisms participating to the construction and emergence of organisational personal and collective knowledge, these are part of the same whole. The following quotation illustrates how both domains are reconciled:

> *"These are things that prior of getting involved I would have qualified in my own mind. Not through any hard and fast criteria but basically having got*

through my own carrier to this point trust and understanding with the people I am working with would probably be priority number one, particularly in the area of business we are involved which by its nature can be prone to reason for distrust in many instances. So with regards to situations that we are in AA, I would have known AAMD03 for many, many years; I have known AAID01 for, what, a couple of years now (…). Maybe qualification would come through the history and background of those relationships let's say." (AAMD02-836)

KDL subjects, multivoicedness, and goal-oriented activity

The goal-oriented activity, incremental knowing, doing and learning, and innovation for AA, is also moulded partially by the different organisational roles the subjects have to play while performing their actions. Two different roles were identified based on the interviews: entrepreneurs-innovators and '*deal with complexity*'. The meaning and content of elements are mentioned in appendix 5. Despite occupying three different positions involving three different work orientations, the participants all played a role as entrepreneurs-innovators, which is illustrated by the following quote:

"And, it bears a weakness to what we do it is that we are thinkers and from time to time you need to be outside of this role in order to sell and market and get your message out there and get to cross people. (…)" (AAMD02-18532)

More specifically, AA was at an inflection point of its history and was involved in an acquisition process where the three members of AA were partners. The Investment Director described the three steps involved in entrepreneurial action and the first one rested on a personal reflection informed collectively as the two following quotations show:

"Well it has been and it is going to change because we think we find the right partner for that. So, that, actually is the most important thing, I think for success. First you need to understand the changes and to transform these changes into decisions. Two; is to have the people who knows who is going to be interested by those changes to sell the product. The third thing is to managing, creating, developing is quite easy when the first steps have been met and when you know the next step, it is going to be easy to do." (AAID01-21910)

'So to be able to understand the needs of people, you need to understand also how things are moving, and before it moves.' (AAID01-20696)

One Managing Director also indicated the central role played by people's creativity in order to help restructuring the company in a sustainable way:

"We are trying to find something a little bit unique a little bit different for us to differentiate ourselves. And really, what we are doing at the moment feels like a reinvention of AA again. And initially, AA commenced with unique ideas for active management, we introduced fees payment to introducers, a lot of new things that AA did 20 years ago and now with new strategies and

new direction, it looks like the right time for reinventing AA again" (AAMD03-5240)

'Dealing with complexity' corresponds to the specific skill set that the subjects are endowed with to perform their actions. This relates to the nature of their work. Two aspects were outlined; the first one was the management of a substantial volume of information, and the second one related to the multi-tasking they were regularly involved in:

> *"You are bound and sometimes suffocated by the oversupply of information that is available out of the touch of a button on the desk in front of you. And, ever there is a great product to be had is the one that can filter out all the stuff you don't want to read and leaves you with the stuff you want to read. That is restricting in one sense…" (AAMD02-12019)*

> *"You need to have access to information; but you need also to transform this information in decision product and making value. It is a mix of many things." (AAID0119958)*

> *"The issue of then information gathering, analysis, interpretation and regurgitation, let's say, into something that is useful is one that occurs most of the time." (AAMD02-11088)*

> *"I am a Director of AA and I end up being involved in all sides of things. I am involved in a few processes, work in new projects, new strategies in junction with AAID01, get the general business running and drumming up new business." (AAMD03)*

1.5.6 Emergence of personal knowledge

Consistent with Vygotsky (1978) mediated action triangle, this section investigates the relationship between subject and object that is mediated by the tools. Understanding knowing, doing and learning dynamics at the personal level occurs in the internal plane of action that is located in the upper part of the triangle. According to the Russian author, the formation of consciousness for an individual is anchored in an essential relationship between this individual's mental processes and that individual's interactions with cultural, historical, and institutional settings (Rogoff, 1990, Wertsch et al., 1995). Along with their time within the organisation, the subjects internalised the intra-firm operating background of the tools and instruments through which they relate with the object of activity. This became the psychological tools that were consolidated in the Internal Plane of Action. A knowing, doing and learning map emerged and determined substantially the final outcome of the activity. This encapsulates the individual's ability to perform manipulations with an internal representation of objects prior to initiating actions with these objects in reality (Vygotsky, 1978, Hasan, 2002).

Hence, the way each participant increased her or his personal knowledge gradually on very specific issues (how she or he engaged with the object of the goal-oriented activity) in order to achieve a certain outcome, in this case *'to reinvent the company'* (identifying a new business model and designing products) is substantially determined by the participant's own professional circumstances, the structures and infrastructures in which she or he operates, the new-technologies endowments of the company, how the participant is able to engage with these, and the capabilities of the organisation for change. The following quotations illustrate this

relationship: the first one relates to flexibility / agility; the second one to structures and infrastructures and the third one to business technology-intensity.

> *"It is coming from a lot of things, it is coming from the analysis of information, the conclusion you get from this analysis. Things are changing all the time and it is not finished so to understand these changes you must transform your analysis in quick decisions. The speed is also becoming a big part of the success. So that is what we missed the last three four years. We are a small organisation and we were not able to transform our analysis in decisions, mainly because one person in charge of all process did not react properly." (AAID01-20906)*

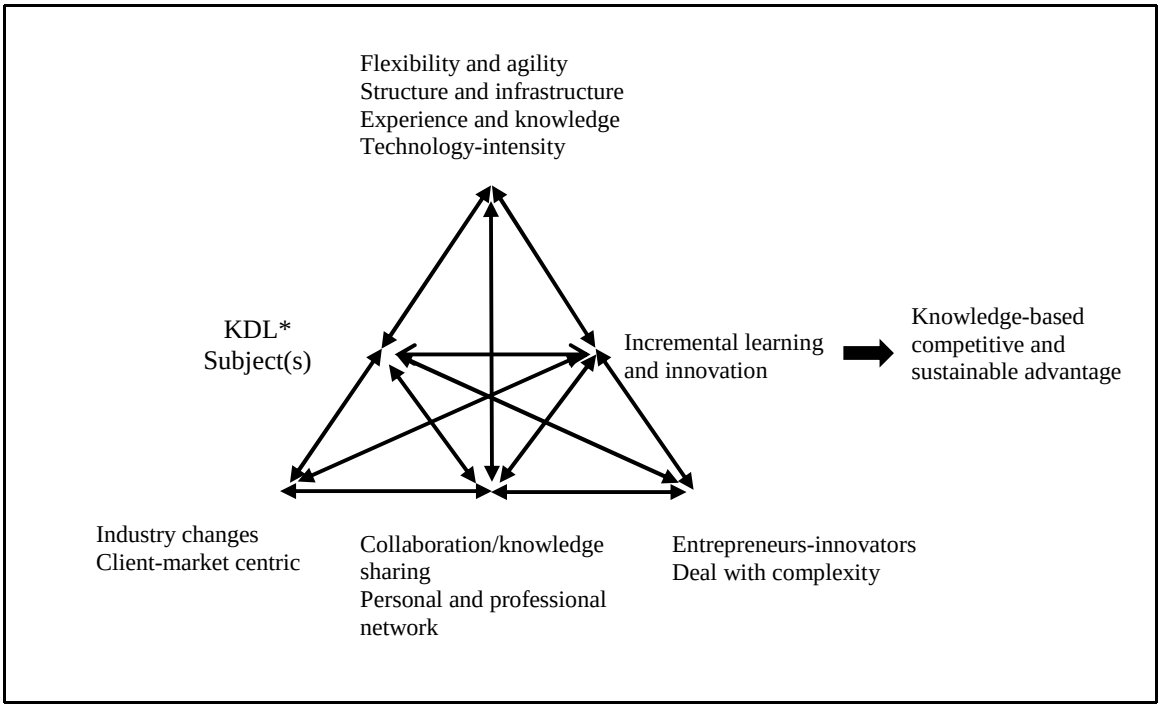
> *"I think that we are probably not structured as efficiently as we should be, which means that I get dragged into all aspects of the business, because I was the original founder and creator and original driver of AA. I think that if things were more streamlined, if the company was better funded, we would have people with more specific responsibilities in certain areas and I think the fact we do not have, the fact that we are not structured as we might like has an impact on my job. I tend to get caught in other direction rather than where I want to be really focused on." (AAMD03-10832)*

> *"The tools have changed a lot also. Only 7 or 8 years ago, you needed to pay a lot of fees, expenses to Bloomberg, to Reuters, to CQJ. Today it is not anymore the case. The information is available on the Web and you need just to have some filters. So the point is to have very good information, first; two a lot of people have developed a lot of software and not free but compared to the price you were paying before, less, less, and less expensive. So, the tools you have at your disposal today are more developed, less expensive and can give you more difficult to manage money when the tools today are not what they used to be 10 years ago." (AAID01-11409)*

1.5.7 Summarising AA activity system

In respect to the finding of the previous sections, AA's activity system showing organisational knowledge dynamics and mechanisms was designed (Figure 7).

Figure 7 AA's activity system



**KDL: knowing, doing and learning*

The unit of analysis schematised by the activity system encompasses a series of goal-oriented actions, representing a goal-oriented activity based on collective experiences described by multiple participants. The stress is on the actions or the dynamics and mechanisms underlying organisational knowledge and eventually knowledge creation.

The attention turns now to the interpretation of this activity system against the backdrop of AA's cultural and historical context and interviews content in order to understand the dynamics of OKI. Thus, the generative mechanisms involved in personal knowledge emergence is explored in the first place before focusing on the emergence of organisational collective knowledge. While introduced in two separate paragraphs, personal and collective knowledge are both components of organisational knowledge.

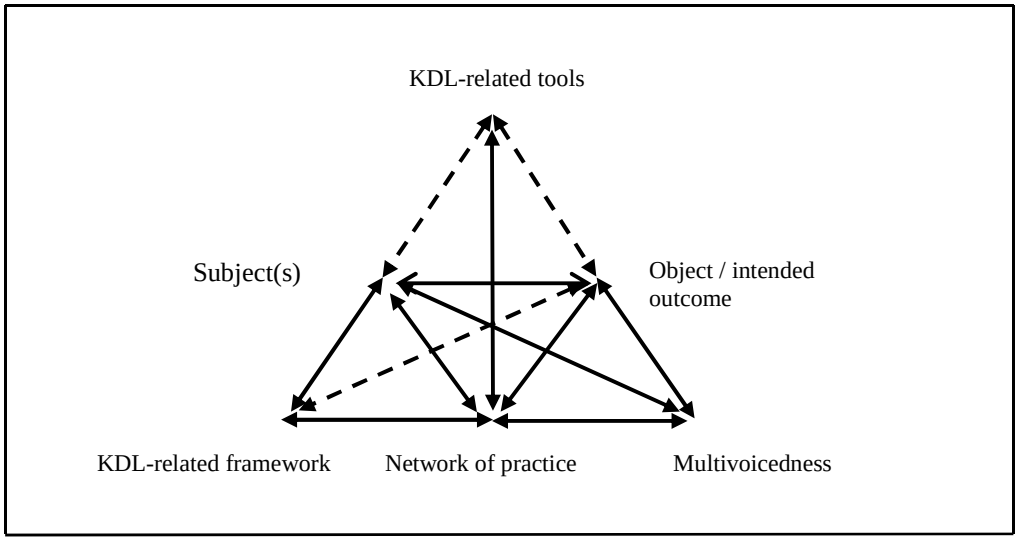
The next section investigates the *'negative'* outcomes identified in the coding process and introduces the systemic tensions and contradictions.

1.5.8 Systemic contradictions

Where conventional approaches on organisational knowledge do not consider knowledge-based organisational issues, ASA provides such an opportunity. Activity systems are historically embedded and evolve over time. For this reason, they are fraught with potential systemic tensions that transform in contradictions. History permeates through an organisation's own internal structure, tools, procedures and others aspects that became mediators of the activity (Engeström, 2001). Contradictions indicate a misfit between elements within the system and with other activity systems and can encourage or prevent development, or trigger a change in

the nature of the activity (Barab et al., 2002b). Four levels of contradictions exist (Section 3.4.2) based on the selective coding; the following contradictions were identified in Figure 8.

Figure 8 AA tensions and contradictions



------ Contradictions
____ Basic relationships

Pertaining to the dynamic framework made available by ASA, contradictions result from historically accumulated systemic tensions. Based on AA case, Figure 8 emphasises three relationships to investigate.

Subjects and KDL-related tools

A secondary level type of tension was identified between subjects and technology. One of the Managing Directors acknowledged limited skills related to the use of new technologies, and that at some extent, this was a liability for the company:

> *"(Laughs) You are talking to the wrong person, I am still in the dark ages and I would like to have some kind of kicking and that make me happen be more up to speed. (Laughs) Well, in finance, it would be probably something like Bloomberg or something like that and the technology that AAID01 has. I am not as up to speed as I should be and that is something that needs to be addressed. Also, even that the whole way that mobile phones are going, my mobile phone is 10 years old. So, I am actually finding out now when I am out meeting to people that they have e-mailed me and that there might be changes of time of meetings and they expect you to pick them out up from your mobile phone rather than your computer. So I think that I am very short." (AAMD03-12859)*

KDL-related tools and object of the activity

Three main tensions and contradictions pertaining to the secondary level were identified. These issues were actually hindrances to the incremental knowing, doing and learning dynamics aimed

at achieving the intended outcome. These contradictions were encapsulated in the theme *'structure and infrastructures issues'* and *'resistance to change'*. AA acknowledged a general weak structure diverting knowing, doing and learning dynamic from its original purpose:

> *"Yes; I think that we are probably not structured as efficiently we should be, which means that I get dragged into all aspects of the business, because I was the original founder and creator and original driver of AA. I think that if things were more streamlined, if the company was better funded, we would have people with more specific responsibilities in certain areas and I think the fact we do not have, the fact that we are not structured as we might like has an impact on my job. I tend to get caught in other direction rather than where I want to be really focused on." (AAMD03-10832)*

In addition, the very structuration of the products was an issue in itself and intensified the difficulties they were going through:

> *"The product AA offering may have been difficult to attract new business. As regard the existing business given that our funds have been so accessible, so flexible, a lot of people have been cashing out then because they needed to refund from more liquid sources, which end up for AA fund being very liquid for clients. So, a lot of clients would have been involved in property deals or got in debt so their investment portfolios within AA would have been much more liquid than other assets that they had so they were readily available for them. That contributed to in a reduction in AA AUM over that period." (AAMD03-3894)*

Moreover, AA lacked adequate skills in order to run its operations adequately, in particular in relation to sales, and compliance and regulation, as illustrated by the following quotes:

> *"Within AA is having a sales force and that is something that we are trying to address at the moment, a sales force that can really sell those product around." (AAMD03-6444)*

> *"The most important now is to find the people who will be able to sell, people who have contact, who knows, where, how to sell the product and this is becoming the key point in our business" (AAID01-17636)*

> *"It just we do not have the skills, I do not have the skills. We need somebody for that [sales]. (…)" (AAID01-18747)*

> *"Regulation is the biggest problem, which can only be addressed by having sufficiently skilled staff to keep on top of it." (AAMD03-19851)*

KDL-related framework and object of the activity

In this study, the context was integrated in the framework set by Activity Theory as it is contended that this helps in understanding the dynamics of OKI. For the case of AA, the related contradictions pertain to a third level category whereby a more *'culturally advanced'* object and motive is introduced into the activity. While new insights might be implemented, they are resisted internally (Engeström, 2001).

In this instance, a combination of intensifying regulatory environment, local competition, and a depressed working environment dramatically and negatively impacted AA's knowing, doing and learning dynamics while at the same time forcing some innovative intent. The following quotations illustrate this point.

> *"One of the biggest challenges is the regulatory environment. Because the regulatory environment getting more and more difficult, in particular for small operators. And that has accelerated since 2008. We have been treated very meanly by the regulator. We have to think in a regulatory backup and compliance operating as a big investment institution" (AAMD03-4594)*

> *"Ireland is where we have been focused up until now, AA has always been in Ireland. It is only just now that we are starting to look internationally. (…) But the competition within Ireland has increased exponentially because the market opening so much and Irish people can now access a wider range of opportunities. So you are getting a lot of international player trying to get in the business in Ireland as well when initially it used to be 4 or 5 domestic institutions. So there was no incentive for them to be innovative, where now everyone has to be innovative to try and grow up and share whatever business was there" (AAMD03-8636)*

> *"People find it hard to be motivated until we get new strategies going. The whole environment, the fact that there is so much negativity in Ireland at the moment, it is having an impact on how people are working and how we'll be coming into the market. When you have an environment of negativity around both externally in the general economy as well as in our own business while we are waiting for our new products done, it's a pretty negative environment. It is not something that could change very quickly, not necessarily the impact of the external conditions. But any change coming up with new products and with someone to drum up business, I think that could shift, that could be more than enough to compensate for the negative outside conditions. But, I think that we are much more in our own control rather than external factors." (AAMD03-11808)*

The ignorance of the changing industrial landscape seemed to be at the origin of most of the problems for AA:

> *"For some reasons, inside the company, the main guy was not able to understand what was going on, to change things enough to be efficient; so unfortunately, when people are waiting for thing to come back to normal and that they do not come back, there can be a problem." (AAID01-9115)*

1.6 CONCLUSIONS AND LESSON LEARNED

This pilot case endeavoured to introduce the methodological specifics illustrating how precisely research instruments and conceptual frameworks were operationalized, and to test the feasibility of such a study. The original use of ASA for theory-building purposes in the abstract subject of organisational knowledge-intensity made such a formulation of this case necessary. In addition, AA case was an opportunity to underscore the limitations of conventional approaches in understanding the underlying mechanisms of OKI combining at the same personal and

collective knowledge. This previous exercise will not be replicated in the two other case studies. It also outlined the complementary character of identifying an organisation's knowledge base prior to further analysis using ASA. This constituted the opportunity to reach a more abstract level enabling the study of OKI. Finally, this case was instrumental in refining and revisiting the methodology and conceptual framework introduced respectively in Chapter 3 and Chapter 4. At this stage though, the researcher should remain open to data from the next case, as each case is considered unique. Moreover, more attention has to be given to the difference between mechanism and dynamics.

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Appendix 1 - Extract of display matrices of excerpts per theme

AA Excerpts - Collaboration and sharing		
Doc.	**Pack.**	**Excerpt Copy**
AAID01	**7574**	So, you do not need to have one person in charge, so we have the board in charge of the company, the directors; and those directors are also high level shareholders, so nobody is in charge of something. The board is making the main job.
AAID01	**15375**	they have different opinions. They see sometimes something I cannot see, so we discuss that by what they publish, sometimes, we have some conference calls about some topics, or sometimes you exchange by forums about any topics in relation with the job, economics, macroeconomic currencies, impact of any potential decisions. So yes. And I do not know personally those people but they are professionals in their area and we just exchange information and points of views.
AAID01	**8029**	So, it is sharing work between some skills.
AAID01	**20696**	So to be able to understand the needs of people, you need to understand also how things are moving, and before it moves.
AAID01	**21910**	well it has been and it is going to change because we think we find the right partner for that. So that is actually this is the most important thing, I think for success. First you need to understand the changes and to transform these changes into decisions. Two is to have the people who knows who is going to be interested by those changes to sell the product. The third thing is to managing, creating , developing is quite easy when the first steps have been met and when you know the next step, it is going to be easy to do.
AAID01	**12952**	we have so many sources of information on the web today; from all newspapers and media on the web you have everything you need to have; and, if you are looking for the website of the companies, you can get anything you like. So, even forecasts today are published freely so
AAID01	**19524**	yes, you need knowledge of the financial market, experience in the financial market; you need to understand how it works, you need to understand the different products, you need to understand also what is available today, what to expect from product today. Compared to 10 years ago the XXX much much larger so
AAMD02	**7769**	Some elements of it are new to me, but business taking in funds and building clients relationships are not new to me; they will be thing I have done throughout my career. This particular area of investment is new to me in terms of the investors, the target investors that we would be identifying. They are not areas where I would have been previously operating in a concerted manner. The principals are similar: to do with clarity your message, consistency of approach and building a relationship with potential investors. The processes are going to be broadly similar to those I followed previously in my career.
AAMD02	**11088**	The issue of then information gathering, analysis, interpretation and regurgitation, let's say, into something that is useful is one that occurs most of the time.
AAMD03	**15712**	AA other than the day to day operations, really AAID01 is the only person I need to be working with on a regular basis.
AAMD03	**15833**	Outside, besides working with AAID01 I have a number of people like that you deal with to bounce some ideas to be. They tend to be individuals; they can be working within institutions. They tend to be people like this I would have established relationships with over the years that you can either use as a sounding board to bounce ideas off and comparing them and looking at generating new ideas. That's more the way that I try to work rather than with institutions you want certain institution that might be source of information. I do not really work that way. It is really identifying good individuals, that I can have a good relationship with that are involved in a similar area but it might be different in the way they are looking at things and together we can come up with good ideas.
AAMD03	**866**	: I am a Director of AA and I end up being involved in all sides of things. I am xx involved in a few processes, work in new projects, new strategies in junction with AAID01, get the general business running and drumming up new business.
AAMD03	**16788**	M: That is something else because it is out of my meetings and discussions and ideas that emerge with people of the likes of AAID01 that good ideas that can be impacting what the future direction of AA is, what it is fundamental to business.

AAMD03	**6675**	Is there some kind of learning? M: There certainly is, because you have to look at what there is at the market right at the moment, you have much more changes than during the first 10 years of AA; there were sort of small improvements and there still just a different version of the same thing when things have moved an awful lot in the last 10 years. The whole industry has changed so much, it is changing at a rapid pace in terms of new strategies, in terms of new funds that are out there and where we are trying to compete. This forces me to really increase your skills and learn new things.

AA Excerpts - Entrepreneurship

Doc.	Pack.	Excerpt Copy
AAID01	**20906**	AAID01: it is coming from a lot of things, it is coming from the analysis of information, the conclusion you get from this analysis. Things are changing all the time and it inot finished so to understand these changes you must transform your analysis in quick decisions. The speed is also becoming a big part of the success. So that is what we missed the last three four years. We are a small organisation and we were not able to transform our analysis in decisions, mainly because one person in charge of all process did not react properly.
AAID01	**21910**	well it has been and it is going to change because we think we find the right partner for that. So, that, actually is the most important thing, I think for success. First you need to understand the changes and to transform these changes into decisions. Two is to have the people who knows who is going to be interested by those changes to sell the product. The third thing is to managing, creating , developing is quite easy when the first steps have been met and when you know the next step, it is going to be easy to do.
AAID01	**12151**	AAID01: yes and you develop your own tools too, so.. Y: So everything is related and this is shaping your way of doing the activity? Based on your own knowledge? Or is there someone else inviting you, giving you ideas? AAID01: No, no. The information is available everywhere. So the most important thing is not finding it; it is just to organise the knowledge and the information which is more important than to get the information.
AAID01	**20696**	So to be able to understand the needs of people, you need to understand also how things are moving, and before it moves.
AAID01	**11190**	Well, it means you have to make some effort instead of managing someone managing some money. It is maybe less efficient, but less risky, so.
AAID01	**12952**	we have so many sources of information on the web today; from all newspapers and media on the web you have everything you need to have; and, if you are looking for the website of the companies, you can get anything you like. So, even forecasts today are published freely so
AAID01	**19524**	yes, you need knowledge of the financial market, experience in the financial market; you need to understand how it works, you need to understand the different products, you need to understand also what is available today, what to expect from product today. Compared to 10 years ago the XXX much much larger so
AAID01	**5377**	the main guy is in Dublin managing daily business, supposing to take care of the company, supposing to take care of XXX with the administrative people working with him and a secretary; about the fund management I am working from Greece, AAMD03 is working from Galway or from Canada and the financial director is coming to the office two times a week to check if everything is in order. If there is any concern, we have anyway a conference call one time per week.
AAID01	**7103**	For example, 10 years ago, you do not need any more to be in the centre of big cities like London, Paris. So, in term of activity, it gives you a lot of freedom.
AAID01	**13588**	We use them as names, as brokers, but you do not need them. So, all the research about companies is not at all about macro economy. We do not need them anymore. They are still publishing research but most of the time it is bullshit. Just for marketing point of view, so
AAID01	**15375**	they have different opinions. They see sometimes something I cannot see, so we discuss that by what they publish, sometimes, we have some conference calls about some topics, or sometimes you exchange by forums about any topics in relation with the job, economics, macroeconomic currencies, impact of any potential decisions. So yes. And I do not know personally those people but they are professionals in their area and we just exchange information and points of views.

Appendix 2 - AA Open Coding

	Instability/uncertainties	Increased competition	Depressed environment	Distrust	Existing potential for development	Globalisation	Connection to the Outside	Financial crisis	Information availibility	History	Importance of the internet	Business Model Evolution	Heavy regulatory environment	Risk aversion	Speed / scope of change in industry	Technology evolution	Value creation	Reputation, trust	Values and attitude	Novel problems / tasks	Research	High level of responsibility	Multi-tasking / polyvalence	Work change / evolution	Heuristics	Self-interest	Incremental building process	Long-term relationship	Knowlege	Analytical thinking	Autonomy, freedom	Creativity / innovation
AAMD03	5	4	2		1	1	1	3		5		7	2	1	5		4	3	3	4	1	1	2	1			2	1	3	2		9
AAMD02	2			2		1	1	3	1	6	2	7	4	1	1	1	2	4	2		3			1	5		4	1	1	5	1	3
AAID01	7						7	5	3	3	2	10	3	3	6	1	1				2	3	1	2		1			3	5	1	3
Totals	14	4	2	2	1	2	9	11	4	14	4	24	9	5	12	2	7	7	5	4	6	4	3	4	5	1	6	2	7	12	2	15

	Learning	Critical thinking	Experience / expertise	Flexibility of working location	High client contact	High qualified skills/knowledge set	Importance of image / rhetoric	Information intensity	Intellectual work	Adaptability / Flexibility	Managing a product	Managing the information	People Intensity	Reactivity	Skills input	Teamwork/ high interdepedence	Technology intensity	Use of online networks / forums	Use of personal networks	Use of professional networks	Working accross boundaries	Knowledge work	Knowledge Workers	Knowledge environment	Object-oriented Activity	Intended outcome	Division of Labour	Learning Community	Learning Subject	Rules	Tools	Totals
AAMD03	3	2	2		1	1			3	6			1	1		1	1		1	1	2	5	1	3	5	3	3	1	4	4	5	144
AAMD02	4	2	3	2	5	1	4	2	5	3	1	1				4	5				1	8	2	4	5	4	3	1	2	4	5	154
AAID01	10	7	1	2	8	4	2	4	1	8	1	3	1	3	1	4	6	3	3	4	2	9	6	6	3	2	3	2	2	5	3	198
Totals	17	11	6	4	14	6	6	6	9	17	2	4	2	4	1	9	12	3	4	5	5	22	9	13	13	9	9	4	8	13	13	

Appendix 3 AA axial coding (38 codes)

	Anticipation - agility- flexibility	Business technology-intensity	Capability to market / sell the product	Client - market centric	Efficiency / deliver performance	Focus on value added / risk activities	Getting external knowledge	Having the right people	Intangible asset	Possessing the right structures/infrastructure	Reputation - image - be compliant	Unique business product / method	Collaboration - knowledge-sharing	Dependance and trust	Incremental learning	personal and professional Network	Ability to stand back - challenge oneself - independance	Adaptability - open to change	Being an implementer / make a decision	Deal with complexity	Experience-knowledge	Generate new ideas - creativity	Understanding - good listener	Willingness to share knowledge / to learn	technology skilled	Business model evolution	Change in market / lack of trust	Change of society - technology	Context-dependant	Crisis 2008 - Difficult environment	Importance of perception - image	Information intensity / analysis - sources	Regulation - compliance	Uncertainties - Instability	Velocity of change / scope	Fragility of the business - many ownership	Resistance to change - poor engagement	Structure and infrastructure issue	Totals
AAM D03	11		3	2	2	2	1	2	1	1	2	5	3		3	1	5	6	1	4	4	6		2		5	9		2	2			4	4	1	4	5	6	109
AAM D02	5	3	7	4	1	1	1	2	3	5	6	5		1	4	4	2	3	3	2	4	2	2	2	2	4	2	1		1	2	2	2	2			3	1	94
AAID 01	6	3	5	5	2	4	3	4	3	2	1	2	3	4	4	2	5	5	3	4	2	5	4	4	3	8	6	4	4	4	5	5	4	7	6	6	6	3	156
Totals	22	6	15	11	5	7	5	8	7	8	9	12	6	5	11	7	12	14	7	10	10	13	6	8	5	17	17	5	6	7	7	7	10	13	7	10	14	10	359

AA Selective coding (first version) - 25 codes

	Anticipation - agility- flexibility	Business technology-intensity	Client - market centric	Efficiency / deliver performance	People dependance - Having the right people	Possessing the right structures/infrastructure	Reputation - image - be compliant	Unique business product / method	Colllaboration - knowledge-sharing	Incremental learning	personal and professional Network	Ability to stand back - challenge oneself - Independance	Adaptability - flexibility - open to change	Being an implementer / make a decision	Deal with complexity	Experience-knowledge	Generate new ideas - creativity	Business model evolution	Change in the industry / lack of trust	Context-dependant	Regulation - compliance	Uncertainties - Instability	Fragility of the business - many ownerships	Resistance to change - poor engagement	Structure and infrastructure issues	Totals
AAMD03	11		5	4	3	1	2	5	5	3	1	5	6	1	4	4	6	5	9	4	4	4	4	5	6	107
AAMD02	5	4	9	2	4	6	6	6	2	6	4	2	3	3	4	4	2	4	3	1	2	2		3	1	88
AAID01	6	6	14	7	5	4	1	2	7	8	6	5	8	3	4	2	5	8	8	7	4	7	6	6	3	142
Totals	22	10	28	13	12	11	9	13	14	17	11	12	17	7	12	10	13	17	20	12	10	13	10	14	10	337

AA: working definitions (in alphabetical order)

Themes	Definitions
Being an implementer / make a decision	Be able to make quick and right decisions; Rigour and attention to details
Business model evolution	Mutation of the prevailing business model(s) in Asset Management
Business technology-intensity	Business endowment in new technologies and the extent to which it relies on these are part of the fourth tools. This also refers to individuals' technological skills, how they use them within the firm and, they manage to handle substantial amounts of information efficiently.
Client - market centric	Shows how the firm is turned towards its clients, how they are focused on the market. Long term relationships buiding - familiarity. Involves the capability of staff to market and sell the product. Outlines the importance of perception, image.
Colllaboration - knowledge-sharing	Degree to which the different participants work together, share information and knowledge. This involves trust with other inernal business partners and the willingness to share knowledge and or to learn. Collaboration and knowledge-sharing is also a disposition that extends to external networks.
Context-dependant	Exposure and sensisitivity to the contemporary business context; legacy of crisis 2008. Awareness of the firm in relation with this context.
Deal with complexity	Multitasking Conceptualising - philosophy of investment. Ability to select the right data / information + capacity of analysing, and making most of huge amounts of information
Efficiency and performance	The firm demonstrates a committment and focus into delivering performance and being efficient in their actions towards clients. Ability of the firm to adapt its structure and infrastructure in order to foster and nurture the value-adding activity and / or frame better the ones carrying a higher risk potential. It is concerned with crafting tailored business solutions.
Entrepreneurship capabilities	Adaptability - flexibility - open to change + Curiosity -adventurous - entrepreneurship
Experience-knowledge	Experience and knowledge delineates participants' deep and thorough knowledge of the business and the industry, their knowledge diversity in fields close to the main interest of their work, their technological skills, and proficiency in executing their work.
Flexibility and agility of the firm	Business flexibility and agility represents the intent of the different members of the firms in improving the running of day-to-day operation while locating their project in the long run. This refers to the agility of the organisation and how it may adapt to new circumstances promptly, early enough and in an innovative way. At last it encompasses the company's renewal capital and its ability to strengthen its capabilities and change the business when required.
Fragility of the business - many ownerships	Structural and chronical instability since 2006. Struggle to identify the right owner
Generate new ideas - creativity	Innovative capabilities; Capability in being different and better

Independence and self-confidence	Ability to stand back - challenge oneself - independence Capacity of interpretation - competition / drive for efficiency Cold head - resilience / confidence
Incremental learning/Innovation	Learning continously; constantly building one's knowedge base whatever the context. This also involves some level of restitution in the form of continuous improvement or incremental innovation. This involves some heuristics.
Mutation of the local industry	Financial distrust / fiduciary broken Irish market open to global competition, ie global players competing with traditional Irish player ==> have to be innovative Intensficatin of the competition velocity of change / scope of change
People dependance awareness	Concern of the firm about being endowed with the right skills and individualities. Awareness of the firm of this crucial aspect.
Personal and professional network	Importance of networking while doing business. Subjects
Regulation - compliance	Significant investments made by institutions in order to be compliant. This is in relation with the unprecedented increase in regulatory decisions from the Irish financial regulator, the EU and other global standards.
Reputation and image	Concern of the firms into establishing strong credentials on the market, showing good governance. The firm is aware of the importance of perception and is committed into building gradually its image / brand. importance of perception Transparency - integrity - create value Being known for having a position on the market - clear identity?
Resistance to change - poor engagement	Failure to acknowledge change of business model occuring in the environment; Failure to embrace new technology; communication issue
Structures and infrastructure	Organisation's structures and infrastructures relate to tangible and intangible elements. This encapsulates the physical facilities and layout, the available equipment but also, the organisational chart, the adequate legal and competitive structure, the license from the Regulator, a minimal required set of working skills, a certain financial 'power', and a compliant organisation.
Structure and infrastructure issue	Weak financial structure, and lack of required skills. Too many changes in ownership that blurred the strategic direction of the company.
Uncertainties - Instability	General uncertainties in the industry and for the businesses - Incremental changes in the industry + unpredictability emerging new regulations ==> uncertain context; instability in business operations / ownership
Unique business product and methodology	Skills, products and methodologies that are unique to the firm. Also the 'right' product.

Selective coding based on KIOs approach (Section 2.2.3)

Themes	Code counts
Flexibility and agility	22
Business technology-intensity	10
Client - market centricity	28
Efficiency and performance	13
People dependance awareness	12
Structures and infrastructure	11
Reputation and image	9
Unique products and methods	13
Firm's specific attributes	***118***
Independence and self-confidence	12
Entrepreneurship capabilities	17
Being an implementer / make a decision	7
Deal with complexity	12
Experience-knowledge	10
Generate new ideas - creativity	13
Individual's specific attributes	***33***
Colllaboration - knowledge-sharing	14
Incremental learning/Innovation	17
Personal and professional network	11
Shared attributes	***52***

Selective coding based on traditional intellectual capital approach

Themes	Code counts
Independence and self-confidence	12
Entrepreneurship capabilities	17
Being an implementer / make a decision	7
Deal with complexity	12
Experience and knowledge	10
Generate new ideas - creativity	13
Collaboration and knowledge-sharing	14
Incremental learning / innovation	17
Human capital	***102***
Flexibility and agility	22
Business technology-intensity	10
Efficiency and performance	13
People importance	12
Structures and infrastructure	11
Unique products and methods	13
Structural capital	***81***
Client – market centricity	28
Reputation and image	9

Personal and professional network	11
Relational capital	***48***

Selective coding based on detailed knowledge asset approach (Kianto et al., 2014)

Themes	**Code counts**
Flexibility and agility	22
Efficiency and performance	13
Independence and self-confidence	12
Entrepreneurship capabilities	17
Being an implementer / make a decision	7
Entrepreneurship capital	***71***
Unique products and methods	13
Generate new ideas - creativity	13
Incremental learning/Innovation	17
Renewal capital	***43***
Business technology-intensity	10
Structures and infrastructures	11
Structural capital	***21***
Reputation and image	9
Client – market centric	28
Relational capital	***37***
Deal with complexity	12
Experience and knowledge	10
Human capital	***22***
Collaboration – knowledge sharing	14
Personal and profesional network	11
Trust capital	***25***

Selective coding for ASA

Themes*	Code counts
Efficiency and performance	13
Reputation and image	9
Unique products and methods	13
Knowledge-based competitive advantage	***35***
Entrepreneurship capabilities	17
Independence and self-confidence	12
Being an implementer/make a decision	9
Generate new ideas/ creativity	13
Entrepreneurs - innovators	***49***
Business model evolution	17
Mutation of the local industry	20
Regulation and compliance	10
Context-dependency	12
Uncertainties –instability	13
Industry changes	***72***
Business technology-intensity	10
Technology-intensity	***10***
People importance	12
Fragility of the business	10
Structures and infrastructures issues	14
Structures and infrastructures issues	***36***
Client/market centric	***28***
Structures and infrastructures	***11***
Flexibility and agility	***22***
Deal with complexity	***12***
Experience and knowledge	***10***
Collaboration / knowledge-sharing	***14***
Incremental learning	***17***
Personal and professional network	***11***
Resistance to change	***10***

* The 14 themes in italic bold are the results of the selective coding.