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PUBLIC SERVICES AS COMPLEX ADAPTIVE SYSTEMS: A FRAMEWORK FOR THEORY DEVELOPMENT

A thesis submitted to University of Dublin, Trinity College

for the degree of Doctor of Philosophy

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SUMMARY

This thesis is aimed at developing public administration theory to improve the governance of public services – i.e., understand more about the actions that actors in public service can take to achieve desired outcomes under the circumstances in which they find themselves. In the course of exploring a particular example of public service (housing in Ireland) to find out how it worked, it became apparent that a 'complex adaptive systems' approach to developing theory would provide a coherent framework within which to weave together the various strands of current public administration theory under a 'governance' umbrella, as well as a firm basis upon which to formulate testable hypotheses. A particular systems model, the 'performance landscape' (Siggelkow & Levinthal 2003), based on Stuart Kauffman's (1993) 'NK' framework, was selected as having strong potential for integrating existing theory, addressing the various elements of actual public service delivery and facilitating the development of simulations for theory development and testing. This model was mapped against existing theory, as well as to the actual decision making processes of actors in the Irish housing system to flesh out the details and to determine what, if any, aspects of actual public administration behaviour could not be addressed by theory based on this model. In addition, implications for public administration theory and practice were highlighted and areas for further research identified.

The research methodology combined case study research techniques (Yin 1994, Eisenhardt 1989, Barzelay et al.2003) with a soft systems analysis (Checkland 1981) to explore the characteristics of the Irish housing system over the period 1998-2005 and to progress towards a theory of governance in housing. In general, the research followed the eight steps required for theory building using cases as described by Eisenhardt (1989), but also incorporated key elements of the 'systems thinking' steps in Checkland's soft systems methodology, notably the development of a conceptual model of the phenomenon (the 'root metaphor') in consultation with stakeholders.

The data collected included semi-structured interviews with managers across a range of housing activities, secondary documentation about the organisations included in the interview process, housing statistics, policy documents, relevant literature (as reference material against which to compare emerging categories/hypotheses) and a survey of factors considered by managers in their strategic decision-making. Interviews covered organisational history, key decisions made in the recent past or under consideration, and environmental factors affecting decision-making and numbered 63 in all, although only 48 of these were used in the comparative case study phase of the project.

The entire research project spanned nine years and comprised three distinct phases. Phase I was an 'exploratory' case study of housing in Ireland in which it was concluded that (1) the range of

interviewees (actors) needed to be extended beyond that which was originally thought, (2) that the range of actions, circumstances, and outcomes potentially relevant to governance theory was extremely broad, and (3) that many participants and observers perceived housing as a system of some kind. Phase II extended the case study to encompass a wider range of actors, actions, circumstances and outcomes, while at the same time introducing 'boundaries' through the application of systems thinking and stakeholder review / participation to define the 'root metaphor' applicable to housing as a system. It was in this phase that a particular type of complex adaptive system model – the 'performance landscape' – was identified as being appropriate to building governance theory for housing as a public service.

Phase III focused on teasing out the specific details of housing as a performance landscape through a comparative case analysis of decision-making by 48 of the 63 actors included in the original study. These actors were identified as 'production' agents, for which sufficient primary and secondary data was available to pursue detailed specification of the features of the performance landscape. The case study concluded with a statistical analysis to identify relationships among the features of the performance landscape to complete the specification of the landscape.

The main contributions to public administration (governance) theory arising from this research are: 1) the identification of a particular systems framework with which to develop coherent, multi-disciplinary theory, 2) the mapping of this framework to a real-world example of public service, 3) detailed descriptions and classifications of the four dimensions of public administration (governance) theory along with the identification of two additional dimensions required to model a public service system, 4) evidence suggesting that decision-making is broadly similar across the public, private and non-profit sectors, 5) evidence suggesting that institutional theory needs to be expanded to incorporate environmental change and uncertainty as a feature of organisational decision-making and 6) the identification of systemic outcomes and the role that public sector agents play in influencing these.

In addition to the theoretical contribution, four key implications for policy and practice arising from the case study / systems analysis were identified. These are: 1) consideration of the impact of policy decisions on environmental uncertainty needs to be incorporated into policy models and deliberations, 2) identified 'emergent' factors arising from the joint actions and interactions of agents are likely to be contributors to unanticipated policy outcomes, 3) the six value objectives identified as driving agent formation and decision-making should form the basis for balanced policy development as well as performance measures for individual organisations, and 4) the 'uniqueness' in terms of strategy and decision-making in the public sector appears to be the emphasis on systemic activities such as coordination across agents, information production and dissemination rather than the pursuit of different or more complex objectives.

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Chapter One: Introduction to the research

"The study of the behaviour of an adaptive system is not the logical study of optimization but an empirical study of the side conditions [goals, environment, learned strategies and knowledge] that place limits on the approach to the optimum." (Simon 1992: 160)

What this thesis is about

This thesis is about how public services systems 'work'. More specifically, it is about how people in Ireland organise themselves to produce and allocate dwellings for the people who live in Dublin and the surrounding area. Housing in Dublin and Ireland is used as an empirical case upon which to begin to build the foundations of a theory of public services based on a complex adaptive systems (CAS) framework. As such, it is a theory-building exercise in public administration that adopts a particular framework for understanding human behaviour, the development of which is based on empirical evidence. As will be discussed later in this chapter, this thesis fits within a particular strand of public administration theory, namely 'governance theory', which is considered by some as "a surrogate or proxy for 'public administration' or 'public management' in the discipline's leading literature" (Frederickson & Smith 2003: 209).

While there exist a number of different definitions of 'public services', I will use a slightly modified version of Willcocks & Harrow's (1992) definition for this thesis: "those services provided and managed by the public domain (that is, funded predominantly by government-raised income and[/or] subject to direct or indirect control of elected politicians), whose business is in some sense processing people rather than materials" (p. xv). The modification is the inclusion of 'or' in the above quote which allows me to consider those services that may be largely funded by private resources, but which are clearly subject to political intervention, not to mention the deployment of vast public resources. Crucial services such as health, education and housing are excellent examples of public services which are often paid for by citizens directly, but within an institutional framework established by government. Furthermore, most governments in western democracies provide significant subsidies for those whose resources are deemed insufficient to meet their service needs. Due to the complexities of the institutional arrangements and the multifaceted nature of the participants, these services are as much (or perhaps more) in need of coherent and compelling theory supporting their effective organisation and delivery as are those services more directly managed by the public sector.

The term 'work', as in the phrase "how public services systems *work*", is meant to cover a range of conceptual elements that are embodied in the phrase "organisation and delivery", and also "circumstances and outcomes", as will be used later in this chapter and throughout the thesis. The first pair of concepts, "organisation and delivery" refers to the human activities related to a

particular service domain or industry, while the second pair refers to the relevant characteristics of the domain that give rise to the activities and/or are considered to be consequences of the same. As such, the term 'work' covers an integrated set of conditions and actions in which there are reciprocal causal relations.

Finally, the term 'system' is used here in its broadest sense, namely, "a set of elements and relations between those elements" (Marchal 1975 *as quoted in* Midgley 2003:94). In Chapter Four, the proposal to treat public services as *systems* will be discussed and defended more explicitly as part of defining the conceptual model for analysis. Also in that chapter, the grounds for choosing a complex adaptive systems (CAS) framework are presented, but without claims that this is the only way to understand how public service systems 'work'. Instead, what this thesis proposes and seeks to demonstrate is that the current fragmentation in public administration theory may be resolved, at least to some degree, by the adoption of a CAS framework which integrates the various strands of public administration theory into a coherent whole, while maintaining and/or improving on the 'descriptive capacity' of existing public administration theory.

Descriptive capacity "refers to a theory's ability to portray the real world accurately *as it is observed*" (Frederickson & Smith 2003: 230, emphasis mine), and it is proposed that the CAS perspective provides insight into the behaviour of participants and the outcomes arising from their actions/interactions that would otherwise be inaccessible or, at the very least, under-appreciated. Hence, the effect on descriptive capacity of applying CAS to public administration theory is one of expanding what is observed and linking elements together, rather than contradicting the observations of others. The insights gained are summarised in the conclusion to this thesis, but in general they have to do with clarifying the nature of actors, actions, circumstances and outcomes in a public service system.

The goal of this thesis is to support the two claims that: 1) CAS provides an integrated, internally consistent and empirically valid framework for developing a governance theory of public services, and 2) adopting this framework (CAS) leads to new insights that can help practitioners resolve some of the dilemmas in the practice of governance.

Why do we need a theory of public service?

"Large public sector organisations are a mess" (Chapman 2002). Chapman is specifically referring to the UK's National Health Service (NHS), although the observation might just as well apply to public services around the world. Symptomatic of this mess are the failures of and unintended consequences arising from policy decisions and management interventions in the public service arena. Studies of policy outcomes in housing (Blackwell 1988) and urban

partnerships (Sabel 1997) in Ireland, welfare reform in the US (Sandfort 1999), and institutional development and reform efforts around the globe (McKeavitt & Lawton 1994, World Bank 1995) raise serious questions about the efficacy of policy making and implementation. In the specific case of Irish housing, which is examined in detail in this thesis, a number of unexplained outcomes and persistent inconsistencies frustrate analysts, policy-makers and practitioners alike. Examples include: 1) why is the purchase price of housing so high while the 'cost' of housing so low in comparison to Europe? 2) why are 5% of households in housing need, while any number from 10-30% are 'overhoused'? 3) why isn't social housing output rising as quickly as private sector output even with sufficient funding and facilitating legislation? 4) why are the policy approaches to solving housing need different across different tenures? 5) how is it that corruption, oligopolistic behaviour and tax evasion continue to exist in the housing system in spite of legal, social and political efforts to eliminate or, at least, contain these practices?

In addition, the waves of reform that swept through public administration agencies throughout the Western world in the 1980s and 1990s have had little to show for their 'sweeping' changes aimed at improving the three 'E's of public services; economy, efficiency and effectiveness (Pollitt & Bouckeart 2004). At the highest level, total government outlay and debt did not decrease over the period 1985-2000, remaining at between 37-40% of GDP across the OECD (OECD Statistical Yearbook 2002). In fact, government net financial liabilities as a percentage of GDP actually increased (from 36% to 43%) on average over the same period. On the other hand, government employment as a percentage of all employment did decrease from 1985 – 1999 (Pollitt & Bouckaert 2004), which appears to be the major 'success' story of 'New Public Management' (NPM). However, studies of how this was achieved suggest that 'privatisation' strategies under NPM simply transferred public sector employees into the private sector, without significant increases in efficiency (Pollitt & Bouckaert 2004, Frederickson & Smith 2004).

These studies suggest that policy makers do not know enough about the cause and effect relationships that operate in the relevant policy domains when developing their interventions. Chapman (2002) proposes that one reason is that government policy makers are dealing with increasingly complex systems of service provision for which the current policy models are insufficient. Bovaird & Loffler (2003) noted that "the first generation of reforms has been characterised by insufficient attention to *systemic* and to *governance* effects (p. 43 – italics in original)". Regarding Ireland, the authors further note that the flagship of public management reform, the "Strategic Management Initiative" (1996), succeeded "in some micro reforms, but did not achieve its original strategic goals (p. 46)" due to a failure to address systemic issues. Boston (2000), Pollitt & Bouckaert (2004) and Frederickson & Smith (2003) all agree that theory to address the complexity inherent in public administration is still in its infancy. Which brings us to

the discussion of why, after over a century of analysis, debate and evaluation, this apparent lack of success in linking public administration theory to reality persists.

Background to the current state of theory in public administration

Up until the middle of the 20th century, the dominant paradigm in public administration was the 'bureaucratic' model (Wilson 1887, Weber 1914) in which public administrators sought to carry out legislative intent through applying the principles of bureaucratic management. The goal of traditional public administration is "to discover, first, what government can properly and successfully do, and, secondly, how it can do these proper things with the utmost possible efficiency and at the least possible cost either of money or of energy" (Wilson 1887: 197). Bureaucratic management structures followed the tenets laid out by Wilson and Weber and, to some extent – particularly in the US - by Taylor (1911)[1] as interpreted and presented by Gulick & Urlick (1937). The key features of Weber's bureaucratic model of public administration are: 1) the existence of and belief in a particular type of "legal-rational" authority by members of the society in which bureaucracies function[2], 2) the division/specialisation of labour, 3) hierarchical relations of authority and control and 4) clear rules of behaviour/reward which constrain and inspire the choices that bureaucrats make in pursuit of their objectives (Stillman 2000). Both Weber and Wilson believed that, in addition to these basic features, members of the bureaucracy needed to be highly trained, committed to the public good (in so far as they were in the public service) and evaluated based on a meritocratic model. Finally, Wilson and the "progressive reformers" of the early 20th century staked a great deal of importance on the separation of responsibilities between policy-makers and administrators, suggesting that this separation "is clearing the moral atmosphere of official life by establishing the sanctity of public office as a public trust, and, by making the service unpartisan, it is opening the way for making it *businesslike* (Wilson 1887: 207 – emphasis mine)". While the separation was largely promoted by reformers as a way to combat corruption, Wilson clearly saw it as facilitating the introduction of management 'principles' that would improve the efficiency and effectiveness of government. Of course, the separation of policy and administration also introduced issues of control by the political 'masters' over their public 'servants', and this was to be the central problem for political administration until the mid-20th century (Frederickson & Smith 2003).

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[1] Note that while many authors consider Taylor's principles of "Scientific Management" to be influential in the management practices of public administrators, the US Congress held special hearings in 1911 and 1912 in which they explored these principles, including 'close questioning' of Taylor himself, after which certain practices, such as the use of stop-watches, were banned from the civil service. Source: http://www.accel-team.com/scientific/scientific_02.html

[2] Weber contrasted this type of authority with two other types, namely 'traditional' authority, having to do with the rights/obligations of leaders who pass on their authority to their kin or selected inheritors – e.g., kings and popes, and 'charismatic' authority, which is based on the personal qualities or deeds of persons in authority, e.g., military heroes, chat-show hosts, etc..

In the middle of the 20th century, the hegemony of the bureaucratic model in public administration theory came under concerted attack by academics seeking to relate the theory about how public administration *should be* performed to the reality of how it *actually was* performed. The first assumption to go was that policy decisions and administrative decisions could be separated in actual practice. As early as 1931, John Gaus observed that federal agencies in the US independently shaped the policy directives from Congress, and thereafter followed a stream of research into the actions and influence of administrators confirming Waldo's (1946) blunt observation that "administration is politics". This view was also found in Simon's (1947) opus on 'administrative behaviour', along with a devastating critique of the 'principles' of administrative science as promulgated by Weber, Taylor, Gulick and their followers. Frederickson & Smith (2003) suggest that this led to the abandonment of management as a mainstream discipline in public administration theory for a generation (though management principles and techniques remain as central elements of public administration practice to this day).

Around the same time, sociologists and psychologists were studying the motivation and behaviour of human beings in organisational and group contexts and the 'human relations' school of management was born. Writers such as Maslow (1943), Herzberg et al.(1959), McGregor (1960), Bion (1961) and Trist & Emery (1975) made it clear that employees needed more (or perhaps less) than specialisation, expert training and clear rules to perform efficiently and effectively, and that their needs spanned a range of individual and group dimensions. The *Tavistock Institute of Human Relations* was established in London in 1946 to study the psychology of individuals and groups, and out of their work came much of the group dynamics theory that is used today. The point is that management theory moved away from the 'scientific' approach associated with traditional public administration and focused on motivation and structural effects of groups. This work had significant impact on business management practices, but little effect on public management until the onslaught of the public management reform movement in the 1980s and 1990s. In fact, the subject of management gradually disappeared in public administration textbooks in the Untied States, as well as from the influential journal, *Public Administration Review*, until the mid 1980s (Frederickson & Smith 2003).

Completing the demolition of traditional public administration theory was the challenge by economists (not to mention public administrators, themselves) on the assumptions of bureaucratic commitment to the public good, the promotion of employees based on merit/competence and the advantage of hierarchy as an organising principle. Parkinson's Law (1958)[3], based on the author's experience in the British Civil Service, stated that work (in the civil service) will always expand to fill the resources available. Furthermore, Parkinson suggested that this was due to two factors: 1) bureaucrats want to 'multiply' their subordinates to increase their power and influence, and 2)

[3] first published as an essay in the *Economist* in 1955

bureaucrats will make work for each other. A similar observation/assumption was made by Niskanen in 1971 when he proposed that bureaucrats are like everyone else in economic theory in that they will be motivated principally by self-interest (in the form of a utility function). In Niskanen's formulation, the elements of the utility function for bureaucrats (wages, prerequisites, prestige, power, reputation) were all tied in some way to the budget of the organisation, and therefore one could model bureaucracies essentially as organisations seeking to maximise budgets. The 'buyers' of services were legislators who had less information than the agencies about the cost/quality trade-offs involved and, furthermore, the agencies were in a monopolistic position vis-à-vis the legislature owing to their establishment as single, or at least central, providers of the public services in question. Unsurprisingly, Niskanen's model showed that, in a situation in which budgets are the measure of success and there is information asymmetry and monopoly control by suppliers, inefficiency is bound to result.

But Niskanen was not the only economist to be critical of traditional public administration. Buchanan & Tullock (1962), Arrow (1963), Freidman (1964), and Stigler (1975) all criticised the basic underpinnings of public administration in so far as it relied on the provision of services to citizens through a reliance on hierarchical, monopolistic organisations. These authors suggested that, irrespective of the flaws in the behaviour and motivation of bureaucrats themselves, the structure of public bureaucracies mitigated against efficient provision of public services. The argument was formally introduced by Charles Tiebout in 1956 in an article in the *Journal of Political Economy* in which he postulated that people 'vote with their feet' and can and will move to different (local) jurisdictions if the services provided by government in their jurisdiction are inadequate or too costly. Based on this proposal, he formulated 'Tiebout's hypothesis' that multiple providers of public services competing both horizontally and vertically offer the best possibility for efficient and effective public services. Much of 'public choice' or 'rational choice' theory in public administration - postulating that a market for public services is more efficient than hierarchy - owes a debt to Tiebout and, of course, to the father of neo-classical economics, Adam Smith (1776).

However, in spite of the demise of traditional public administration theory in academic circles, practitioners continued to apply the same basic principles espoused by Wilson, Weber, Taylor and the rest of the early 20th-century theorists until the 1980s. Then, in an orgy of reform that swept through western world - particularly the English-speaking countries - the edifice of public administration theory finally came down in practice. Economic pressures brought on by the oil crisis and rapidly rising public expenditure[4] (Foster and Plowden 1996, Lane 2000), along with an erosion of trust between citizens and public servants (Kettl 2000) forced the issue, and reforms

[4] Public expenditure as a percent of GDP in OECD countries grew from 28.5% in 1960 to almost 40% in 1981.

aimed at 'transforming' and 'reinventing' government got underway. While some prefer the more generic phrase, "public management reform movement" to refer to this period of activity in the 1980s and 1990s, it is rather too generic given that reform movements have occurred at other times for other reasons[5]. Instead, let us use the popular phrase "New Public Management" (Hood 1991) to refer to the changes promoted in the latter decades of the 20th century by governments around the world.

New Public Management (NPM) is a term used to indicate a range of reforms, generally aimed at dismantling government bureaucracies and/or changing the way the services are delivered to end-users. Christopher Hood, in his seminal article in 1991, classified these reforms into seven 'doctrines', which maybe combined into three for the purposes of this discussion: 1) privatisation, 2) decentralisation and 3) managerialism. The doctrine of *privatisation* took up the criticisms of the "Chicago School" economists[6], who heavily criticised state interventions in the economy in general, and the inefficiency of public enterprise in particular, and promoted the shift of public sector service provision out of government bureaucracies and into private enterprise. Privatisation reforms also relied upon the views of the 'public choice' economists (Tiebout 1956, Arrow 1963) who argued that efficiency and quality could only be achieved through the availability of choice for consumers and competition among producers. Governments in New Zealand, the United Kingdom, and (to a lesser extent) the United States all pursued privatisation and/or the creation of internal markets within public sector organisations in an effort to achieve the promised efficiencies. A later (1990s/2000s), modified version of this 'doctrine' held that the non-profit ('voluntary'/'philanthropic') sector combined the desired (private enterprise) characteristics of innovation and entrepreneurship with the more socially-minded values of the public sector and offered a more attractive alternative to the much-maligned government bureaucracies (Cohen 2001).

Decentralisation refers to reforms that dis-aggregated large, centralised public service institutions and/or empowered local government entities or communities into smaller, more focused and less interconnected agencies to create more responsive and competitive local service providers. Osborne and Gaebler's (1992) model for "reinventing government" includes decentralisation as a critical step in improving responsiveness of government and the process was a major component in the public sector reforms promoted by the World Bank both in developing and developed countries throughout the world. Other justifications for this approach included the need to create 'manageable' units (Hood 1991) and the efficiency advantage of separating strategic policy development from operating units (Ferlie et al.1996).

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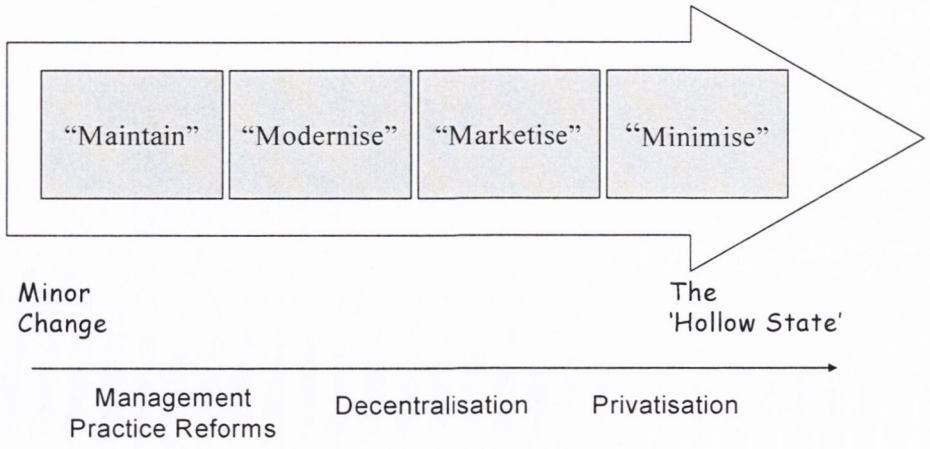
[5] For example, the 'progressive' reform movement in the early 20th century in the US referred to earlier

[6] e.g. Milton Freidman and George Stigler

Managerialism encompasses five of the seven doctrines identified by Hood (1991) and was a move towards "private sector styles of management practice" – harkening back to Wilson's 19th century call for making public administration more 'businesslike'. These include explicit standards and measures of performance, greater emphasis on outputs over processes, "hands-on professional management" and a need to "do more with less" (Hood 1991: 4-5). Pollitt & Bouckaert (2004) identified three main categories of managerialist-type reforms: financial, personnel and performance measurement. Interestingly, many of these techniques were already present in mainstream public management practice long before they became part of NPM. Herbert Simon (1947) recommended management by objectives and goal-setting activities for public administrators, and performance measurement was a part of Taylor's (1911) scientific management principles. Nevertheless, the combination of tools and techniques described by Hood (1991) and Pollitt & Bouckaert (2004) represent a fundamental shift away from the "old military-bureaucratic ideas of good *administration*, with its emphasis on [process], public service and orderly hierarchies" (Hood 1991: 6), towards a new concept of good *management*, with an emphasis on outcomes, competition and lowering costs.

Pollitt & Bouckhaert (2004), in their comparison of the implementation of NPM reforms across 12 countries in the OECD[7] and the European Union itself suggested that there were four basic combinations ("trajectories") of reforms undertaken in the countries studied, as represented in the diagram below. The first trajectory of reform was minimal change or 'maintaining' the status quo, which the authors ascribed to Germany and the EU, and which consisted of some tightening up on budget management and functional streamlining. The authors also suggested that, over the period studied (1985-2000), reform was often more about 'rhetoric over rigour' as "visionary futures were unfurled in terms that are carefully chosen to sound good whilst carrying no specific and testable content (p. 199)".

Figure 1.1: The four 'trajectories' of reform (based on Pollitt & Bouckaert 2004)



[7] Australia, Belgium, Canada, Finland, France, Germany, Italy, Netherlands, New Zealand, Sweden, UK and USA

The second trajectory of 'modernisation' was the most prevalent among the countries studied and consisted of fundamental changes to the way that public administration was organised and pursued. Changes included sweeping budget, personnel and financial management changes, a (re)commitment to outcome/performance measurement as a key management tool and 'extensive' decentralisation and devolution of authority from central ministries and agencies. All non-English speaking countries except Germany fell into this trajectory of reform, with Canada an "awkward customer" in that it fell between the modernisers and the "marketisers" in the typology. Pollitt & Bouckaert called these countries "Continental European modernizers... [that]...see a large role for private sector forms and techniques in the process of restructuring the public sector" (p. 98). However, these reforms did not challenge the role of the state "as *the* irreplaceable integrative force in society, with a legal personality and operative value system that cannot be reduced to the private sector discourse of efficiency, competitiveness and consumer satisfaction" (p. 98 – emphasis theirs).

Countries that adopted a 'marketisation' strategy (the third trajectory) to public administration, on the other hand, generally did so within a rhetoric of abandoning this idea of government occupying this central role. These countries aggressively pursued replacing public administration 'bureaucracies' with market mechanisms through privatisation, 'purchaser-provider' models, large-scale outsourcing, pay-for-performance regimes in the civil service and the loosening up of civil service hiring practices to encourage more mid/upper-level appointments to 'outsiders'. This group includes Australia, New Zealand, the UK, and the USA. Interestingly, the authors are of two minds in including the USA in this group as they found that reforms in that country were often more rhetorical than actual.

Finally, the authors proposed a fourth reform 'trajectory' of the "minimal state" which they claim has very little resonance in practice, but was present in the reforming rhetoric of the Thatcher (UK), Reagan (USA), Howard (Australia) and National Party (NZ) governments. This rhetoric and some of the more extreme efforts at marketisation of public services were at the centre of concerns (Peters 1993, Rhodes, R.A.W. 1994) regarding the management of the 'Hollow State':

"The hollow state refers to any joint production situation where a governmental agency relies on others (firms, nonprofits, or other government agencies) to jointly deliver public services. Carried to extreme, it refers to a government that as a matter of public policy has chosen to contract out all its production capability to third parties, perhaps retaining only a systems integration function that is responsible for negotiating, monitoring, and evaluating contracts." (Milward & Provan 2000: 362)

The main concerns regarding attempts at minimising the role of the state in the provision of services are the potential lack of control over third-party providers (the principal-agent problem), the elimination of a set of values around fairness, equity, probity and adherence to the law in the

provision of services (Haque 1996) and the general decline in the level of trust in and reliance on the state by citizens – i.e. a loss of government 'legitimacy' (Milward & Provan 2000). However, as noted by Pollitt & Bouckaert (2004), the rhetoric of the hollowing out of the state was largely confined to English-speaking countries and, even in these, there are doubts as to the commitment of policy-makers to the rhetoric and the feasibility of "governing without government" (Pierre & Peters 2000).

The existence, not to mention impact, of the extreme version of NPM is not the only question mark hanging over the reforms promoted under this programme. Each of the three main elements of NPM have come up short in empirical research seeking to examine whether or not they have delivered on the promise of more efficient/effective governance. In relation to the privatisation agenda, Dunsire, Hartley and Parker (1994) showed that the evidence for the superiority of private over public enterprise was mixed in their study of 11 public/private organisations in the UK, while Kay (2002) pointed out that, while customers may have gained somewhat from privatisation, investors have often lost out. Mackintosh (1998) found that NPM contributed to a "widening of the class division within the public sector (and) a decline in public sector expertise (Mackintosh 1998: 88)". Numerous studies could be listed here, but the bottom line is that there is still no proof that private enterprises are, all things being equal, more likely to perform more efficiently or effectively than public sector ones. Furthermore, there are clear indications that a reliance on 'markets' to deliver public services can result in marginalisation of socially and/or economically disadvantaged groups (Henig 2004, Norris & Redmond 2005) and "such outcomes may represent the technical advantages of the market in efficiency, but contradict the egalitarian values of democracy" (Frederickson & Smith 2003: 201).

Decentralisation of public service provision – or "fragmentation" as some would have it – also has its practical and theoretic difficulties. Tiebout's original (1956) hypothesis that decentralised, competing government agencies would result in more efficient/effective provision of local government services has yet to be conclusively proven (Boyne 1998). Furthermore, the dual assumptions about citizen-consumers underpinning Tiebout's hypothesis, i.e. that they were mobile and that they could or would compare price/quality trade-offs, were contradicted in studies by Lyons, Lowery & De Hoog (1992) and Teske et al.(1993) among others. Echoing the findings on the effects of privatisation, critics of the decentralisation of public services suggest that, in reality, it is those citizens who are already well-off that are more likely to be informed about price/quality trade-offs. Therefore it is this group that is more likely to benefit from more choice in providers, further increasing the marginalisation of the less well-off. On a practical note, Larbi (1998) suggested that in many countries, particularly in the developing world, there are simply not enough experienced public managers to go around, and decentralisation associated with NPM exacerbated the problem of delivering services efficiently and effectively. Decentralisation

increases the demand for skilled public managers which, in many cases, are already a scarce commodity.

Managerialism – or the introduction of the tools and techniques of management practice – has been the least controversial of the three elements of NPM, although the approach is not without its detractors. Pollitt (1993) saw managerialism as part of a self-serving movement promoted by a particular set of individuals and institutions (e.g. senior civil servants, management consultants and business schools) who stood to gain in status from the introduction of these techniques throughout the public service. Stewart & Ranson (1994) held that the goals, stakeholders, accountability and resource allocation aspects of public sector management differ significantly from those facing private sector managers, such that techniques that apply in the latter domain are not always transferable to the former. Mostly, the critique of the managerialist element of NPM was not about the effects, but rather about the claim that these tools and techniques were somehow 'new' to the public sector. As noted earlier, many of the practices have been considered good practice in public management since the mid 20th century and the reforms outlined by Politt & Bouckaert (2004) in finance, personnel and performance measurement are in no way revolutionary. Probably the most insightful analysis of these reforms was provided by Hood & Jackson (1991) in their analysis of the persistent recycling of management 'doctrines' in spite of Simon's (1947) critique of the lack of empirical grounding for these. In their book, *Administrative Argument*, Hood and Jackson suggest that management practices in the public sector are more likely to be changed based on rhetoric and persuasion, rather than on solid evidence of the advantage of one approach over the other. 'Doctrinal' statements about various areas of practice are received, challenged, changed and accepted with little reliance on hard data, but rather through negotiation, metaphorical argument and cognitive shifts in shared understandings of the problems to be solved and the means to solve them. Their nine doctrinal areas of management practice[8] which they identify as subject to this type of change cover the entire range of NPM managerialist reforms, except those having to do with some of the financial 'reforms' identified by Pollitt & Bouckaert (2004).

Given the above, it is certainly fair to say that there are many questions as to the appropriateness and efficacy of the changes wrought by NPM in the delivery of public services, not to mention their impact on public administration theory generally. There is little question, however, that NPM has resulted in significant change. In particular, NPM has introduced a plethora of new and more independent actors into the public service, with a variety of motivations, objectives and perspectives. R.A.W. Rhodes (1997) used the term 'differentiated polity' to refer to the current

[8] The nine areas are: 1) *scale* (large v. small), 2) *service provision* (state v. market), 3) *choice* (none vs. some), 4) *specialisation* (function, customer, location), 5) *control* (administrative, professional, market), 6) *degree of discretion* (laws, regulation, norms, innovation), 7) *employment* (merit, skill, representation), 8) *leadership* (political, administrative, professional, entrepreneurial), 9) *purpose* (carry out law, create public value, facilitate change, promote stability)

environment for public administration and policy, which captures elegantly both the scope and heterogeneity of the post-NPM world. No longer can public administration theory assume or rely on a central mover for the delivery or even specification of public services but must contend with "complicated webs of states, regions, special districts, service delivery areas, local offices, non-profit organisations, collaborations, networks, partnerships and other means for the control and coordination of dispersed activities (Lynn et al. 2000: 1)". Fredrickson & Smith (2003), along with many others, suggest that this fundamental change from the 'unified state' to the 'differentiated polity' challenges public administration scholars to develop new ways of understanding and explaining the world of the public administrator.

However, opinion is divided as to which new way to adopt, even among the supporters of public administration. Frederickson & Smith (2003) detail eight different theories of public administration[9] that are actively pursued, and suggest that one of these, "governance theory", has the greatest potential for sorting out the actors and integrating the various theories into a coherent overall approach to research in public administration. Pierre and Peters (2000) suggest that 'governance' has eight different 'perspectives'[10] - which are similar in content if not always in name to the theories described by Frederickson & Smith. Stillman (2000) in the 7th edition (and 25th year) of his highly regarded textbook, *Public Administration: Concepts and Cases*, doesn't attempt to bring coherency to the discipline, but instead opts for a 'Chinese menu' approach of fifteen different topics and an introduction in which he says that public administration is "the eminently practical science" that is "continuously 'bubbling up' with multiple new perspectives for understanding, defining and dealing with salient public issues of the here-and-now by means of its own brand of interdisciplinary hands-on conceptual creativity" (Stillman 2000: 29).

The pessimists, on the other hand, observe that "public administration as an academic discipline has more or less crumbled during the recent decades... replacing it there is now a proliferation of concepts, frameworks and theories" (Lane 1993: vii). Twelve years on, Weber (2005) went further, commenting that, "the academic discipline of public administration is drifting and largely ignored, because so often the ideas are stale and impractical for they are based on a faulty understanding of existence" (p. 266). Frederickson & Smith's (2003) analysis was no less unsettling, if somewhat less stark than Weber's, when they assessed the extent to which the eight theories presented achieved high marks in their six dimensions of 'useful' theory[11]. Not a single one achieved high marks in more than three out of the six dimensions. In fact, their preferred

[9] These are: 1) political control of bureaucracy, 2) bureaucratic politics, 3) (public) institutional theory, 4) public management, 5) postmodern theory, 6) decision theory, 7) rational choice, 8) governance

[10] Pierre & Peters' (2000) perspectives on governance are: 1) top-down authority of the state, 2) autopoiesis and network steering, 3) cybernetic processes, 4) potential (policy) instruments for steering, 5) institutional analysis, 6) rational choice, 7) policy networks and 8) neo-Marxism and critical theory.

[11] the six dimensions are: 1) parsimony, 2) explanatory capacity, 3) replicability, 4) descriptive capacity, 5) predictive capacity and 6) empirical warrant

theory (or, more precisely, their preferred theoretical framework) of 'governance' didn't achieve a single 'high' assessment.

No wonder current public administration theory is, to a large extent, ignored by those who practice it. However, before one can justify the pursuit of a fundamental reassessment of public administration theory, one niggling doubt remains. While it may be the case that academic literature/theory is ignored by practitioners, it could be that practitioners have come up with their own theoretical framework(s) to guide their actions which has simply been ignored by the academics. To determine whether or not this is the case, it is necessary first to choose a particular area to examine as public administration is practiced in 'subject areas' relating to the specific professional or functional area in which public administrators operate. Since this thesis examines housing in Ireland as the empirical case, the obvious literature to choose is that of housing policy and practice.

Is there a theory or theories of housing?

Before exploring the existence of housing theory, it is important to explain why housing was chosen as the empirical domain in which to examine public service systems. The choice of housing as an exemplar for public administration had three drivers, the first of which is the inclusion by Rose (1979) of housing in the class of public administration activities that he called "social services". According to Rose, this class of activities presents the greatest challenge to public policy makers as the line between public, private and voluntary service providers is often unclear and these services are subject to wide variations in political support and funding[12]. Rose based his classification of public administration activities on a study of the development of the civil service in 32 nations since 1849 and proposed two other classes of public administration activities: *defining activities*, such as defence, internal policing and establishing the legal and financial systems and *mobilisation of resources*, including the policy-making and regulatory activities of the departments of commerce, industry, agriculture, transport, communication and public works.

Similarly, housing was identified as the "wobbly pillar" of the welfare state by Torgersen (1987) because, unlike education, health and welfare supports, housing "has retained an ambiguous and shifting status on the margins of the welfare state, the least decommodified and the most market-determined of the conventionally accepted constituent elements of such states." (Harloe 1995: 2). Both Harloe and Torgersen suggest that one of the reasons that housing is different is that it is a physical 'good' as well as a service, giving rise to issues of ownership, wealth accumulation and

[12] The draconian cutbacks in public housing and healthcare expenditure in Ireland in the late 1980s are a typical example of Rose's point

environmental impact. Clearly housing as a public service represents a highly complicated set of considerations and therefore presents a difficult and appropriate challenge for any proposed comprehensive theory of public services.

The other reasons were both more practical and more 'path-dependent' than the first. Housing was a hot issue in Ireland and in Dublin at the time the research data was collected (1998-2004) and it was therefore easier to interest people in participating in the research process as interviewees, as well as in hearing about the research findings and providing feedback. Furthermore, housing was the only major social service within the remit of the Irish local authorities and, due to the original research focus on urban management, this was seen as positioning the research undertaken for further development along the original trajectory.

Having selected housing as the area of public administration to examine for practitioner-driven theory, the next step was to review the relevant literature and to explore with practitioners themselves about the existence/relevance of a theory or theories of housing. In the case of practitioners (in Ireland), there was little in the way of theory identified by interviewees as having a pervasive impact on their activities and decisions. It's not that Irish housing practitioners were opposed to theory, or that they had rejected existing theories, rather it was seen as an unnecessary distraction from getting on with the job of achieving their aims. The closest I could find to an espoused theory was from interviewees in the Department of the Environment and Local Government[13] who referred to an econometric analysis by Peter Bacon and Associates (Bacon 1998) as showing that various policies aimed at encouraging housing investment were, in fact, discouraging home ownership and particularly first-time buyers. Later on, interviewees claimed that taxes on investment property (which were implemented based on Bacon's 1998 recommendations) were discouraging investors and causing rent increases. This anecdote illustrates a recurrent theme in the practitioner interviews, i.e., the unreliability of theories, and the regularity with which unanticipated consequences followed the implementation of policy interventions. So while theory did not figure largely in the actions of practitioners, the lack of useful theory certainly featured in their interviews.

Nevertheless, there was a pervasive set of underlying assumptions about the world in which they operated which interviewees expressed either explicitly or implicitly. The assumptions were: 1) that human beings could act to change features of their environment, and 2) that there were features of the environment that constrained or facilitated the degree to which human action would have the desired effect. In the case of interviewees from the public sector, these assumptions were often tied up in comments about 'policy' and/or 'implementation' decisions, while those from the private sector generally referred to the same types of assumptions as having to do with 'strategy'

[13] which has since become the Department of Environment, Heritage and Local Government

decisions. Interviewees from the non-profit sector tended to avoid using the words 'policy' or 'strategy' in relation to organising decisions, but instead simply used terms like "our goals" or "our mission". It was in these interviews that the first indications of the basic elements of public services used in this thesis appeared, namely actors, outcomes, actions and circumstances.

These assumptions about the world, while they may not constitute a theory, do resonate with the housing policy 'paradigm' as described by Mullins & Murie (2006). This paradigm is the belief that policy (or strategy) is a "process, involving the initial recognitions of a problem to be addressed, a planning or policy-making stage, and the execution or implementation of the policy, which may itself be followed by appraisal or evaluation of the success of that policy (Mullins & Murie 2006: 2)". This policy paradigm appears to be central to the housing literature, informing the majority of the housing research reviewed for this thesis as well as the topics covered in the last several years of the conference of the European Network of Housing Research (ENHR). In fact, the word 'theory' appears in the title of only one of the 20+ working groups, while policy appears 4 times – more than any other noun except 'housing' itself.

However, this policy paradigm does not exactly fulfil the requirements of theory which are to "describe, explain and predict… a real world event or phenomenon" (Frederickson & Smith 2003: 5). The policy paradigm describes a process that is clearly germane to housing as a public service, but it does not provide any guidance as to what are the basic elements of housing, nor does it link together the various elements in a predictable way. Furthermore, it has been well documented that the rational, linear unfolding of actions and consequences implied by this paradigm is not a regular feature of public policy-making and administration (Allison 1971, Pressman & Wildavsky 1979, Kingdon 1995). The regularity of policy failures and unanticipated consequences in housing only underscores the lack of empirical support for a theory of housing based on the policy process.

Having noted the above, it must be acknowledged that theory-building efforts abound in housing literature. Across the various journals dedicated solely to the study of housing[14], it appears that there are at least as many strands of housing 'theory' as there are in public administration. If one reviews the last five years of the main theoretical journal (*Housing, Theory & Society*) one will find many of the same theories as described in public administration literature such as institutional theory, post-modernism, rational choice, networks, theories of power, welfare economics, etc. However, there are also theoretical strands that don't appear in public administration which have to do with the nature of housing as a physical artefact and a financial and social asset. In relation to its physical characteristics, there are numerous journal articles and, indeed, entire journals dedicated to the planning, architecture and construction of housing as well as on the impact of the

[14] Housing, Theory & Society, European Journal of Housing Policy, Journal of Housing Economics, Housing Policy Debate, Housing Studies.

physical characteristics of housing (including its location) on a range of social, economic and environmental features. Financial models and management strategies relating to housing are also thick on the ground covering a broad range of private and public aspects of housing finance. Theories about the 'meaning' of housing underlie the socially oriented analyses, with a lively debate about the implications of focusing on housing as a financial asset vs. a social right occurring at a recent meeting of the "Comparative Housing Policy" workshop of the ENHR.[15]

In fact, it is open to question whether or not it is useful to refer to housing 'theory', as it appears from the above that the subject area is even more fragmented than public administration. Moreover, the influence of the 'policy paradigm' (driven largely by the fact that the main funders of housing research are interested in developing policy options (Allen 2005)), suggests that housing 'theory' will continue to encompass a plethora of theories, or perhaps more precisely, a range of hypotheses, aimed at answering a particular policy question within a broad based subject area. Nevertheless, it is possible to discern some similarities among the hypotheses that constitute theory *areas* in housing. The first of these is planning theory which has a long history of examining the location and construction of housing as central element of social and economic infrastructure supporting (or detracting from) the quality of life of citizens. Planning literature tends to focus on urban locations and is often referred to as 'urban planning'. *Urban planning* theory was rooted in the architectural innovations and spatial aesthetics of the early 20th century[16], typified by the writings of Le Corbusier (1924) and Howard (1946 – original publication 1902). Town planning, as it was originally called, sought to create functional and aesthetically pleasing cities in which citizens would be happier and more productive. After World War II, economists and operations researchers entered into the field (anticipating somewhat their entrance into public administration in general), emphasising the functional over the aesthetic with the view that the city consisted of a set of 'capacities' for housing, transport, labour, leisure and industry. Each of these capacities could be captured in a set of quantitative variables and their interactions modelled based on observation and theory. These models could then be used to determine the optimal location of various urban components, including housing, and/or to predict the outcome of specific public policies relating to economic infrastructure and environment (Lowry 1964, Bertuglia et al.1990).

Since the late 20th century, planning theory has incorporated elements of economic theory (incorporating market dynamics), social theory (addressing dynamics of geographically-based exclusion) and environmental theory (incorporating the impacts of the built environment on the natural and vice versa). Not only that, but planning has had its own post-modernist wave, as "the

[15] This workshop was held in Dublin, Ireland in April 2007 and attended by the author

[16] Although an argument could be made that the Greeks and Romans engaged in urban planning, the former being concerned principally with political/social planning and the latter with physical infrastructure (Mumford 1961). Nevertheless, modern urban planning is generally considered to be a phenomenon of the industrial age.

main debates in planning theory during the last fifteen years have been commonly described as 'communicative', 'deliberative' or 'discursive', focusing on finding analytical and normative frameworks to understand and mobilize planners... and debating thorny issues such as power, consensus, communication, empowerment and multiculturalism" (Yiftachel 2006: 212-213). It would seem that planning theory has almost as many tributaries as housing – which is not much help in the effort to narrow down the options for research frameworks. Nevertheless, urban planning theory is still a significant aspect of housing theory – although it is perhaps more accurate to say that housing is a significant element of urban planning theory.

The next major theoretical stream to appear in housing theory was that of 'systems' which built on the urban planning literature and attempted to bring the discipline of modelling explicit 'cause and effect' relationships together with a more rigorous approach to policy and implementation (Forrester 1969, Burgess 1978). The *systems approach* generally consisted of creating comprehensive models of the interactions between economic, social and infrastructure variables and prescribing structural and procedural changes to the 'system' so described. Housing systems analyses begin to appear in the 1960s and the term (and concept) is still in use today (Pfretzschner 1965; Murie, Niner & Watson 1976; Boelhouwer & van der Heijden 1992, Drudy & Punch 2005).

However, this attempt to create comprehensive urban and/or housing systems theory failed due to the lack of empirical data supporting the models (Legasto & Maciarello 1980), a failure to take into consideration the changing nature of the social and political environments (Hoos 1972, Checkland 1981) and inadequate attention to implementation complexities (Pressman & Wildavsky 1979). The systems approach to public administration and its critics will be discussed again in Chapter Four, but with respect to systems theory in housing it has largely been subsumed under other disciplines such as environmental sustainability and mobility in the planning literature, economic models of housing markets and/or comparative policy analyses of housing systems in different countries.

Which brings us to the next major stream of theory underlying housing research – that of economics. Housing economics emerged as a 'subject area' of economics in the 1960s in and around the same time as the systems approach became popular, and economists are heavy users of the term 'housing system' in their analyses, although they often use the term 'housing market' to denote the same concept. Housing economic theory relies on micro-economic and welfare economics theory to explain how various outcomes of the housing market/system arise from the individual choices (demand) of households, the capabilities and profit opportunities open to housing providers (supply) and/or the economic policies of government (Oxley 2004). As such, housing economic theory may be compared to the rational choice strand of public administration theory, but relies more heavily on quantitative models as there are many more statistics upon

which housing economists may draw. Within housing economics there is also a strong focus on housing finance (King 2001, Whitehead 2003) particularly with respect to social housing. Housing economics continues to be a strong current in housing theory with several journals dedicated to economic topics in housing, real estate, and urban development and roughly 20% of the working groups in the ENHR exploring housing economics and/or finance.

The fourth and final discernible stream of housing theory emerged just after the economics and systems streams and has remained active largely through the efforts of its chief proponent, Jim Kemeny (1981, 1992, 1995, 2005), who also happened to be the editor of *Housing, Theory and Society* throughout the 1990s. Although the phrase might be contested, we can refer to this strand as *social welfare* theory, focusing as it does on the relationship between housing and the welfare of citizens, however that may be defined. Kemeny's contribution is a significant, but certainly not the only, perspective on housing and social welfare and others who have written on the topic include Michael Ball (Ball et al.1988), Michael Harloe (1985, 1995), Patrick Dunleavy (1981). Furthermore, several authors have taken Esping-Anderson's (1990, 1999) ideas about welfare state configurations and applied them to housing in an effort to explain housing outcomes in different countries (Hoekstra 2003, Norris & Domanski 2007). The source of this stream is more social and political theory than economics and planning, and its origins appear to be in the work of Abrams (1964) and Donnison (1967) who sought to explain differences in the quality of housing (and hence the welfare of those housed) in different states based upon their degree of industrialisation, political orientation and urbanisation. Kemeny (1992) described their theoretical approach as one espousing 'convergence', i.e. that states would converge towards decent housing as the political economies developed.

Kemeny, however, along with others in the 1980s and 1990s, challenged this view in two fundamental ways. The first was in the way that housing welfare had been defined, i.e. as a steady march towards greater home ownership under the assumption that this was the preferred choice for households (Saunders 1990) and indicated a higher standard of living, greater security of tenure, and a more solid commitment to community and social welfare. However, Kemeny (1981) questioned the relationship between home ownership and high standards of living based on his study of a number of countries in continental Europe[17] that had high standards of living (measured by GNP/person) and relatively low levels of home ownership. In fact, Kemeny suggested that high levels of home ownership had a 'privatising effect' on society that "created a lifestyle based on detached housing, privatised urban transport and its resulting 'one-household' (and increasingly 'one-person') car ownership, a traditional gendered division of labour based on female housewifery and the full-time working male, and a strong resistance to public expenditure [and] the high taxes needed to fund quality universal welfare provision (Kemeny 2005: 60)". In

[17] Switzerland, Germany, The Netherlands, Demark, Sweden

Kemeny's view, a large private rental sector composed largely of non-profit or subsidised landlords was more likely to indicate high levels of housing-related social welfare than was the prevalence of home ownership.

The second assumption challenged by Kemeny, along with a number of other researchers, was that societies in general were on 'convergent' housing trajectories driven by industrialisation, higher incomes and government policies supporting home ownership. Boelhower and van der Heijden (1992) reported on several contrasting studies, the most comprehensive of which was a study by Schmidt (1989) of 18 different countries over 15 years (1973-1988) in which he showed that the differences among housing systems 'outcomes'[18] were actually diverging over the period. Interestingly, the same study indicated that housing policy in these countries, as measured by the level of public expenditure on housing per person and housing expenditure as a proportion of total public expenditure, was 'converging' over the same period. Over the years, different reasons for the divergence of housing-related welfare have been explored, with political/social institutions taking central stage, e.g. the power of the labour movement (Ball 1983), the role/structure of the rented sector (Kemeny 1992, 1995), the degree to which political parties in power are corporatist or neo-liberal (Hoekstra 2003 applying Esping-Andersen 1990), etc.. However, a recent paper by Stephens (2007) suggests that there is little connection between the welfare orientation of a state and the housing-related social welfare, challenging the basic underpinnings of this approach.

The above is clearly not a detailed exploration of housing theory as it appears in the literature, but it does suggest that housing theory has by no means settled into an accepted paradigm that should inform a case study of housing in a particular state at a particular time. Admittedly the policy paradigm is the most prevalent within academic and practitioner circles, but that is more a way of organising action (and getting research funding) than a theory of how the elements of housing as a public service system fit together. And so we are back to where we were at the end of the review of public administration theory – faced with an embarrassment of riches when it comes to choosing a theoretical framework within which to study 'how public services work'.

What is the research question?

In the beginning of this chapter, governance theory was identified as a theoretical strand of public administration theory with strong potential for integrating many of the other strands of the discipline. Furthermore, 'governance' is a term used throughout public administration literature, as well as in business and non-profit management literature, to refer to a central task of those accountable for achieving public as well as private objectives that involve the coordination of

[18] Outcomes were defined as construction levels, % of single family homes, dwelling size, density of housing in relation to population and % of owner occupation vs rented tenures

multiple organisations, making it highly relevant to a study of public services. Unfortunately, 'governance' and governance theory have not, as yet, settled into an agreed set of concepts and relationships, although there are certainly signs of a narrowing down of the fundamental questions and basic components of the approach. A recent attempt at clarifying the aims of scholars in this area suggests that "governance theory is mainly occupied with institutional change and involves human agency" (Kjaer 2004: 10); a definition that underlines the comprehensiveness of the undertaking. Nevertheless, the definition does highlight two of the core components of governance theory, that of 'institutions' and 'human agency'. These concepts, of course, need further clarification. Drawing upon North (1990) and Hall & Taylor (1996), Kjaer suggests that "a common definition of an institution may be: *formal and informal rules, behavioural codes and norms that constitute prescriptions ordering repeated, interdependent relations*" (p. 8-9, italics in original). Human agency is not defined as precisely by Kjaer, but her definition of 'governance' as an act of human agency provides further clarification:

> *"... governance broadly refer(s) to the setting and management of the political rules of the game, and more substantially with a search for control, steering and accountability"* (Kjaer 2004: 11)

Human agency, then, according to Kjaer, is about setting and managing rules in order to control and/or steer *something*, which involves assigning responsibility (accountability) to *someone*, presumably for the setting, managing, controlling and/or steering activities. This definition gives us some idea about the activities involved in governance, but is noticeably lacking with regard to the actors. Lynn et al. (2000) provide some clarification on this by saying that governance theory is interested in answering the question "how can public-sector regimes, agencies, programs and activities be organised and managed to achieve public purposes?" (Lynn et al. 2000: 1). In this relatively simple statement we can discern references to institutions (i.e., 'regimes') and governance activities (organising and managing programs and activities), but also a reference to the actors in governance – which in this definition are public sector 'agencies'. Of course, Lynn et al. do not limit their definition of actors to the public sector alone but state that governance theory must contend with "complicated webs of states, regions, special districts, service delivery areas, local offices, non-profit organisations, collaborations, networks, partnerships and other means for the control and coordination of dispersed activities" (Lynn et al. 2000: 1). This confusing list of actors is summarised rather more elegantly by R.A.W. Rhodes (1997: 15) in his seminal book on governance, in which he states that "governance refers to self-organising, interorganisational networks characterised by interdependence, resource exchange, rules of the game and significant autonomy from the state". In this definition Rhodes shifts the focus of the study of governance to a new level, by rolling up organisations, rules and relationships into one big package – 'networks'. We return to the concept of networks and how it compares to that of the systems concept used in this thesis in Chapter Four, but for now it is enough to note that leading theorists consider a broad

range of organisations and 'other means for control and coordination' as the main actors to be included in an elaboration of governance theory.

To return to the short definition by Lynn et al. provided above, we can see that it also introduces another aspect of governance theory that is implied, but not explicated in Kjaer's statement. That is the concept of 'public purposes', which is also a key target for Kjaer's governance activities as she goes onto explain at length later in her book. Defining public purposes, however, is a rather challenging task and is one of the main activities of governance actors according to theorists, particularly those who focus on governance networks (Rhodes 1997, Kickert et al.1997, Koppenjan & Klijn 2004). Lynn et al. (2000: 15) go further and suggest that governance theory should aim to explain 'outcomes' as a function of the elements of governance, and propose that the research agenda for governance theory should be to develop models in the form of:

O = f(E,C,T,S,M)

Where:
O = outputs / outcomes;
E = environmental factors;
C = client characteristics;
T = 'treatments', e.g. the core processes and technologies employed by organisations involved in governance;
S = structures – largely similar to concepts of institutional rules and relationships that apply to organisations in Rhodes' formulation;
M = management activities and the characteristics of managers.

Frederickson & Smith (2003: 212) suggest that this formulation provides a 'logic of governance' that can support the "ambitious synthesis of scholarship necessary to tackle the subject". While apparently quite reduced in form, this equation introduces two more concepts into governance theory, namely clients and environmental factors, which are largely absent from both institutional theory and the 'networks' strand of governance theory. Clients as 'actors' in governance theory are clearly important, particularly if one is applying the theory to public services, such as housing, education and health care in which the 'clients' contribute as much or more to the achievement of outcomes as do agencies and structures. Environmental factors, defined by Lynn et al. as including the state of the economy, demographic changes, resource levels and dependencies, and political/legal frameworks are also obvious contributors to both the ability of actors to achieve outcomes and the definition of desired outcomes (public purposes) in the first place. This definition, however, appears to overlap somewhat with the definition of 'structures' including as it does resource dependencies and political/legal frameworks, which are also 'structures' that may be

changed through human agency. This overlap between structures and environmental factors is endemic to human phenomena as described by Giddens (1984) in his theory of 'structuration', in which human beings act within institutional 'structures' that are perceived as exogenous factors, but that are at the same time influenced by the human agency.

To resolve this apparent muddiness in the definition of the elements that need to be incorporated into governance theory, we can group 'structures' and 'environmental factors' into a single term which covers a broad range of elements that influence human agency, namely "circumstances". This term is drawn from Carlile and Christensen's (2006) expression of the central question in management theory, i.e. "what actions by managers will lead to the results they seek, given the *circumstances* in which they find themselves?" (Carlile & Christensen 2006: 4 - emphasis mine). The word 'circumstances' can cover a whole range of elements influencing behaviour and outcomes including physical factors, demographic factors, organisational structures, institutional rules, human characteristics, etc.. In fact, Carlile and Christensen's question is perhaps a more elegant expression of the question facing researchers interested in a governance theory of public services than many of the questions posed by the governance theorists themselves, incorporating as it does all of the main features discussed thus far. In short, it covers each of the four analytic categories to be explained: 1) **actors** (e.g. managers, agencies, government, clients, etc.); 2) **outcomes** (e.g. housing tenure, housing quality, housing welfare, profit, etc.); 3) **actions** (e.g. programmes, policy interventions, strategies, etc.); and 4) **circumstances** (e.g. political structures/orientation, social demographics, organisational structure, economic development, etc.). Therefore, in order to examine how public services 'work' the central research question for this thesis is:

> **What are the relevant actors, outcomes, actions and circumstances in the delivery of public services and how do each of these elements relate to one another?**

How this thesis is organised to answer the research question

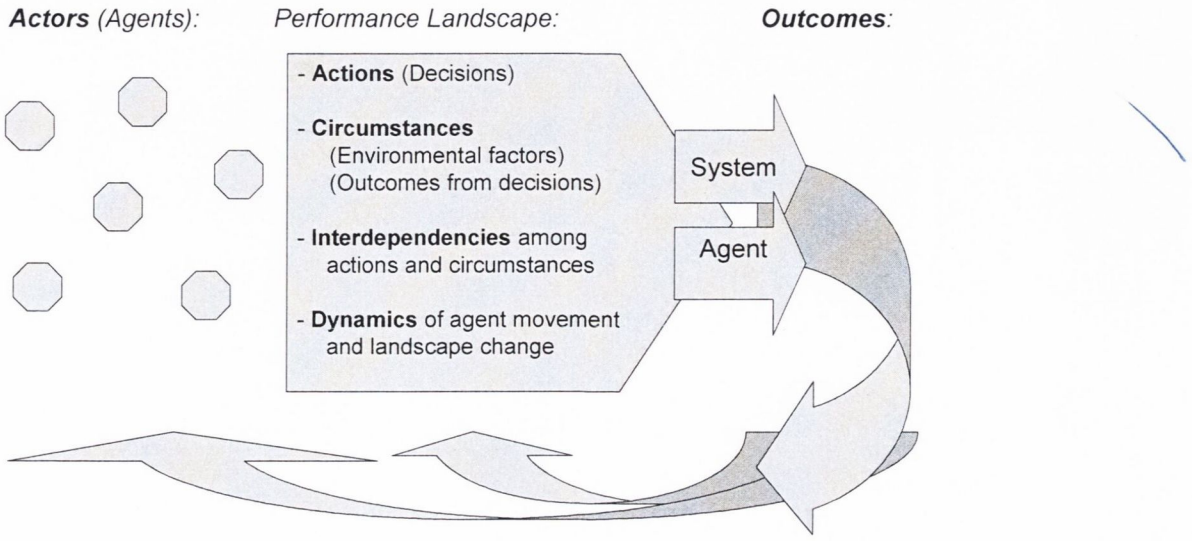
The research conducted for this thesis focuses on the actors, outcomes, actions and circumstances comprising public services in order to advance the development of governance theory that can be used to "explain reality and... provide a framework for action" (Strauss & Corbin 1990: 22). Clearly, there is much that is already known about these four analytic categories and how they inter-relate that can be built upon by the empirical work presented here. Specifically, Chapter Two is a review of a broad set of literature in several disciplines to examine what we already know about these four categories and how they influence each other in the context of human organising phenomena. In that chapter, specific dimensions of each of the four categories are identified along with their known relationships. Definitions derived from the literature review along with

supporting examples from the empirical research for each category are provided at the end of the chapter.

Unfortunately, this review is not sufficient to clearly specify the nature of the relationships between the categories and dimensions, as the multi-disciplinary character of the literature review suffers from the same lack of coherence as does public administration and housing theories. While a list of relevant categories and dimensions is a necessary first step in theory-building, it is far from adequate, as Carlile & Christensen (2006) have indicated in their three-stage 'cycle' of theory building. This cycle consists of: 1) observation and attributes definition; 2) categorisation of attributes and identification of frameworks/typologies; 3) model building through statements of association among the features of the phenomenon studied. Chapter Three contains a discussion of the research methods used to work through this cycle of theory development

A detailed discussion of the proposed framework for theory development is included in Chapter Four of this thesis in which complex adaptive systems (CAS) theory is proposed as the framework to be used to analyse the empirical data on housing in Ireland in preparation for stage three – model building. As there are many different models within CAS theory, this chapter also proposes a specific type of CAS model - referred to as 'NK models' (Kauffman 1993, 1995) or 'performance landscapes' (Siggelkow & Levinthal 2004) - based on the characteristics of the phenomenon studied and the literature review. In this chapter, the central research question of this thesis is reformulated as a consequence of identifying a performance landscape as the conceptual model with the most potential for supporting modelling and theory building. In this chapter, the actions and circumstances become part of the performance landscape, and the relationships between all elements are defined as interdependencies and 'dynamics' on the landscape. The analytic framework proposed as the basis for building a governance theory of public service systems is shown below.

Figure 1.2: Performance Landscape framework for analysing public service systems:



What this figure suggests is that heterogeneous actors (agents) enter onto the public service performance landscape, which is made up of the actions of (other) agents and the circumstances they face, to generate outcomes that are agent specific as well as system-wide. The actions and circumstances of the performance landscape are 'interdependent', meaning that some actions are more likely to occur under some circumstances. Furthermore, there are identifiable 'dynamics' of the landscape that govern how agents can move around the landscape, i.e. what actions they can choose and what circumstances they perceive as relevant.

The basis for this framework is laid out in detail in Chapter Four. Chapters Five, Six and Seven present the empirical findings in the case of housing in Ireland, organised by the three main elements above: 1) Agents, 2) the Performance Landscape and 3) Outcomes. The purpose of the three analytic chapters is to test the applicability of the performance landscape model against a real public service system case and to make whatever modifications to the model necessary to accommodate the empirical data. In addition, Chapters Five, Six and Seven explore the value of the proposed framework for generating public service system governance theory as well as insights for practitioners. In these chapters, it becomes clear that a direct mapping between the model chosen and the empirical case is difficult and that there are significant gaps in the model's ability to represent the complexity within the Irish housing case. Nevertheless, the exercise does provide advancements both in the development of governance theory, as well as in the specifications for NK models of public service systems.

The detailed, empirically-based elements of the proposed CAS model of public service systems are summarised in Chapter Eight along with the contributions to governance theory arising from the use of the model. In this concluding chapter, I also reflect on whether and how the use of the performance landscape framework resulted in important insights into the actors, outcomes, actions and/or circumstances in the Irish housing system, and the implications these may have on the policy and practice of housing provision as a public service system in Ireland and elsewhere. Lastly, the weaknesses in the model in terms of its ability to represent the full complexity of the Irish housing system are summarized and potentially fruitful directions for future research discussed.

Chapter Two: Actors, Outcomes, Actions and Circumstances in the Literature

"We lack a theory of how the elements of our public lives link into webs of elements that act on one another and transform one another" Kauffman 1995: 299

Introduction

In this chapter, existing literature is reviewed to further define the core analytic categories of public services identified in the previous chapter, namely actors, outcomes, actions and circumstances. The purpose of the chapter is to review what is already known about these analytic categories and to establish the basic dimensions that need to be incorporated into a theory of governance and explored in the case study. The literature review is focused on public administration, management, economics and systems theory, with references from sociology and institutional theory as appropriate.

One section of this chapter is dedicated to defining each of the four categories in greater detail as they currently appear in the relevant literature and weaving the various literatures together to create a coherent set of dimensions to be researched. The chapter concludes with a list of detailed dimensions within each of these four categories, which form the basis for the empirical research into the Irish housing system.

Who/what are the 'actors' in public services?

There is a formidable list of potential actors in public services, as exemplified by the quote from Lynn et al. (2000) in the previous chapter. In order to provide a reasonably comprehensive theory of governance for public services, any definition of the actors must include the agencies and firms that provide the service(s), along with their suppliers, the people that consume the service(s), and the departments, agencies or consultants involved in formulating policies that determine the rules or guidelines under which production and consumption can occur. This is a daunting challenge for a parsimonious definition of agents, made even more daunting by the disciplinary heterogeneity of current Public Administration theory in which actors are conceived of as a multiplicity of phenomena including laws, levels of government, organisations, managers (and/or policy-makers), interest groups, institutions, etc. (Frederickson & Smith 2003). Traditional public administration was rather more focused in its approach to actors with 'bureaus' (government agencies) and 'bureaucrats' (managers in government agencies) occupying the role of actors with the responsibility for acting in pursuit of specific outcomes (Weber 1914, Simon 1947). This perspective on actors is consistent with the bulk of management theory, which generally conceives of human beings as actors in organisational phenomena. Organisational systems theorists such as

Stacey (1996) also argue for nested levels of actors in human systems including individuals, groups, organisations, and societies. However, Stacey, along with others such as Weick (1995), has questioned whether it is always useful to think of organisations as a noun. "We are arguing for a move away from understanding "the organization"...we are interested in understanding the process of organizing as the ongoing joint action of communication... No one steps outside it, operates on it or uses it, for there is no simply objectified "it"... " (Stacey 2000: 186-7). Along these lines, McKelvey (1999) suggested that neither an organisation, nor an individual are the fundamental actors in organisational systems, but that activities within or across organisations - which he groups into value chain competencies following Porter (1985) - are a more appropriate focus for modelling the behaviour and performance of actors.

In economic theory, the basic actors are buyers and sellers of goods and services, which may be individuals or firms or government agencies, etc.. However, some economists have followed a similar track to the organisational theorists and identified the 'transaction' as the main unit of analysis in economics. Transaction cost economics (Coase 1937, Williamson 1981) postulates that all activity in economic systems is made up of transactions, many of which are transitory exchanges of goods and services, but a large proportion of which involve buyers and sellers of labour in a semi-permanent interaction, which they define as a 'firm'. Building upon this approach and that of the organisational theorists referred to earlier, we may conclude that defining actors in any organising phenomenon should, at a minimum, incorporate human beings engaging in "interlocking behaviour" (Weick 1969) in order to achieve some objective(s).

Based on the above, Rhodes & Mackechnie (2001, 2003) suggested that the basic unit of organising is probably best conceived of as an *initiative* defined as "the co-operative 'interlocking behaviours' of individuals engaged in exploiting the potential of the division of labour through organising" (Rhodes & MacKechnie 2003: 10). Initiatives are essentially transient in nature, although a specific initiative – such as an organisation - may well continue relatively unchanged over a period of time. Essential to the creation of an organising initiative, however, is the perception that some sort of value can be achieved through organising – which will henceforth be referred to as the 'value objective' of the actor.

Organisational theorists have long emphasised that organising is not a natural or straightforward task, but requires quite exacting patterns of relationships among humans, tasks, information and resources (Chandler 1962, Galbraith 1977, Mintzberg 1979). After decades of research and theorising about alternative types of interlocking behaviour in organisational theory (Burns & Stalker 1961, Mintzberg 1979), institutional theory (Williamson 1975, Powell 1990) and sociology (Perrow 1967, Thompson et al.1991), it may be argued that markets, hierarchies and networks represent the set of fundamental alternative 'organising modes' (Galbraith 1977) for human

productive activity. Organising modes represent ideal types of interlocking behaviour that individuals may adopt to achieve their value objectives. Recent CAS models of organisational systems (Boisot & Child 1999) also support this basic range of alternatives[19], arguing that these different patterns of relationships constitute ways of coping with informational complexity.

In brief, 'market relations' are those in which transactions or exchanges between actors, principally but not exclusively short term, are the fundamental form of interaction. 'Hierarchical relations' are those in which one actor has 'power' over another actor to direct behaviour. 'Network relations' involve mutual dependency between actors and some level of trust around shared objectives. A more elaborate discussion of the difference between these three modes of organising may be found in Powell (1990). For the moment, however, it is sufficient to note that interlocking behaviour appears to come in three basic types: market, hierarchy and network, and the choice of mode is of significance in the behaviour and outcomes for organising initiatives.

It is clear that in public service systems there are a large number of well-established initiatives comprising recurrent and institutionalised interlocking behaviours. These types of initiatives may be seen in the formation and ongoing existence of firms, government agencies, policy-making bodies, etc.. There are also many reasonably persistent initiatives that are less stable and cannot rely on recurrent behaviours, but need to revise their interlocked behaviours frequently to cope with changing circumstances. A purchase or rental transaction is an organising initiative of this latter type as consumers and suppliers engage in these, adopting particular organising behaviours to accomplish their objectives, and then abandon the interaction when the objective is attained. 'Markets' may emerge from the repeated formation of this type of initiative, generating a new, higher level initiative that is more than the aggregate of its constituent parts – consisting of market rules, price expectations, etc.. Public-private partnerships, government task forces and many community projects are also examples of initiatives that are stimulated by perceived opportunities for organising, some of which may persist but which might just as easily be abandoned if the value they create for their participants disappears.

Organising initiatives in public services were, for decades, largely associated with the bureaucratic form of Weber and Wilson. Essentially these were the 'bureaucracies' established to carry out public policy and scholars suggested that the public sector "functioned best when it was apolitical, structured as a hierarchy, and based on a system of merit-recruitment and promotion (Kjaer 2004: 4)". However, this relatively simple view of the central actors in public service systems was thoroughly discredited by the onslaught of scholarship beginning in the mid 1900's which indicated that the public sector was far more political and 'irrational' than theory would suggest (Waldo 1946, Simon 1947), that the different levels of public sector organisations did not function

[19] although they split the network alternative into 'fiefs' and 'clans' following Ouchi (1981)

as smoothly integrated hierarchies (Pressman & Wildavsky 1979), that networks of public and private organisations were often able to influence policy-makers and/or frustrate policy initiatives (Rhodes 1988) and that the 'market' was a more efficient way of achieving public policy objectives (Arrow 1963, Friedman 1964). As discussed in Chapter One, many of the public administration reforms of the end of the 20th Century were aimed at dismantling the infrastructure of public sector bureaucratic actors and replacing it with an amalgam of different organising initiatives. While this complicates the job of developing governance theory that embraces all of the salient actors, it is nevertheless heartening to note that the three modes of organising identified by organisational theorists, i.e., hierarchy, networks and markets, also appear as the basic forms of management institutions in public administration theory.

It is important to recognise that the characteristics of an organising initiative are not reducible to the aggregate of its component parts, as the interlocking behaviour among participants generates its own patterns and logics that characterise the actor and influence its behaviour over time (Weick 1995). 'Emergence' is the term used in CAS theory to describe the phenomenon of patterns at a higher level of abstraction that arise from interactions among lower level elements. All organising initiatives, then, are emergent in that they are formed through the interaction of individuals and/or other initiatives, but have characteristics that make them different from (and more than) a simple aggregation of participants (Holland 1998).

This proposal to define agents as 'organising initiatives' raises the question of how this definition of an initiative relates to the more familiar concept of the organisation. It is true that once organising initiatives become established, it may become useful to define and stabilise the interlocking behaviours required to sustain the initiative. The most common way of doing this since the mid 19th century has been to place the initiative in a framework of social obligations, cultural understandings and legal entitlements. The result of this is the creation of what we know as 'the organisation'. However, it is crucial to recognise that the legal, social and cultural trappings of 'the organisation' are there as a means of facilitating the survival and effective performance of the initiative: they are not the thing itself (Rhodes & MacKechnie 2001). Indeed it has been noted that organising often develops quite independently of organisational boundaries. For example, Karpik (1978) found that in technically advanced industries, scientists from buyer and seller organisations worked closely together but had very little interest in or contact with members of their own organisations. Similarly, Womack et al. (1990) found that in the automobile industry it seemed to make little difference whether assemblers acquired components from sources inside or outside their organisational boundaries. Nevertheless, the legal characteristic(s) of an organising initiative clearly affect the actions and outcomes of the initiative and so must be included, along with value objective and organising mode, as (one of the) key dimensions of actors.

Management literature going back decades also suggests that the size and age of an organising initiative have an impact on its behaviour and outcomes (Chandler 1962, Greiner 1972, Mintzberg 1979). Size may refer to one of several dimensions including sales, number of employees, geographic spread, etc., so including this variable in the model will require some clarification based on which, if any, of these dimensions is judged to affect behaviour and/or outcome. Age is generally taken to be the number of years since the initiative was founded (in the case of firms) or conducted (in the case of transactions such as rentals).

Also found in management literature (particularly strategy) are references to 'mission' as a key feature of organising initiatives that become organisations (Hambrick & Frederickson 2001, Whittington 2001, Stone et al.1999). Campbell and Yeung (1998) propose that an organisation's mission statement contains four elements: *purpose, values, behaviour standards* and *strategy*. However, the inclusion of 'strategy' in this model is at odds with many other authors who regard strategy decisions as separate from mission (Johnson and Scholes 1999; Courtney 2001; de Wit and Meyer 1998, Hambrick & Fredrickson 2001). Following these authors, I will address 'strategy' in the section on 'actions', rather than include it as a dimension of actors.

'Purpose' in Campbell & Yeung's model is largely the same as the concept of "value objective" described earlier as providing the reason for organising in the first place. In fact, analysis of the data collected for this thesis suggested that decisions around organisational purpose are invariably taken during the formation of the agent and, to a greater or lesser extent, this original decision continues to guide all subsequent strategic decisions by the agent. Values are particularly important in differentiating actors in public sector and non-profit management literature (Stone et al.1999, Courtney 2001, Mullins et al.2003) and so this characteristic should be added to the list of key dimensions of actors in public services. In the context of organisations, values are generally considered as statements of what members of the organisation believe to be guiding principles for the actions of the organisation as well as their own actions in their organisational roles (Campbell and Yeung 1998). Furthermore, non-profit organisations are often seen to be 'values-driven' in that they are "vehicles for the expression of private values and faith" (Frumkin 2002: 97). Here we see an overlap between the concept of 'values' and 'value objective' defined earlier, however this is not generally the case across all organisations. In fact, the non-profit literature is often at pains to point out that a distinguishing feature of non-profit organisations is that they are value-driven (i.e., their purpose is defined by the values of their founders and participants) while the public and private are not. Nevertheless, values as a characteristic of public and private sector organisations are a standard element of organisational analysis either on their own or as a feature of organisational 'culture' (Daft 2004, Johnson & Scholes 2001).

To summarise this section, a review of relevant literature regarding actors in public services suggests that there are seven dimensions that may need to be incorporated into a description of actors. These are: 1) 'value objective' 2) 'organising mode', 3) legal status, 4) size, 5) age, 6) behavioural standards and 7) 'values'. Furthermore, the basic definition of actors proposed by Rhodes & Mackechnie (2003) is used. An actor in public services is:

> *"an organising initiative made up of the co-operative interlocking behaviours of individuals engaged in exploiting the potential of the division of labour, which may be as short lived as a transaction between consumers and service providers or as long-lived as a government agency. Initiatives are formed at many levels. The lowest level of agent is formed by individuals choosing to engage in organising behaviour, and higher levels are formed by organising interactions among initiatives."* (Rhodes & MacKechnie 2003: 67)

What are the 'outcomes' of public services?

Defining the relevant outcomes for public services is central to the development of a theory of public governance (Lynn et al. 2000) and to a theory of management (Carlile & Christensen 2006). Unfortunately identifying outcomes is one of the most controversial and fraught aspects of public governance/management theory development. Outcomes of public organising initiatives are notoriously difficult to define, *a priori* or *ex post* (Pollitt & Bouckaert 2004). In fact, different actors within the system and different observers of the system are likely to perceive different outcomes as being relevant to their actions, depending upon their view of the purpose(s) of the actors and/or of the system overall. While acknowledging this difficulty and conceding that there may be many other, equally convincing, lists of relevant outcomes, this section attempts to provide a coherent and reasonable starting point for identifying outcomes in public services that is consistent with the broad range of literatures consulted.

In the discussion of the dimensions of actors in the previous section, we already can identify one of the main outcomes, which is the extent to which an initiative achieves its value objective. For example, if the value objective of an agent is the transformation of land, labour and capital into a number of dwellings, then the outcome to be measured is the number of dwellings produced. If the value objective is to generate profits for the owners of the initiative, then measures of profitability become the focal outcome, and so on. Furthermore, agent outcomes of this type may be aggregated easily to generate a systems measure, such as total numbers of dwellings or total (or average) profit.

Across the four literatures consulted, outcomes related to value objectives are often translated into measures of 'performance' (e.g., Whittington 2001, Moore 1995, Siggelkow & Levinthal 2003).

Performance can include measures of profitability, productivity, sales, etc. (Anderson 1999) and different actors may achieve higher or lower 'performance' than other actors in the system. In management literature relating to the private sector, performance is nearly always associated with profit, while efforts to apply strategy to non-profits or public sector organisations results in a rather more eclectic set of performance criteria, including economy, efficiency, effectiveness, legitimacy, etc. (Stone et al.1999, Johnson & Scholes 2001, Flynn 2002).

Economy is a measure of the cost of inputs used (Pollitt & Bouckaert 2004) , which, while quite simple to construct, provides relatively limited information and, in the empirical study was mentioned rarely as a driver of decision-making. Efficiency, generally defined as a ratio of outputs/inputs (Flynn 2002), is a popular outcome measure in both public and private management theory and is central to micro-economic models that rely on assumptions of competitive markets driving organisational actors to achieve maximum efficiency. However, in the public sector, where there is often little or no competition, efficiency may not be as powerful a driver of agent behaviour, but it was nevertheless a feature of interviewees' description of the decision-making landscape and is clearly relevant to public service actors broadly defined. In fact, 'productivity' as a general term referring to the ability of an actor to transform inputs into outputs is a standard outcome measure used at multiple levels of organising up to and including the overall economy of a state, and is also reported as a standard measure of comparison across economies.[20] Hence, measures of 'productivity' – which are specific ratios of efficiency (i.e., housing output vs. labour hour, capital employed, etc.) – are the second type of outcome measure relevant to public services.

A third type of outcome is embedded in the micro-economic models referenced above, and made explicit in organisational theory that incorporates evolutionary dynamics (Hannan & Freeman 1977, Aldrich 1979). This is the outcome of 'fitness', which is also used extensively in CAS models of organising behaviour (McKelvey 1999, Kauffman et al.2000, McCarthy & Tan 2000, Siggelkow & Levinthal 2003). 'Fitness' is more complicated than performance or productivity because it incorporates a feedback process in which an agent's performance (and/or productivity) level is measured against some criteria to determine whether the agent can survive in its environment. Fitness in CAS and in organisational evolution is generally defined as the ability of the agent to survive in an environment in which it competes with other agents for resources. This definition of fitness requires that the performance measure be defined such that it is comparable across agents, as well as relevant to the acquisition of resources. Profit level is an obvious candidate for this type of measure and, in fact, is used by several of the authors cited above. However other measures would need to be developed for public and non-profit actors.

[20] See OECD annual reports on labour and multi-factor productivity by country

Most management and CAS models assume that the fitness thresholds are either exogenous to the system or else emerge as averages or minima across actors in a system over which an individual actor has little control. However, it is possible, and was in fact observed in the case study, that actors will set their own, subjective, fitness levels against which performance/productivity or other desired outcomes are measured. For example, a firm may continue to operate even in the face of sustained losses or a non-profit may wind up because of disagreements among board members. This introduces an element of 'interpretation' into the behaviour of agents as different agents may interpret their effectiveness differently - depending upon their expectations – which complicates the model significantly and may also contribute to the unpredictability of agent behaviour. Introducing interpretation – which relies on cognitive processes – also opens up the whole field of cognitive and normative 'rules' that are central to institutional theory (March & Olsen 1989, Scott 1995). Rules guide the actions of actors in different ways, but one way is by establishing performance or productivity yardsticks against which actors measure their own outcomes to determine fitness against these rules. Fitness thresholds are one type of rule that may emerge from agent actions and interactions, a topic which will be addressed in more detail in the section on circumstances included in this chapter.

We may conclude from the above that 'fitness' as an outcome may involve exogenously- or endogenously-defined survival thresholds ('environmental' fitness), individual actor defined thresholds ('subjective' fitness) or emergent, rule-based thresholds ('institutional' fitness). Fitness may also be measured at a systems level by aggregating agent fitness outcomes, such as measures of the number of agents that survive over time, and/or thresholds of performance that increase the probability of survival. It is likely that both of these measures would be of interest to stakeholders and participants in a public service system.

So far, there are three outcome measures that have relevance at both the agent and systems level; 'performance' (organising value achieved as outputs), 'productivity' (ratios of outputs to inputs) and 'fitness' (performance/productivity compared to environmental, subjective and/or institutional thresholds). In addition, each of these agent level outcomes may be used to derive systemic outcomes through aggregating the individual agent results. Furthermore, the feedback, interpretation and interaction processes inherent in the definitions of fitness outcomes may contribute to the non-linear systems outcomes that bedevil other theory-building efforts at linking actor behaviour with systems outcomes (Boston 2000). In Chapter Six, findings from the case study in Irish housing are presented in order to define these measures more precisely for the purpose of building a systems model of Irish housing that could be compared to actual data available.

Over the course of analysing the case study data, it became apparent that there were several outcomes highlighted by interviewees that didn't easily fit into one of these three categories. Overall equity of the allocation of housing to citizens, average house prices, concerns about 'externalities' such as environmental effects of housing construction and the capacity or adaptability of the system as a whole to react to 'shocks' such as increases in interest rates or insurance costs, are all examples of systemic outcomes that are not aggregates of individual agent performance, productivity or fitness. Furthermore, these characteristics of the system overall only became important outcomes *after* they were identified by individuals (or groups) with an interest in the status of the outcome. In other words, these were not outcomes that arose organically from the behaviour of agents, but are 'enacted' (Weick 1969) by participant observers choosing to focus on particular results of the actions and interactions of agents in the system. For example, the environmental effect outcome(s) of housing construction in Ireland only appeared when architects, planners and environmental activists decided that the impacts on water usage, pollution, visual beauty, etc. of a *laissez-faire* approach to housing were problematic. Of course, not all systems outcomes arise out of the identification of problems (although many do in public service systems). Average house prices and costs are only sporadically considered a systemic 'problem', nonetheless they consistently provide crucial information that influences the behaviour of actors engaged in buying and selling, producing and policy-making.

Authors from across the literatures consulted have highlighted the relevance and impact of similar types of systemic outcomes in their specific domains. Examples include the rate of innovation/diffusion in industries (Nelson & Winter 1982), barriers to entry into industries (Porter 1979), sector reputation for non-profits (Mullins et al.2003) and sector 'norms' in organisational 'fields' (Dimaggio & Powell 1983). Note, however, that apart from the last example, these are not 'institutions' of the type generally considered in governance theory, but rather are systemic characteristics that (may) become reasons for the taking of specific action by new or existing actors. In the Irish housing case new actors, often accompanied by new rules, were observed as having been formed in order to influence these systemic outcomes, e.g., the creation of environmental agencies to address adverse environmental impacts, and the creation of non-profit housing associations to redress inequities in housing access.

A single actor can only indirectly influence these types of outcome, however, as they arise from the actions and interactions of numerous agents and are not aggregates of agent behaviour but instead are emergent systems outcomes, observable only from the vantage point of the overall system, and therefore fundamentally different from systems outcomes that are built up from a detailed knowledge of individual agent outcomes. This is the essence of 'emergence' in complex systems, i.e., "the creation of new properties ... which cannot be predicted based on component elements" (Emmeche et al.1997: 98). These types of systems outcomes can be identified only as

the system evolves over time to generate patterns that pique the interest of stakeholders and result in the creation of new agents or new behaviour by existing agents in response to the identification of these outcomes.

To summarise this review of the literature related to outcomes in public services, there are five different types that need to be considered. Three of these; *performance, productivity* and *fitness*, are relevant to individual actors in the system and these appear broadly in each of the literatures consulted. Individual actor outcomes of these types may be aggregated in various ways to generate *systemic (aggregate) outcomes* of interest to policy-makers as well as to other actors (e.g. industry associations, labour unions, etc.), which constitute a fourth type of outcome. The fifth, *systemic (emergent) outcomes*, is relevant only at the level of the public service viewed as a whole, as emergent characteristics that are 'enacted' through acts of interpretation by participants in the system and which then become stimuli for agent formation and behaviour in subsequent periods. This last type of outcome presents a significant challenge for systems models, as these outcomes are not possible to define *a priori*, but rather may be perceived only retrospectively through a kind of ethnographic study of the formation and behaviour of agents along with the cognitive drivers for engaging in formation/behaviour in the first place. Literature supporting the identification of this type of outcome was also found across the various literatures consulted, generally in the institutional strand of the underlying discipline.

What are the 'actions' that actors take?

The identification of emergent outcomes as features of public services that rely on interpretation and interactions among participants in a public service above leads us into the next analytic category to be addressed: namely 'actions'. Interpretation and interaction are identified in the literature to be two of the three main categories of action for organising initiatives, with the third being decisions to act – or 'action decisions'. Action decisions are the most straight-forward to explain and are therefore dealt with first.

Action Decisions

Decision-making (which would include action decisions, interpretation and interaction) has long been perceived as central to public service action (Simon 1947, 1960; Lindblom 1959; Niskanen 1971, Cohen et al.1972; March & Olsen 1989). As noted by the eminent public administration scholar, H. George Frederickson, "decision-making describes the process that links an organisation's means to its ends, and thus decision-making is the core administrative activity and the appropriate explanatory target for any... theory of administration (Frederickson & Smith 2003: 240)". Decision-making as the core action category also appears to be general enough to cover the

actions across all types of actor in the system including firms, government agencies, buy/sell/rent transactions, policy-makers, etc..

However, this focus on decision-making as a core action connecting actors and outcomes immediately raises the question of the well-documented disconnect between policy intent, bureaucratic action and outcomes (Pressman & Wildavsky 1979, R.A.W. Rhodes 1988, Kingdon 1995). In general, however, these authors were addressing disconnects that occurred between different agents, not within the same agent, and often concluded that a major contributor to the disconnect between intent, actions and outcomes was the differing and often conflicting objectives pursued by different agents and/or different contexts in which they operated. This dynamic should be adequately addressed by a system modelling approach in which different agents may pursue different objectives, as well as operate in different contexts, while still interacting.

More problematic for a focus on decision-making as the main act connecting intent and outcome is the often tenuous link between proposed decisions (plans) and actual decisions (implementation) that occurs within organisations (Mintzberg et al.1998, Whittington 2001). These authors, along with many others in the 'emergent' strategy stream, note that organisations may make key strategic decisions during their day-to-day operations as opportunities and/or issues arise. Their decisions 'emerge' as a series of incremental acts - a sometimes fragmented process of intertwined decision-making and acting, discovering and negotiating both internally and externally. This is, of course, no surprise to students of public administration, as the process of incremental decision-making has long been a feature of management behaviour models (Simon 1947, Lindblom 1959, March & Olsen 1972). Furthermore, there is a wealth of research that suggests that the link between decisions and outcomes is two-way in that the outcomes from previous decisions affect subsequent decisions (Hutzschenreuter & Kleindienst 2006). Essentially, decision-making is now considered by academics in both the public and private sector to be a continuum of evaluating, planning, and acting, and the theoretical divide between planning and implementation as artificial and potentially misleading. The research method adopted (incorporating questions that asked interviewees to describe decisions that they had made in the recent past and those that were under consideration) was specifically aimed at avoiding any bias that might result from focusing on either planned or implemented decisions.

To tease out what sort of action decisions might be relevant for organising initiatives, we may turn to management literature, in particular the literature on "strategic choice", which provides a range of potential decisions to be considered. Johnson and Scholes (1999) proposed that there are six generic decisions that must be taken by organisations: 1) build market share; 2) withdraw from market; 3) consolidate position by increasing efficiency; 4) develop a new product/service in the market; 5) enter a new market with existing products/services; 6) diversify into new markets with

new products/services. Hambrick and Fredickson (2001) offer a framework for action decisions that asks a number of key questions under the headings of arenas, vehicles, 'impactors'/differentiators, staging and economic or policy logic. Whittington (2001) claims that leadership decisions, growth strategy, strategy process and implementation approach are the central decisions in strategic management. Furthermore, in the non-profit strategy literature (Stone et al. 1999), and increasingly in the mainstream strategy literature (Contractor and Lorange 2002), a key question that organisations have to decide on is whether they should compete or cooperate with other organisations in their sector. In the end, there appeared to be no single authoritative list of action decisions that were relevant to the range of actors in a public service system, so this was left for resolution in the case study, the findings from which are reported in Chapter Seven.

In addition to action decisions, the strategic choice literature also incorporates other elements of decision-making that are clearly relevant to actors in public services. The strategic choice of 'mission' (Campbell & Yeung 1998, Stone et al.1999) for the organising initiative was already discussed as being a dimension of actors rather than the actions taken and features of mission were included as dimensions discussed in the section on actors. 'Organisational environment' is also generally considered as a key dimension in strategy literature, but more as a feature of the circumstances that actors must deal with when deciding or taking action and so will be addressed in the section on circumstances. This leaves only the strategy 'process' (Mintzberg et al.1998, Whittington 2001), as a feature of strategic decision-making that has relevance to public service actors and their actions, but is conceptually distinct from the action decisions themselves.

Hutzschenreuter & Kleindienst's (2006) comprehensive review of the strategy process literature suggests that there are three aspects of the strategy process that affect both the decisions made and the outcomes achieved. These are: 1) characteristics of the decision-maker(s), 2) characteristics of the issue being decided and 3) characteristics of the sequence of decisions made. Characteristics of the decision-maker(s) overlapped with several of the dimensions of actors identified in the first section, although there were also studies identified that focused on the skill, knowledge and/or heterogeneity of the individual participants in decision-making. Hutzschenreuter & Kleindienst (2006: 709) summarise these studies as attempting to discover the characteristics of decision-makers that contribute to "effective strategy processes as a kind of dynamic capability". This 'dynamic capability' is the focus of research across the three aspects of the strategy process and appears to be relevant to public services actors, but is probably best incorporated as an eighth characteristic of actors that may change over time. To summarise, the strategic choice literature provides us with a range of possible *action decisions* to be compared to the findings from the case study and one additional dimension of actors, that of *strategy process capability*, which changes either through explicit acts of learning (or forgetting), or as a function of the experience gained over time.

Interpretation

Moving on to *interpretation* as a category of action, public administration as well as management theory have long recognised that decision-making involves selective processing of information by decision-makers. Simon's (1947) description of decision-making as 'bounded' by the facts that an individual knows at the time of the decision is an early example of how interpretation affects decision-making. Burns & Stalker (1961) elaborated on the concept when they described the 'interpretive processes' of organisations as human interactions with their environment and with each other over time as creating patterns in how the individual and the organisation overall perceived its environment. Karl Weick's (1969) called this process 'enactment', through which people develop their understanding of their environment through acts of imaginative intelligence and feedback which contribute to individually and collectively constructed environmental features. Systems theorists, too, suggest that decision-makers interpret their environment by creating mental pictures or 'schema' through processes such as "filtering" – selecting only that information that is relevant to their decision (Gell-Mann 1994) – and "tagging" – classifying similar phenomena into categories (Holland 1995). Schema constructed in this way allow for more efficient information processing and therefore more rapid response to (particular) features and changes in the environment. Hence we find significant support in public administration, sociology, management and CAS theory to suggest that features of the environment are not exogenous to the decision-making of actors, but rather the result of *interpretations*, whether conscious or unconscious, and furthermore that these interpretations involve *interactions* among actors reinforcing or challenging the interpretations made.

Interactions

In addition to being linked with interpretation, *interactions* among actors also figure significantly in the literature as influencing both outcomes and the actions of actors in public services. Interactions may involve a range of exchanges among actors, and also may refer to the interactions of the decisions made by agents, a feature which is central to game theory (Morgenstern & von Neumann 1944, Axelrod 1984, Ghemawat 2002) which has been applied to studies in economics, management and public administration. In essence, game theory assumes that agent and systemic outcomes are dependent upon both the action that the agent takes and the action that other agents take. Agents will engage in individual strategies to try to maximise their desired outcomes often at the expense of other agents, or possibly themselves, and research applying game theory is generally aimed at finding the optimal strategy to pursue under various "game-theoretic" conditions – essentially the interdependency of agent actions in determining individual outcomes. Therefore the interdependency among 'action decisions' taken by actors is one type of interaction to be included in governance theory.

Resource dependence theory in management (Thompson 1967, Pfeffer & Salancik 1978, Ulrich & Barney 1984) and power-dependence theory in public administration (R.A.W. Rhodes 1981, 1986) provides the basic justification for including the exchange of resources among actors as a critical interaction influencing behaviour and outcomes. Furthermore, resource dependencies are viewed as central to the formation of networks (Rhodes 1997, Kickert et al.1997), theories of which contribute significantly to governance theory (Rhodes 1997, Lynn et al. 2000). In fact, the ongoing interactions among actors around resource exchange are seen by many in the network governance stream (Kickert et al 1997) as the basis upon which networks are constructed and enforced. The resulting network of relationships itself becomes a feature of the governance environment that can influence the actions of actors beyond the resource exchanges themselves. To use the CAS terminology, the interaction of actors through resource exchange results in an emergent pattern of co-ordination among actors. Resources include money, people, knowledge, information and other tangible assets that can be used to accomplish value objectives directly, but may also include less tangible assets such as 'legitimacy' – which can be used to access tangible resources – and 'authority' – which can be used to achieve value objectives through influencing other actors. Therefore, the *exchange of resources* is the second type of interaction to be included in the research model.

Although 'information' was included in the list of resources above as a (relatively) tangible asset that can contribute directly to achieving value objectives, interactions involving information have a wider impact across public services. Agency theory, (Eisenhardt 1989) as it applies to public administration, is largely concerned with the exchange of information between government (the 'principal') and various agencies/service providers ('agents'), and with how information 'asymmetry' can result in unanticipated and unwelcome outcomes. Much of the work in agency theory is concerned with what information needs to be exchanged, including what rules need to be enforced, in order to ensure that the intentions of the principal are reflected in the actions (and outcomes) of the agent. It is worth noting that agency theory actually arose out of management theory as a framework for understanding stockholder/management interactions.

Information exchange is also at the centre of the identification of patterns in social network theory (Granovetter 1985, Burt 1992, Scott 2000), although the exchange between agents is generally analysed as a static, rather than a dynamic, feature that represents the nature of the 'relationship' among agents. A relationship can be almost anything in social network analysis, depending upon the focus of the researcher, but it often means that one actor knows and can exchange information with another agent. Social network models are useful for revealing the pattern of interactions across the network as a whole, e.g., agents that occupy a central position or are on the 'outside', reciprocal vs. one-way relationships, 'structural holes' in the network and the 'density' of the

network overall. Hence, social network models are used for analysing the network 'result' of agent interactions and therefore are more relevant as a circumstance in the model.

To summarise this discussion of the literature on interactions (as a category of action), there are three types that should be considered in the development of governance theory for public services. These are: 1) decision interdependencies (game theory), 2) resource exchanges (resource dependence, power-dependence theory) and 3) information exchanges (agency theory, social network theory). Furthermore, interactions join interpretation and action decisions as the three categories of action that link actors to outcomes in public services.

What are the 'circumstances' that influence behaviour?

In the course of reviewing literature that addressed actors, outcomes and actions in public services, all of the relevant aspects of circumstances have been touched upon, revealing the highly integrated nature of the research domain being explored. Circumstances that must be incorporated into a governance theory of public services include: 1) organisational environment, 2) resource environment, 3) institutional rules and 4) outcomes (as feedback). All that remains to be done is to clarify what is meant by each of these terms as they are found in the relevant literatures to complete this review and establish the basic dimensions to be explored in the case study.

Organisational environment

Beginning with the *organisational environment*, recall that the 'strategic choice' literature within management includes the analysis of the organisation's environment as a core aspect of decision-making. In strategy literature, the 'environment' of the firm is generally divided into its internal and external aspects (Rhodes & Keogan 2005). An internal environmental analysis involves examination of strengths and weaknesses, organisational competencies, organisational structure and processes, and culture. These features have already been included in the previous discussion of the dimensions of actors. External environmental analysis involves examination of opportunities and threats, competitive stance, political, economic, social and technological influences, and relations with stakeholders among others. Many of these factors may be addressed by a PEST[21] analysis, which stands for political, economic, social and technological factors, and is a widely applied check-list of variables that strategy theorists consider outside the control of firms, but which must be taken into account when managers are making strategic decisions. Examples that might be considered by developers or building contractors as PEST factors are stable or changing interest rates, changes in household demographics, stability or change in the political landscape, etc.. There is no exhaustive list of PEST features in the literature as the relevance of

[21] Recent strategy textbooks (c.f., Johnson & Scholes 2004) suggest the addition of two additional factors; environmental and legal – referred to as the PESTEL model

any given feature depends upon the industry, the actor and the period in which the strategy is being considered. Hence, any further clarification of the relevant PEST factors can only be accomplished through empirical research into the domain of interest – in this case, the Irish housing system over the period 1998-2004. Other features of the external environment listed above are features of the resource environment discussed below.

Before moving to the specifics of the resource environment, however, it is necessary to address another aspect of organisational environment that is not generally included in the strategy literature, but which is nevertheless a significant feature of the organisation's environment, at least according to organisational theorists such as Thompson (1967), Perrow (1970) and most emphatic of all, Jay R. Galbraith (1973, 1977). Information complexity spans both the external and internal environment(s) of an organisation and is generally conceived of as relating to some type of uncertainty (MacKechnie 2000), including: 1) the predictability of phenomena ("variability" – Burns & Stalker 1961, Perrow 1970), 2) the range of different phenomena to be understood ("heterogeneity" – Thompson 1967, Galbraith 1977), 3) the degree to which cause and effect relationships among phenomena may be understood ("analysability" – Perrow 1970) and finally, 4) the degree to which the presence of a phenomenon is contingent upon the presence of one or more other phenomena ("interdependence" – Thompson 1967, Galbraith 1977). For now, we may say that the element of information complexity, incorporating some or all of these types of uncertainty, must be included in the research framework as part of the organisational environment.

However, Galbraith (1973, 1977) suggests organisations are not helpless in the face of information complexity and can devise strategies to mitigate the impact of complexity on performance (Galbraith 1977). In his original work, Galbraith (1973) proposed that there were four basic strategies for 'managing' information complexity; 1) investing in slack resources to increase flexibility, 2) decreasing the complexity of the task environment by decreasing goal diversity and/or creating self-contained tasks, 3) investing in information technology to increase information processing capacity and 4) increasing the communications channels externally and/or internally to increase information processing capability. Galbraith's model continues to influence research into managing information complexity with a recent study by Flynn & Flynn (1999) of 164 manufacturing facilities suggesting that decreasing task complexity and increasing communications channels were correlated with higher performance. This literature suggests that information processing capability is an additional actor dimension that, like strategy process capability, is dynamic and is influenced by action decisions taken by actors over time.

Resource Environment

Moving on to the *resource environment* as an element of the circumstances with which actors must contend, the literature addressing this element is rich and varied. Resource dependence theory

(Thompson 1967, Pfeffer & Salancik 1978, Ulrich & Barney 1984) was mentioned earlier and is based on two fundamental assumptions: 1) the organisational environment is one of scarce resources that are essential to agent survival, and 2) agents make decisions in order to maximise their control over (access to) resources, thereby minimising their dependency on other agents – who are, of course, busily trying to do the same. Power-dependence theory (Rhodes 1981, 1986) is the public administration version of resource dependence in that it assumes that control of resources lies at the heart of power relationships among agencies and governing bodies in the public sector. Resource scarcity, if not dependence, is also a key aspect of economic theory, for example, measures of housing stock, average household income and interest rates are routinely used to build econometric models of the housing system (e.g., Bacon 1998, McQuinn 2004, Girouard et al.2006). Finally, the definition of the environment in the strategy literature also emphasises resource scarcity as a feature of the external environment, and control over resources by the firm as an internal environmental feature.

We may conclude from the above that there is significant evidence in the literature that the resource environment is an important circumstance in public services and is comprised of 1) the degree to which resources are scarce or plentiful, and 2) the patterns of control over (scarce) resources that emerge from the actions and interactions of actors over time.

Institutional Rules

Of course, patterns of control over resources are not the only circumstances that emerge from the actions and interactions of actors over time. Institutional strands across all of the relevant disciplines encompass a large body of work dedicated to explaining the creation of 'institutions' through the interaction of agents, which then influence agent behaviour (e.g., Thompson 1967, Williamson 1981, Dimaggio & Powell 1983, Giddens 1984, March & Olsen 1989, Scott 1995). Governance theory (Rhodes 1997, Lynn et al. 2001) and network theory (Kickert et al.1997, Agronoff & Maguire 2001) within public administration have picked up the concept of institutions as key features of any system of public service, influencing and being influenced by the behaviour of agents within the system. In fact, a core differences between the traditional view of 'government' as the focal phenomenon in public administration and the more recent emphasis on 'governance', is that institutional rules may replace actors as the instruments of co-ordination in public service systems.

As usual, there is a range of definitions of institutions in the literature, however Kjaer's (2004) suggestion that institutions are essentially the rules, codes and norms that influence actor behaviour (full quote provided in the previous chapter) is broadly representative of the majority of recent literature. Note, however, that this definition excludes the actors that are in the business of maintaining these institutions and, while it is certainly the case that institutions can operate without

some focal actor responsible for their promotion, both the literature review and the empirical evidence suggest that institutions are often maintained through the creation of new actors whose primary function it is to ensure that other actors are aware of and behave according to the institutions established.

Scott (1995) provides a useful typology of rules in which he proposes that there are three types: cognitive, normative and regulative. Cognitive rules are those that govern how an individual (or a group of individuals in an organisation) perceives the environment and their understanding of what constitutes 'rational' decision-making. An example of a cognitive rule for housing association managers is the perception that access to better quality housing will improve the quality of life for households. What constitutes 'better quality housing' is likely to be subject to normative rules, i.e., shared beliefs among peers as to the features of quality housing. Regulative rules are those that come attached with penalties or incentives, such as building regulations that stipulate the conditions under which a dwelling is considered fit for habitation.

Anticipating Scott somewhat, Dimaggio & Powell (1983) provided one of the few clear discussions of what types of interactions among actors are linked to what type of rules – a dynamic framework that they referred to as 'isomorphism'. 'Coercive' processes of interaction are those in which one actor is able to impose penalties upon other actor for not behaving in a certain way – i.e. require regulative rules or other forms of control, such as the control over scarce resources. 'Mimetic' processes of interaction involve the exchange of information about practices, outcomes, actors, causal relationships, etc. among actors that leads to copying in order to lower perceived risks and/or improve outcomes. Here we can see a source of cognitive rules as actors learn from their own and other actors' experiences. 'Normative' isomorphism refers to interactions in which actors influence each other by means of communicating information about practices, outcomes, causal relationships, etc. along with information about the related consequences/benefits. Thus, normative interactions occupy a sort of middle ground between coercive and mimetic interactions in terms of the likelihood that the interaction will influence actors to behave in a certain way. The authors suggest that this type of isomorphism is characteristic of professions such as the legal, medical and accounting professions in which standards are agreed amongst agents, which are then 'enforced' by associations or governing bodies.

To summarise, institutional rules are a third dimension of circumstances, but a dimension that is constantly being reconfigured as actors engage in particular types of interactions that give rise to, enforce, challenge and change the rules. Furthermore, it is often observed that the emergence or active creation of new rules is accompanied by the formation of new actors to communicate and enforce the rules created.

Outcomes (as circumstances)

This leaves only 'outcomes' to be discussed as the fourth dimension of circumstances. Outcomes as circumstances are implied in the discussion of purposeful behaviour by organising initiatives, in that actors evaluate their individual outcomes to determine whether or not to take further action in pursuit of their objectives. The action of 'interpreting' outcomes is the mechanism by which an 'outcome' becomes a 'circumstance', and the term generally used to cover this whole set of linked categories is 'feedback'. Note that feedback processes in organisational systems are not fixed, mechanistic rules that actors must follow, but rather more like learning processes which enable actors to build up an internal representation of the cause and effect relationships between actions and outcomes to guide future action – or future outcome objectives. As such, feedback processes contribute to the creation of cognitive rules discussed above.

Whether or not *systemic* outcomes (whether aggregate or emergent) also generate 'circumstances' that influence actor behaviour is a more complicated question. Unlike for the other categories of outcomes, it is not self-evident how aggregate outcomes or emergent outcomes affect agent behaviour. Having said that, it is likely that some aggregates will affect agent behaviour, as perhaps average profitability in a system will influence private firms' entry into or continued participation in public service provision. Furthermore, to the extent that an actor enters the system with the express purpose of influencing an emergent outcome, the same sort of feedback process described for individual agent outcomes above will operate. However, since an individual actor is unable to directly affect emergent outcomes, it is likely that the agent will eventually shift their focus to an outcome over which they can be held 'accountable', i.e., a performance, productivity or fitness outcome. An example of this is the establishment of a government agency (or non-profit organisation) set up to address a systemic 'problem' such as housing inequities, but that measures its own success from the number of new dwellings produced and allocated to a targeted group of households. We may conclude, then, that outcomes generally become circumstances through the feedback processes engaged in by agents, but that these processes are subject to interpretation and selection.

Conclusion

The previous four sections have explored a range of literature identified as relevant to the development of a governance theory of public services systems. As a result, the core analytic categories of such a theory, namely actors, outcomes, actions and circumstances, have been described in greater detail and their key dimensions identified. These categories are summarised in the table below. These categories will be incorporated into the conceptual model developed in the

second phase of the research (and described in Chapter Four) that was used as the framework for exploring the case study of Irish housing.

Table 2.1: Analytic Categories/dimensions of a governance theory of public services

Category / - Dimensions	*Definition*
Actors	*Organising initiatives made up of the interlocking behaviour of individuals engaged in exploiting the potential of the division of labour*
- Value Objective (Purpose)	*The particular type(s) of value that an agent desires to produce*
- Organising mode	*The type of interlocking behaviour that an agent adopts to achieve its value objective*
- Legal status	*The statutory definition of the social obligations, cultural understandings and legal entitlements conferred upon an organising initiative*
- Behaviour standards	*Policies and patterns that influence human behaviour in the particular organising agent*
- Values	*Guiding principles for individual and organisational action*
- Size	*The relative position of an agent on a scale relating to number of participants, amount of value or some other scale that affects behaviour*
- Age	*The number of years (months, days) that an agent has existed*
- Strategy process capability	*A dynamic variable comprised of the characteristics of decision-makers, the characteristics of the issue being decided and the characteristics of the sequence of decisions to be made*
- Information processing capability	*A dynamic variable comprised of investment in slack resources, the complexity of the task environment, the investment in information technology and the information exchange channels available to the agent*

Category / - Dimensions (cont.)	*Definition (cont.)*
Outcomes	
- Performance	*The result 'achieved' by an actor through its actions.*
- Productivity	*The ratio of the result achieved to the resources required to achieve the result.*
- Fitness	*The ability of the actor to persist in the system. There are three types of fitness: 'environmental', 'institutional' and 'subjective'.* Environmental fitness *the performance/productivity outcome compared to a systemic fitness threshold.* Institutional fitness *is the degree to which the actor conforms to rules.* Subjective fitness *is this the degree to which results achieve actor-defined thresholds.*
- Systemic (aggregate) outcomes	*Aggregate measures of actor level outcomes i.e., performance, productivity and fitness.*
- Systemic (emergent) outcomes	*Outcomes that emerge from the action and interactions of actors. These outcomes become relevant to agent decision-making through one or more acts of interpretation.*
Actions	
- Action Decisions	*Decisions taken by the actor to act in pursuit of one (or more) value objectives.*
- Interpretation	*Acts of cognition in which actors perceive some element of the system as part of their decision-making schema.*
- Interactions	*Relations between actors, including: 1) resource exchanges and 2) information exchanges among actors; and 3) interdependencies among action decisions.*
Circumstances	
- Organisational Environment	*1) PEST (Political, economic, social and technological) factors that influence action decisions, and 2) information complexity arising from uncertainty: variability, heterogeneity, interdependence & analysability.*
- Resource Environment	*1) the degree to which resources are scarce or plentiful, and 2) the patterns of control over (scarce) resources.*
- Institutional Rules	*Formal and informal rules, behavioural codes and norms that order the interactions among actors. There are three types of rules: cognitive, normative and regulative.*
- Outcomes (as circumstances)	*The outcomes described above that influence actor decision-making in a feedback loop.*

Chapter Three: The research process – methods and framework

"I have no clue how I develop theory. I don't think about it; I just try to do it. Indeed, thinking about it could be dangerous ..." (Mintzberg 2005: 355)

Introduction

In this chapter, the data collection and analysis methods used to conduct the research are described, along with the ontological and epistemological assumptions that support the use of these methods. In essence the approach taken was a *case study* (Eisenhardt 1989, Yin 1994, Barzelay et al.2003), within which a *soft systems analysis* (Checkland 1981, Checkland & Scholes 1990) was conducted once the phenomenon was identified as a system. These methodologies are described in the section following the discussion on the ontology ("contextualism") and epistemology ("social constructivism") underpinning the research. In the last section of this chapter, in which the actual research activities undertaken are described, references to the prescribed steps and/or tools from these two methodologies are made and any modifications/limitations identified.

The research ontology / epistemology

In this section, the 'contextualist' ontology (Pepper 1942) underpinning the research is described. Following the discussion of contextualism, social constructionism is proposed as an appropriate epistemololgy both in relation to the ontological stance adopted and the phenomenon studied. Contextualism is one of four 'world hypotheses' for human existence that Pepper identified as underpinning all philosophical systems that had been proposed up to the middle of the 20th Century. The other three are: 1) 'Formism', 2) 'Mechanism', and 3) 'Organicism'. As this is not a treatise on Pepper's philosophical framework, I will confine myself to describing briefly the basic ideas in contextualism and, where appropriate, contrast this with the other 'isms' to facilitate understanding of the relevance of this perspective to the research phenomenon studied.

The first thing to note about contextualism is that what is 'true' about a phenomenon must include an analysis of the context in which truth is understood. 'Context' describes not only the characteristics of the time and place in which the phenomenon exists, but is also made up of the consensual or conflicting views of the participants in the phenomenon – assuming that the phenomenon consists largely of human beings perceiving and interacting. Therefore, describing the context of the phenomenon is a fundamental requirement for investigating the phenomenon – in fact, context and phenomenon are highly interconnected and often difficult to separate. One of the strengths of the case study method used for this research is that "it attempts to examine a

contemporary phenomenon in its real-life context, especially when the boundaries between phenomenon and context are not clearly evident" (Yin 1981: 59).

The philosopher that Pepper associated most closely with "contextualism" (though Pepper himself is credited with coining the term) was John Dewey, who, along with other contemporaries such as Charles Sanders (C.S.) Pierce and William James, is considered one of the founding fathers of 'pragmatism'. Philosophical pragmatism emphasises the importance of actual events and people's interpretation of those events as being the main sources of truth and meaning. However, most pragmatists did not go so far as the Continental existentialists (such as Martin Heidegger and Jean-Paul Sartre) in asserting that reality was nothing more than subjective perception and experience. Nevertheless, pragmatism is often associated with a more 'subjective' than 'objective' view on reality as described in the well-known typology of sociological paradigms by Burrell and Morgan (1979).[22]

Elements of pragmatism may also be detected, however, in the *au courant* philosophy of 'critical realism' (Bhaskar 1975, Collier 1994), which is associated with Burrell & Morgan's (1979) 'functionalist/objectivist' paradigm (Somerville & Bengtsson 2002). Pragmatists and critical realists propose that meaning is constructed through the agency of human beings interacting with each other, but that the interaction is situated in a particular time and place, the characteristics of which are distinct from the interaction and, therefore, the meaning. In a sense, the physical characteristics of time and place 'constrain' the interaction/meaning that can arise at any given place in time[23]. Hence, it is probably fair to say that pragmatism/contextualism falls somewhere in the middle of Burrell and Morgan's (1979) subjectivist/objectivist dimension.

In addition to time/space as constraining elements on interpretation, it is also the case that human beings create their own constraints through repeated interaction and interpretation. Pepper acknowledges this fact, but Giddens (1979, 1984) is probably the most well-known writer on this topic. Giddens described a process of 'structuration' in which 'social structures' are produced (and reproduced) through the actions and interactions of human beings over time. Social structures consist of *rules* that people follow and *resources* upon which they can draw – both of which are created by the actions/interactions of human beings, but which may then enable or constrain subsequent actions/interactions by the same or different people. Giddens (1984) suggests that there are three types of social structuration processes involving rules and resources: 1)

[22] Burrell & Morgan proposed that all social science was conducted under a set of research assumptions relating to ontology, epistemology, human nature, and methodology which could be grouped into four basic paradigms: 1) Functionalist, 2) Interpretive, 3) Radical Humanist and 4) Radical Structuralist. These types may be diffentiated along two dimensions of analysis: the subjective-objective dimension and the regulation-radical change dimension.

[23] Note, however, that critical realism goes somewhat further than pragmatism in terms of its reliance on a level of existence that is 'real', i.e., transcending both human perceptions and the context of time and space.

signification, 2) legitimation and 3) domination, which may be observed in society. Signification processes rely on, as well as construct, the rules of language and the resource(s) of information, while legitimation is the process of conferring 'legitimacy' on particular types of behaviour (e.g., social norms and values) or social artifacts (e.g., organisations). Domination processes involve rules about relationships between people and the control of both physical and socially constructed resources. Giddens' theory of social structuration provides crucial details about how human interaction across space and time results in the *social* features of context that constrain particular instances of human interaction. These are clearly evident in subsequent writings of institutional theorists such as March & Olsen (1989) and Scott (1995).

This brings us to the third, and final, element of context incorporated into the ontology informing this research, namely the individual researcher. It has long been understood that the act of analysing a phenomenon influences the characteristics of the phenomenon studied (Merton 1949, Nagel 1961). This occurs in various ways ranging from 'observer bias', in which the researcher reports only those characteristics of the phenomenon that he/she expects to see, to 'observer effect', in which the act of observing changes the characteristics of the phenomenon. Furthermore, social scientists are well aware that their analytic 'interaction' with the social phenomenon studied involves an act of "double hermeneutics" (Giddens 1984) in which they construct interpretations of the interpretations of their human subject(s). Thus, the researcher and the research process add another layer of socially-constructed reality which may, or may not, influence the social construction processes and outcomes in the phenomenon going forward.

Given the above, it would be folly to engage in and report on research into a social phenomenon without accounting for the impact that the researcher has on the phenomenon, as an element of the 'context' in which the phenomenon exists. Having noted this, I do not propose to take up the invitation to engage in a "reflexive research" process (Bourdieu 1992) in which the interpretations of the researcher and their impact on the research findings are meticulously tracked. Instead, the need to explicitly recognise and control my own influence on the research findings is incorporated into the reporting of these findings, in particular in the selection of the conceptual model (Chapter Four), as well as into the data collection and analysis methods adopted (see next section: *Overview of the case study and soft systems research methods*).

And so 'contextualism', as it is presented here, may be summarised as the belief that a phenomenon exists as a set of characteristics that are interpreted by human beings who interact over time and space to create shared interpretations of the phenomenon in question. Physical characteristics of time/space constrain the range of interpretations that are possible, as do the social 'structures' arising from previous human interpretations/interactions relating to this phenomenon. Finally, since a researcher into a particular phenomenon is no more (and no less) than any other

participant in this cognitive/social/physical process, their individual contribution to the interpretation of the phenomenon must also be acknowledged as a 'constraint' on the range of possible perceptions which occupies a somewhat privileged, not to mention problematic, position with regard to the resulting shared interpretations reported as research findings.

How does this ontology fit with the research phenomenon/questions described in Chapters One and Two? Recall that the four main elements of a theory of public service systems were defined as actors, outcomes, actions and circumstances. A contextualist ontology is clearly necessary to incorporate the concept of 'circumstances' into any theory of human agency – which is essentially what this thesis is attempting to do for public services. Furthermore, the review of a range of relevant social science literature in Chapter Two found that interactions and interpretations by actors were integral to their actions (agency), as well as to their perceptions of outcomes and circumstances, indicating the prevalence of cognitively and socially constructed reality. Nevertheless, there are clear indications from the literature that meaning and reality are not only constructed from the interpretations and interactions of actors, but also must be grounded in physical and social facts such as resources, technologies, policies, institutions, etc.. Finally, in a theory-building exercise, the researcher is engaged fundamentally in the interpretation of a phenomenon, bringing with them their own background knowledge and experience to order the information collected and to identify the relationships between categories. The contextualist ontology fits both the phenomenon studied and the process of studying it.

Moving on, then, to the epistemology that supports research within a contextualist ontology, we may begin again with Stephen Pepper. In his original framework (Pepper 1942), Pepper identified the central element for study (which he called the 'root metaphor') for contextualism as the 'historic event' – though he later changed this to 'the situation' (Pepper 1969). The historic event, or situation, consists of a set of human actions/interactions located in a specific time and place which have meaning to those who participate in the event as well as those who may interpret it later. The characteristics of time/place in which the event occurs, as well as the nature of the interactions of the participants, provide the context for the event. So one may gain knowledge by studying one or a series of events to identify patterns, including context elements and perceived causal relationships, that may then be elevated to 'knowledge' about similar events, i.e., events that involve similar contexts and similar interactions among participants. In his shift to 'situation' as the main unit of analysis, Pepper was explicitly recognising the role of time and multiple actors interacting, and he had this to say about the difference between events and situations in a letter to Arthur Efron:

> "Your question about the contextualistic concepts of "events" and "situation" is a penetrating one. Get those settled and almost everything else follows ... More work needs to be done on

that concept [situation]. ... One thing is sure, a situation is not to be equated with an actual event. It spreads over possibly many events, and the events it includes need not be contiguous. Just as you can put down and later pick up a novel to read -- so situations may skip over long periods and emerge for completion. As an approach, analyze the situations described in any good realistic novel -- Flaubert or Tolstoy or Dickens or Thackeray. Some are short, some are long. Sometimes it is somewhat arbitrary whether you call it one situation or two, one growing out of the other. As a model situation, take any simple *purposive act* free from contextual interference by other purposes -- there is a simple situation. Now drop in more and more purposes that are simultaneously seeking goals and demand mutual adjustment. The spread in time and space of these demands for satisfaction give the area of the situation. The situation is over when these demands cease, whether by fulfillment, frustration or compromise. The situation consists in these purposive strands so far as they tangle and stick together." (Efron 1980)

In the above quote we find another central concept of Pepper's contextualism, that of the 'purposive act'. The purposive act is a concept that is more explicitly incorporated into his later, less well-known, treatise on 'Selectivism' (Pepper 1969) – an elaborated version of the original contextualism in which purposive acts are clearly identified as the core observable phenomena within historic (human) events/situations from which knowledge about action, interaction, context and causal relationships may be built. This leaves us with the following prescription for a contextualist epistemology: 1) study the purposive acts of the various participants in an historic situation, 2) identify the participants' various purposes, interpretations (of their environment, other participants and outcomes), and explanations of their acts (assumptions of causality) to establish the 'context' for these acts, 3) identify the 'area' of the situation in space and time based on the emergence and resolution of the demands which gave rise to the purposive acts, 4) compare similar/different 'situations' to identify patterns. It is these patterns that form the basis for knowledge about situations – which are the essence of what is real.

The above approach to knowledge creation should be easily recognisable to researchers who use case study approaches for creating knowledge. The above description about knowledge-building from 'situations' looks very like a case study, albeit one that adopts a particular philosophical view of what aspects of a case need to be explored. And while Pepper's writings give some indication of the sort of research approach required, authors since Pepper have developed his thoughts (and some of their own) into an approach to research that is generally referred to as 'social constructionism' (Berger & Luckmann 1967). Berger and Luckman's book, *The Social Construction of Reality*, is a seminal book for the definition of this approach which is summarised by Collin (1997) as being based upon the epistemological view that "our perception of the material world is affected by the way we think or talk about it, by our consensus about it's nature, by the

way we explain it to each other, and by the concepts that we use to grasp it (p. 2-3)". Berger and Luckman express this a bit more pithily in their statement that "everyday life presents itself as a reality interpreted by men and subjectively meaningful to them as a coherent world (Berger & Luckman 1967: 33)". Hence, a 'social constructivist' epistemology, i.e., a research strategy that explicitly recognises the ongoing mutual construction by human beings of knowledge about their environment, is consistent with the 'contextualist' ontology. Furthermore, social constructivist approaches are well established in public administration theory (Frederickson & Smith 2003), and are also appearing in research and methodological debates in housing theory (Clapham 1997, Somerville and Bengtsson 2002, Jacobs et al. 2004).

There are two clarifications in regard to the particular version of social contructionism used here. The first is that the 'type' of social constructionism adopted is 'weak', as per Sayer's (2000) distinction between weak and strong social constructionism, in that while emphasising the socially constructed provenance of knowledge and institutions, it is not the case that all objects are viewed as nothing more than social constructions, along the lines of Michel Foucault and Niklas Luhmann.[24] As discussed earlier, the contextual 'constraints' of space and time and institutionalised beliefs and artifacts have a powerful influence over what can be known and what is 'real' to individuals in a given situation. The second clarification is that many social constructionists adopt an 'emancipatory' stance in their research approach, along the lines of Burrell & Morgan's (1979) 'radical humanism', which is not an element of this research. Later on, in this chapter's discussion of the 'soft systems' approach to systems analysis, the empowerment of minority participant views will be discussed, not as a goal of the research, but rather as a potential outcome that was neither intended nor observed in this case.

Overview of the case study and soft systems research methods

In order to engage in research that is consistent with the contextualist ontology and social constructionist epistemology described above, the research methods adopted must enable the researcher to describe the phenomenon/context studied as a product of human interpretation and interaction. Characteristics of time and space as they relate to the phenomenon must be clearly identified and the 'boundaries' of the phenomenon explicitly described, preferably as concepts understood by the human participants in the phenomenon rather than as 'givens' from the perspective of the researcher. Furthermore, the processes of interpretation, interaction and institutionalisation of cognitive, social and physical 'facts' relating to the phenomenon should also feature in the analysis as these are crucial dynamics underlying the ongoing construction of the phenomenon prior to, during and after the analysis is conducted.

[24] Nevertheless, Luhmann's ideas about autopoietic social systems of meaning do resonate with the findings reported in this thesis

All of these features may be accommodated in a case study approach which is a method for investigating complex phenomena in their 'real-life' context (Eisenhardt 1989, Yin 1994, Barzelay et al.2003). However, the data collection methods for constructing the case study must be attuned to the social constructionist approach, i.e., the data must encompass phenomenon and context, as well as reflect the various perspectives of the participants in the case. The analysis must also facilitate multiple interpretations and recognise that, while there may be many aspects of the case that are commonly agreed, there will also be aspects that are subject to heated debate or, more insidiously, go unrecognised by a majority of participants. The case study approach adopted for this thesis, as well as the soft systems analysis method, encompasses these considerations.

There are many types of case study which may be used depending upon the purpose of the analysis (Yin 1993, Stake 1995). As this is a theory-building effort, the case study approach used here began as 'exploratory' (Yin 1993) in which a 'case' (or in Pepper's terms, a 'situation') is described in rich detail in order to generate analytic categories and hypotheses for future analyses. Mid-way through the research process, the findings from the exploratory case (housing in Ireland), led to the identification of housing as a 'system' involving multiple independent, but interacting, agents engaged in purposive acts that led to outcomes, some of which were unanticipated. At this point, the case study became a multi-level analysis ('embedded case' per Yin 2002) in which the exploratory case of housing in Ireland was expanded and refined through further data collection and analysis, while a comparative case study at a lower level of detail was undertaken to examine the purposive acts of 'strategic decision-making' by agents within the system. In addition, Barzelay et al.(2003) provided useful guidance about how to structure case studies in public policy-making, in particular, the need to explore the 'social mechanisms' that inform the decisions made. Examples of social mechanisms according to Barzelay et al.are the attribution of past success or failure to particular decisions, rules, institutions and public perceptions. These considerations informed the conduct of the interviews and the analysis of the case material.

In general, the specific steps taken across these two stages/types of case study followed those outlined by Eisenhardt (1989) for building theory from case studies.

Table 3.1: Eight-Step Case Study methodology (per Eisenhardt 1989)

Case Study Method (CSM) step	*How CSM step was implemented*
1) Define the question (possible* a priori *constructs)	***In the* exploratory *phase, there were few* a priori *concepts, consistent with the social constructionist epistemology. However, in the* comparative *case study phase, the concepts of actors, outcomes, actions, circumstances and that of housing as a 'system' informed the data collection and***

	analysis.
2) Select the cases	**Exploratory**: *housing selected as representative of the complexity inherent in public administration* **Comparative**: *range of housing 'agents' selected based on interviewees' perceptions of relevant participants and Irish housing literature.*
3) use multiple data collection methods and different researchers, if possible	**Exploratory**: *semi-structured interviews, secondary literature on housing in Ireland (including government reports)* **Comparative**: *same as exploratory, but added a survey on decision factors and feedback from participant reviews of emerging hypotheses. Different researchers were used in 'spin-off' research project on urban regeneration*
4) overlap data collection and analysis	*An integral part of the research method – see detailed description of research phases*
5) perform within and cross-case analyses	**Exploratory**: *much of the 'within' case analysis took place in the comparative phase of the study. Future studies of other public administration domains in Ireland and/or housing in other countries may provide opportunities for cross-case analysis at the 'system' level.* **Comparative**: *cross-case analysis of the interview data was accomplished through treating the interviews of interviewees in different organisations as individual 'cases' of decision-making, coding the responses using the categories established in the exploratory case, and finally analysing these using qualitative and quantitative techniques*
6) shape hypotheses through iterative analysis, search for evidence of the 'why' behind the 'what'	**Exploratory**: *the main hypothesis arising from and explored in the case was that housing is a particular type of system, i.e., a complex adaptive system* **Comparative**: *the detailed characteristics of and relationships between each of the elements of housing were developed by examining each interview for patterns in the occurrence of a particular characteristic / relationships across the 48 interviews.*
7) compare with literature – search for conflicting hypotheses/tests	**Exploratory**: *the hypothesis that housing was a complex adaptive system was developed and challenged through a comparison with literature on complexity and complex systems as well as existing literature on housing as a system and critiques of this perspective* **Comparative**: *the classification and typologies of housing systems elements from the review of interviewee data were compared to literature in housing, organisational theory, strategy,*

	economics, sociology and political science
8) closure comes when marginal improvement from next case becomes small	**Exploratory:** ***the 'spin-off' research into urban regeneration in Ireland was designed to provide data about new cases to test the applicability of the CAS framework***
	Comparative: ***48 'cases' of strategic decision-making were studied and conclusions drawn about the four main elements of the housing system as a complex adaptive system.***

When the hypothesis that housing in Ireland was a system emerged from the exploratory case study, it became necessary to adapt the subsequent analysis to incorporate methods and tools for analysing systems into the overall case study approach. Not surprisingly, there were several alternative systems methods, more or less corresponding with the different research 'paradigms' from Burrell & Morgan (1979). Checkland & Scholes (1990) identify four 'worldviews' that underpin all systems methods, three of which may be mapped directly onto the Burrell & Morgan typology and one of which is less easily classified.

Taking the three easy ones first, a 'hard' systems view assumes that systems have 'machine-like' qualities in that they follow particular (and knowable) rules and have objective existence. This view may be mapped to the functionalist approaches of Burrell & Morgan and would clearly not be appropriate for this study given the contextualist/constructionist orientation. A 'soft' systems view is based on the assumption that a human system may be usefully understood (in terms of being able to influence it) through different 'root definitions' as perceived by stakeholders, all of which have validity to the extent that they are accepted and acted upon by the stakeholders in the system. This view is clearly consistent with the social constructionist epistemology and the 'humanist' approach of Burrell & Morgan. A 'critical' systems approach includes the underlying assumption that power relations heavily influence the reality of the system, and that the system analyst has a responsibility to uncover these power relations and to facilitate the 'emancipation' of system participants. This view is consistent with either of the radical humanist or radical functionalist approaches in Burrell & Morgan, but, as noted earlier, does not feature heavily in this analysis. Having acknowledged this, empowering effects of the research on decision-makers in the non-profit sector may have arisen from the findings of a related study (Mullins et al.2003) in which the first comprehensive organisational analysis of the non-profit housing sector in Ireland was produced.

The fourth worldview in Checkland's classification is a 'complex' systems view which incorporates the assumption that patterns of behaviour emerge from the interactions among system elements (agents), and that these patterns may have a characteristics that are not reducible to or deducible from the characteristics of the generating elements. This characteristic of complex

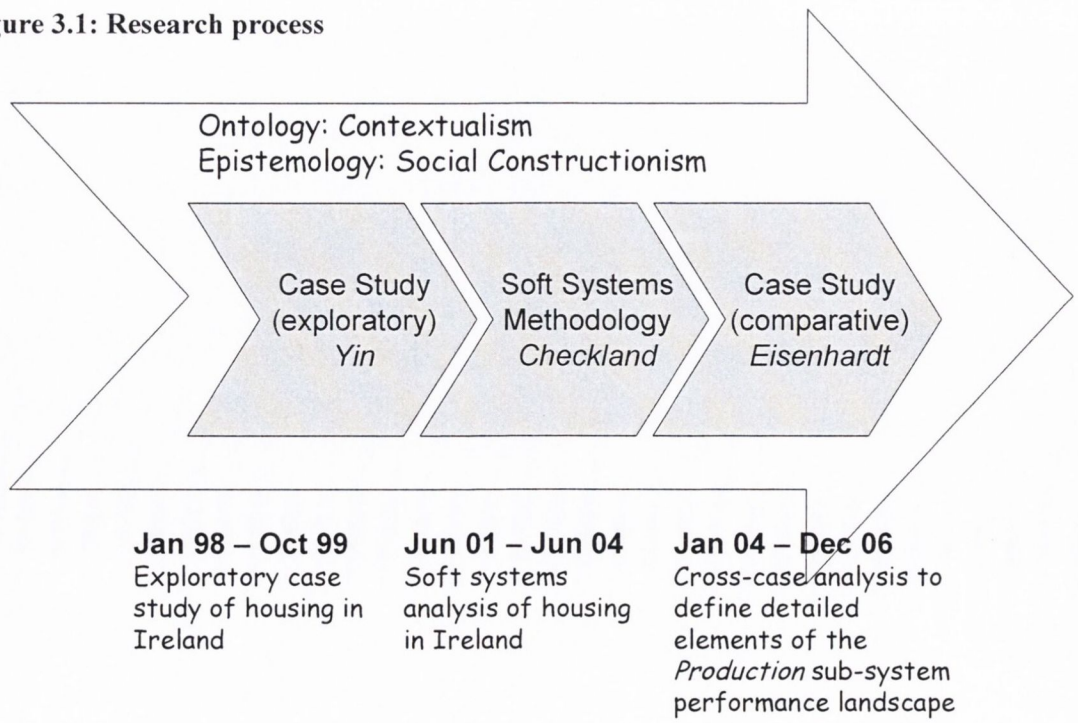
systems is colloquially described by the phrase, "the whole is greater than the sum of the parts" and, somewhat less commonly, as 'emergence'. Understanding the behaviour of the whole, the behaviour of the parts and how the latter gives rise to the former is the challenge of the complex systems analyst. This concept of related, but qualitatively different levels of analysis does not appear in Burrell & Morgan's typology, but turns out to be relevant to the analysis of the Irish housing system, as discussed in the next chapter. Checkland suggests that his soft systems methodology can deal with complex human systems using the 'root definition' strategy for examining the system as a 'whole' in parallel with detailed analysis, interventions and evaluations to explore details of the system relevant to the problem defined.

A diagram and summary of the seven-step soft systems methodology (Checkland & Scholes 1990) is provided in Appendix 3.1, and the key elements incorporated into this study were: a) exploring various root definitions of the system based on participant views (step 3) and b) formulating and comparing conceptual models for the system with the descriptions of participant actions, circumstances and outcomes (steps 4 & 5).

Specific steps in research project

While the methodologies described above are expressed as linear, albeit iterative steps, the actual research followed a path that was more akin to Lindblom's (1959) 'muddling-through' approach. There were, however, three identifiable 'phases' of the research in which the various steps discussed above were followed, each of which had a research objective, research tools/techniques and research outcomes (see figure below).

Figure 3.1: Research process



Overall the research process spanned 9 years (including a two year hiatus) and included data from 63 separate interviews, a survey of over 250 organisations (of which 85 responded), qualitative and quantitative analyses of 48 of the 63 interviews and relevant housing statistics, and numerous presentations of interim findings at academic and practitioner conferences, in journal articles and at stakeholder seminars. Furthermore, a separate research programme, applying the framework developed was funded by the Higher Education Authority (HEA) in Ireland, preliminary findings from which are reported in Rhodes & Murray (2007) and Rhodes (2008).

Phase I – Exploratory Case study of housing in Dublin/Ireland (Jan '98 – Oct '99)

As noted in the overview of the case study approach above, the project began as an 'exploratory' case study, with few *a priori* assumptions about the nature and dynamics of housing. The main assumption was that the phenomenon of 'housing' was made up of 'purposive acts' by human beings, and that gaining an understanding of these purposive acts would facilitate the understanding of the 'meaning' of housing as a socially constructed phenomenon. The research in this phase covered all but the last step of the case study methodology described above for the exploratory study, and also provided data for several of the mini-cases used in the comparative case study/soft systems analysis performed in phases II and III. This research phase was conducted over the period January 1998 – October 1999.

The first interviews were conducted with local authority managers responsible for various aspects of housing in Dublin – 12 interviews in all. From these initial interviews it became apparent that the interview list had to be expanded to include other actors in the system, i.e., policy-makers in the Department of the Environment, non-profit housing providers, private developers and builders. Several interviewees from each of these 'types' of actors were chosen to explore perceptions of Irish housing across the groups, consistent with the social constructionist approach.

Interviews were semi-structured and consisted of five main areas of interest: 1) the history of the organisational entity which the interviewee managed, 2) the objectives of the organisation, 3) recent and/or anticipated decisions made in pursuit of these objectives, 4) barriers/enablers of goal achievement in the organisation/environment, and 5) other participants in goal-setting, decision-making and/or implementation. Potential interviewees were contacted by the researcher and asked if they were willing to take part in a study of housing in Ireland. If they responded positively, they were then sent an introductory fax with an overview of the research and some background information about the researcher (see example of introductory fax and attachments in Appendix 3.2a-c). In general, interviews lasted approximately 90 minutes and were conducted by the

researcher (see Phase I interview guidelines in Appendix 3.2d). Interviews were not taped based on the recommendation from experienced management researchers in Ireland who suggested that interviewees would be constrained in their willingness to elaborate on objectives, decisions, barriers and enablers in the presence of a tape recorder. However, notes from the interviews were transcribed within a week from the interview and sent back to interviewees for their review in order to ensure that comments were not mis-recorded or misrepresented.

The notes sent to interviewees for their review were not simply transcripts of the interview, but were descriptions of what the interviewee had said about each of the topic areas covered, combined with data from organisational documentation provided at the time, or from supplementary information available in the public domain. In this way, the interviewee's perspective was enhanced, corroborated or challenged by documentary evidence incorporated into the interview notes. To the extent that follow-up questions were needed to clarify particular topic areas these were incorporated into the notes and interviewees were asked to comment/clarify as they chose. An example of a follow-up fax and interview notes produced for all interviews are included in Appendix 3.4a-b. Over the course of the research this technique proved highly effective, not only in enriching the content of the interview notes, but also in identifying areas of particular concern or sensitivity to the interviewee – which facilitated the later coding of interviews during the comparative case study phase. Most interviewees provided feedback on their interview notes, although several had to be contacted multiple times in order to do so.

In addition to the interviews in Phase I (25 in all), secondary sources and government statistics on housing in Dublin and Ireland were consulted to flesh out the exploratory case study. Housing is a well-researched and well-documented area of social life in Ireland with studies going back literally centuries. The goal of this documentary research was to discover the core features of (Irish) housing according to a range of perspectives, including government policy makers, housing policy analysts, economists, sociologists, historians, etc.. This research made it abundantly clear that the scope of the project would be challenging, as the range of features of potential relevance to the case study was very broad.

What also became clear from the secondary research, as well as from a majority of the interviewees, was that housing was often perceived by participants and observers as a 'system'. The term was used by interviewees most often when addressing the topic area of barriers/enablers, in which they would refer to the 'housing system' as a separate concept from other aspects of housing such as other actors, housing policies, technological capabilities, etc. For some interviewees, as well as for some authors, the term 'housing market' was used instead of, or along with, 'housing system', when referring to the concept of a set of actors, relationships and rules that influenced their behaviour and the outcomes of their behaviour. Whether favouring 'market' or

'system', however, most of the literature that used these terms adopted a world-view that would be characterised by Checkland as a 'hard' systems view, i.e., that the market/system was made up of components that have objective existence and follow specific rules that, if properly specified, can be used to predict outcomes.

However, the preliminary review of systems theory conducted in this phase suggested that the system being described by interviewees was a *complex* system in Checkland's typology. In other words it exhibited characteristics of emergence and adaptation that made it impossible to predict outcomes, even if the elements and relationships could be defined. Caldart & Ricart (2004) summarised the type of system that housing interviewees appeared to be describing as:

> "... a system comprising multiple parts that interact, each of which behave according to their own (local) set of rules and context. In spite of this independence, the interaction of these parts may cause the system as a whole to display emergent patterns (orderly phenomena and properties) at a collective level. The parts may either follow rules that are fixed, or the rules they follow may evolve – in which case the system is made up of 'adaptive agents' and the system itself is called a complex adaptive system. In these systems, it is possible for a mutually consistent ecology of parts, along with internal models and rules guiding them, to emerge or self-organise from what is effectively a decentralised bottom-up process of co-design." (Caldart & Ricart 2004: 97)

As a key outcome of the research, the proposal that housing in Ireland is a complex adaptive system will be discussed in more detail in the next chapter. The main point to make here is that this was a significant turning point in the research process.

Phase II - Soft systems/comparative case study data collection and preliminary analysis (Jun '01 - Jun '04)

The second phase of the research did not immediately follow the first phase, due to personal and professional career reasons. Other than some presentations of the early findings and hypotheses at conferences[25], little progress was made in describing the 'system' of housing in Ireland for just under two years. In the middle of June 2001, however, the second phase of the research got underway and was conducted as a comparative case study informed by the hypothesis that the phenomenon to be studied was a complex adaptive system made up of multiple actors pursuing their own objectives and interacting to co-create emergent features and outcomes of the system. While Yin (2002) would most likely refer to this phase as an 'embedded' case study – due to the concurrent analysis of both the systems level and agent-level features – the main thrust of the

[25] MacKechnie & Rhodes 1999, Rhodes 1999, Rhodes & MacKechnie 2000, Rhodes & MacKechnie 2001

analysis was to gather and compare detailed information on the features and contexts of the purposive act of strategic decision-making from the various actors in the housing system identified in the exploratory case study.

38 additional interviews were conducted in an effort to uncover a broad range of perspectives on strategic decision-making in housing. This included additional interviews from the original 'types' of actors, along with new types identified during Phase I as being those whose activities were important, if not the main, contributors to processes and outcomes of the system. These included bankers, estate agents, architects, industry associations and lawyers. In this phase, however, it was decided to exclude consumers of housing from the interview process due to time and resource constraints – although it was recognised that this would seriously limit the conclusions that could be drawn about decision-making by these actors, relying as it would on secondary data alone.

The interviews were conducted in much the same way as had been done in the exploratory phase, i.e., as semi-structured interviews enriched with organisation-specific reports and refined through a process of review with the interviewee. Each resulting interview write-up was considered a 'mini-case', which described the set of strategic decisions recently made, or under consideration, in the organisation at the time, in the context of: 1) organisational objectives, 2) the history and structure of the organisation, 3) key strategic decisions, 4) barriers/enablers in the environment and 5) personal characteristics of the decision-maker. Note that the last aspect of 'context', 'personal characteristics of the decision-maker' was added into the interview protocol as a result of collaboration with other academics on a related project conducted over the same period (see Mullins et al. 2003). Examples of the introductory fax, research summary and interview guidelines used in this phase are included in Appendix 3.3a-c.

How the cases were selected is a crucial element in case study methodologies, with Flyvbjerg (2004) identifying six different methods ranging from random sampling of cases to improve generalisability of the findings to choosing 'extreme/deviant' cases in order to explore unusually problematic situations. Flyvbjerg groups the six methods into two categories: 'random' selection and 'information-oriented' selection. The first category is aimed at avoiding systematic bias, but requires a large number of cases to support generalisability, while the second is aimed at "maximising the utility of information from small samples... cases are selected on the basis of expectations about their information content" (Flyvbjerg 2004: 426). While the ontology and epistemology underpinning this research do not support generalisability overall, the desire to incorporate as many different perspectives as possible into the comparative case study led to a relative large number of cases spanning a wide range of different types of actors. Nevertheless, the selection of cases was not random so much as 'stratified', meaning cases within each of the identified groups of actors were specifically targeted.

Additional data collected in this phase included statistics on the outcomes of the Irish housing system from government sources and various policy research documents. An analysis of the main outcomes of the system was reviewed by several experts in Irish policy and housing economics and the main findings are reported in Chapter Six of this thesis. Another research outcome of this phase was the proposed hypothesis that actors in the housing system may be characterised based on their organising purpose ('value objective'), along with their organising mode as the two central features that drive agent behaviour (Rhodes & MacKechnie 2003). This was an important step in the process of shaping hypotheses regarding the overall system and paved the way for the more detailed analysis of the types of decisions and factors that actors consider part of strategic decision-making. Finally, literature relating to strategy, decision theory and complex systems models was consulted to refine the emerging hypotheses about the housing system and the behaviour of its participants. The phase ended with the selection of a particular type of complex adaptive systems model, the performance landscape (Siggelkow & Levinthal 2003) as the conceptual model (or 'root metaphor') to be used in taking the case study to the next stage of detailed cross-case analysis.

Phase III – Cross-case analysis to produce the detailed elements of the performance landscape model (Jan 04-Dec 06)

The vast majority of the time allocated to phase II of the research was taken up with the first four steps in Eisenhardt's (1989) eight-step methodology for building theory from case studies. In so doing, the first three steps of Checkland's soft systems analysis were also completed, the results of which were the research outcomes described above. The main inflection point between phases II and III was the selection of the performance landscape model from the range of possible complex adaptive systems models as having the most potential for describing and explaining how the housing system in Ireland worked. This model was built on the 'NK' fitness landscape models of Stuart Kauffman (1993, 1995) and the reasons for choosing an 'NK' based model are discussed in more detail in Chapter Four.

However, the selection of this model as the one to take forward into the detailed cross-case analysis phase required: 1) additional data coding and analysis, as well as 2) confirmation that the model was 'relevant' to stakeholders in the system. The latter task was performed through the presentation of the model in practitioner seminars organised under the HEA funded project[26] and in academic conferences and journal articles[27].

[26] presentations to the Advisory Group for "Richer Decision-Making in Public Services" : June 2004, April/November 2005, May/July 2006

[27] Rhodes & Haynes 2004, Rhodes 2005,2006, Rhodes & Murray 2007

The former task involved firstly the decision to confine the detailed analysis of decision-making by actors in the system to a subset of the agents identified, namely 'production' agents. Production agents include all organisations involved directly, or indirectly, in the production and maintenance of dwellings, including developers, builders, architects, planners, building suppliers, local authorities, non-profit housing associations, and other statutory bodies involved in housing or housing related services (e.g., the National Building Agency). This decision was driven by both practical and theoretical considerations. The practical consideration was that there was significantly less case information on '*utility*' agent decision-making (the buying and selling of dwellings) due to the exclusion of consumers from the interview process[28], and a minimal number of cases relating to '*collectivity*' agent decision-making. However, there were 48 *production* agent cases, a number that was considered to be sufficient to support the necessary analysis. From a theoretical perspective, the modelling framework chosen as having the greatest potential for supporting the development of a coherent governance theory (Siggelkow & Levinthal 2003) was focused on production agents. As such, any comparison of this conceptual framework to the empirical data gathered should begin with those aspects of the phenomenon most similar to those assumed in the model – since negative findings from this effort would obviate the necessity to extend the model further and provide a strong basis for concluding that the NK model was not appropriate for public service governance theory.

Once the cases to be analysed were narrowed down to production actors only, each case was analysed and coded according to the categories of actor, actions, circumstances and outcomes. The analysis was conducted by reviewing the interview notes and noting down references to elements of the conceptual model and the type of characteristics described. For example, if an interviewee said that their organisation was planning to expand production, then the row in the spreadsheet would indicate that a 'growth' decision was found in the mini-case relating to that organisation. If capital was identified as a barrier to this (or any other) objective, then that would be noted in the spreadsheet as an environmental factor (a type of circumstance) considered, and so on. **Actor** characteristics identified as potentially relevant to decision-making included sector (i.e., public, private, non-profit) and subtype (i.e., developer, builder, architect, etc.) along with demographic details such as date of organisational founding, scale (local, regional national, international) and legal structure (e.g., partnership, corporation, statutory, trust, sole proprietor, etc.). **Actions** consisted of the different decisions that interviewees described as having been taken recently or under consideration in their organisations and these were classified into categories such as grow, diversify, change organisational structure, change HR strategy, etc. In the main, decision 'types' emerged from the interviewees' own statements which were then compared to strategy

[28] Note, however, that 6 interviews were conducted with managers from organisations that were classified as utility 'facilitating' agents, i.e., bankers, lawyers and estate agents

literature to assess consistency or contradiction, and to use terminology already recognised in the field of strategy to describe the decisions identified.

Circumstances, as identified by interviewees mainly in their discussion of barriers and enablers to decision-making, exhibited a broad range of categories (11 in all) across the 48 cases. Furthermore, some categories were seen as issues (i.e., barriers) to goal achievement by some actors and as opportunities (i.e., enablers) by others. As was done for the development of decision categories, the terms and descriptions used by interviewees were compared with existing literatures in strategy, management and housing to identify consistencies, contradictions and accepted terminology. The analysis of circumstances – which later came to be referred to as 'decision factors' - was compared to the results of a survey on decision-factors sent to approximately 250 public, non-profit and private sector organisations conducted as part of a related study, however minimal additional information was derived therefrom.

Finally, **outcomes** relevant to individual organisational decision-making were identified based on interviewees' descriptions of the organisational goals, other 'reasons' for decisions and some elements of barriers/enablers. These were compared to the list of outcomes considered relevant in policy, strategy and management literatures and to the categories of outcomes arising from the analysis of Irish housing policy and system literature conducted during phase II of the project. Note that as a new characteristic was identified through the analysis of a given case, all cases that had been previously analysed needed to be reviewed again to determine if the new characteristic really was 'new' to that case or had simply been overlooked in the previous analyses of cases. It may be of interest to note that no 'new' characteristics were identified after about the 30th case.

The final result of the case analysis and coding exercise was a spreadsheet consisting of 48 rows (corresponding to each interview/actor) and 53 columns (one corresponding to each characteristic), plus one column for notes and details as appropriate. In the case of the **actor** demographic data, the columns were filled in with specific codes to facilitate grouping of organisations and pattern analysis – i.e., founding date, sector, production sub-type. In the case of **action decisions** and **outcomes**, the columns were filled in with 'Y' if the decision/outcome had been mentioned by the interviewee, or 'N' if it had not been mentioned. In the case of **circumstances** – the column was filled in with an 'I' if the interviewee had mentioned the factor as an issue, with an 'O' if it was an opportunity, with an 'I/O' if the interviewee was unclear or of two minds and, if the circumstance had not been mentioned at all, the column was be populated with 'N' (See example of Phase III Coding Spreadsheet in Appendix 3.5).

The use of spreadsheet coding facilitated pattern analysis through counting the number of times particular characteristics appeared and sorting the spreadsheet by different columns to identify

whether some characteristics appeared in conjunction with others. The findings arising out of this analysis are discussed in Chapter Seven. After this analysis, only one task remained, which was to perform a statistical analysis of the 26 relevant performance landscape features (decisions and factors) suggested by the spreadsheet analysis to see if there was evidence of statistically significant association among these features. Evidence of association among landscape features would suggest a figure for 'K' in the 'NK' landscape, and provide an important aspect of any future simulation. In order to perform this analysis, the data in the spreadsheets had to be converted to support a Chi-squared analysis in SPSS[29] and this was done by changing the 'Y's to '1' and the 'N's to '2', along with some restructuring of the issues/opportunities data to conform with this analysis (See Appendix 3.6). While there were potential interdependencies identified suggesting that 'K' was between 1 and 2, the number of cases in relation to the number of variables resulted in too sparse a matrix for the Chi-Squared analysis to be reliable. The implications of this finding – or more precisely, the lack of findings in relation to correlations is discussed further in Chapter Seven. Future research to progress a performance landscape analysis for housing will need to attend this aspect of the model if simulations are to be pursued.

Summary of methodology

The research methodology combined case study research techniques (Yin 1994, Eisenhardt 1989, Barzelay et al.2003) with a soft systems analysis (Checkland 1981) to explore the characteristics of the Irish housing system over the period 1998-2005) and to progress towards a theory of governance in housing. In general, the research followed the eight steps required for theory building using cases as described by Eisenhardt (1989), but also incorporated key elements of the 'systems thinking' steps in Checkland's soft systems methodology, notably the development of a conceptual model of the phenomenon as a particular type of system (the 'root metaphor') that was generally recognised and accepted by system participants.

The data collected included semi-structured interviews with managers across a range of housing activities, secondary documentation about the organisations included in the interview process, housing statistics, policy documents, relevant literature (as reference material against which to compare emerging categories/hypotheses) and a survey of factors considered by managers in their strategic decision-making. Interviews covered organisational history, key decisions made in the recent past or under consideration, and environmental factors affecting decision-making and numbered 63 in all, although only 48 of these were used in the comparative case study phase of the project.

The entire research project spanned nine years (albeit with a 2 year hiatus) and comprised three distinct phases. Phase I took two years and was an 'exploratory' case study of housing in Ireland

[29] Statistical Package for the Social Sciences

in which it was concluded that (1) the range of interviewees (actors) needed to be extended beyond that which was originally thought, (2) that the range of actions, circumstances, and outcomes potentially relevant to governance theory was extremely broad, and (3) that many participants and observers perceived housing as a system of some kind. Phase II extended the case study to encompass a wider range of actors, actions, circumstances and outcomes, while at the same time introducing 'boundaries' through the application of systems thinking and stakeholder review and participation to define the 'root metaphor' applicable to housing as a system. It was in this phase that a particular type of complex adaptive system model – the 'performance landscape' – was identified as being appropriate to building governance theory for housing as a public service.

Phase III focused on teasing out the specific details of housing as a performance landscape through a comparative case analysis of decision-making by 48 of the 63 actors included in the original study. These actors were identified as 'production' agents, for which sufficient primary (and secondary) data was available to pursue detailed specification of the performance landscape. Features of the landscape (decisions / factors) were identified and the case study concluded with a statistical analysis to establish interdependencies among elements in the performance landscape.

Overall, the combination of a two-phased case study approach – which allowed for a rich contextual analysis of the phenomenon studied – with a soft systems analysis to support the explicit and detailed specification of a human system based upon the system participants' own understanding of the nature of that system, proved to be a solid basis on which to develop a conceptual model of a particular public service that was both internally consistent and reflected the complex characteristics of the phenomenon as perceived by participants. The initial exploratory case and literature review supported the development of a high-level conceptual framework that was then explored through the soft systems analysis to further specify the nature and key features of the system to be analysed. The categories and relationships inherent in the systems model identified in the second phase could then be further refined through examining multiple mini-cases focusing in on the decision-making of agents and seeing how well or how poorly the model features corresponded with reality.

Chapter Four: Developing the Research Conceptual Model

"The true mystery of the world is the visible, not the invisible." (Oscar Wilde)

Introduction

In this chapter the research model used to develop governance theory from the empirical case study is described in detail. The conceptual model is derived from an existing complex adaptive system model, specifically Siggelkow and Levinthal's (2003) adaptation of Stuart Kauffman's (1993, 1995) fitness landscapes. Before embarking on this description, however, it is necessary to provide some justification for taking a systems perspective in the first place, given the trenchant critiques that have been levied against systems approaches to public administration over time (Hoos 1972, Brewer 1975, Lilienfeld 1978, Stacey & Griffin 2006) and the presence of an apparently perfectly good alternative, i.e., governance networks (R.A.W. Rhodes 1996, Kickert et al.1997, Agranoff & Maguire 2001, Koppenjan & Klijn 2004).

Is the provision of public services a 'system'?

In the first chapter of this thesis, I briefly discussed the current state of public administration/management theory, concluding that the field was in a state of relative disarray, with many theoretical strands and numerous open questions. Among the several strands discussed, 'governance theory' was identified as having the potential for corralling the various strands into an integrated, multi-disciplinary framework that could accommodate the fundamental changes that had occurred in theory, as well as practice, over the last half century (Lynn et al. 2001). Within the broad field of governance theory, there is a relatively well accepted and extensively researched approach that is the study of public management 'networks' or "multi-organizational arrangements for solving problems that cannot be achieved, or achieved easily, by single organizations" (Agranoff & Maguire 2001: 296). Networks in public management have received significant attention in the United States, Canada, Britain and various countries in Scandinavia as scholars seek to understand the challenges and opportunities in formulating and implementing public policy initiatives in increasingly complex organisational contexts. In Ireland, as well is in much of the developed world, 'governance' in the public sector is increasingly seen as requiring a network perspective.

What is a 'governance network'? Rhodes's (1996) description of the characteristics of "self-organising, inter-organisational networks" in the public sphere provides clear guidance as to the nature of the phenomenon. These characteristics are:

1) Interdependence among organisations;
2) Continuing interaction between network members to exchange resources and negotiate shared purposes;

3) 'Game-like' interactions, rooted in trust and regulated by the rules of the game negotiated and agreed by network participants;
4) A significant degree of autonomy from the state. Networks are not accountable to the state; they are self-organising... [though the state] can indirectly and imperfectly steer networks.

From the above we can see many of the features identified in the literature review as being features of a public service system. However, while network theorists address autonomous, yet interdependent actors, jointly created purposes, interactions and rules, there is a distinct gap in network frameworks with respect to outcomes and feedback processes. Mullins & Rhodes (2007) noted that there is a 'normative' strand in governance network theory that focuses on managing network relationships in order to facilitate the accomplishment of joint outcomes, but the outcomes themselves are highly contextualised and rarely the focus of governance theory. Rather, the focus in governance networks is on relationships, not outcomes. Furthermore, the context for network governance theory is generally limited to features of the network itself, i.e., the degree to which the network consists of highly interdependent actors or, is closed to new participants etc.. Other features of context such as the PEST characteristics and the information environment discussed in Chapter Two are rarely addressed.

Systems theory, in particular the 'open systems' version, has long incorporated the concept of 'feedback' (Ashby 1956, Forrester 1969), which is a feature that is distinctly lacking in network approaches. The concept of feedback encompasses both the information content of interaction between a system and its environment, and the nature of the system's (or the system participants') response to different feedback content. For example, if one is analysing the provision of housing, both network theory and systems theory will accommodate an analysis of how the actions of system participants relate to housing outcomes. However, it is systems theory alone that incorporates the analysis of how changes in housing outcomes will, in turn, affect the agent behaviour. Open systems theory also accommodates the incorporation of any aspect of the environment as a factor that can affect agent and system behaviour.

But what, exactly, is a system? Marchal (1975) defines a system as any phenomenon that is made up of a set of elements that interact with one another in more or less stable ways over time. Granted, this is a very broad definition, and most likely it was definitions such as this that led to critiques of a systems perspective as having too broad a focus ever to result in meaningful or operational theory (Kornai 1999, Frederickson & Smith 2003). Caldart & Ricart's (2004) more recent definition of a complex adaptive system, consisting of a "mutually consistent ecology of parts, along with internal models and rules guiding them" (p. 97) provides more specifics and is also consistent with the descriptions of governance networks provided above.

In fact, both network and systems frameworks encourage researchers and policy makers to look at the overall effect of individual and collective actions of systems participants, and on the interdependencies among participants that give rise to systems/network behaviour and outcomes. Recent critiques of public management theory and practice (Boston 2000, Chapman 2002) suggest that public management research "at the macro or system-wide level" is critical to understanding the impact of recent public management reforms on overall public sector performance. Network governance theorists (Rhodes 1997, Agranoff & Maguire 2001, Koppenjan & Klijn 2004) also emphasise the importance of multi-level analyses (e.g., individual, task, organisation, network, institution) and how individual actions generate higher level patterns that can then influence subsequent actions at a lower level. In systems theory, this is a phenomenon that is referred to as *emergence*. The concept of emergence at its simplest is the creation of new properties (Emmeche et al.1997), i.e., properties which could not be predicted based on the antecedent actions or component elements of the phenomena that led to or comprise the resulting (emergent) phenomena. In governance theory, it is the emergence of institutions, in particular, that is a focus for analysis and theory building, and this may be accommodated by existing systems theory.

In addition to emergence, there exist a number of known behavioural characteristics of various types of systems and their constituent parts, developed over the last 50 years of research across numerous disciplines, which may contribute to better, more coherent explanations for the behaviour and outcomes in public services. Examples of the some of the earliest identified characteristics of systems that may be still be of use in public service policy and practice today are Ashby's (1962) 'law of requisite variety', Bertalanffy's (1968) concept of systems equifinality, and Simon's (1962) propositions on the hierarchical architecture of complex systems. More recently, Prigogine's (1997) dissipative structures and bifurcation points, Arthur's (1989) analysis of the effect of initial conditions and positive feedback and Kauffman's (1993) demonstration of how stable, 'ordered' structures emerge from the interactions of independent elements may have analytic potential in the public service domain. Stuart Kauffman's work, in particular, is applied in the development of the research model for this thesis.

Finally, to those who would say, "why use the term *system* rather than the perfectly good term, *network*?" it is instructive to recall Thorelli's (1986) refreshingly honest comments about the reasons for choosing one term over another:

> *"...the question may be raised why we are talking about networks rather than systems. A simple-minded reason is that by now 'system' is a tired term. More importantly, we are taking the network concept to connote a special type of system, one whose internal interdependencies generally change over time"* (p. 39).

I would argue that, rather than being a tired term, 'system' is in fact a mature term with a long history of debate about its meaning and applicability to a wide range of phenomena. Furthermore,

systems theory is consistent with network theory in particular, as well as governance theory in general, and also appears to accommodate environmental features and feedback from outcomes that are relevant to public services but which do not feature in governance network frameworks as they appear in the literature.

Testing the systems concept with system participants

As noted in the methodology chapter, a core element of soft systems analyses is the participation of stakeholders in the analysis process and, in particular, in the definition of the conceptual model to be used. However, given the range and sheer numbers of participants in the Irish housing system, it was not feasible to gather all participants' views on the matter. A survey asking respondents to give their opinion as to whether or not they were part of a system was rejected as unlikely to result in meaningful results. Instead, the proposal to use a systems perspective on housing in Ireland is based on its regular application in scholarly works over the last 40 years, the use of the systems metaphor by interviewees over the course of the research, and the general acceptance by academics and practitioners of the systems metaphor in presentations of these findings in conferences and seminars over the last several years. Pfretzschner (1965) and Baker & O'Brien (1979) are early examples of analyses of Irish housing that applied a systems perspective and Drudy & Punch (2005) is the most recent example, with numerous examples – particularly in economic texts – in between.

In addition, a number of interviewees described their decisions, opportunities and challenges in the context of a system or (occasionally) a network of participants. One interviewee referred to "a *system* of services required to meet (housing) needs" in reference to homelessness in particular, another drew attention to the "*network* of bankers, developers, builders and architects that together determine the real estate market in Dublin", while another commented that "the roles of public/social housing providers and the private rental landlords should be recognised as contributing to a balanced housing *system*". While the use of the word "system" by interviewees does not, in and of itself, indicate that participants have a shared or even solid understanding of the meaning of the word, nevertheless their use of the term without prompting from the interviewer provides at least some evidence that participants are comfortable with this perspective.

Furthermore, it was clear from a very early stage in the research that the public sector managers were responsible for only a small part of the overall provision of housing in Dublin, and their role had been decreasing (in terms of production and management of housing stock) over time. However, their remit, though limited in terms of housing production, extended into many areas of housing provision also catered for by other participants, linking together the public, private and non-profit housing sectors in a myriad of ways. As the research progressed, it became clear that

organisations other than public agencies also had significant influence over the behaviour of various actors, including the Construction Industry Federation, the Irish Council of Social Housing and the Royal Institute of Architects in Ireland. Each of these organisations, along with many in the public sector, pursued system level objectives as well as their own particular objectives – adjusting their behaviour in complex ways to achieve both. With its range of participants, interdependencies and interactions, actor level as well as system-level objectives and outcomes, efforts at steering the network/system by public as well as private agents, and the tendency for scholars and policy-makers to adopt a systems perspective, it would appear that there is sufficient support for conceiving of housing in Ireland as a *system* of public service.

Answering the systems critics

And what of the criticisms of adopting a systems perspective? Eberhard Umbach (2000) provides a helpful summary of the range of criticisms drawing largely from US and West German sources. One of the earliest critiques levelled at attempts to apply systems theory to public policy domains is typified by Ida Hoos' (1972) critique of efforts in the US in the 1960s to implement a programme called the "Planning, Programming and Budgeting System" (PPBS) along with other examples of systems 'analysis' prevalent at the time. She studied a range of programmes that had adopted a systems approach and found a litany of problems including exaggerated promises, single-minded application of an 'engineering' mind-set, a lack of awareness of and/or reliance on participant knowledge in favour of outside consultant input, over-reliance on quantification of variables and/or inadequate attention to accurate specification of variables, a focus on the model of reality rather than reality itself and, in the end, very few results to show for vast investments of money and time. Checkland (1988) characterised the systems approach described by Hoos as the 'hard systems' approach, in which systems are largely perceived as having the characteristics of machines that can be engineered for optimal performance. In contrast, Checkland proposed a 'soft systems' approach as a more realistic and flexible approach to, first, understanding the nature of the system to be analysed and, second, trying out various alternative strategies proposed by the stakeholders themselves for influencing the system in the desired direction. Referring explicitly to Checkland, as well as other later methodological developments, Umbach (2000) noted that "the critique of the 70s was the cause for corrections in the methodology of systems science" (p. 20).

The second category of critique identified by Umbach covers the various levels of frustration expressed at the general nature of systems concepts (Mueller 1996, Kornai 1999). As exemplified by the definition from Marchal quoted earlier, systems theory, in its efforts to provide the 'deep structure' of science (Bertalanffy 1968), can often fall into the trap of trying to be a theory of everything and ending up with statements that are empty of any practical meaning. Frederickson & Smith (2003) echo this critique in their warning about governance theory as tending towards an

approach that includes everything, but runs the danger of explaining nothing. While acknowledging the tendency towards untenable analytic scope in this research, the focus on a particular manifestation of a public service phenomenon, i.e., the provision of housing in Ireland, should go some way towards mitigating this problem.

The use of an empirical case study to explore the applicability of a systems approach also addresses the third category of critique as described by Umbach, which is the tenuous and often non-existent link between systems models and empirical data. Some infamous systems models of large-scale social systems in the 1960s and 1970s provided grist for these critiques including the computer simulations of Pittsburgh and San Francisco in the early 1960s (for critique, see Brewer 1975), Forrester's (1971) *World Dynamics*, and Meadows et al's (1972) *The Limits to Growth* which were later seen to have been based on dubious estimates and assumptions about underlying variables and trends. That the dire predictions of the latter two models have yet to materialise is attributed by many to the lack of empirical rigor in the model formulation – although other factors such as those identified by Hoos (1972) are also cited.

Both Umbach (2000) and Stacey & Griffin (2006) describe a fourth type of criticism around the tendency for systems theorists to present their analyses in an ideological way that leaves little room for constructive debate and/or leads to pathological outcomes. While Umbach only briefly mentioned this as an issue related to the larger issue of overly broad scope and overly enthusiastic claims of relevance, Stacey and Griffin (2006) were much harsher in their criticism. These authors suggested that a systems perspective, in particular one that is informed by cybernetic systems theory (Wiener 1948, Ashby 1956), results in a diminishment of the importance of the behaviour of individuals in preference to the behaviour of the system and a focus on how systems (and their human participants) may be controlled. In their view, this results in an ultimately de-humanising view of people as mere systems components mindlessly responding to stimuli over which they have no control.

Another pathology blamed on the systems ideology of the 1950s and 60s was the belief that it led to an overly centrist approach to social planning – which was particularly problematic when combined with the engineering approach to systems analysis described by Hoos (1972) and Umbach (2000). Umbach suggests, however, that recent developments in systems theory such as chaos theory, self-organisation and complex systems theory are unlikely to result in the same sorts of pathologies observed arising from earlier applications of systems theory. As it is the more recent versions of systems models that are incorporated into the research model proposed, it is hoped that the pathologies of the past can be avoided. Furthermore, Stacey and Griffin, themselves, suggest that the use of soft systems methods will go some way towards avoiding the

tendency to ignore individual agency and to explicitly incorporate the views of participants in any systems solutions proposed.

Which leaves the fifth and last type of critique of the systems perspective – that researchers and analysts display an over-reliance on metaphor or analogy to analyse and explain phenomena without being clear about the distinction between metaphor and reality. Stacey & Griffin (2006) decry the gradual acceptance of the systems metaphor as a 'fact of life' over the latter half of the 20th century and the "taking for granted that nature actually consists of systems" (p. 29). When one begins to believe that a representation or model of reality actually is reality, one begins the slide toward a philosophical cul-de-sac in which nothing can be proven to exist outside the perception of the observer, not to mention the inability to see any fact that is not consistent with the representation. The research presented here engages with the idea that knowledge and even 'facts' are socially constructed, and incorporates the recognition that the systems model proposed in this chapter is only one of many possible frameworks for developing theory - valuable to the extent that it provides insights that were otherwise unattainable, or pathways to solving problems that were otherwise unsolvable, but not the actual phenomenon itself.

What sort of system are we talking about?

Soft systems analysis is a problem-based approach to systems analysis and therefore assumes that there is a problem to be solved. The definition of the problem (the 'root definition') is requisite to choosing a model of the problem situation (the 'conceptual model') as it helps define the scope and objective(s) ('boundaries') of the analysis. In the section above, the case for choosing a systems model to describe a public service phenomenon was made without the benefit of a problem definition, except in so far as one considers the description of any phenomenon to be a 'problem'. However, to take the analysis further and to select a particular systems model to apply, a more precise definition of the problem is required.

This brings us back to the original research question described in Chapter One, i.e., "What are the relevant actors, outcomes, actions and circumstances in the delivery of public services and how do each of these elements relate to one another?" This is a 'problem' of theory-building that includes a checklist of the elements that need to be defined, categorised and related to one another and also provides a first cut at the boundary definition for the proposed model, i.e., anything that may be defined as an actor, outcome, action or circumstance in public services is within the scope of the analysis. The literature review resulted in the identification of specific dimensions within each of the four elements that needed to be addressed, and the selection of housing in Ireland as the supporting empirical case further defined the boundaries of what would be included in the analysis.

Selecting a systems model: alternatives considered

Over the course of the research many potential systems models were reviewed in order to find one that could encompass all – or at least a majority - of the elements described in Chapter Two and identified through the case study. The process of review was not a formal one of evaluating the checklist developed in Chapter Two against the various models, but rather a more emergent process of trying out different models against the emerging conceptualisation of public services/housing and eliminating those that were clearly inappropriate. The first systems models to be eliminated were those that relied solely on mathematic formulations such as the types described by John Casti in 1979[30]. While this was an 'easy' elimination in so far as the use of purely mathematical models to address complex problems of public administration had resulted in many of the harsh criticisms of systems approaches in the past, it was nevertheless the case that problems of urban planning and management – which was the original focus of this research – are still addressed using these types of model (Bertuglia et al.1990). Having acknowledged that mathematical models had a role to play in one aspect of housing as a public service, the impracticality of mathematical models to incorporate all of the various features of public services found in the literature review was clear early on.

At the opposite end of the precision scale in systems models was Gareth Morgan's (1986) list of eight metaphors[31] for understanding organisational phenomena. These constituted another group of systems models considered and eventually rejected, although his metaphor of "flux and transformation" is similar to the model eventually chosen. There were two main reasons for rejecting the use of Morgan's metaphors as the framework on which to build governance theory. The first was that they were principally aimed at understanding a single organisation, and the systems under consideration here are made up of many organisations. Interactions among organisations receive minimal attention in Morgan's analyses – a clear weakness for the analysis of public services systems. The other reason was that Morgan's metaphors were insufficiently developed to facilitate even a moderately precise specification of a model on which to base governance theory that could integrate the many strands of existing theory as well as provide explanations for behaviour and outcomes. Morgan, himself, recognises this fact and notes that the power of metaphor is to generate insights as opposed to developing theory.

Complexity and complex systems theory fell somewhere in between 'maths' and 'metaphors' in terms of the ability to incorporate all of the features of public services while still being able to

[30] Casti lists 6 types of models used for modeling large-scale systems: differential equations, input/output functions, finite state descriptions (equilibrium), potential functions (maximise/minimise a given output), entropy (measures of disorder) and sets/relations between sets

[31] Morgan's eight metaphors for organisations are: 1) machine, 2) organism, 3) brain, 4) culture, 5) political system, 6) psychic prison, 7) flux and transformation, 8) instrument of domination

support the level of specificity required for theory building. In fact, complexity theory has been used to study systemic behaviour of phenomena ranging from sub-atomic particles to global economies. Complexity theory, of course, is an umbrella term that covers many different theoretical strands, but with a common focus on complex systems phenomena with many interacting parts and non-linear or unpredictable outcomes (Anderson 1999). Theories of complex systems are cropping up in numerous natural and social science disciplines including meteorology, chemistry, biology, physics, education, management, economics, sociology, etc.. Complexity theory was also identified by public administration scholars as having the potential to address the increasingly messy business of public service provision (Boston 2000, Blackman 2001, Weber 2005, Stacey & Griffin 2006). And so, complex systems were selected as the category of systems models from which to draw to build a systems framework for governance theory of public services.

However, there is also a wide variety of models within this category of systems and Stacey, Griffin and Shaw (2002) suggest that the vast range of complexity theories can be grouped into three basic types. The first type is *chaos* theory, largely derived from the work of the meteorologist, Edward Lorenz (Lorenz 1993), and concerns dynamic systems that follow precise 'laws' but nevertheless exhibit unpredictable behaviour due to interactions between the various laws and/or small differences in initial conditions. Applications of chaos theory are concerned with discovering the laws and conditions that govern the behaviour of a particular system and mapping out the potential set of patterns that the system can display. Note that chaotic systems do not display the sort of Newtonian cause and effect dynamics that underpin many models of natural and social systems, but instead "display complex patterns of behaviour which are not proportional to their multiple causes and which cannot be predicted from them" (Burnes 2005: 78). While these models appeared at first to hold significant promise for applying to public service systems, they turned out to be heavily reliant on mathematical formulations and on the existence of behavioural laws that did not change over time. Both characteristics made them inappropriate for the problem at hand.

The second type of complexity theory identified by Stacey et al.(2002) was *dissipative structures theory*. Dissipative structures are phenomena that maintain their existence through the constant input of energy from their environment, apparently in contradiction to the 2nd law of thermodynamics. These structures exist in a kind of semi-equilibrium state, importing energy to maintain their shape for a while but then suddenly collapsing into disorder before reaching a 'bifurcation point', after which a new form is adopted and becomes the new equilibrium state of the system. The new structure of the system cannot be predicted from the previous state, but is created through spontaneous self-organisation of the elements that make up the phenomenon. Models of dissipative structures are based on the work of the physicist/chemist and Nobel prize-

winner, Ilya Prigogine (Prigogine & Stengers 1984, Prigogine 1997), and are most often applied in the natural sciences, although the concept of 'punctuated equilibrium' in organisational change (Romanelli & Tushman 1994) is similar to the ideas of Prigogine. This strand of complexity theory is particularly appropriate for studying change, but its application to large-scale public service systems made up of heterogeneous agents changing at different times and in different ways was considered too great a stretch for these types of model as they are currently configured.

This leaves the last type of complex systems model in Stacy et al's (2002) typology: *complex adaptive systems*. These are models that seek to build a representation of a system through studying the behaviour of the agents that make up the system, under the assumption that agents' actions and interactions will result in observable, emergent patterns at the systems level. Complex adaptive systems (CAS) are self-organising in that there is no controlling entity within or outside of the system, however patterns of actions/interactions that emerge over time may create conditions that constrain the behaviour of agents in future periods. Furthermore, agents can 'learn' from their previous actions and outcomes and adapt their behaviour to suit their individual purpose(s). There are many proponents of complex adaptive systems theory, amongst the most well-known and cited are the biologist, Stuart Kauffman (1993, 1995) and the computer scientist/psychologist, John H. Holland (1995, 1998).

Like each of the other complexity theories described above, complex adaptive system theory is based on the idea that complex behaviour, at the systems level, can arise from the interaction of relatively few and even simple behavioural 'rules' – but in the case of CAS these are rules operating at the agent level rather than at the level of the system as a whole. Furthermore, CAS models tend to be implemented in the form of computer simulations and 'fuzzy-logic' formulations, minimising the need for quantification and precise mathematical formulations. Intuitively, the CAS approach to modelling systems behaviour seemed to fit the 'problem' of public service systems. CAS can accommodate each of the four main elements described in Chapter Two, and models based on CAS premises appear to avoid many of the pathologies that previous systems approaches to problems of public administration exhibited. CAS approaches are viewed as having significant potential in organisational modelling, so much so that an entire issue of *Organizational Science* was dedicated to exploring this potential (*Organizational Science* 1999, vol. 10(3)). More recently (and more relevant) was a special issue of *Emergence: Complexity and Organisation* (2005, vol. 7(1)) on the topic of "Complexity and Policy Analysis", in which several of the articles drew on complex adaptive systems frameworks to explore various public policy domains. The lead article in this issue (Bankes 2005) analysed decision-making based on simulations of 'policy landscapes', and in a recent compendium of academics' views on management theory development (Smith & Hitt 2005), Sidney Winter suggests that the particular type of complex adaptive system model selected for this thesis, i.e., NK models, has significant

potential for the development of management theory overall, linking as it does organisational behaviour and evolutionary economics theories into a coherent theoretical framework.

However, it turned out that there were almost as many versions of CAS models as there were complexity theories and it was necessary to settle on one in order to progress the definition of public service systems as a type of complex adaptive system. Philip Anderson (1999) provided a helpful typology of complex adaptive systems simulation models in the special issue of *Organizational Science* referenced above. He described three types of model that were used extensively to study the behaviour of complex adaptive systems; genetic algorithms, neural networks and cellular automata. *Genetic algorithms* are models that represent agents as strings of genetic 'code' that consist of a set of instructions (or characteristics) which may be split and/or recombined over time to form new agents. The strings of instructions/characteristics will have a total 'fitness level' that is determined by the sum (or a different combinatorial function) of the individual parts. The agents are reproduced each period in proportion to their overall fitness, but the reproduction is 'imperfect' in that new agents are created from the combination of randomly selected sub-sets of the characteristics of reproduced agents. In effect, agents are born, reproduce with a probability based on their fitness in their environment and then die – an adaptive system that closely resembles the biological evolutionary theories of Darwin and Mendel. However, using this approach to model agent behaviour in public services systems appeared to be a stretch as it was difficult to align the decision-making of agents as identified in the literature or observed in the case study with the dynamics of genetic algorithms. Furthermore, Morel & Ramanujam (1999) in the same issue of *Organizational Science* noted that genetic algorithms were most appropriate to models of systems in which there was some exogenously defined outcome or function to be optimised, which established the basis for the evaluation of 'fitness' of the agents. Since this did not appear to be the case in public services, genetic algorithms were eliminated from consideration for the conceptual model.

Neural networks are models of agents as nodes in a network. Each node has a particular function or ability and is activated based on a formula that is exogenously specified and is based on signals from other nodes or from the external environment, along with experience from previous periods. The links between different nodes are weighted such that some nodes have more influence over the behaviour of a given node than others. These weights can change over time as one node 'learns' which other nodes are more likely to provide useful information to facilitate successful functioning. Over time, a pattern of interconnections among nodes will emerge that represents the learning of the network as a whole, but which also represents a constraint on future behaviour of the node and, given that all nodes will be subject to similarly emergent constraints, on the behaviour and outcomes of the network overall. In essence, a neural network is the computational equivalent of Morgan's 'brain' metaphor.

Even though neural networks have been used extensively in economics, business and sociological models (Sharda & Rampal 1996, Garson 1998), it was not clear how this type of model could be used for public service systems as described in Chapter Two. Agents in a public service system certainly exchange information and act upon the information that is exchanged, but they are equally, if not more, likely to act relatively independently from each other. Furthermore, it was difficult to imagine what sort of conceptualisation of network 'success' could be used to provide a crucial element of the systems model. Still, the subsequent detailed analysis of the empirical data suggested a revisiting of neural network models to determine if they could be incorporated somehow into the selected model in order to address relationships among agents which proved to be important features of the Irish housing decision-making landscape. However, the other dimensions of public service systems did not fit easily into this conceptualisation of a complex adaptive system and so neural networks were rejected in favour of the third alternative, i.e., cellular automata.

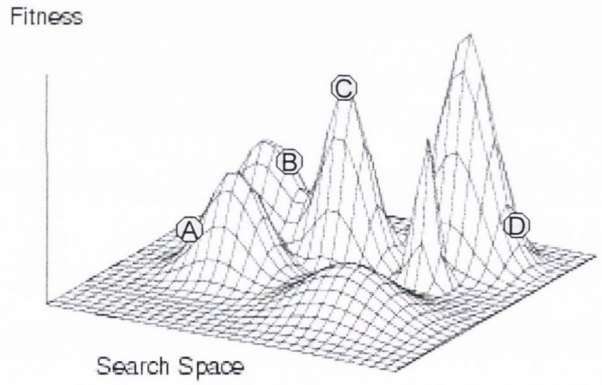
Cellular automata models treat agents as entities occupying locations on a field in which each location in the field is associated with a particular agent 'state'. The state of each agent (or agent location) depends on the decision rules that agents follow, the state of agents in nearby locations and the size of the 'neighbourhood' that an agent may consider in determining its action in the following period. The mathematician, John Conway, is credited with one of the most popular cellular automata models – the 'Game of Life' (Gardner 1970) – in which cells live or die based on the status of neighbouring cells. However, it was not Conway's model, but rather Stuart Kauffman's "NK" version of a cellular automata model (Kauffman 1993, 1995) and Levinthal and Siggelkow's adaptations of Kauffman's model to organisational behaviour in industries (Levinthal 1997, Levinthal & Warglein 1999, Siggelkow & Levinthal 2003, Siggelkow & Rivkin 2005) that was most aligned with the phenomenon studied, i.e., housing as a public service.

The 'NK' model explained

Kauffman's original model was developed for the biological sciences and was applied to the evolution of chromosomes made up of 'N' number of genes. The basic dynamic in Kauffman's model is the adaptive selection of gene combinations, based on the 'fitness' of the gene in the chromosome's environment. If a particular combination of selected genes has a higher fitness level in the environment, then the chromosome will adopt this combination over previously selected combinations. Over time, Kauffman showed how chromosomes will stabilise on one or more 'fitness peaks' for the system as a whole.

Complicating fitness selection, however, is the fact that genes may have 'epistatic' interactions. In layman's terms, this means that the existence of one gene in a chromosome will impact on the fitness contribution of another gene in that chromosome. Epistatic interactions among genes make the selection of gene combinations more complex because organisms generally can vary only a small number of genes at a time. This limits the potential for achieving higher fitness levels from particular combination starting points, creating multi-peaked – or 'rugged' – fitness landscapes. Kauffman used the variable 'K' to represent the number of epistatic relationships among the genes in a chromosome. The greater the value of 'K' the more rugged the fitness landscape. The figure below represents a fitness landscape that arises from the performance characteristics of two dimensions (X,Y) and the interaction between them. Agents occupying a particular location (X,Y coordinate) will exhibit a particular level of fitness in the environment as shown by the circles A, B, C, D below.

Figure 4.1: Fitness Landscape Graphic



Siggelkow & Levinthal, in a series of articles, applied Kauffman's concept of a fitness (NK) landscape to formulate their model of strategic decision-making by firms. In their models, agents were firms faced with a series of interrelated decisions which individually and interdependently contributed to the overall fitness of the organisation in an industry. The set of decisions that firms could make were represented by 'N' and the interrelationship among decisions represented by 'K'. In applying Kauffman's formulation, the authors drew upon a long history of research into the strategic choice 'sets' of organisations in their environments (c.f., Cyert & March 1963, Nelson & Winter 1982, Miller & Friesen 1984, Porter 1996) and the relationship between strategy and performance. They renamed Kauffman's adaptive landscapes as 'performance landscapes' on which firms moved in a constant search for higher performance, but constrained by the 'features' of the landscape and their own search capabilities. Patterns identified in Siggelkow and Levinthal's work consist principally of the distribution of agents among the organisational choice

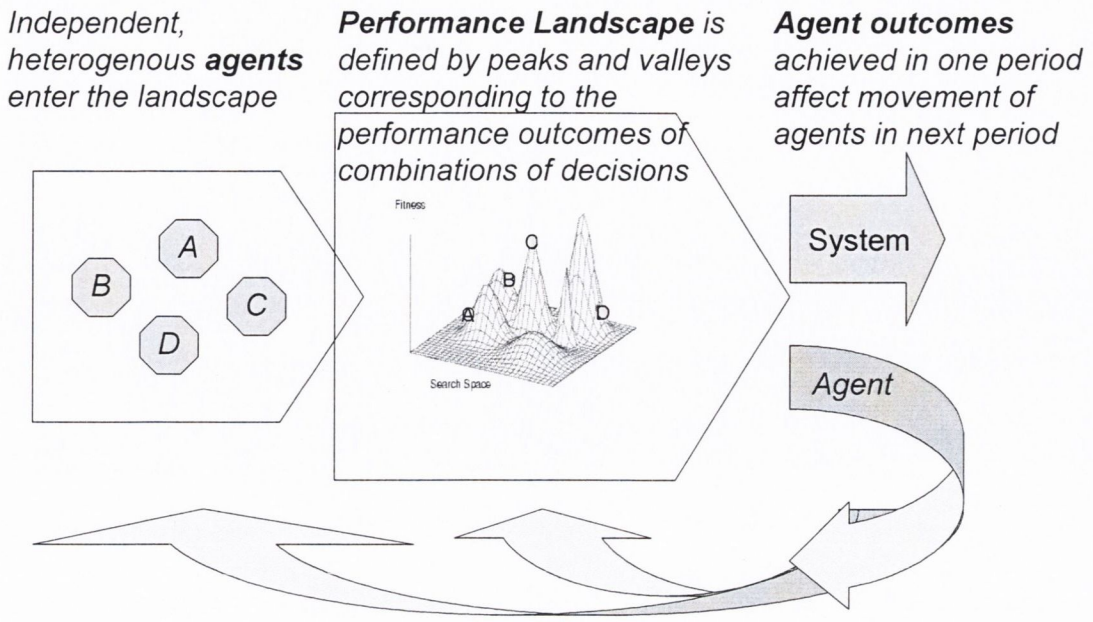
'sets' of the landscape and they study the effects that characteristics of the landscape and the organisations have on the patterns that emerge.

To summarise, the elements of the performance landscape model based on Kauffman's NK model as applied by Siggelkow and Levinthal consist of the following elements:

1) independent, heterogeneous, *organisational agents* with individual performance objectives,
2) a *performance landscape* made up of:
    a. strategic decisions that agents can make,
    b. interdependencies between strategic decisions,
    c. an assigned level of performance for each decision, and
    d. rules regarding the movement of agents on the landscape
3) *individual agent outcomes* derived from the agent's location on the landscape and *systemic outcomes* represented by patterns in the locations chosen by agents over time.

Agents may enter the landscape at any random location and will move from that location depending upon their performance objective(s) and the performance improvements that are possible given the geography of the landscape and the rules governing agent movement. The geography of the landscape is defined by the number of different decisions that are possible, the interdependency among decisions and the performance outcomes associated with each decision. The rules governing movement apply at both the landscape and the agent level, i.e., there are 'global' rules that all agents must follow and also agent-specific rules that depend upon characteristics of the agent. Agent outcomes are simply the performance level achieved by a given agent at a point in time, while systemic outcomes are exogenously defined measures of interest to the systems modeller (such as the number of agents on various performance peaks, the average performance level achieved, etc.) and do not normally affect the behaviour of the agents themselves. A figure showing the dynamics of agents, outcomes and the performance landscape is provided below, and it is this model that appeared to be most similar to the elements and relationships in public services as found in the literature and in the case study of Irish housing. In the next section, the elements and relationships of a Performance Landscape model are mapped to those identified in the literature to complete the specification of the research conceptual model.

Figure 4.2: High level dynamics of performance landscape models

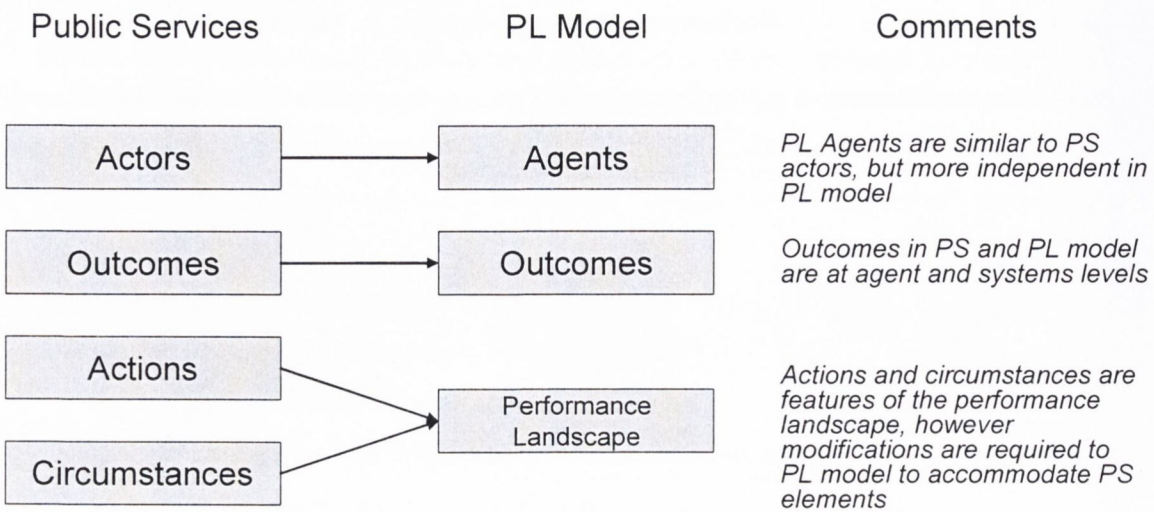


Mapping Public Service (PS) categories to the Performance Landscape (PL) Model

In this section the four analytic categories of public services (PS) described in Chapter Two are mapped against the performance landscape (PL) model proposed above as the framework for developing governance theory in public services. This exercise represents both a necessary step in the Soft Systems Methodology adopted for the research, as well as the basis for linking the theoretical constructs with the empirical case data. As a result of this mapping, several modifications to the performance landscape model are recommended to accommodate the range of elements in public services. Those aspects that cannot be accommodated by the performance landscape framework proposed are also identified and the implications of their omission from the research framework discussed.

To begin with it is probably best to simply compare the four categories of public services at a high level to the elements of a performance landscape model described above. The comparison of these is summarised in the table below, from which we can immediately see that actors and outcomes in a public service are closely aligned with agents and outcomes in a performance landscape, but actions and circumstances require some manipulation to fit into the performance landscape construct.

Figure 4.3: High level mapping of PS categories to PL model elements



Given the mapping highlights above, the bulk of this section will focus on how the categories of actions and circumstances in public services may be incorporated into the proposed performance landscape model. Nevertheless, a brief discussion of actors/agents and outcomes is warranted for completeness after which actions and circumstances will be addressed in detail.

Mapping (PS) Actors to (PL) Agents

Actors in a public service were defined in Chapter Two as any "initiative involving interlocking behaviour of individuals pursuing the creation of value through organising". This definition allowed for the inclusion of a wide range of agents in the system, e.g., firms, government agencies, economic transactions, projects, etc.. While this is a broader set of agent types than conceived of in Siggelkow and Levinthal's work, there are existing examples of performance landscape models applying to a wide range of organising initiatives (see examples in the special issue of *Organizational Science*, vol. 10(3), 1999 or the vast array of multi-agent organisational models in the *Journal of Artificial Sciences and Social Simulation*). Furthermore, the salient characteristics of public service actors appeared in Siggelkow and Levinthal's models as well as in the other models, particularly those of organising mode, size, strategy process capability and information processing capability. These agent characteristics affect performance outcomes through their effect on the movement of agents on the landscape. For example, in Siggelkow & Levinthal (2003) and in Boisot & Child (1999), organising mode is a key determinant of the distance that agents can move in a single period, with 'centralised' organisations able to explore a more constrained space than 'decentralised' organisations.

The most important characteristic of agents in organisational PL models, is the 'value objective' of agents. This is because the vast majority of PL models assume that agents move around the

landscape in an effort to maximise their performance according to this value objective. In other words, if an agent's value objective is profit, then profitability is the 'performance outcome' associated with each location in the PL model. Most models assume that there is a single, common value objective across agents, principally due to the computational complexity of having multiple variables assigned to performance. However, as was noted in the discussion of value objectives in Chapter Two, organising initiatives in a public service may embrace a wide range of value objectives, may have multiple value objectives and these objectives may change over time. This feature of public services requires that the performance landscape model be modified to include multiple types of performance outcomes associated with each choice on the landscape.

Given the above, the main questions to be answered about agents in a case study of public services as performance landscapes are: 1) what are the different value objectives that agents pursue, and 2) what characteristics of the agent affect the agent's movement on the performance landscape? Furthermore, the performance landscape itself must accommodate multiple performance levels assigned to each decision (N) on the landscape that reflect the different value objectives held by agents.

Mapping (PS) Outcomes to (PL) Outcomes

As suggested in the high level mapping above, outcomes in a performance landscape model can accommodate the outcomes envisioned in the literature on public services. The actor-level outcomes in public services are simple enough, i.e., performance, productivity and fitness, as they each may be incorporated into performance landscape models in a relatively straightforward way. Actor performance in a public service is the same concept as agent performance in a performance landscape model; although there is the niggling detail that performance measures may be different for different agents, complicating significantly the computational requirements of the model. Productivity could be incorporated into PL models as a compound variable for performance, expressed as a ratio of performance outcomes to the inputs required to produce those outcomes. Fitness, in all its guises (environmental, institutional and subjective) requires only that thresholds be defined against which agent performance/productivity must be measured to determine whether or not the agent can survive. Note that thresholds can be exogenously or endogenously defined (as a dynamic process in the system), and, in the case of institutional and subjective fitness, are likely to be the latter.

Aggregate systems outcomes are almost as straightforward in the translation from public service literature to performance landscape models. Total performance of the system is simply the aggregate of each of the agents' individual performance levels, i.e., if agent performance is measured by the number of dwellings produced, then systems performance is simply the total

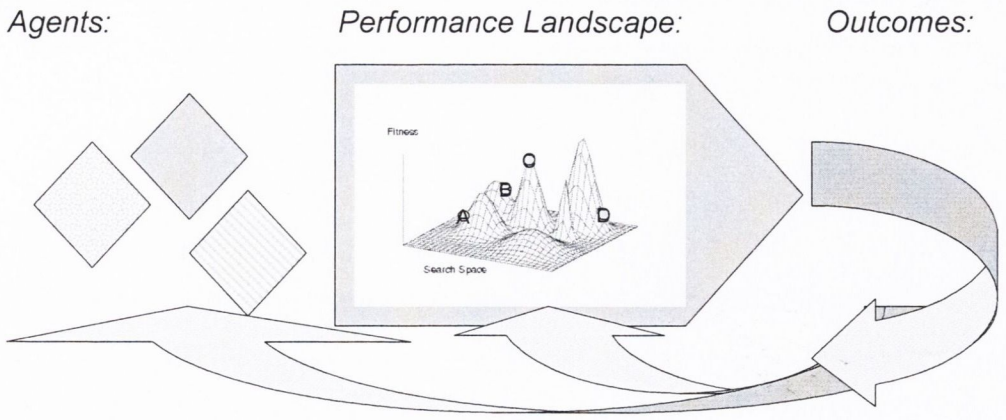
production across all agents. Alternatively, some systems measures may be calculated more appropriately by taking average performance across agents (e.g., average labour productivity). Aggregate fitness measures are slightly more complex as there is a range of possible measures that could be of interest including agent formation and survival rates, location(s) on the landscape that generate high (or low) levels of fitness, endogenously generated fitness thresholds, etc.. What must be determined through empirical research is which of the many possible aggregate measures of fitness are relevant in a particular case, and then if/how the performance landscape model can support these measures. See Chapter Six for a discussion of this analysis.

The identification of emergent outcomes must also be left for the empirical research. As these outcomes, by definition, cannot be defined *a priori*, it is necessary to observe one (or more) example(s) of a public service to see what features of the system emerge from the actions and interactions of agents over time that result in system-level dynamics influencing both or either the outcomes of the system overall, or the behaviour of individual or groups of agents. These may take the form of patterns of interactions among agents (constraining on the 'neighbourhood' of agents), institutions that influence decision-making (new rules affecting decisions and/or the relationship of decisions to performance outcomes) and/or 'by-product' outcomes of agent activity that spark the interest of individuals who then attempt to influence these. Each of these appeared in the literature review. In effect, what we are looking for is features arising from the movement of agents on the landscape, that are seen to affect the formation and movement of new or existing agents over time. The recognition that systems level outcomes affect agent formation and movement on the landscape, however, requires a second modification to existing PL models such that systems level outcomes are part of the feedback that agents evaluate in their search for higher performance.

To summarise this section on outcomes, the questions for the case study are: 1) what are the agent level outcomes that influence agent decision-making, and 2) what are the relevant systemic outcomes of interest to agents, particularly policy-makers? These questions are taken up in Chapter Six. In addition to these questions, a second modification to the PL model is proposed, i.e., systemic outcomes also participate in the feedback dynamic of agents evaluating outcomes to determine their next move on the landscape.

Before moving on to the more complicated mapping exercise between the public service elements of actions and circumstances and the performance landscape itself, it may be helpful to provide a summary figure of the status of the model so far, given the mapping between actors/agents and outcomes.

Figure 4.4: Conceptual model based on actor/agent and outcomes mapping



1)Value Objective
2)Characterisitics affecting agent movement

3) Decisions (N)
4) Decision interdependencies (K)
5) Multiple performance outcomes per decision
6) Resource scarcity
7) Fitness thresholds

8) Agent level outcomes of performance, productivity and fitness
9) Systemic outcomes (aggregate / emergent)

Note that the modifications required thus far to the PL model are: (1) the addition of several new types of outcome at agent level, each of which must be linked to the decisions on the performance landscape, and (2) a new dynamic process that links systemic outcomes as feedback into the decisions made by agents on the landscape. These two modifications require the specification of new features of the PL model (shown in italics above) to accommodate the elements of public services identified in the literature review.

Mapping (PS) Actions to (PL) Landscape

Actions by actors in public services may be found in the landscape features of the performance landscape model, albeit with some modifications to the model and some omissions from the list of actions identified in Chapter Two. Recall that the three main actions that actors take in a public service are: 1) action decisions, 2) interactions and 3) interpretations.

Action decisions are by far the simplest to address as they are equivalent to the decisions that are part of the fundamental geography of the landscape. As discussed earlier, these are the 'N's of the NK-based performance landscape constructed by Siggelkow and Levinthal (2003) on which the conceptual model is based. However, the authors never address the question of defining the actual strategic decisions that matter in the landscape, nor do they do so in later models. This is because their research question focused on the movement and location on the landscape rather than the particular decision content of a given location. They do suggest that the likely contenders for relevant decisions on a performance landscape are key strategic decisions identified in the strategic

choice literature, e.g., service development, organisational structure, geographic/market expansion, consolidation, etc.. In order to develop the model, it will be necessary to identify the actual decisions that agents consider as 'strategic', i.e., as having direct impact on the performance outcomes that they are pursuing. Findings on decision types in Irish housing are presented in Chapter Seven.

Interactions in public services were defined as being of three types: 1) interdependencies among action decisions, 2) exchanges of resources among actors and 3) exchanges of information among actors. As noted earlier, the first type - interdependencies among action decisions - maps directly onto the PL landscape feature of interdependencies among decisions – or the 'K's of the NK model. Unfortunately, the second type - exchanges of resources among actors - is not a feature of the proposed PL model, as agents move around the landscape independently of each other. Changing the model to incorporate dynamics of the exchange of resources among agents and the effect that this would have on agents' ability to achieve performance levels was considered too complicated a modification, and arguably was moving the model into the territory of neural networks. Integrating different classes of CAS models was not the goal of this thesis and it would introduce a significant complication for future simulation. Hence, the exchange of resources among actors was left out of the research model.

This is not to say that dynamics of resource dependency are completely ignored in the model. It is possible to introduce a feature in which the environmental fitness of an agent on a landscape is a function of the resources available to maintain the continued survival of the agent. The logic would be that as resources get scarcer or more plentiful, thresholds for fitness will raise or lower. This can be incorporated into the model proposed by introducing a variable to represent the scarcity of resources (already considered in the mapping of productivity outcomes above) and work that into the fitness calculations in the model. Furthermore, a second variable could be incorporated that indicates the extent to which a given resource is controlled by one or more agents in the system, as an index of centralised resource control. This index would affect the performance level of all agents relying on this resource such that they would need to make decisions that align with whatever requirements were established by the controlling agent(s). For example, in the case of housing in Ireland, the value objective of creating/managing new social housing is heavily reliant on the provision of government funding from the Department of the Environment, Heritage and Local Government (DEHLG). To incorporate this dynamic into the proposed PL model, government funding would be defined as a 'scarce' resource that had a high index of centralised control, and decisions favoured by the DEHLG would receive higher performance outcomes than those not favoured.

Exchanges of information among actors are also difficult to model directly in the PL model, for the same reason that exchanges of resources were, i.e., that agents are independent of one another. In particular, there is no facility in the PL model for accommodating the giving and receiving of instructions. However, the dynamics of the PL model assume that agents somehow know about the performance outcomes associated with alternative decisions as well as those associated with the ones they have made. While this could be based on observing the decisions made and outcomes achieved by other agents, in the real world it is more often the case that agents communicate with one another about their decisions and outcomes, albeit not always with high degrees of accuracy/truth. Therefore, exchanges of information among actors could be incorporated into the model by varying the knowledge that an agent has about the decisions on the landscape and the performance outcomes associated with those decisions. An agent that communicates more would have more information than an agent that communicates less. This dynamic can be incorporated into the agent-specific movement rules of the proposed model. Of course, this does not address the specific patterns of information exchange that form the basis of social network analyses, nor does it deal with purposeful miscommunication by agents, the implications of which also will be discussed in the conclusion of this chapter.

It should be noted here that organisational PL models generally refer to movement rules as 'search processes', and different search processes are dependent upon the choices that an agent makes in relation to exploration/exploitation strategies rather than upon communication levels among agents. Exploration strategies generally result in an agent's ability to make more changes during a single period or to search more widely on the landscape, while exploitation strategies result in an agent achieving higher performance levels at a given location on the landscape, while limiting the agent's ability to move. In essence this a modelling feature that specifies the range of agent 'states' (or different locations on the landscape) that an agent can adopt in a single period. We may refer to this feature as specifying the 'neighbouring states' for an agent. However, by increasing communication channels, the agent may also know about additional decision options and their performance characteristics without necessarily being able to move to the location representing these options on the landscape in a single period. This feature could be included by specifying a separate feature called 'alternative states' for agents, that would expand or contract depending upon the extent to which an agent engages in information exchanges with other agents. The distinction between knowing about location features on the landscape and being able to move to a desired location in a single move is one that was not made in any of the models reviewed for this thesis, but would nevertheless be useful to incorporate the characteristics of information sharing into the PL model.

Note that this modification to existing PL models could also support Simon's concept of bounded rationality in which decision-makers are generally aware of fewer alternative actions/consequences

than are actually available to them at any given time. This would require that the number of 'neighbouring states' for an agent at a given point in time would be more than the number of 'alternative states', which is counter to the situation described above. Hence, it makes sense to have two separate movement rules for the proposed model. The first is a rule governing the number of alternative states that an organisational agent knows about and the second governs how many neighbouring states are viable choices for the agent in a single period. An agent is limited to the smaller number of the two, as they can only move to locations that they know about and are possible in terms of the number of changes that can be made in a single period.

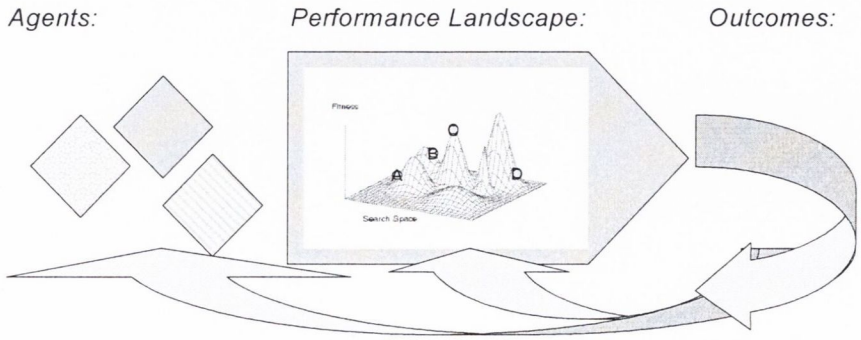
The last category of actions in a public service system that need to be mapped onto the features of the proposed performance landscape model is acts of *interpretation* by actors. As defined in Chapter Two, these are "acts of cognition in which actors perceive some element of the system as part of their decision-making schema". In the PL model, these would relate to the performance outcome(s) achieved by the agent in the previous period, outcomes achievable in different locations on the landscape by changing one or more decisions, and the interdependencies among decisions. In the majority of NK-based models, including the performance landscape models used by Siggelkow & Levinthal, agents have full and accurate knowledge about their own state – in other words they 'know' which decisions they have made and the performance outcome they have achieved. They may also 'know' the performance impact of changing to a 'neighbouring state' – defined as the range of different locations on the landscape available to the agent in a given period. Agents then change only those decisions that they 'know' will result in higher performance, or else the model assumes a random movement by agents hoping to hit upon a better performance outcome. In essence, the only accommodation for agent interpretation in the existing model is the specification of how many decision changes an agent perceives that it can make in one period. There is no accommodation for agents being better or worse at self-knowledge, nor is there an ability to vary the interpretation by different agents of the 'state' of a neighbouring location.

The fact that interpretation is largely left out of most performance landscape models should come as no surprise as they are based on NK landscape models that came from the natural sciences, namely biology. In that discipline, features of an organism's landscape are not subject to much cognitive interpretation – a characteristic either does or does not result in higher fitness as a matter of physical fact. And while even biologists admit that physical facts may be subject to interpretation, the vast body of biological theory 'works' without reference to interpretive processes. But this is not the case in organisational theory as was discussed in detail in Chapter Two. The 'act' of evaluating the organisation's own actions and performance is one that individual participants in an organisation devote much time and effort to agreeing upon – never mind getting it 'right' in some objective sense. Evaluating other agents' states or features of the landscape itself are even more complicated acts of cognition that are subject to broad variations.

Clearly, the PL model needs to be modified to incorporate acts of interpretation. To begin with, there must be a modification to the specification of agent movement rules, as it is in the contemplation of movement that organising agents engage in interpretation in the first place. If agents simply landed in a location on the landscape and never moved, there would be no need to interpret agent state or any other feature of the system. Numerous possibilities exist for incorporating interpretation into the modelling of movement rules, including the use of stochastic variables representing the accuracy of an agent's evaluation of performance, the addition of a new rule that governs how well an agent understands the location they occupy, making interpretation a function of agent experience on the landscape, etc.. Any of these modifications would introduce the possibility for agents to make 'irrational' decisions due to different interpretations of their own actions, or the nature of the landscape itself – which is entirely consistent with organisational decision-making literature and experience. However, deciding which modification is most consistent with the behaviour of actors/agents in a public service system requires empirical data – i.e., the case study of Irish housing. For now it is sufficient to note that it is necessary and possible to introduce one or more features into the PL conceptual model to accommodate acts of interpretation that are central to the development of governance theory of public services.

To summarise this section on mapping public service actions to the landscape model adopted, four modifications were proposed: 1) adding resource scarcity/control variables to address resource dependency in a general way, 2) creating agent-specific movement rules which could address differences between agents based on their level of communication with other agents, 3) adding a new rule addressing 'alternative states' to the existing rule about 'neighbouring states' and 4) introducing as yet undetermined modelling features into agent-specific movement rules to incorporate acts of interpretation by agents in regard to their own location on the landscape and alternative locations available to them. The modifications to the model thus far are shown in italics in the figure below.

Figure 4. 5: Conceptual model, including modifications from actions mapping



1)Value Objective
2)Characterisitics affecting agent movement
-Add info exchange char.
-Add interpretation chars.

3) Decisions (N)
4) Decision interdependencies (K)
5) Systemic Movement rule: neighbouring state
6) Multiple performance outcomes per decision
7) Resource scarcity / centralised control
8) Fitness thresholds
9) Agent-specific movement rules
10) Movement rule: alternative state

11) Agent level outcomes of performance, productivity and fitness
12) Systemic outcomes (aggregate / emergent)

This section also saw the exclusion of a number of elements identified in the literature review from the proposed model. Exchanges of resources, instructions among actors, social network ties and purposeful miscommunication among agents could not be accommodated as PL models assume agents make decisions independently from one another. All of these features require the identification of specific (and heterogeneous) interaction among agents and it was noted that these are the central feature of neural network models, rather than performance landscape (PL) models. Integrating neural network and PL models was considered a bridge too far for this research exercise as these have quite separate modelling elements. The discussion of the implications for governance theory based on a model that excludes these features will be taken up in the conclusion.

Mapping (PS) Circumstances to (PL) Landscape

The final set of elements to be mapped between public services and performance landscape models are those discussed under the heading 'circumstances'. In Chapter Two, circumstances affecting agent decision-making and outcomes were defined as consisting of four types: outcomes, resource environment, organisational environment and institutional rules. *Outcomes* as circumstances have already been mapped in the section on outcomes as being both agent specific and systemic and, in the section on actions, as affecting agent actions through interpretive feedback processes that influence agent movement on the landscape. In truth, the selection of a complex adaptive systems model to begin with was driven by the need to incorporate feedback dynamics that turn outcomes into circumstances through acts of interpretation by actors.

Resource environment was covered in the outcomes section and in the discussion of resource exchanges as actions, in which exogenous variables representing the level of scarcity for a given resource and the level of centralised control over the resource were proposed. The scarcity variable would be used to calculate fitness and productivity outcomes, as well as contributing to the dynamics of resource dependency, while the index of centralised control would influence the degree to which agents were dependent upon one or more other agents for access to a given resource.

In addition to these modifications, a third is proposed to address the dynamics of agents interacting with the resource environment. This is an agent-specific characteristic that captures the capacity of the agent to transform resources into desired outputs. This feature could be defined as an agent-specific index representing the agent's ability to convert the specific resource into outputs that are relevant to their value objective. For example, an index of labour/dwelling efficiency could be defined as ranging between 0 and 1, with 0.5 representing the average across all agents in the system and some agents having higher or lower efficiency indices. Efficiency indices could be

used to calculate the outcome (in this case the production outcome of dwellings) achieved by an agent at a certain location on the landscape, with agents with higher efficiency indices achieving higher production outcomes. This feature will be referred to as agent 'resource efficiency' and may be added to the list of potential characteristics of agents.

Organisational environment has not yet been addressed and the reader will recall that it consists of the factors in the environment that agents perceive as influencing outcomes, including PEST (political, economic, social and technological) factors, and factors contributing to information complexity. PEST is used in management literature as a checklist to help decision-makers think about the factors *outside of their control* that might be relevant to the strategic decisions under consideration. PEST factors will vary depending on the decision and also depending upon other features of the firm and/or the period in which the decisions are being made. Hence, there is no definitive list of factors as they are drawn from a potentially unlimited number of perspectives on the environment.

Performance landscape models, on the other hand, have quite a specific and limited definition of the environment – i.e., the environment is the performance landscape itself. In other words, nothing other than the 'facts' of the performance landscape affects the behaviour of the agents. The specific PL model proposed so far, based on Siggelkow & Levinthal (2003), only incorporates decisions that organisations make, e.g., to grow, to diversify, to hire senior staff, etc.. There is no provision in the model for the factors that are outside of the control of the organisation, but which affect its decisions. In order to incorporate PEST factors into the model, the proposal is to treat external factors in exactly the same way as the agents' decisions are treated; i.e., to include them as additional 'N's in the performance landscape. The argument to support this approach is based on concepts from management and organisational theory, i.e., the 'enacted' environment (Weick 1969) and strategic 'quantums' (Miller 1981, 1986; Miller & Freisen 1984), along with concepts of 'filtering (Gell-Mann 1994) and 'tagging' (Holland 1995) information about the environment from complexity theory.

Karl Weick's (1969) concept of environmental 'enactment' suggests that human beings develop an understanding of their environment through acts of imaginative intelligence and feedback by creating mental pictures of "how things are" and then testing their understanding by acting in the environment and evaluating the results against their expectations. This process is undertaken in a world of physical and social 'facts', with the latter emerging through interaction of people who are themselves engaging in environmental enactment processes. In this way, a person's picture of the environment is constructed individually and collectively, as well as being grounded in experience of the physical world. Weick goes on to suggest that, particularly in organisational decision-making involving many individuals interacting in relation to overlapping activities, this process

can, in effect, *create* the environment in which people operate. Burns & Stalker (1961) also described 'interpretive processes' of organisations as human interactions with their environment, and with each other over time that create patterns in how the organisation perceives its environment. This is particularly the case with respect to social facts such as authority relations, cultural assumptions, industry norms, values, etc..

Enactment also includes the process of 'filtering' described by Gell-Mann (1994) in which he suggests that agents decide what to 'see' as much as they decide what to 'do'. In other words, in order to manage the information about their environment effectively, agents will pick out only those elements of the environment that are relevant to their decision-making requirements. Holland (1995) proposes a related concept of 'tagging' of observations in order to create higher-order concepts for more efficient information processing. Through these two processes of 'filtering' and 'tagging', agents create a lens on their environment that allows them to select out that information that they need and ignore the rest.

Based on the above, it appears that organisational theory and complexity theory support the modelling of the features of the organising environment as a choice that agents make when interpreting their environment. In other words, different agents will choose to 'see' different features of their environment as being relevant to their decision-making and so will evaluate the information available about the environment differently. Even though they may operate in the same physical environment, agents will create different cognitive environments based on their own cognitive experience, limitations, requirements and/or network of relationships. While the decision to see some features and ignore others may not be made explicitly, it is still a choice that agents make – and make differently – which will affect their behaviour on the performance landscape. Therefore, the act of perceiving particular environmental factors may be incorporated into the proposed model as an additional 'N' on the landscape.

In order to model external environmental (PEST) factors as 'N's in the model, these 'N's must display similar tendencies to interdependency as the other types of 'N's in the model. It may be taken as given that PEST factors will exhibit interdependencies, as economists, sociologists, management theorists and political scientists have all produced numerous studies showing statistical correlations among a range of such factors. However, it is less clear if external factors as perceived by agents exhibit interdependencies with the decisions that are likely to be taken. To support this proposal, we may rely on the work of Miller (1981, 1986) and Miller & Friesen (1984) on organisational 'gestalts' or 'quantums', as the authors report observable patterns in strategic choices of organisations and the features of the environment in which the organisation operates. For example, in a (perceived) environment of stable technological and economic factors, hierarchy and marketing decisions are more likely than when the environment is rapidly

changing or uncertain. Miller's work suggests that analysts of strategic decision-making need to consider not only the question of whether or not a particular decision will be successful in a given environment, but also whether the decision is likely be taken at all. This is exactly the sort of consideration that gives rise to relationships of interdependency between decisions and environmental factors – interdependencies that may be represented in the model by 'K'. In sum, it should be possible to incorporate environmental factors as 'N's into the proposed performance landscape framework, without having to change the computational specifications of the 'N's and 'K's of an NK model.

Regarding the information complexity aspect of the organisation environment, the PL model incorporates the majority of features required. Heterogeneity is addressed by the size of 'N' in the model (the larger the 'N', the more heterogeneous the information environment) and interdependence among decisions is already addressed by 'K'. In fact, a feature of NK models is that the higher value of K in relation to N, the more 'complex' the performance landscape is for an agent. Furthermore, as K rises in relation to N, at some point, the system will collapse into chaos and agents will randomly appear in high, medium and low performance locations without any discernible pattern (Kauffman 1995). So it would be fair to say that as K and, to some extent, N increase, agents will be faced with an increasingly complex information environment.

Variability was addressed in a recent application of the PL model (Siggelkow & Rivkin 2005), in which the authors varied the rate of change of the performance outcomes associated with specific decisions and the degree to which new performance levels were correlated with previous ones. Faster rates of change and lower correlations with previous levels of performance outcomes at a given location on the landscape are indications of a more complex information environment. This leaves only analysability, which could be incorporated by adding a variable that would indicate the probability of a certain decision resulting in a particular performance outcome. The lower the probability of achieving a particular outcome from a given decision the more complex the information environment. Hence, with only one modification, all of the features of the public service information environment are found in the PL model.

However, this still leaves the question as to how to incorporate the ability of agents to improve (or lose) their information-processing capability in relation to the landscape through strategies identified by Galbraith (1973, 1977) and his followers. Clearly there are decisions that may be taken by an agent that will affect information processing and these decisions, along with some agent-specific measure of information processing capability should be incorporated into the model. Decisions relating to information processing may be easily incorporated into the range of decisions available on the landscape. A variable of information-processing capability may be added to the list of agent characteristics, which would affect the level of performance outcome achieved at a

given location, as well as the agent's ability to move around the landscape. This is also the case for the resource efficiency characteristic discussed earlier and so a new class of agent characteristics must be added, i.e., those that affect the performance level achieved by the agent at a given location.

Which leaves only *institutional rules* from the PS circumstances identified in the literature review to be mapped to the PL model. Rules governing agent movement and agent performance levels achievable on a given location on the landscape have already been identified as relevant to agent characteristics, actions, outcomes and other circumstance elements of the model and it may be helpful to review these at this point. There are two basic rules governing agent movement: 1) the number of decisions that an agent can change in one period ('neighbouring states') and 2) the number of decisions that an agent is aware of on the performance landscape overall ('alternative states'). We may view these as the primary systemic rules governing change on the landscape. In addition to these systemic rules, there are agent-specific versions of these rules such that some agents may be able to move further or see farther than other agents depending on their characteristics, such as organisational mode and strategy processing capability. Movement rules are not the only type of rules governing the dynamics of the system, there are also rules that govern the performance outcomes achievable at a given location (decision set) on the landscape. These may be grouped into three categories: 1) the standard outcomes associated with each decision on the landscape, 2) rules that govern how individual agent characteristics enhance or constrain the agent's ability to achieve the standard outcome assigned to each decision, and 3) rules that govern how quickly these two rules can change. Examples of the agent characteristics that influence agent outcomes are interpretation variables, resource efficiency index and information processing capability. Rules that affect the rate(s) of change of performance outcome rules were described above as relating to the level of information complexity on the landscape.

And so we may conclude the discussion on rules by linking the rule categories identified in the model to the categories of rules as defined in the literature – namely cognitive, normative and regulative (Scott 1995). Recall that cognitive rules are those that govern how an individual (or an agent) perceives their environment and their understanding of what constitutes rational decision-making. A normative rule is one that individuals apply to decision-making based on their beliefs about what is 'appropriate' given the situation in which they find themselves and the role that they are in. Regulative rules are those that associate particular decisions with penalties or incentives. Beginning with the rules that affect agent movement, the range of neighbouring states appears as a type of normative rule that emerges over time as agents learn how many changes are possible in a given time period. This may be contrasted with the alternative states rule that is more akin to a cognitive rule, applying as it does to the range of possibilities that an agent can perceive on the landscape. Agent-specific versions of these rules may be similarly classified, but there may be

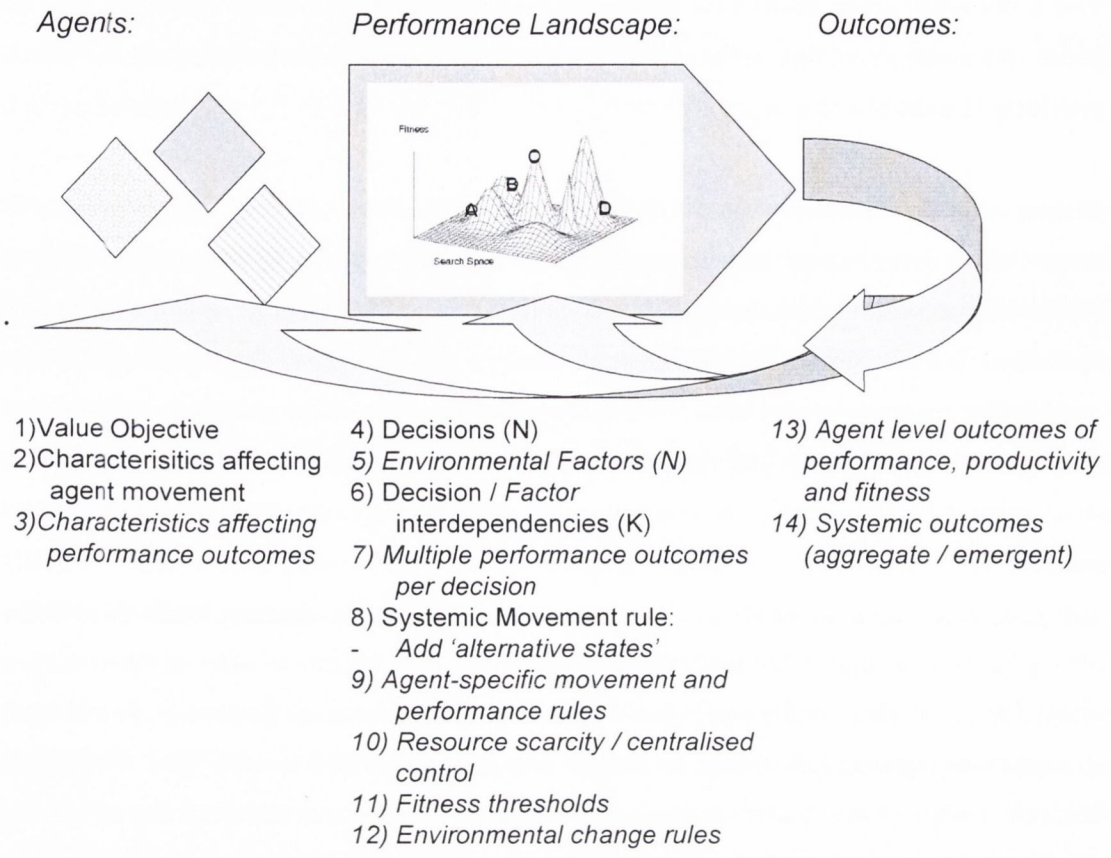
some types of agent-specific movement rules that involve regulative aspects, such as limiting agents of a particular legal status to a given sub-sector of the performance landscape through legislation. An example of this is the regulations that constrain non-profit housing associations from providing market-priced housing.

Performance outcome related rules are, in the main, regulative rules as these are, by definition, the performance rewards associated with particular decisions. However, an agent's interpretation of outcome/decision relationships is more like a cognitive rule, influencing the extent to which an agent perceives the actual outcome/decision relationship and, therefore, the likelihood that the agent will make a particular decision. The other agent-specific rules governing performance outcomes (resource efficiency and information processing capability) may be classified as regulative rules that link agent characteristics (as opposed to decisions) with performance outcomes.

The rules governing change in the features of the landscape are difficult to map to the categories laid out by Scott and others in the institutional literature. This is because these rules do not apply to the actions of actors, but rather to the environment in which actors find themselves. Nevertheless, change in the landscape is clearly a feature of public services and the nature and pace of change in the environment emerges from the actions and interactions of actors. This means that rules governing change in the environment arise from the same process as other institutional rules recognised by institutional theorists. The fact that the content of these rules applies to features of the environment rather than directly to the behaviour of actors should not exclude them from the study of the content and effect of institutionalisation. Hence, the final modification proposed is not to the PL model, but to the field of institutional theory (within governance), where a new category for rules is proposed which applies to the nature and pace of change in a given environment. We may call this category of rules 'environmental change rules', until such time as a better term is found.

The complete set of modifications to the PL model arising from the mapping of Actors, Outcomes, Actions and Circumstances in the literature review to the Agents, Outcomes and Performance Landscape of the proposed model are shown in italics in the figure below.

Figure 4.6: Conceptual model, including all modifications



The features of the conceptual model shown above provide the analytic structure for the case study research in Irish housing, presented in the next three chapters under the general headings: *Agents*, *Outcomes* and *Performance Landscape*. In each chapter, the conceptual elements shown above are used to organise the presentation of findings in the case study. Definitions of each element of the proposed conceptual model, incorporating the elements from the literature review may be found in Appendix 4.1.

Conclusion and final research model

In this chapter, the conceptual model on which to base the development of a governance theory for public services was established. To begin with, the case for adopting a systems perspective to public service provision was made based on the characteristics of public services and the strong similarity between the recently developed 'network' perspective on public administration and the more venerable (but criticised) 'systems' perspective. A range of criticisms of the systems perspective was discussed and responses to these criticisms presented. In essence, the research methodology adopted and the use of a complex adaptive systems framework to underpin the conceptual model were the main strategies for avoiding known weaknesses in systems analyses of public administration in the past. To complete the first stage in selecting an appropriate model,

various alternative systems models were considered and, through a process of elimination, performance landscape models, based on the work of Stuart Kauffman (1993, 1995) and Siggelkow & Levinthal (2004) were selected as the most promising. This was due to their incorporation of many of the features of public services identified in Chapter Two and the existence of sophisticated computer simulations that could be adapted for use in furthering the development of governance theory for public services.

The bulk of the chapter was taken up with mapping the characteristics of public services identified in the literature review to the performance landscape model. The mapping resulted in numerous modifications to Siggelkow & Levinthal's formulation of a performance landscape, notably the inclusion of both decisions and environmental factors as 'N's in the NK landscape and the addition of multiple types of performance outcome. The likely reasons for the changes required to what was originally a business / industry system model to accommodate a public service system model are discussed below. Furthermore, the mapping revealed that the performance landscape model could not accommodate the entire range of interactions among agents without significantly changing the specifications of the PL model, essentially by integrating the PL model with an entirely different class of CAS models, namely neural networks. This modification was seen as beyond the scope of the current research and was therefore left out of the conceptual model used. However, the exclusion of these elements has implications for the development of governance theory based on such a model and these are discussed below.

Drivers of changes required to NK model

The changes required to the NK model were described in detail in the chapter as being driven by the initial specification of the components of a governance model developed in Chapter Two. However, it may be helpful to summarize the key differences between the phenomenon that the original Siggelkow & Levinthal model was meant to represent and that of a public service system – and how these differences were addressed by the changes proposed. The differences basically come down to: 1) the diversity of agents involved in a public service system vs. in a given industry, 2) the need to address environmental circumstances beyond those of the performance levels achievable at any given location on the landscape, and 3) lack of attention to resource scarcity in the industry model. Each of these differences and the relevant changes made are briefly discussed below.

The diversity of agents in a public service system has already been discussed in Chapters One and Two, and this discussion will not be repeated. What must be acknowledged here is the fact that the original NK model directed at business/industry systems supports very little agent diversity in that all agents pursue the same performance outcome type, all are equally equipped to achieve

maximum performance levels and all agents move in a similar fashion around the landscape. Several pf the proposed changes address the need to introduce more diversity in agents including all of the agent characteristics added, the introduction of multiple performance outcome types, and the addition of agent-specific movement and performance rules (for a list of all required changes see figure 4.6).

Environmental circumstances as aspects of the performance landscape were not included in the original model, not because they were not considered germane to agent decision-making in an industry system, but because they complicated the model in ways that did not advance the research objectives of the academics developing these models at the time. In a conversation with Nicolai Siggelkow in 2004, he commented that adding environmental factors might be considered in the future, but at the time were not required. In fact, in a later article (Siggelkow & Rivkin 2005), aspects of the 'environment' were introduced into the model in the form of periodic random changes in performance outcomes. This was meant to represent 'turbulence' in the environment and this addition was also incorporated into the proposed public service NK model as environmental change rules. However, the specific environmental factors that could be responsible for the turbulence in the environment, or indeed may interact with other decisions to influence performance outcomes were not included. Accounting for these in the model required the addition of environmental factors as another class of 'N', which will have different specifications for how agents 'choose' these factors in their movement around the landscape. Specifically, agents are likely to be locked into a given set of factors based on exogenous variables (such as demographic or economic indicators), but will be able to change other factors such as organisational capacity and/or structure.

Resources and resource constraints were not part of the original model under the assumption that performance in an industry is directly correlated with access to resources. This is because performance is usually defined as profitability and therefore may be assumed to be equally representative of the agent's ability to acquire resources with which to create value. However, in a public service system, this is clearly not the case as public and non-profit agents do not necessarily attract resources in proportion to their performance levels. In order to accommodate this feature of public service systems, two changes were proposed: fitness thresholds relating to resource access and systemic variables relating to resource scarcity overall and the degree to which key resources are centrally controlled.

The above differences between the original model and the characteristics of a public service system, along with the changes required to accommodate these differences, represent a significant level of additional complexity to the research framework. Furthermore, the incorporation of these changes into a computer simulation may stretch the computational capabilities of even the most

sophisticated processing technology. Nevertheless, the fact that they can be conceived of and specified within the basic framework of the NK model selected does provide some comfort that the selected model is robust enough to support the next step of analysis – that of mapping the model to an empirical case.

Implication of excluding interactions between agents

The types of interaction among agents that were excluded from the conceptual model were: 1) the exchange of resources among agents, 2) the passing of instructions among agents, 3) the creation of social network ties among agents, and 4) purposeful miscommunication among agents. The reason that these could not be accommodated was that PL models assume agents make decisions independently from one another and each of these features require the identification of specific (and heterogeneous) interactions among agents and linking these interactions in some way to the movement and performance outcomes of agents. The basic weakness arising from the exclusion of these features is that, to the extent that these types of agent interactions are of significance in influencing movement/outcomes, these will be ignored in any theory of public service governance that is based on this model. This is obviously a concern as there is a plethora of literature that shows how interactions – particularly with regard to the exchange of resources among actors – influence behaviour and outcomes. Furthermore, the inability of the model to incorporate the passing of instructions among agents ignores exactly the sort of relationship that traditionally existed between different government agencies that are clearly key participants in the provision of public services. However, the thrust of recent public management reforms such as decentralisation, marketisation, localisation of authority, etc. suggests that the giving and receiving of instructions between different levels of government may be less of a feature of public service systems than has previously been the case. Replacing instructions under the 'new public management' paradigm are incentives and performance measurement – features which are easily incorporated into the proposed model. However, it is a matter for future research to determine if instructions or incentives are more germane to the accurate modelling of agent behaviour and systems outcomes.

The need to address these interactions in a theory of governance in public services is clear and there are existing strands of public administration theory that address each of the elements omitted from the model, although none that address all four interactions in an integrated way. It is somewhat surprising that the complex adaptive systems model selected as the 'best fit' for the phenomenon of public services excludes interactions since interaction among agents is one of the hallmarks of complex adaptive systems theory (Anderson 1999). In NK models, the interaction between agents is indirect, i.e., is manifested through the interdependency of decisions on the performance landscape and, in the proposal for interacting performance landscapes discussed in

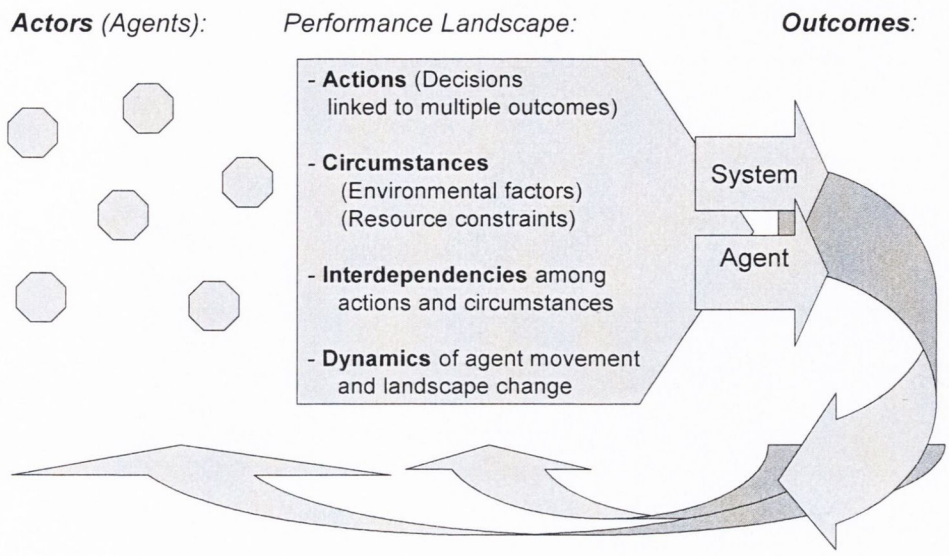
the next chapter, through the information flows that arise from agent activity on separate landscapes. This is insufficient, though, to suggest that interaction among agents is sufficiently incorporated into the model. It is clear, therefore, that the NK model insufficiently reflects the real world of public service provision. However any model will exclude some aspects of the real world and the advantages of the NK model are many for the purpose of developing useful governance theory, i.e., the incorporation of heterogeneous agents, the interaction of decisions and environmental features, the ability of agents and the landscape to change (adapt) over time, the link between agent and systems outcomes, the emergence of patterns of agent behaviour as movement and location on the landscape, the direct handling of feedback dynamics, and the availability of existing computer simulations of organising systems that may be extended to support testing of hypotheses about governance of public services which would otherwise be impossible due to ethical considerations and the scale of the phenomena. On balance, then, the advantages for developing theory from the proposed conceptual model of public services appear to outweigh the disadvantages – at least until future research shows otherwise.

Conceptual model for Irish housing case study

The final research model proposed consists of three major elements: agents, the performance landscape and outcomes. The detailed characteristics of each of these elements were discussed at length in the previous section and definitions for these elements may be found in Appendix 4.1. At this point it may be helpful to revisit how the original analytic categories identified as relevant to public services, namely actors, outcomes, actions and circumstances appear in the proposed conceptual model and highlight any significant changes that arose from the mapping between the literature and the model proposed.

The exclusion of a range of agent interactions in the conceptual model and the implications there from has already been discussed and so the focus here will be on any significant additions or important clarifications that arose from the mapping. These occurred mainly in the mapping of actions and circumstances to the performance landscape which may be summarised as: 1) the proposal to make features of the environment (part of circumstances) structurally equivalent to action decisions in the performance landscape, 2) the proposal to extend the element of interdependencies among actions to include interdependencies among actions and circumstances, and 3) the identification of a group of features that govern the dynamic properties of the system, namely the movement of agents and the nature and pace of environmental change. This last addition/clarification also resulted in a proposed extension to Scott's (1995) three categories of institutional rules to include rules that govern the nature and pace of environmental change. The high-level model may therefore be represented as:

Figure 4.7: High level conceptual model



The figure is meant to suggest visually the main dynamics of the proposed model. To review these quickly, heterogeneous agents enter onto the landscape and move around it in pursuit of their individual and multiple value objectives. The geography of the landscape (possible decisions, linked outcomes, environmental factors and constraints, and interdependencies among these) constrains the results that agents can achieve against their objectives, given the decisions that they make. Furthermore, agents are constrained by movement rules which limit the scale of change they are able to make in any single period. Agents will move around the landscape until they reach a performance 'peak', i.e., when they can no longer achieve any increase in performance by making an allowable move and may also decide or be forced to exit the landscape based on fitness rules.

Each of the three main components of the model is discussed in the following three chapters which, taken together, represent a case study of Irish housing as a performance landscape system. Specifically, Chapter Five deals with agents, Chapter Six with outcomes and Chapter Seven with the performance landscape itself. In the conclusion to the thesis, I reflect on whether and how the use of the performance landscape conceptual model resulted in important insights into the actors, actions, outcomes and/or circumstances in the Irish housing system in particular and the implications these may have for the development of governance theory for public services.

Chapter Five: Describing Agents in the Irish Housing System

"There are more things in heaven and earth, Horatio, than are dreamt of in your philosophy"
(Shakespeare, "Hamlet", Act I, Scene 5)

Introduction

In this chapter the findings regarding agents in Irish housing are presented in order to flesh out the performance landscape model developed in Chapter Four. In particular, three questions are answered for agents found in the system, namely:

1) What is/are the agents' value objective(s)?
2) What characteristics of agents affect how they move on the performance landscape?
3) What characteristics of agents affect their performance on a given location on the landscape?

Each question is addressed in a separate section in this chapter, although the third question is only briefly discussed due to the need for additional research in order to answer the question fully. In the conclusion, the answers are summarised and any modifications/clarifications to the conceptual model arising from the empirical study are discussed. The most important of these modifications/clarifications is that an agent's basic value objective differentiates it from other agents to such an extent that different performance landscapes are required to model the full system. Furthermore, these different landscapes are interrelated through the exchange of rules, information, and goods/services which change the features of each landscape, in particular the performance outcomes associated with decisions. Finally, the uncertainty associated with these flows among landscapes affects the movement of and outcomes achieved by agents, which suggests that uncertainty is an important institutional feature of the system that is both generated by and affects the behaviour of agents.

Identifying value objective(s) of agents in Irish housing

In the discussion of agents in the previous chapter, the definition of public service agents remained the same as that of public service actors as identified in the literature reviewed in Chapter Two, i.e., public service agents are *organising initiatives* involving the interlocking behaviour of individuals engaged in the creation of value. This definition was deemed to be broad enough to cover the myriad activities of human beings engaged in producing, consuming and governing public services which, in the case of Irish housing, include construction firms, local authorities, the purchase/sale of dwellings, landlords, banks, government departments and agencies engaged in housing policy development, non-profit housing organisations, etc..

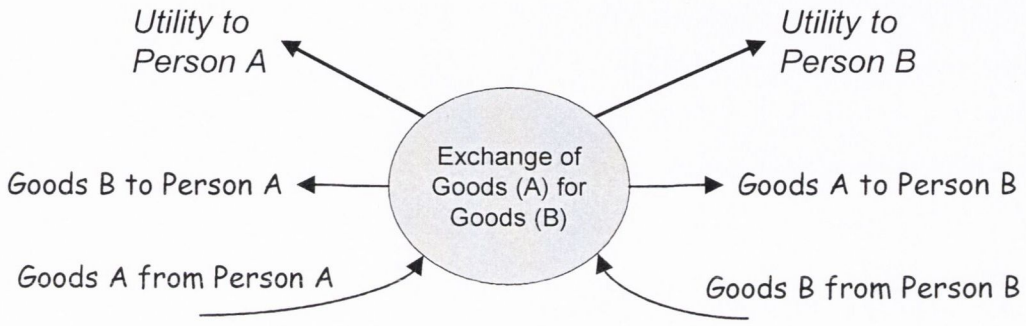
To explore the nature of agents in the particular public service chosen, the first requirement was to discover what sort of value the various organising initiatives were creating and to determine if the range of possible value types was conducive to simulation in a performance landscape model. To this end, several of the questions in the interview guidelines were aimed at discovering what the interviewee believed to be the purpose of the organisation overall, and/or the objective of a particular decision in which they participated. Over the course of the case study, relevant literature was also consulted to compare the emerging definitions of value objectives in Irish housing with existing constructs to determine if and how other theorists had dealt with similar concepts. These are referenced throughout the chapter as appropriate. In the end, six types of value objective were identified, three of which constitute the basic types of value that organising initiatives pursue, while the remaining three are, in one way or another, derived from these basic three. Finally, it was apparent from the case and supported in the literature that organising initiatives with different value objectives are often linked together to form higher level initiatives. Examples of these types of initiatives are firms that engage in the production and sale of dwellings, local authorities that produce dwellings, set policies (rules) for allocation and collect rents, and advocacy groups that seek to influence policy while also managing low cost rental housing. The six value objectives are defined in the remainder of this section, with summary definitions provided at the end of the section.

The first value objective identified was increased satisfaction arising from the acquisition/use of goods/services by an individual. This type of value was largely found in agents engaged in the purchase and rental of housing. Although specific figures were unavailable, it is estimated that there were approximately 330,000 instances of organising agents pursuing this type of value in 2005 in Ireland, of which roughly 45% were housing purchases and 55% were rentals (see Appendix 5.1 for estimating approach). For over two hundred years, this type of value has been referred to as **Utility**, a term drawn from the writings of the English utilitarian philosophers, Jeremy Bentham (1748-1832), and John Stuart Mill (1806-1873). As interpreted subsequently by economists such as Adam Smith (1776) and David Ricardo (1817), utility value is created through an exchange of surplus between two (or more) participants. By exchanging goods of lower value for goods of higher value, individuals can increase their overall level of satisfaction – otherwise known as 'utility'. Of course, these exchanges will only occur if individuals value the goods in question differently. Adam Smith suggested that different utility values of goods among individuals, along with the existence of markets in which to exchange these goods, generated the 'invisible hand' that allocated goods such that the maximum utility across all individuals would be achieved.

Under the definition of agents proposed, an exchange between two (or more) individuals for the purpose of creating utility value is a single organising initiative which may be relatively short-

lived, as in the case of the sale of a house between a builder and an individual, or may extend over time, as in the case of a rental transaction. This type of agent may be represented as in the figure below, in which individuals A and B trade goods A and B, resulting in the creation of utility value for each of the participating individuals.

Figure 5.1: Utility agent AB

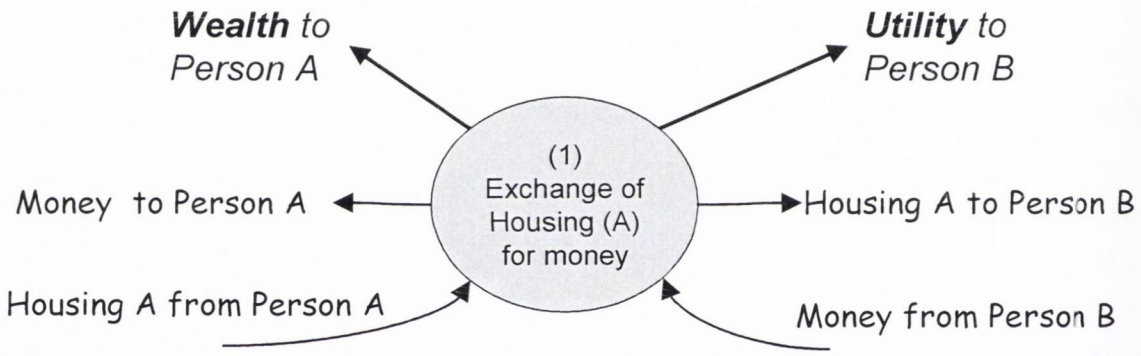


Of course, goods are rarely directly exchanged, but are instead traded for money that can be used to purchase other goods. This is the case in the vast majority of housing sale and rental transactions, with the miniscule exception of housing that is provided in return for labour such as the provision of small dwellings on larger estates to gardeners/security personnel. Money is useful (i.e., has utility) to the extent that it may be used to purchase other goods and services, but does not have direct utility value until it is exchanged for some other good. Nevertheless, it is the case that individuals participating in the housing system, particularly those in the real estate business, cite the acquisition of money as the primary value objective of their organising activity. However, it is not simply money that they are after, but 'profit', meaning that the money received in exchange for the goods exchanged is greater than the money that was required to acquire or produce those goods. Interestingly, some interviewees identified circumstances under which they were willing to engage in a transaction in which they incurred a loss in order to place them at an advantage in the future for participating in new transactions, producing additional goods and securing future profits. Examples of this behaviour occurred in the case of builders/developers working with local authorities to gain experience and credibility for future government contracts.

Whatever the particulars of a given transaction, the underlying value objective of individuals receiving money in exchange for goods was to increase the resources at their disposal for future organising activities – often, but not always, including future transactions to increase utility. The best umbrella term for this type of value is **Wealth**, which is defined as in the American Heritage

Dictionary[32] as "all goods or resources having value in terms of exchange or use". The difference between Wealth value and Utility value is a subtle one, and rests on the distinction between the particular and subjective nature of *utility* as a measure of the immediate satisfaction that an individual gains from acquiring/using something vs. the broader and more collectively defined nature of wealth as a measure of total current and future satisfaction that may accrue through future use and/or exchange. So we may modify the figure above to address a typical utility transaction involving the exchange of goods (or services) for money as having the objective of utility for the receiver of goods and the objective of wealth for the receiver of money. Note, that, in the case of housing – particularly in the context of the Irish housing boom of the last two decades – owner-occupiers generally have both utility and wealth objectives in mind in their purchase and ongoing maintenance of their homes.

Figure 5.2: Utility and Wealth producing transaction



In studying the utility/wealth producing agents in the Irish housing system, there appeared to be a number of agents with a particular role to play in the creation of utility/wealth. These agents involve first and foremost the buyers, sellers, landlords and renters of dwellings, but may also involve estate agents, bankers, lawyers and, to some extent, architects in the Irish housing system. Buyers and sellers, or landlords and renters in the case of rental housing, may be referred to as the primary participants as they must be present in order for a utility/wealth agent to exist. Estate agents, bankers, lawyers and architects may participate in these agents, providing assistance to one or more of the primary participants. As will be discussed in the next section, the role of these utility *facilitators* appears to revolve around the need to decrease uncertainty in the exchange process involved in producing utility/wealth. For example, estate agents decrease the uncertainty involved in searching for the dwellings/buyers, lawyers decrease the uncertainty around contract negotiations and bankers decrease the uncertainty around financing. Searching, contracting and

[32] wealth. (n.d.). *The American Heritage® Dictionary of the English Language, Fourth Edition*. Retrieved August 17, 2007, from Dictionary.com website: http://dictionary.reference.com/browse/wealth

financing are all activities (and costs) associated with conducting market transactions in the institutional economics literature (Coase 1937, Williamson 1981). Therefore, the functional specialisation in utility agents in Irish housing appears to be consistent with relevant literature describing the core activity (exchange) that supports this type of value objective.

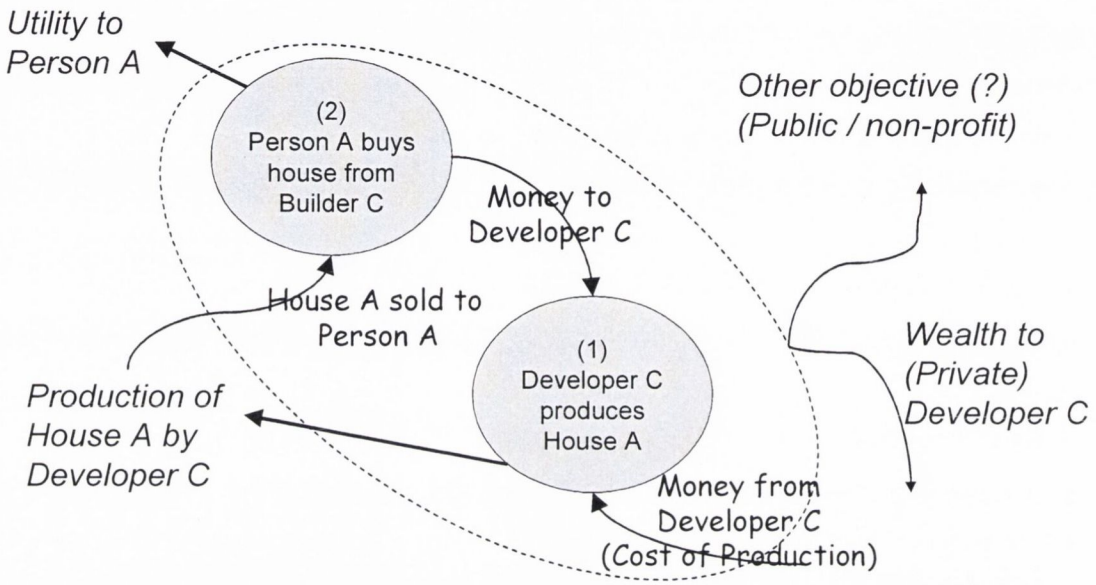
Having identified Utility and Wealth as two different, but related, value objectives, we may move on to a third type of value objective, namely 'production'. **Production** is defined as the increase in the aggregate quantity of goods/services produced through co-ordination of labour and other inputs. This type of value arises through efforts of individuals to accomplish the transformation of inputs into outputs, such as the transformation of land, bricks and mortar into dwellings. Interviewees expressing a value objective of production in Ireland included developers, builders, engineers, architects, building materials suppliers, non-profit housing associations, and local authorities. Furthermore, having an influence over all housing production appeared as a policy objective for several agents in the housing system including the Department of the Environment, Heritage and Local Government, the Construction Industry Federation and various housing policy analysts. To give a sense of the production activity level in the Irish housing system, in 2005, approximately 81,000 new dwellings were produced, of which 75,000 were produced in the private sector and 6,000 in the public/non-profit sectors. The number of firms and/or public/non-profit organisations producing dwellings in any given year is not available, but may be estimated at approximately 4,000 firms/organisations.

The distinction made above between housing production in the private sector and housing production in the public/non-profit sectors is one that is widely used in Ireland and across Europe and indicates dwellings that are produced for the purpose of creating profit for the producers (those produced by the private sector) and dwellings that are produced without a profit motive (those produced by the public/non-profit sectors). We will return to the implications of the terms, "private", "non-profit" and "public" later, but for now it is important to observe what this distinction implies for the definition of value objectives. First, we may observe that production, like utility, may be linked to the creation of wealth (via profits) – at least by agents in the private sector. In fact, making a profit was the main value objective of all private sector housing producers, with the production of housing only a means to this end. On the other hand, non-profit and public sector producers were focused on the production of housing, often, but not always, associated with one of the other value objectives described later in this section.

Secondly, we may observe that production can only result in a profit if the producer engages in a utility transaction in which the proceeds exceed the costs of producing the dwelling in the first place. While this is often the case in the private sector (at least in recent years), this is never the case in the public and non-profit sectors (at least in Ireland). Hence, it becomes clear that what we

see in the housing system in Ireland is the existence of organising initiatives that are linked together to achieve a number of different value objectives with varying priorities. We may represent this situation using the figure below in which Developer C produces a dwelling that is then sold to person A.

Figure 5.3: Linked production and utility agents



Developers are key producers of dwellings in the Irish housing system – they purchase agricultural or unserviced land, apply for planning permission, organise the delivery of infrastructure services (via the local authorities) and either build houses for sale or sell serviced sites to builders. Builders focus on the construction aspect of housing only, leaving the development of land (and the risk/reward associated with this activity) to developers. Housing materials and professional services suppliers complete the panoply of agents involved in the production of new dwellings. Local authorities and non-profit housing organisations act as developers of dwellings for rent or sale to households who are unable to afford housing on the private market, but also act as landlords – a role that is rarely assumed by private sector developers or builders in Ireland.

Landlords (whether private, non-profit or public) engage in the creation of a different type of housing production value in that their activities are aimed at ensuring that existing properties are maintained – keeping them 'fit for habitation' in one interviewee's terms. Development, construction and maintenance of dwellings are the three main production value sub-types identified in the Irish housing system, with the fabrication of building supplies and the provision of building services (e.g., architects, engineers, plumbers, electricians, etc.) as facilitating production activities. Like those identified for utility agents, these functional sub-types appear to be linked in some way to uncertainty – but uncertainty, this time, as it appears in the production 'value chain',

instead of in exchange processes. A production value chain is a group of linked production activities that build upon one another (like links in a chain) to accomplish the transformation of inputs into higher value outputs (Porter 1985). When these activities are performed by different organisations, the set of linked organisations is generally referred to as a 'supply chain' (Ellram 1991).

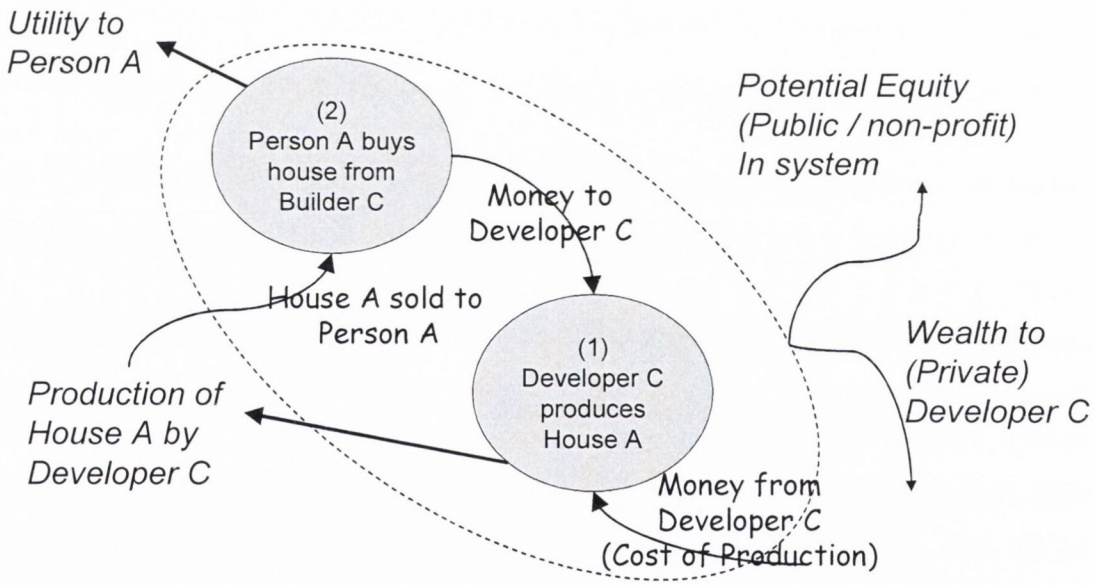
Uncertainty can arise from technological changes in upstream/downstream production activities, competition, regulatory changes and/or complexity in the production process itself and is often characterised by risk/return ratios in which higher levels of uncertainty generate higher risks, which must be compensated for by higher returns (Porter 1985). Agents pursuing production value, again particularly in the case of private sector agents, tend to specialise in one of the functional sub-types, while those in the public/non-profit sectors are more likely to encompass multiple sub-types within a single organisation. This topic of uncertainty and its effects will be revisited in the section on factors that affect agent movement on the landscape.

In the previous figure showing the linkages between production producing agents and utility producing agents, it was observed that wealth creation was often, but not always, linked to these value objectives. Specifically, interviewees from the public and non-profit housing sectors in Ireland did not list wealth creation in their set of value objectives – which was unsurprising as this objective is prohibited by law for these organisations. What these interviewees did describe as the overall objective of their production and utility producing activities is best described by the term 'equity'. **Equity** is used here to refer to the relative distribution of housing among all citizens and it is generally pursued, in Ireland, by attempting to increase access to housing, or to improve the quality of housing for those who are least well off in terms of their existing housing. Interviewees from local authorities, government departments, non-profit housing organisations and advocacy groups may have used different terms and focused on particular socio-economic groups in describing their value objectives, but they all came down in the end to rectifying perceived housing inequity.

However, unlike wealth, production and utility, equity is not a value objective that can be achieved or measured at the level of an individual agent pursuing this objective. It is a relative measure that compares the difference between the 'haves' and the 'have-nots' in relation to particular goods/services and it must be measured across society as a whole. In other words, equity is a systemic outcome that can only be partially influenced by the activity of any single agent in the system arising, as it does, from the activities of all agents. For example, even if a particular local authority were able to provide housing for everyone on its housing list, this would not guarantee that equity would increase overall. Immigration into the county of low income households, worsening of the economy in other areas and even improving housing conditions for households in

the top socio-economic groups could all offset any potential improvement in the relative measure of equity that would have occurred due to the local authority's actions. Furthermore, equity must be measured as the relative distribution of one or more of the other three value objectives described, i.e., as the relative distribution of housing wealth, production or utility. In Ireland, it is generally measured in relation to production as it is easier to measure relative access to habitable dwellings than to measure their relative utility, and less politically explosive than measuring the relative housing wealth across households. So not only is equity an emergent outcome at the systems level, dependent upon the actions and interaction of all agents, but it is also a derivation of other value objectives that is subject to the whims of policy-makers and activists who determine which underlying value will be the focus of the type of equity to be achieved. So we may update the previous figure with this fourth, emergent value objective generally associated with public and non-profit sector agents.

Figure 5.4: Creation of utility, production, wealth and equity through linked agents



Equity, and how to achieve it, is the focus of much of the literature on both welfare economics and social policy. In both literatures, the emphasis is on what sort of policies, laws, regulations, incentives, etc. will result in increased equity across a society. So there is no shortage of literature supporting the identification of equity as a value objective at the level of society. The question is how is it achieved through the organising activity of agents, given that it cannot be achieved through the actions of a single or even a subset of agents but must be achieved through the co-ordination of all agents in the system, and furthermore only exists to the extent that one or more agent(s) defines what it means and sets out to influence its measure. The answer to this question lies in the identification of a fifth type of value objective which underpins the creation of the policies, laws, regulations and incentives designed to create equity – that of 'collectivity'.

Collectivity is the value objective of reaching collective agreement among stakeholders in a society, which is the basic aim of political agents within the housing system, and, more generally, in the state as a whole. This value objective was found across a range of interviewees in the Irish housing system, but, interestingly, was not limited to political agents such as the legislature (the *Dáil*) or government departments, but also was referred to by interviewees from industry associations, advocacy groups and labour unions. Reaching collective agreement, whether it be in the form of housing legislation, industry standards or acceptable wage rates, is a crucial precursor to the pursuit, if not always achievement, of the value objective of equity.

Recall that equity as a value objective was identified in interviews with individuals from the local authorities in Ireland, amongst other public/non-profit sector organisations. In order to achieve equity, local authorities create production value in the form of dwellings for rent (or sale) as well as utility value for those households that qualify based on rules established by government. Households qualify based on their income (i.e., their income is below a specified threshold), along with other criteria affecting their priority rating in a queue for 'social housing' – an umbrella term used to refer to dwellings provided by Local Authorities or non-profit housing associations at non-market prices. Rents are set according to income levels in order to keep the cost of accommodation below a certain percentage of total household income. The formulae used by the local authorities to determine rent levels is called the 'differential rent system' and the guidelines are set by the Department of the Environment, Heritage and Local Government. Rents have virtually no relationship to the cost or desirability of the dwelling and local authorities or non-profits are unable to maintain the dwellings in a habitable condition relying on the income generated from rents alone. Development, construction and maintenance of these dwellings are 95-100% funded from government funds, with the remainder coming from rents and/or philanthropic bequests.

In this example we may observe the existence and impact of a number of rules, laws, conventions, perceived rights and guidelines that influence the organising behaviour across a set of linked activities. There are the laws that establish the authority and funding sources for local authorities to produce housing for the purpose of relieving housing need amongst citizens, which were passed in the late 19th and early 20th Centuries in Ireland. In addition, there are the legislatively established rules (e.g., in the Housing Acts of 1966, 1988[33]) that describe how need should be determined by describing the types of households that qualify for social housing. These Acts provide the legal framework within which non-profit housing associations may operate. However, local authorities and non-profit organisations have considerable leeway in interpreting housing need - particularly in how one type of need is prioritised over another – which makes it possible

[33] For a comprehensive discussion of recent housing legislation in Ireland see Norris & Winston 2004. Mullins et al.(2003) also provide an informative discussion on legislation affecting non-profits in Ireland

for each local authority or non-profit organisation to establish its own set of conventions for allocating housing. Furthermore, the sale of local authority dwellings to sitting tenants, while not legally required of local authorities, has become a de facto 'right' of tenants over time; so much so that non-profit organisations are being pressured by tenant advocates and policy-makers to allow their tenants to buy their dwellings at the same advantageous discounts enjoyed by local authority tenants. Building regulations, along with 'best practices' followed by local authorities and construction firms, are further examples of the laws, rules and conventions that govern the production of housing. Finally, there are the laws and annual finance budgets that establish the taxes levied on all Irish citizens and the proportion of these that will be spent on providing social housing and encouraging private housing production. As noted in the previous chapter this collection of laws, rules, conventions, best practices and guidelines are 'institutions' that influence the decision-making of agents involved in social housing. Furthermore, a similar story, involving different content but similar processes and institutions may be told regarding private housing production and allocation.

Each of the institutions described above was created through the action of organising agents. Chief among these agents are the policy-making agencies, i.e., the Department of Finance (DoF), the Department of the Environment, Heritage and Local Government (DEHLG), sections of local government; and those entities that seek to influence policy-makers, i.e., trade, industry and labour associations, policy 'think-tanks' and social advocates. Since the mid-1980s, in addition to the legislative process, every three years representatives of the various 'pillars'[34] of society come together to engage in what are termed the 'Social Partnership Talks' to agree on a range of social and economic policies, including how many new social dwellings should be built in the coming years, incentives for private housing providers and taxes to be levied. These policies are then carried out through a complex mix of public, private and non-profit organisations responding to the rules, guidelines, incentives and targets established.

For every institution created, then, there exists (or existed) an organising agent whose value objectives included reaching collective agreement among stakeholders or their representatives about the objective and content of the institution created. These agents engage in what Kingdon (1995) called the 'policy process' involving the identification of objectives, alternatives and solutions on which all or a sufficient number of participants can agree. Reaching collective agreement – or the creation of collectivity value - is what sustains the willingness of Irish taxpayers to fund production and allocation of social housing and, more generally, to follow the 'rules' in the housing system that exist in the form of laws, by-laws, regulations, tax incentives, industry standards or conventions. Government, by virtue of its "monopoly on the legitimate use

[34] E.g., trade unions, voluntary/community sector, business/commercial sector, farming sector (Note: all organisations participating in the 2006 partnership talks are listed in Appendix 5.2).

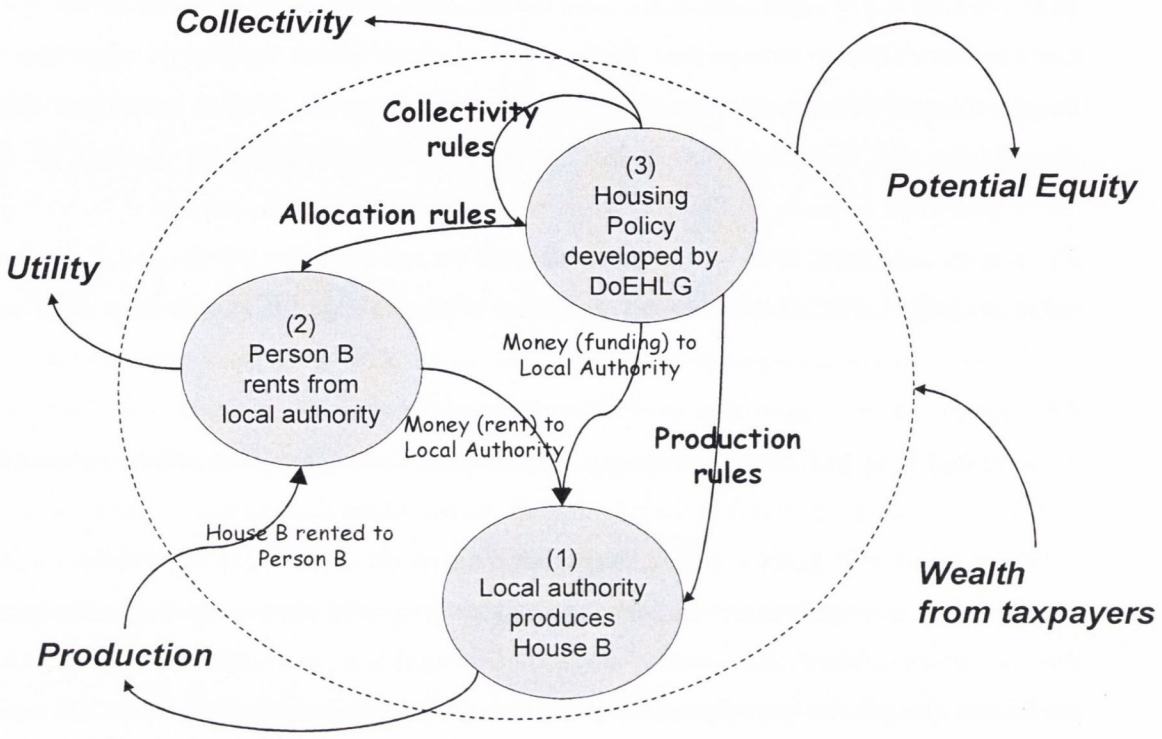
of force" (Weber 1925) can force the compliance of all organising agents with the law created through collective agreements. However, laws are only one of many influences on organising behaviour, at least in the Irish housing system. Industry associations such as the Royal Institute of Architects in Ireland (RIAI) and the Irish Council for Social Housing (ICSH) establish rules and guidelines that have significant influence over the decisions of their members, while the powerful Construction Industry Federation (CIF) is a leading participant in the Social Partnership Talks, the development of best practices and regulations, and in housing development/construction policy overall.

Facilitating equity, production, and utility through the redistribution of wealth and producing laws, rules, guidelines, etc. are not the only outcomes of agents engaged in collective decision-making. It is also the case that engaging in collective agreement has some cognitive value for those participating in these processes, such that participants believe themselves to be better off simply because they have had a chance to engage in collective decision-making and their views have been heard. This can be observed in the community organisations that meet to discuss proposals by the local government to develop social housing in their neighbourhood, or the meetings of non-profit providers of homeless services to exchange information about service needs. Furthermore, just as the creation of production and utility may generate wealth, so may collectivity be linked to wealth creation. Those who participate in collective agreement formation are often in a position to increase their own personal wealth by influencing the policy process in ways that benefit their own, or their patrons' interests. In western societies, this process is viewed as highly suspect and often the link between collective decision-making and wealth creation is banned as 'corrupt' practice. Having said that, politicians and public servants in Ireland, like most of the western world, are paid to participate in collective decision-making processes, just as 'labour' is paid to participate in production creation processes. But there is a distinction made in Ireland – as in other places – between increasing one's wealth by making 'fair' decisions in the interest of one's constituency and increasing one's wealth by making 'unfair' decisions in the interest of one's own bank balance. The first is legal – even laudable – and the second is illegal and morally repugnant. Unfortunately, there is not enough room in this thesis to engage in the nuances and philosophy of public service, decision-making and corruption in the Irish housing system. For the purposes of this analysis it is enough to recognise that wealth creation may be linked to collectivity creation, albeit less explicitly so than for other value activities.

But the main link found in the case study between agents engaged in collectivity value creation and other value creation activities is in the creation of the institutions that govern all other value activities. Specifically, collective agreements reached by these agents are manifested in the rules that apply to all or a targeted subset of other agents. Hence we may add new features to the diagram of agents and value creation presented earlier including a new agent that produces

collective agreement among participants ('collectivity') along with rules arising from these collective agreements that influence the value activities of other agents.

Figure 5.5: Interaction among value creating activities



What the figure reinforces is the difference between the three value objectives of collectivity, production and utility - which may be produced by an individual agent, and those of wealth and equity - which require the linking together of multiple collectivity, production and utility producing agents as either component parts of a larger agent (i.e., a local authority) or through interaction among different agents in the system (i.e., among government departments, local authorities and renters).

As was found for both the production and utility producing agents in the Irish housing case, collectivity agents also appeared to have functional sub-types along the lines of the different components of the policy process (Kingdon 1995, Mullins & Murie 2004), i.e., issue identification, alternatives for consideration and agreeing solutions. Issue identification is more often than not the role of advocacy groups, industry and sector associations and/or policy analysts, while the identification of alternative solutions (and their potential impact) is generally performed by policy consultants or government departments. Political fora (e.g., the *Dáil*, the Partnership Talks) are generally the agents that select the policy solution - or rules - to be created. Furthermore, there are agents such as labour unions and tenants associations that focus on the concentration of power in order to influence the outcomes of the other collectivity agents.

Specialisation in the collectivity landscape appears to be focused on developing knowledge and information processing expertise in order to reduce uncertainty.

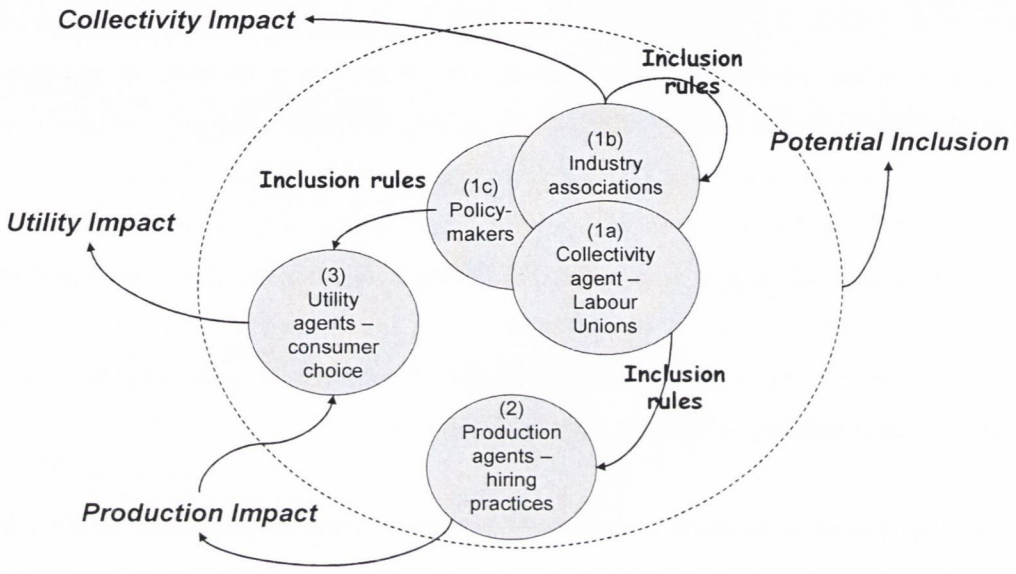
The final type of value that is targeted by agents in the Irish housing system relates to participation in the various organising activities that make up the system. This value is often referred to as **Inclusion** and refers to the proportion of society, or a targeted sub-group in society, that participates in the value creation activities in the system. An example of an agent with this type of value objective is CIF, which must be seen to represent the majority of production organisations in the system if it is to be a credible partner in policy negotiations, or a tenants' organisation in a local authority estate which provides a forum for tenants to participate in maintenance and allocation decisions by the local authority. It is also the case that policy-makers and social activists in Ireland view less than 100% participation in housing utility creation as a systemic problem, i.e. if individuals or households are in any way excluded from engaging in some form of exchange to increase their utility arising from dwelling arrangements, this is seen as a problem of social exclusion. This problem is often stated as one involving the rights of individuals to be decently housed and/or a question of stigmatising those households stuck in poor local authority estates or immigrant housing with no opportunity to move.

In the case of inclusion in production activities, this is a concern for economic policy analysts and labour unions, with the former expressing concern about the (too) large proportion of the population employed in the construction industry (roughly 13% in 2005), and the latter focused on preserving members' rights to employment in targeted areas of the construction industry. So we may observe that inclusion as a value objective relates to collectivity in the first instance, but also appears as an objective in relation to utility and productivity. None of the interviewees expressed the objective of inclusion in relation to wealth as this was seen as a question of equity rather than inclusion.

Like the value objective of equity, influencing and/or measuring inclusion can only be achieved at the systems level, since it is an outcome that is only meaningful across a broad spectrum of society. Furthermore, identifying a particular level of participation as problematic gives rise to the same sort of responses identified in relation to equity creation, i.e., one (or more) collectivity agents discuss/agree on inclusion objectives and rules, the rules/incentives influence existing agents, and, possibly, new agents to increase participation by targeted groups in one or more of the other value creation activities. Interestingly, agents with equity objectives tend to spawn new production/utility agents in order to increase the distribution of production and utility to targeted groups, while agents with inclusion objectives tend to spawn new collectivity agents aimed at increasing the targeted group's influence over collective decision-making. In addition, inclusion objectives may impact on the achievement of other objectives, i.e., may increase/decrease an

agent's ability to achieve collectivity, utility, production, wealth or equity. Nevertheless, inclusion, like equity, is an outcome that is generated by a broad range of organising agents and cannot be achieved or measured at the individual agent level. Therefore it may be included in the diagram of agents and value creation as an emergent outcome of interacting agents as shown below.

Figure 5.6: Linked agent activity aimed at inclusion:



To summarise this discussion on value objectives in Irish housing system agents, there are six value objectives identified from interviews and supported by existing literature. These are:

1) **Utility**: an increase in *individual satisfaction* arising from the acquisition or use of goods and services;
2) **Production**: an increase in the *number of goods/services* produced through the transformation of inputs into outputs;
3) **Collectivity**: an increase in the *degree to which participants agree on the rules* governing organising activity;
4) **Wealth**: an increase in an individual's *ownership of goods and resources* which may be used to generate utility, production or collectivity;
5) **Equity**: a rebalancing of the *relative distribution* of utility, production or wealth value created by organising agents in the system across individuals in society
6) **Inclusion**: an increase in the *proportion of the population that participates* in the creation of collectivity, utility or production value

The first three value objectives may be achieved and their outcomes measured by individual agents, while the latter three rely on the linked activities of one or more agents targeting the first three. Hence, utility, production and collectivity constitute the 'basic' value objectives in an organising system, while wealth, equity and inclusion are derived from these. The three basic value objectives also appear to be associated with different functional sub-types, i.e., utility agents may be grouped into search, finance, contract and exchange agents, while production agents include developers, builders, landlords, materials and service providers. Collectivity agents also display a tendency towards functional specialisation in the areas of issue identification, development of alternative actions/rules, concentrating power, and negotiating/agreeing solutions. This tendency towards different functional specialisation suggests that these agents are operating on fundamentally different landscapes – a possibility that becomes more apparent in the analysis of agent movement in the next section.

Furthermore, while wealth may be achieved and measured for compound agents made up of several linked basic agents (as in the case of a firm made up of production and utility agents), equity and inclusion can only be achieved and measured at the systems level and only in relation to one of the other four value objectives, e.g., equity in relation to the distribution of wealth, or inclusion in relation to participation in collective decision-making. In addition, these two value objectives are similar in that their appearance will often result in rules, generated by collectivity agents, which seek to influence the behaviour of other agents to achieve the systemic objectives. Finally, though the outcomes of equity and inclusion are always latently present in the system, they do not become a feature of the system until identified as a particular value objective of one or more agents. Hence they are emergent properties of the system that arise from the activity, interaction and interpretation of other agents within the system, and which influence agent behaviour and outcomes in subsequent periods.

Agent characteristics affecting movement

Having identified the value objectives that drive the formation of agents in the Irish housing system, the next step is to determine what characteristics of agents influence how they move on the performance landscape in pursuit of these value objectives. Specifically, we are looking for characteristics of the agent that generate 'agent-specific movement rules' relating to the type and range of decisions that an agent may make and/or factors that an agent will consider when making these decisions in a given period. The interview notes were used as the primary data source for this analysis and relevant literature consulted to confirm or challenge the findings.

It is plain that the choice of value objective is going to be the principal characteristic of agents that influences what decisions are made and what factors considered, as agents search for decisions that

will maximise their achievement against the objective(s). For example, agents seeking to increase housing utility make decisions about location, tenure, price, etc. while agents seeking to increase production look at location, tenure, production technologies, resource requirements, market conditions, etc.. Collectivity agents consider economic and social conditions, demographic changes and the power of various constituencies in making decisions about rules governing production and utility, equity and inclusion and funding or other incentives to influence agent behaviour. Furthermore, as discussed in the previous section, each of these three basic value objectives is associated with different functional sub-types which also influence the types of factors and decisions that agents consider, such that developers worry about planning rules, builders about organisational capacity, landlords about tax incentives, etc. The observations that agents with different basic value objectives target different outcomes, consider different factors, make different decisions and display different functional specialisations make it clear that these agents operate on separate performance landscapes. However, as discussed in the previous section, these landscapes are linked by compound agents that span multiple landscapes, as in the case of wealth-producing agents and agents with equity and inclusion objectives, and also by the flows of goods, money, information and rules. Hence, we must redraw the conceptual model developed in Chapter Four to incorporate this modification such that there are three different performance landscape models that interact to generate the outcomes arising out of organising.

Figure 5.7: interacting performance landscapes

Wealth, equity and inclusion, as value objectives derived from the three basic ones of utility, production and collectivity, are associated with the same set of decisions as those agents with value objectives of the type that gave rise to the issue/opportunity in the first place. For example, if an agent has wealth creation as its main objective and decides to accomplish this through

engaging in utility transactions (i.e., a property investor), then the types of decisions and factors considered are drawn from the same set as those of the buyer or renter, i.e. location, quality and price. Note, however, that the decisions made by the investor vs. the buyer will be in the context of different value objectives and hence may result in different choices. The same may be said for agents established to address inequities in housing utility, although in this case the findings suggest that agents with equity or inclusion objectives are more likely to target particular groups – or market segments – than are those agents without these objectives.

In fact, it became clear during the case study that the pursuit of the systemic, emergent value objectives was often associated with other behavioural norms and/or values that interviewees would regularly cite as being important to their decision-making. For example, agents in the public and non-profit sectors pursuing equity were much more likely to cite the need to co-operate with each other as a driver of decision-making than were private sector decision-makers. Even more fundamental was the different attitude towards wealth creation, with non-profits and public agents eschewing wealth as an organising objective and private sector agents embracing it above all others. This difference was shown to affect the environmental factors considered by agents when making decisions as reported in Rhodes & Murray (2007). However, in discussing the source of these differences with interviewees, academics and policy-makers, value objectives were regularly linked to a different agent characteristic – that of the 'legal status' of the agent. In fact, an agent's legal status often appeared as a kind of meta-characteristic in interviewee's reports of which decisions/factors were considered, acting as a kind of 'tag' that implied other characteristics such as value objective, behavioural norms, organisational mode, movement rules, etc..

Legal Status and the creation of agent schemata

In Ireland, as in many countries in the world, legal structures relating to organising activities have evolved to distinguish between organising agents that create value that is owned by or is distributed to the general citizenry, or particular individuals. These are normally called 'public' versus 'private' organisations and the rules that govern the behaviour of agents vary depending on this characteristic. Of course, we have already established that the creation of rules – either through legislation or through industry associations – is one of the several outputs of organising agents engaged in the creation of collectivity value. So, in a sense, the concept of legal status is emergent in that it is a shared understanding arising from the actions and interactions of agents in the system over time. However, unlike the other emergent features of the system identified so far, i.e., equity and inclusion; the feature of legal status is a characteristic of individual agents, changing not just their behaviour but their identity as well.

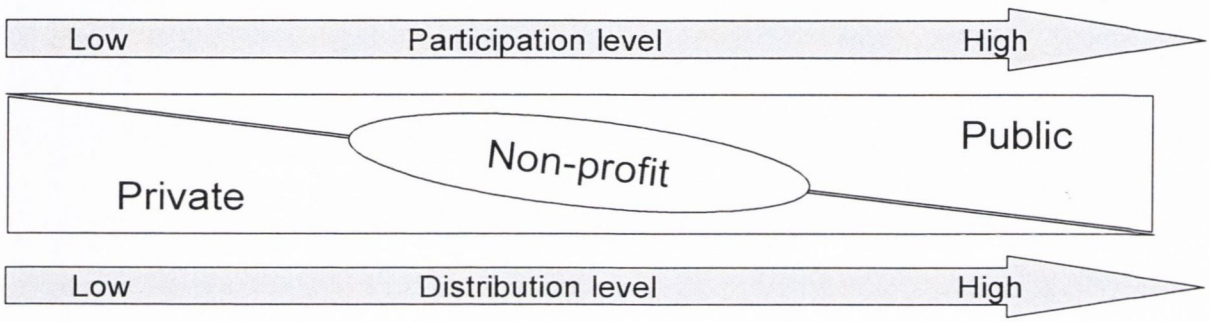
But what does this meta-characteristic actually mean? It is generally understood, both in public administration literature and by interviewees, that 'public' organising is associated with government entities and the creation of value for the general populace. However, the rental (or sale) of a local authority dwelling may be carried out by a government entity, but is clearly not benefiting the general populace. It is benefiting the individual(s) occupying the dwelling. Another example of the difficulty in distinguishing between public/private activity is the invention (and sale) of a new type of insulation by a materials manufacturer that provides improved energy efficiency, not to mention warmth, to households throughout the state. 'Private' organising is also problematic to define when one considers the organising activities engaged in by non-profit, 'private' organisations that produce value that is available to a broad range of citizens, if not to the entire population in Ireland. The organisation Threshold is an example of a private, non-profit organisation that provides rental advice and assistance to all renters in Ireland. While this is clearly a subset of citizens, the choice to become a renter lies with the individual and so the service is theoretically available to all citizens.

The mapping of the concept of 'public' vs. 'private' organising with instances of organising in the Irish housing system suggested that the previously identified emergent objectives of participation (inclusion) and distribution (equity) were also fundamental to defining legal status and the difference between public and private organising. In relation to the distribution of organising value, the higher the proportion of citizens benefiting from the value created by an organising agent, the more 'public' is the organising agent. Similarly, the higher the proportion of citizens participating in an agent, the more 'public' it is. For example, all citizens may participate in the development of collectively defined rules through their participation in elections of political representatives. The *Dáil* is therefore a 'public' agent with regard to participation. It is also 'public' with regard to distribution of value among citizens, given that government policies and activities are generally conceived of as benefiting the general populace. At the opposite end of the spectrum of public vs private organising are activities such as the sale (rental) of a private dwelling as the only people who participate and benefit are the buyer (renter) and the seller (landlord). Firms engaged in the creation of production value involve slightly more participants and also benefit more participants, but are still considered private organising efforts.

Somewhere between private and public agents, we find agents designated as 'non-profit' which indicates, firstly, that they are not in the business of pursuing wealth creation. In Ireland these agents may be as ubiquitous as the Catholic Church or as small and focused as a housing co-operative for a few households in Donegal. In order to receive charity status in Ireland, however, an organisation must demonstrate that is both non-profit *and* fulfils one (or more) of a small set of

objectives established by charity legislation as being of general benefit to the population[35]. So while there are certainly non-profit organisations that are established for private value creation purposes only (such as the small housing co-operative in Donegal), a large proportion of non-profits are focused on a wide distribution of value or 'fixing' problems of inequity through focused distribution. Essentially, the status of 'non-profit' in Ireland means that an agent creates 'public' value, but does so through 'private' participation. Hence, the designation of 'non-profit' fits somewhere in the middle of a continuum of participation and distribution aims with 'public' at one end of the continuum indicating broad participation and distribution and 'private' at the other end indicating tightly focused participation and distribution.

Figure 5.8: Continuum of private / public legal status



In addition to the distribution and participation characteristics represented by the designation – or 'tag' – of legal status, there was also a link between this tag and the value objectives of agents. Public agents were far more likely to pursue equity and inclusion over wealth, while private agents had the opposite tendency. Non-profits had a similar value orientation to the public agents, but were more exclusive in their participation and distribution characteristics. Furthermore, both non-profits and public sector interviewees were more likely to talk about 'values' in relation to their organising activity and their legal status identity, referring to equity and inclusion not only as desired outcomes, but also as principles underlying their processes and behavioural norms. This was particularly evident for the non-profits in which hiring practices, decision-making processes, interaction with clients and other strategic decisions were infused with the interviewees' understanding of these values as operating principles. Legal status also appeared to be correlated with specific decisions such that private agents tend towards behavioural norms of competition, information exclusivity and functional specialisation while public sector agents subscribe to co-operation, information sharing and functional integration.

In fact, as will be discussed at length in Chapter Seven, the decisions made and factors considered appear to be a function of legal status even when agents are operating on the same performance landscape. This suggests that legal status as a characteristic of agents influences how the agents

[35] The objectives must be in the area of social welfare, religion or education.

perceive the features of the landscape, operating as a kind of perception overlay or 'schema' that is different depending on legal status. This schema is reinforced by the rules created by collectivity agents that apply to agents of each type, but there also appear to be behavioural norms associated with each type that emerge over time.

How do these 'norms' emerge? It would appear that the decisions of 'public' organisations are suited to agents that, by and large, are working towards systems-wide objectives. If equity/inclusion are an agent's goals then, by definition, it is impossible to achieve these through individual effort. Co-operation, information sharing and functional integration are logical responses to the challenge of systems-wide objectives as these choices should increase the likelihood that a given agent will be able to act effectively and to influence other agents to achieve the overall outcome desired. However, the pursuit of 'private' value distribution and/or participation does not appear to be as clearly related to the norms identified for this type of competition, information exclusivity and functional specialisation. These norms are more closely related to other features of the system, namely resources, technologies and information uncertainty, all of which will be discussed later in this chapter.

A second dynamic of the establishment of norms operates in the private sector as well as in the public sector. This is the process of explicit institutional isomorphism along the lines described by Dimaggio & Powell (1983), through the formation of sector associations, best practice guidelines promoted by industry and/or academic consultants, and the exposure over time of agents to the behaviour of other agents and the perception of success/failure that becomes associated with particular choices. These all contribute to a sense of 'identity' that is associated with legal status, as well as with value objective. This identity becomes a kind of cognitive filter that facilitates more efficient decision-making, operating as it does to exclude some elements of the performance landscape from consideration by decision-makers and to facilitate focus on and knowledge of others. In essence, the creation of legal status in the Irish housing system is an essential component of the process of institutionalisation of the system arising from the emergence of agent identities differentiated by their legal status and their value objective.

Hence, while value objective is the fundamental characteristic of agents, distinguishing agents to such an extent that they operate on different landscapes, legal status combines with value objective to cause agents to perceive the landscape through a different cognitive filter that prioritises the consideration of decisions, factors and outcome relationships based on the agent's value objective and the rules and norms associated with its legal status. In a CAS sense, the legal status establishes the basic *schema* that agents will apply when making decisions about the possibilities that exist on their landscape. Furthermore, the characteristics of value objective and legal status appear to be sufficient indicators of the dimensions of 'values' and 'behavioural norms' of agents

identified in the literature review and therefore these latter two dimensions may be incorporated into value objective and legal status in the proposed model.

Functional sub-types, Uncertainty and Information processing capability

The characteristic of a functional sub-type was identified above as one that influences decision-making and which arises from different levels/types of uncertainty in the information environment facing agents. In fact, uncertainty appears to be an important driver of agent movement, with functional sub-type acting as a kind of filter, like that of legal status, to facilitate the processing of information and the development of institutional norms that reduce uncertainty. Functional sub-types and the nature of uncertainty are different depending upon the landscape on which an agent operates, and so examples from production, utility and collectivity agents are provided in subsections below.

Production agent sub-types and uncertainty

Production subtypes were identified earlier as consisting of five basic functions: development, construction, maintenance, materials manufacturing and building services. Each of these functions appears to be associated with different levels of uncertainty in terms of the risks and returns associated with the specified activity in the Irish housing system. Developers face relatively high risks associated with planning and large up-front investments along with demand fluctuations, while those involved in maintenance (i.e., landlords) face lower risks relating primarily to demand fluctuations and changes in tax law. Construction specialists and materials manufacturers are somewhere in the middle in terms of risk, being subject to demand fluctuations as well as to supply cost variations and technological obsolescence, but tend not to have the large up-front investment requirements of developers, nor are they subject to planning risk as they are generally involved in production after planning permission has been secured.

Not surprisingly, the variation in risk levels is mirrored by the differences in returns expected, with the highest returns associated with development (15-40% per annum) and the lowest with housing management (3-5%). Construction and building supply firms operate in the range of 4-8% returns, with the suppliers tending towards the upper part of this range as well as being generally larger than the average construction firm in Ireland in terms of total revenues and number of employees. Housing services include such a wide range of activities that it is impossible to categorise them by risk or return. Services include professional services engaged in the creation of new dwellings such as engineers, architects, specialised sub-contractors, etc. and those involved in ongoing housing service provision such as sewer, electricity, heat and physical maintenance. However, there is no evidence to suggest that these agents are somehow different to the other sub-types in their response to the risk/return trade-offs in their environment.

From the above, we may observe that uncertainty arises from three sources. The first is market uncertainty, principally in the form of demand variation and financing risk and the second is production uncertainty such the cost of materials/labour and technological change. Market uncertainty arises from the actions and interactions of utility agents, while production uncertainty is created by production agents themselves competing with each other. The third source of uncertainty has to do with the rules imposed by collectivity agents, as in the case of planning permission and tax laws. Uncertainty is therefore a key feature of the interaction among landscapes, at least in so far as production agents are concerned.

Furthermore, the creation of functional sub-types in response to uncertainty generates further differentiation as agents engage in institutionalisation processes to develop rules and norms that further reduce uncertainty for members of each sub-type. Examples include: hiring practices followed by agents in development and construction, i.e., the use of sub-contractors rather than full-time employees; the use of network organising mode across professional service providers (e.g., architects, engineers and planners); and contractual and facility management norms amongst social landlords and housing managers. The development and application of rules and norms is particularly apparent in the public and non-profit sub-sectors of production agents for which explicit guidelines for hiring, organisational structures and operating procedures are developed and largely adhered to by agents in these sectors.

Utility agent sub-types and uncertainty

The relationship between uncertainty and functional sub-type may also be observed in the case of utility agents such as bankers, estate agents, lawyers and the actual exchange activities engaged in by buyers and sellers. The actual exchanges themselves (i.e., a purchase/sale or a rental transaction) appear to have the highest levels of uncertainty for participants, having to do with the potential for misinformation, variation in supply/demand, financial risk and contract default. In return for this risk, owning a house has generated extremely good returns in terms of increase in wealth, while renting has generated lower, but still respectable returns – at least for the landlord. Interestingly, the other functional sub-types in utility agents are all aimed at reducing uncertainty related to these exchange transactions, while taking on little of the underlying risk themselves. Bankers reduce financial risk, estate agents reduce the risk associated with misinformation and matching demand with supply, and lawyers reduce contractual risk. Margins in these activities are quite low, never being more than 2% of the value of the transaction, but the risks assumed by these exchange facilitators are also minimal. Here we may observe clearly the link between functional sub-type and uncertainty within a particular landscape. In essence, uncertainty and the desire to

minimise its effects are the reason for the existence of some agents, not just a driver of their movement on the landscape.

This focus on decreasing uncertainty also appears to result in the creation of information about transactions, otherwise known as 'market data', which is routinely published by banks and estate agents in Ireland. Market data, whether publicly available or gleaned through repeated participation in utility transactions, is what comprises the economic risk/return information that drives production agent activity. It is also a source of information for collectivity agents seeking to understand the opportunities and needs of their constituents in regards to housing utility, wealth and production outcomes. Interestingly, the only exchange facilitating agents in the Irish housing system that do not appear to generate market data are the solicitors. In spite of the fact that solicitors are involved in all sales transactions and some rental transactions, there is very little in the way of aggregate contracting or title conveyance information available to anyone outside the legal profession. Baker & O'Brien (1979) observed that the ability of the legal profession to retain control over information related to conveyance and contracts, as well as to restrict access into the profession, resulted in a 'monopolist' position in the housing system generating proportionally higher fees for minimal risk.

This observation makes it clear that uncertainty also creates opportunities to develop specialised knowledge about aspects of the performance landscape which may be translated into improved performance outcomes by those agents able to do so. We will return to this point later in the chapter when agent characteristics affecting performance are discussed, but it is useful to note this point as it is central to the functional sub-typing observed in collectivity agents discussed below.

Before moving to collectivity agents, however, it is necessary to raise one final point with regard to utility agents, uncertainty and functional sub-types. The functional specialisation observed in utility agents described above only applied to agents operating in the private sector. In the case of the public and non-profit sectors, utility exchanges did not normally involve bankers, estate agents and lawyers, but instead were conducted between the 'social' landlord (either a local authority or a non-profit housing association) and the aspiring renter or tenant purchaser directly. In effect, these exchanges are conducted based on a set of rules established by collectivity agents (and interpreted by the landlord). Furthermore, participants cannot enter into these types of exchanges whenever they wish to, but must wait until such time as the rules allow an exchange to occur. The forms that products and services may take are also highly regulated and the price that may be charged is established by formulae defined by the DEHLG (a 'differential rents' calculation and the discount for sales to sitting tenants). The rules around renting apply equally to the non-profit housing providers with the only difference being that they can be a bit more flexible in choosing between eligible households to allocate available tenancies.

This highly constrained process, governed as it is by rules rather than the market, obviates the need for specialised agents to decrease risks since there is little risk involved for the participants. The ongoing formation of these agents is nevertheless dependent upon the continued willingness of participants to play by the rules and the ongoing injections of resources (wealth) from taxpayers to support this activity. In fact, unlike in the majority of private transactions, wealth is not created by these agents, but rather is transferred from taxpayers either to the social landlords (via production activities) or to tenant purchasers. Hence, it appears that the presence of risk for participants and the potential for wealth creation (as opposed to wealth transfer) via utility transactions creates conditions that support the formation of uncertainty reducing agents which increase the performance potential of all agents on the landscape. These agents affect performance by: 1) increasing the range of alternative transaction counterparts that potential agent participants may consider (the 'broker' function), 2) decreasing information uncertainty through information gathering and distributing (e.g., price indices), and 3) increasing the number of transactions that can be formed through financing or advisory activities (e.g., banks and lawyers). Conversely, the lack of these agents operating in the public and non-profit sectors may limit the utility that can be achieved by agents in these sectors, which may help to explain the perception of inefficiency of these sectors in comparison with the private sector.

Collectivity agents sub-types and uncertainty

In the previous section on utility agents, the point was made that uncertainty gave rise to opportunities for agents to specialise in knowledge and information processing as well as the need to choose among different risk/return profiles. The former is more relevant to collectivity agents, since these agents are generally not engaged in the kind of risk/return calculations so prevalent in the production and utility landscapes. Functional specification in these agents relates to information 'complexity' – which was defined in Chapter Two as arising from different types of uncertainty; namely heterogeneity, variability, interdependence and analysability.

Let us begin with a brief review of collectivity agents found in the Irish housing system. These include the *Dáil* (Irish legislature), the Department of the Environment, Heritage and Local Government, the Homeless Agency, the Social Partnership Agreement process, the Construction Industry Federation, the Irish Council for Social Housing, professional associations such as the Royal Institute of Architects in Ireland, tenant organisations, and a wide range of policy analysts and consultants. These agents operate at all different levels of society, with their scope and size defined by the geographic, professional, social and economic areas they address and the activities over which they have influence. In all cases, the constituency of individuals or agents that are affected by decisions made are represented in the collectivity agents either directly (as in the case

of tenant organisations) or by individuals selected through democratic election or by appointment (as in the case of the government agencies and forums).

From the interviews conducted, collectivity agents appear to be sensitive to a broader set of uncertainties than either productivity or utility agents. We observed that utility agents tend to be focused on market uncertainties, while productivity agents are sensitive to market and production uncertainties. Interviewees from collectivity agents cite these types of uncertainty as affecting their decisions in relation to issue identification, but also cite uncertainties relating to power/influence of constituencies (the number/strength of constituents and their various desires). Furthermore, there is the uncertainty around what alternative solutions exist for addressing issues and what the likely outcome of these alternatives might be. While it is clear that uncertainties around power and causation exist for utility and production agents, these were not raised as significant factors affecting decision-making by interviewees participating in these agents.

Having noted these differences, it was the case that uncertainty gave rise to different sub-types in collectivity agents, just as was the case for production and utility agents, i.e. advocacy groups and industry associations focused on issue identification; policy consultants and government agencies specialised in the identification of alternative solutions and forecasting probable outcomes; political entities such as the *Dáil* focused on concentrating power and negotiating collective agreements.

The creation of data to support collective decision-making has a broad impact on the information environment in the system overall, as compared to the market and production data produced by utility and production agents. Collective decision-making in Ireland results in a proliferation of data regarding: 1) the needs/desires of constituents, 2) the range of solutions that could address those needs/desires, 3) the power of constituent groups, and 4) the decision process and progress, all of which are disseminated through the publication of government documents and made available on government websites. Furthermore, the proliferation of data is amplified by media and other information interpretation/dissemination sources, about which the collective decision-making agents in Ireland regularly complain. The amplification by the media makes it extremely difficult for the collective decision-making agents to control the interpretation/dissemination of information. This creates uncertainty and dissatisfaction among those who perceive that their interests are not being adequately addressed and often generates additional needs/desires or changes to the collective decision-making agents themselves (through new elections/appointments). In CAS terms, this dynamic represents a positive feedback loop in the system in which the process of collective decision-making is partially driven by the need to reduce uncertainty. However in the process additional information is produced, which can result in new

and/or greater uncertainty, which in turn creates the need for more (or reconfigured) collective decision-making.

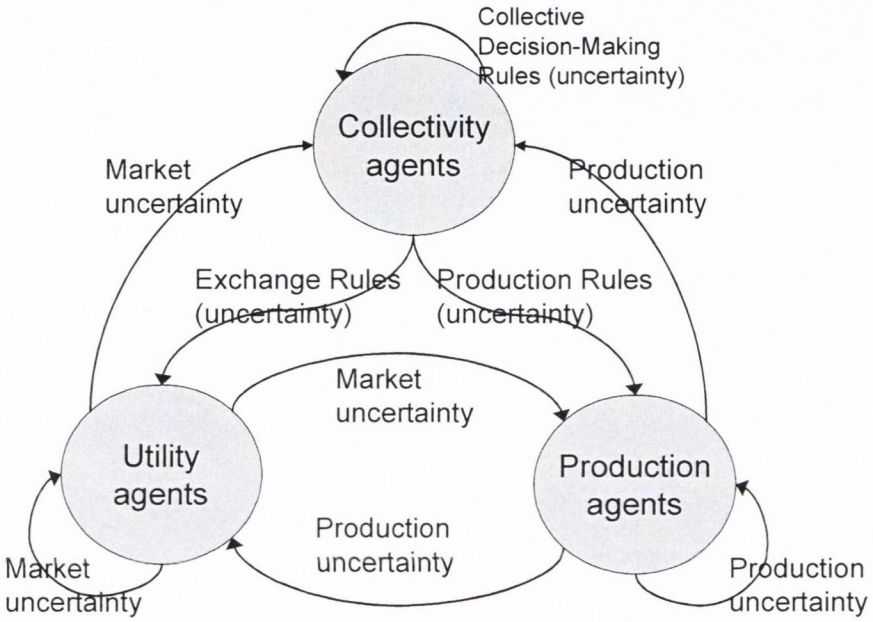
While recognising this process of informing the public about needs, constituencies, processes and solutions, it is still the case that the main objective of collective decision-making agents is to create rules designed to influence other agents in order to achieve collectively agreed outcomes. As discussed earlier in this chapter, rules may be aimed at increasing the creation of any one of the six value objectives and can take many forms, including regulations around quality standards, incentives for particular types of production or utility, guidelines for consultation and participation in urban regeneration, regulations relating to the allocation of social housing, and laws governing property ownership and transfer. What was interesting to note in the study of the Irish housing system, was that these rules may also be subject to the positive feedback loop identified above. Examples of this are rife in the public and private spheres with policies such as social housing surrender grants, tax relief on investment property, first-time buyer grants, etc. giving rise to unanticipated responses from agents in the system and requiring new efforts in collective decision-making and rule formation.

To sum up this discussion of functional subtypes and uncertainty, it is clear that functional subtype is a characteristic that, on the one hand, is similar to that of legal status; indicating the particular decisions and factors that an agent will consider as well as the norms, if not the laws, that emerge over time to influence agent choices. For private sector production and utility agents, the subtype is largely driven by risk/return trade-offs arising from market, production and rule uncertainties and the characteristic may be compared to the concept of strategic groups in management theory (McGee & Thomas 1986). In the public sector and in collectivity agents generally, functional subtypes are linked to uncertainty in the form of information complexity. In this second case, subtypes indicate efforts to develop knowledge and information processing capabilities to manage information complexity, a dynamic which is also found in management theory on organisational responses to information complexity (Galbraith 1977). Furthermore, the development of information processing capability to manage information complexity appears to give some agents the ability to improve their individual performance over other agents in the same location on the landscape. This suggests that information processing capability may arise from functional specialisation (which affects agent movement), but it also is one that influences agent performance.

Uncertainty as a feature of the environment in which agents operate was also shown to be generated from the activity of agents on the various landscapes and to permeate the system overall to at least as great an extent as do rules and norms. Furthermore, the activity of utility and collectivity agents was aimed at reducing uncertainty through information creation, albeit with

unintended counter-effects in the case of collectivity agents. Hence, it is proposed that uncertainty is a result of activity on each of the landscapes and that the uncertainty arising from one landscape will affect agents on other landscapes as well as within the originating landscape itself. This dynamic may be represented in the figure below as a second type of interaction between landscapes joining 'rules' which were discussed earlier in this chapter.

Figure 5.9: Interaction among landscapes: rules and uncertainty



Rules and uncertainty appear to be key links between the different performance landscapes of an organising system. Their existence may also be seen as a source of dynamic tension and instability as uncertainty drives the creation of rules, the changing of which may contribute to further uncertainty. Certainly, though, the analysis of the Irish housing case raises an issue for institutional scholars who have focused their efforts on the generation of rules and norms as the main institutional influence on actors. Uncertainty appears to be an additional institutional element if institutions are defined as features of an actor's environment that arise from the activities of actors and which are seen as influencing actor behaviour over time.

Finally, functional specialisation aimed at reducing uncertainty, as demonstrated by utility agents in the private sector in particular, may be a contributor to overall improvement in agent performance on that landscape. This was accomplished on the utility landscape by the formation of agents to facilitate the search process (brokers), to decrease financing risk (bankers) and to decrease contracting risk (lawyers). Wealth-related risk, along with the potential for wealth creation, appear to be conditions that stimulate the formation of these agents which have wider systemic effects of increasing information and reducing uncertainty overall. It was proposed that

this dynamic may be a contributing factor to public sector performance lagging behind that of the private sector.

Organising Modes and their impact on agent 'search' strategies

The literature review and conceptual model development chapters included the concept of organising mode as a characteristic of agents that was potentially relevant to agent movement rules as well as to performance. In fact, in several of the CAS models reviewed, organising mode was defined as the key characteristic affecting agent movement on the landscape through its impact on agent search strategy (Siggelkow & Levinthal 2003, Boisot & Child 1999). These authors, and others, make a strong case based on a rich foundation of empirical work and organisational theory for placing organising mode on the list of characteristics affecting an agent's movement on the landscape. The case will not be repeated here, but its essence is that organising mode has been shown to affect how many different decisions an agent can consider at one time (alternative states), as well as how many changes are possible in a single period (neighbouring states). As such, organising mode should influence both types of movement rules proposed in conceptual model. In Chapter Two, the three types of organising mode were defined based on organisation theory: namely hierarchy, market and network mode, which were essentially those used by CAS theorists incorporating organising mode into their models.

So the incorporation of organising mode into the model as a driver of agent movement was strongly supported by the literature, and the remaining task was to determine if it had any resonance in the case study. In fact, organising mode turned out to be a characteristic that was linked with the other movement-influencing characteristics: namely value objective, legal status and functional sub-type, and also appeared to be influenced by the size of the agent - another characteristic identified in the literature review as having the potential for impact on agent behaviour and outcomes. Examples of each of these links and impacts are discussed below, but the main finding in relation to organising mode is that it is driver of agent movement, but one that is highly correlated with the other characteristics identified and so its impact on agent movement is difficult to model independently. It nevertheless must be included as a characteristic separate from the other characteristics, as organising mode was not simply a function of the characteristics already identified, but was also found to be linked to the size of an agent and to path dependencies in the formation and development of rules pertaining to the agent over time.

Examples of the link between value objective, legal status, functional sub-type and organising mode were found throughout the case data. The main indicator of organising mode was functional subtype for private sector agents, with legal status and value objective having more weight in the case of non-profit and public sector agents. Interestingly, private collectivity agents did not appear

to vary their organising mode based on functional sub-type, nor did organising mode for these agents appear to be sensitive to uncertainty or size. For example, the powerful Construction Industry Federation (CIF) is organised principally as a network of over 3000 firms, including builders, developers and suppliers/specialists, with its own seat at the table for the Social Partnership agreements. It is focused on concentrating power in the main, but also participates in issue identification and negotiating/agreeing solutions. Advocacy groups ranging from small tenant organisations to the Conference of Religious of Ireland (CORI) are also organised as networks, as are professional associations such as the RIAI or the Irish Auctioneers and Valuers Institute (IAVI). Labour unions, too, are principally organised as networks, although there were also some instances of hierarchy in the organisation of support activities – as was the case for the CIF.

This raises the point of the link between organising mode and agent size. The tendency to adopt hierarchy as an organising mode as organisations increased in size was observed in the Irish housing case as applying across all agents, but as being most prevalent in the case of private sector agents. Small and medium-sized developers and construction firms tended to operate using short term contracts (i.e., market mode), while larger firms adopted hierarchy mode to support administrative functions and to realise economies of scale. This relationship between size and hierarchy also appeared in utility agents as brokers and lawyers initially organised as networks introduced more hierarchical features into their organisations as they expanded. In addition, this apparent association between size and hierarchy mode seemed to strengthen depending (inversely) upon the risk of the underlying activity. Builders face less risk than developers and also were more likely to shift to hierarchy mode as they grew. The same is the case for utility facilitating agents (brokers, bankers and lawyers) vs. exchange agents, with exchange agents appearing to introduce hierarchy only for very large and relatively permanent transactions (i.e., large scale landlord activity), while utility facility agents – facing less risk – are likely to introduce hierarchy at smaller scales. The relationship between risk and mode appears to be that as risk diminishes, hierarchy mode becomes more likely as the agent grows.

Finally, there were several exceptions to the findings reported above in which agents did not display the modal relationships between the various characteristics identified and organising mode. In particular this was observed in the case of private sector service suppliers as well as for non-profit production agents. For example, architects, regardless of size or risk profile adopt network mode – following the guidelines of the RIAI. This was also the case for all but the very largest of the non-profit production agents - apparently due to the connection between network mode and the values espoused by these agents along with the guidelines provided by the relevant collectivity agent, the Irish Council for Social Housing. From these examples we may observe that organising

mode norms that develop over time and become part of the identity of an agent may counter the influence of other characteristics over the adoption of a particular organising mode.

While the discussion above describes how organising mode appears to be linked to other characteristics that influence the movement of agents on the landscape, as well as to the characteristic of agent size, it does not explain how organising mode itself influences agent movement. For this explanation we may draw on existing literature which suggests that choice of organising mode is a central factor in both agent movement and agent performance. Thompson et al. (1991) provide a clear exposition of how these three modes are employed in the 'coordination of social life' across a wide range of human endeavour. While there are different views incorporated in this edited volume, in general, market mode is seen as supporting fast, simple and flexible decision-making, while hierarchy and network are viewed as more cumbersome but with the potential for improved performance outcomes. From a modelling perspective, then, the adoption of market mode will increase the number of changes that an agent may make in a single period – i.e. increasing the range of neighbouring states for an agent. Network mode, on the other hand, has the advantage of reducing risk by facilitating a broader range of information gathering, but without the ability to change direction quickly. Boisot & Child (1999) suggest that network mode also enhances the ability of the agent to influence its environment to the extent that the trust relationships that underpin network mode allow the agent to influence the decisions made by other agents. This suggests that network mode increases the range of alternative states that an agent may consider as well as potentially improving the performance that an agent can achieve in its given location. Finally, while hierarchy mode may be limited in terms of both the range of alternative states as well as the range of neighbouring states accessible by the agent, there are clearly advantages in efficiency under conditions of relative certainty – an observation that goes back to early organisational structure theory (Burns & Stalker 1961, Chandler 1962) and is reiterated in Thompson et al (1991). This suggests that the advantage of hierarchy lies in its impact on performance achieved in a given location, rather than on the movement rules applying to agents.

Reinforcing the organisational theory that supports the linking of organising mode to movement of agents on the landscape, Anderson (1999), Boisot & Child (1999) and Siggelkow & Rivkin (2005) each refer to different search strategies arising from organising modes. These CAS theorists tend to differentiate organising modes in terms of their ability to facilitate 'exploration' or 'exploitation' strategies, with market mode facilitating exploration, hierarchy facilitating exploitation and network occupying a middle position between the two. Exploration strategies are modelled as increasing the number of changes that an agent may make in a given period, while exploitation strategies are modelled as increasing the performance of an agent on a particular location. The observation that agents in the Irish housing case adopted hierarchy mode as they grew in size in order to increase efficiency and provide improved administrative support functions

appears to be consistent with the concept and modelling approach to exploitation strategies. Hence, the case data and the literature concur that organising mode changes the way agents move on the landscape and the case data suggests that the choice of mode is interdependent with other features of the agent, as well as features of the information environment (i.e., risk) in which the agent operates.

Summary of agent characteristics and other system features affecting agent movement

Drawing upon the data from the case study in Irish housing and relevant literature from management, CAS and public administration, we may conclude that there are four basic characteristics that influence agent movement. These are:

1) Value Objective – the goal of the organising agent that establishes the landscape(s) on which the agent moves;
2) Legal status – a cognitive 'tag' indicating the level of participation in and distribution of the value created by the agent which is linked to rules, behavioural norms and values that govern the choices open to the agent on the landscape;
3) Functional sub-type - an indicator of the risk/return strategy of the agent in dealing with environmental uncertainty, at least for private sector agents, that influences decision-making and which is also linked to rules and norms that emerge over time through processes of institutional isomorphism. Functional sub-type is also relevant to public and non-profit agents, but in this case it is an indicator of specialisation in regard to managing information complexity rather than risk/return uncertainty;
4) Organising mode – the choice of different types of interlocking behaviour to achieve co-ordination of activities impacts the agent's search capabilities as well as its ability to maximise performance on a given location on the landscape. This characteristic is interdependent with the other characteristics affecting movement, but may also be influenced by agent size and industry/sector norms.

In addition to the above, the analysis revealed that uncertainty is a feature of the system that impacts on agent movement and is also generated by agent movement on the various landscapes. Furthermore, the landscapes for production, utility and collectivity agents are interconnected via uncertainty generated in one landscape that affects another. Finally, agents acting to reduce uncertainty develop information processing capabilities that enhance their own performance, but may also impact on the general level of performance achievable by other agents on the same or linked landscapes. The role of uncertainty in the system was compared to that of rules and found to have a similar provenance and effect, such that it was suggested that institutional theorists

consider incorporating uncertainty into their analysis of organisational behaviour and the process and influence of institutions.

Agent characteristics affecting performance

The analysis of agent characteristics affecting movement on the landscape has already resulted in the identification of two characteristics that affect agent performance, namely information processing capability and organising mode. These characteristics also appeared in the literature as being relevant to the analysis of actors, outcomes, actions and circumstances in public services and so do not require further discussion. A third characteristic, that of resource access also appeared in the literature and was evident in the interviews as impacting on agent performance. Examples include: the lack of access to land impeding local authorities from achieving their production objectives while private sector developers and builders produced the highest output of new dwellings in the history of the state; insufficient access to specialised skills such as development, housing management and finance in the non-profit sector slowing their growth; and a country-wide shortage of planners slowing production for all but the most fortunate or persuasive of developers. It is abundantly clear from the case that resource access is a key characteristic of agents affecting performance and this is consistent with the literature that focuses on resource dependence (Pfeffer & Salancik 1978) and competitive advantage (Porter 1985, Prahalad & Hamel 1990).

Another characteristic relating to resources identified in Chapter Four as a potentially relevant to agent fitness was 'resource efficiency', which was defined as the capability of an agent to produce one unit of performance from a specified amount of resources. A typical measure would be the number of labour hours required to produce an average dwelling, or the amount of money required to maintain an average dwelling over a particular period (usually a year). While it is a fairly simple concept to grasp, it is extremely difficult to measure and use for the proposed model, never mind in practice. The main reason for this difficulty is the wide range of potential performance measures and issues around allocating particular resources to specified outcomes. Having acknowledged this fact, in Chapter Six a number of measures of 'productivity' which could serve just as well as measures of resource efficiency in relation to agent outcomes are identified in the Irish case and/or proposed. Hence, while it may be difficult and only roughly accurate to compare resource efficiency across agents, this characteristic appears to be relevant to an agent's performance as well as available in the real world for incorporation into the conceptual model.

The last two characteristics with potential relevance to agent performance were not explicitly included in the interview protocol for the case, nor found in the secondary sources relating to Irish housing consulted for this research. These are characteristics related to an agent's *interpretation* of its own performance and the features of the landscape that affect performance, e.g., 'perception

accuracy' and 'subjective fitness thresholds'. Gathering information on relative interpretation accuracy or subjective differences would have required a rather different research protocol that incorporated dimensions of human psychology and some comparison between subjective perception and shared perceptions of the decision environment across individuals. For reasons of scope management, this was not included in the research, nor is there existing research regarding variation in interpretation across decision-makers in housing in Ireland. The characteristic of information processing capability discussed in the previous section may capture some of the content of a characteristic related to perception accuracy, but there still remains the aspect of individual decision-maker knowledge and interpretation that is likely to influence how well the perceptions on which decisions are based reflect the actual landscape on which the agent operates.

Agent interpretation of fitness against a subjective threshold, while not an explicit part of the research did appear in the data, however, as some interviewees described decisions that were based on self-imposed criteria. For example, one interviewee from a family-owned development company explained that profits of 15-25% were insufficient to continue in operation given the difficulties arising from family squabbles over ownership, profit distributions and strategic direction. Board members from a non-profit organisation grappled with issues of professionalisation vs. volunteerism as a question both of viability and values. Public sector interviewees did not refer to any subjective fitness thresholds, perhaps due to the fact that their existence is mandated by legislation, no matter what their performance outcomes are. If an interpretation characteristic were to be incorporated into the model based on the empirical data collected to date, the most likely candidate is some sort of stochastic variable that causes private and non-profit agents to change their position on the landscape or to abandon the organising activity altogether on a random (but low probability) basis.

In summary, performance related characteristics of agents found in the case data are: 1) information processing capability which could act as a proxy for perception accuracy until such time as research can be conducted to determine if and how perception accuracy affects decision-making, 2) organising mode – in particular the adoption of hierarchy to improve performance in a given location, 3) resource access/efficiency – which may be combined for the sake of simplicity and 4) subjective fitness evaluation that applies to the private and non-profit sectors only.

Conclusion

Drawing on the Irish housing case study and relevant literature as required, this chapter sought to flesh out agent characteristics from the conceptual model developed in Chapter Four. In the first section six *value objectives* of agents in Irish housing were identified, three of which – production, utility and collectivity - gave rise to different functional specialisation for agents, different

decisions and factors considered and different types of environmental uncertainties. This combination of observations led to the proposed modification of the original model to incorporate three separate, but interacting, landscapes corresponding with these three 'basic' value objectives. The remaining three value objectives – wealth, equity and inclusion – were all derived in some way from the basic three and so could be modelled as objectives pursued by agents that comprised multiple agents pursuing one or more of the basic value types.

These landscapes interact through information that is generated and used by agents on one landscape, but that also may be used by agents on another landscape in decision-making. The information in question consists of rules/norms that govern decision-making and performance outcomes achievable and is largely created by collectivity agents, through market information arising out of the interactions of utility agents, and through production information arising out of the activity of production agents. In section two, the level of uncertainty surrounding these three types of information was seen to be a key influence on the movement of agents giving rise to functional specialisation characteristics, information processing capabilities and organising mode choices. It was further proposed that uncertainty in relation to the information flowing between landscapes was of a sufficiently similar nature to rules in both provenance and effect to propose that uncertainty be treated as a type of institution affecting and affected by the behaviour of actors in organisational phenomena. Here we can observe the institutions of co-ordination in Irish housing as consisting of both actors and interactions, some of which are explicitly created by participants and others of which emerge over time as systemic features reflecting the normative and/or aggregate behaviours of agents. What is perhaps new to the body of literature developing on governance, is the role of uncertainty as an institution that can also affect the nature and degree of co-ordination among agents.

In addition to the discussion on uncertainty, four characteristics pertaining to agent movement were identified and defined in section two, namely value objective, legal status, functional sub-type and organising mode. Value objective determines on which landscape the agent moves, while legal status affects the choices that an agent can make on that landscape. Functional subtype also affects the range of choices open to the agent, but can vary over time as agents respond to different risk/return environments and/or changes in the complexity of the information environment. Finally, organising mode affects the 'distance' that an agent can travel in a given period by influencing the number of changes that may be considered/acted upon by the agent.

In the third section, additional characteristics affecting the performance of agents were identified, resulting in a total of four performance related characteristics arising from the case study: 1) information processing capability, 2) organising mode, 3) resource access/efficiency, and 4) a subjective fitness variable to capture the potential for private and non-profit sector agents to

evaluate their position on the landscape in unpredictable ways. In addition, it was observed that some agents, particularly private utility agents, will develop information processing capabilities that affect not only their own performance but that of other agents in the system through creation and dissemination of information. This section was necessarily short since the first two characteristics had already been covered in the preceding section and because the research scope did not include a detailed exploration of agent interpretation characteristics or quantitative relationships between resource access/efficiency and performance.

As was the case in the initial mapping between the selected NK model and public service systems in general (in Chapter Four), the mapping between the model and the empirical case resulted in several modifications to the model to accommodate the observed features of the Irish housing system. Most importantly, the characteristics of agents in the Irish housing system suggested the existence of three interacting landscapes; referred to as the Collectivity, Utility and Production landscapes. In the main, the interaction between landscapes consisted of *rules* created by agents in the Collectivity landscape and *uncertainty* created by the collective behaviour of agents in each of the landscapes. In addition, wealth can be transferred among agents in each of the landscapes as a key resource for agents to draw upon in pursuit of their various value objectives. This proposal for the creation of three interacting landscape represents a significant complication in the conceptual framework envisaged and, as discussed later in Chapter Seven, expands the scope of the research required exponentially.

Chapter Six: Describing Outcomes of the Irish Housing System

"The Council considers that, even though the overall system has displayed considerable dynamism, it remains unbalanced in some important respects: it does not meet all housing needs and has created a very uneven pattern of gains and losses for different groups of people." (NESC 2004: 92)

Introduction

In this chapter the findings regarding the outcomes of Irish housing are explored and mapped to the outcomes of the performance landscape model developed in Chapter Four. Specifically, two questions are answered in relation to Irish housing:

1) what outcomes influence agent behaviour, and are directly attributable to the agents' own actions?
2) what outcomes influence agent behaviour, and are the result of the actions of multiple agents (aggregate outcomes) or of the interactions and perceptions of agents (emergent outcomes)?

Each question is answered in a section of this chapter, with the conclusion that there exists a fitness function for organising agents in public services which captures the full range of outcomes that influence agent behaviour. This is a significant finding given the difficulties identified by organisational theorists over the years in relation to identifying these components (March & Simon 1958, Anderson 1999). Before launching into the details, however, it may be useful to provide a brief overview of housing in Ireland to provide a context for the analysis that follows.

Overview of housing in Ireland

Ireland is a small island country on the edge of Europe with a relatively low population density. At 56 people/km^2, it is second only to Finland in Europe in terms of low population density. The average density in Europe is 119 people/km^2. In terms of total population, it is also quite small with just under 4 million people. Only Luxembourg is smaller in total population size in Europe. Note that an additional 1.7 million people live in Northern Ireland – which is a separate jurisdiction and part of the United Kingdom.

Ireland is divided into four provinces (Ulster, Munster, Leinster and Connaught) of which one, Ulster, is mainly in Northern Ireland. Over half of the population lives in Leinster in the east of the country, which includes the 30% of the population that live in the capital city, Dublin, and its surrounding commuter belt. The vast majority of people (close to 80%) live in owner-occupied housing and Ireland has more people per household on average than the rest of Europe.

Until quite recently, the population in the Republic of Ireland could be described as quite homogenous both racially and in terms of religious orientation, with the vast majority of people being Irish-born and Catholic. Furthermore, up until the last 15 years, Ireland lagged behind most of Europe in terms of wealth and consumption. However, all of these characteristics have changed over the last decade or so, the most rapid change being in terms of wealth and income, as Ireland's economy expanded at a rapid pace and household incomes caught and surpassed the European averages by the turn of the 21st century. The racial and religious aspects of Irish society become slightly more heterogeneous due to immigration from Eastern Europe and Africa, as well as a significant decline in the influence of the Catholic Church. The extent to which these changes in wider society are significant, or are even predominantly contributing factors to the outcomes described herein is not a part of this analysis, although the question of which environmental factors agents consider to be relevant to their decision-making is addressed in Chapter Seven.

Agent-level outcomes - Performance

We may begin the discussion of outcomes that affect agent behaviour in Irish housing and which are attributable to agent behaviour by returning to the value objectives of agents. Furthermore, we will look for these outcomes under the headings of agent 'performance', 'productivity' and 'fitness' as defined in Chapter Four. As discussed in that chapter, 'performance' outcomes are defined by the agent's value objective(s), i.e. if an agent has a value objective of Utility, then the relevant performance outcome for that agent must be related to the level of Utility achieved. Recall, as well that there were three 'basic' types of value objective identified (production, utility, collectivity) and three additional types (inclusion, equity, wealth) were derived in one way or another from the three basic types. Two of the latter type (inclusion, equity) were identified as 'emergent' value objectives because they cannot be achieved or measured at the level of the individual agent but are, instead, systemic properties. Hence, these two derived value objectives are discussed in the section on systemic outcomes.

Wealth, the third derived value objective is both achievable and measurable at the agent level, but only to the extent that an agent is made up of more than one component agents – in other words, is a compound agent. An example is a firm that is made up of one (or more) production agents and participates in one (or more) utility agents. As such, wealth may be included as a potential agent-level outcome that influences agent behaviour. Therefore, the case study is explored to determine which of the potential four agent level value objectives of production, utility, collectivity and wealth are viewed by agents as performance outcomes that influence behaviour.

Performance outcomes - Production

Let us consider a simple example of a production agent in housing. A production agent, such as a housing co-operative, is formed by a group of people who have spare resources, including their time, to commit to organising to produce one or more dwellings. If all of the people working on the co-operative subsequently live in the dwelling(s) produced, then only production value has been created because there is/are one (or more) dwelling(s) that have been distributed across the participants which would not have existed without the organising initiative. A simple measure of production outcome is therefore the total units of housing produced by this activity. In Ireland, organisations across the spectrum of production types (private, non-profit and public) evaluate and report the outcome(s) of their organising activity in terms of the number of new dwellings produced and/or the number of dwellings under management (their housing 'stock'). In fact, as we shall see in the aggregate outcomes section of this chapter, the total of new dwellings produced in a year (by production agent type) and the housing stock (by housing 'tenure') has been a key measure reported on and responded to by Irish Government since before the creation of the Irish State.

Performance outcomes - Utility

Utility is rather more difficult to address as it is a measure of satisfaction arising out of the exchange of goods/services, for which there is no widely used measure in the Irish housing system. In economics, utility is often defined as some sort of wealth-based measure which compares the actual price of the goods/services purchased with what the purchaser *would* have been willing to pay. This is generally referred to as 'consumer surplus', but it is a measure that is used for developing economic theory rather than something that is actually measured due to the obvious difficulties in gathering accurate data on what people would be willing to pay for a given product/service.

However, a reasonable substitute for consumer surplus in housing might be a measure of the difference between what people pay for their housing and a 'base cost' considered to be an appropriate amount to pay for housing. In fact, this 'base cost' figure is already used by banks and building societies to determine what a borrower can afford to pay in mortgage repayments and is generally set at 20-30% of annual household income. Pfretzchner (1965), in his study of the Irish housing system, suggested the lower figure as a 'reasonable' amount to pay for housing, although he gives no indication as to why this figure was chosen. If one chooses the lower figure of 20% of household income as the 'base cost' for housing, then consumer surplus is significant in Ireland as the majority of households pay significantly less than this with the 2002 average being 12.7% - far less other countries in the EU. We will return to this point in the aggregate outcomes discussion

and simply note here that a viable measure of approximate consumer surplus is available, supported in theory and practice, and collected/reported routinely by government and other statistical information sources.

However, this measure only covers the utility that accrues to the owner/renter of a dwelling. Clearly there must be value that accrues to the seller/landlord, or they would not enter into the transaction in the first place. In fact, it is on this aspect of utility that economics, in particular micro-economics, tends to focus, with the raft of calculations and theories relating to supply and demand, rents, marginal cost and marginal price, economies of scale and so forth. Management and investment theory, as well, has lots to say about the topic of value that arises from sales and/or rental of assets with the basic maxim, "buy low, sell high" expressing the essence of value creation. Here, of course, we are talking about wealth creation that is achieved through entering into a series of utility transactions – two at a minimum – which may have little or nothing to do with the actual goods/services that are exchanged, but is simply aimed at increasing the overall wealth of the sellers/landlords. As such, the value created (or destroyed in the case of losses) is solely wealth and may be measured by any of the myriad calculations of profit used by real estate investors and dwelling producers.

Lastly, we return to the question of satisfaction or desire fulfilment that, after all, formed the original definition of utility. Economists recognised early on that this was a difficult challenge, with Marshall (1920) explicitly stating, "it cannot be too much insisted that to measure directly, or *per se*, either desires or the satisfaction which results from their fulfilment is impossible, if not inconceivable" (c.f. Read 2004: 2). Nevertheless, there has been a resurgent interest in the concept of utility as it was originally conceived of, as may be represented by the work of Daniel Kahneman, an American psychologist who was the recipient of the 2002 Nobel prize in Economics for his work on 'prospect theory' (Kahneman 1999, Kahneman & Tversky 2000). It is not prospect theory, but rather Kahneman's concept of 'experienced utility' (Kahneman et al.1997) which is relevant to the discussion of satisfaction, however. Experienced utility is a measure of the degree of pleasure/pain experienced by an individual over a period which may be associated with a given instance of activity. It is based on a concept of 'instant utility' which is the level of pleasure/pain experienced by a person at a given moment in time. Instant utility has a quantity and a valence which may be integrated over the period of the focal activity to give a value for total experienced utility (Read 2004). To apply the concept of experienced utility to housing, if a person's level of pleasure/pain arising from their housing could be measured periodically over a given period (say a year), then this could be translated into a measure of total experienced utility. Various studies have been conducted by Kahneman and others focusing on simple events and sources of pleasure/pain (such as immersing a person's hand in cold water – Kahneman et

al.1993), which could serve as models for other, more complicated empirical studies of experienced utility.

Leaving aside for the moment the significant challenges that measuring pleasure/pain levels presents, never mind the difficulties in ascribing these measures to housing consumption, such a measure is conceivable and even possible (with willing subjects, a lot of time and patient researchers). In fact, satisfaction with various aspects of housing is routinely measured by the Irish government, the most recent example of which may be found in Watson & Williams (2003). The measures outlined in that report do not provide sufficient detail to calculate experienced utility, but the first steps towards such a measure have already been taken in that the concept of satisfaction as a measurable quantity has already been accepted, and the resources and infrastructure required to collect such measures are already in place.

Performance outcomes - Collectivity

Measures of collectivity are even thinner on the ground than those available for utility, not least because the value objective is not recognised by economists and is considered a process and/or stage within group dynamics in management theory (Lewin 1948, Schutz 1958, Tuckman 1965). Political scientists and sociologists, are much more likely to recognise the concept of collectivity as the degree to which a group of people – or a society – can agree on one or more issues that impact on all or a significant proportion of the group/society. However, aside from polls seeking to measure the electorate's level of satisfaction with government, a political party and/or its leadership, and 'satisfaction' surveys of members conducted by industry associations, there was no indication of specific outcome measures that were used by Irish housing agents engaged in collectivity-related organising to guide decision-making. Feedback as to how well the agent was accomplishing its value objective was embodied in the process of election (or appointment) of participants in the agent to 'represent' the interests of constituents. In essence, the outcome measure used by participants in a collectivity agent to guide their movement on the performance landscape is the perceived likelihood of the current participants in the agent being elected/appointed again. Of course, any political scientist would recognise this as the driving force for political decision-making, but it presents a rather significant challenge to the modelling of collectivity agent behaviour under the proposed CAS framework. This is because the connection between agent decision-making and the focal outcome is highly influenced by the dynamics of voting behaviour, which is not easily incorporated into the CAS performance landscape model proposed.

What could be incorporated into the model are measures of the degree to which constituents in a given agent agree/disagree with the 'rules' (policies) established by the agent and/or measures of the level of satisfaction/dissatisfaction in society with the systems aggregate or emergent

outcomes. This would make the modelling of collectivity agent behaviour using a performance landscape framework feasible by linking agent activity with measurable performance outcomes directly. If one makes the rather sweeping assumption that agreement with policies and/or satisfaction with outcomes are powerful influences on individual voting behaviour, then measures of satisfaction and agreement could be used as proxy measures for the likelihood of incumbent representatives or appointees being returned to their respective offices. But the caveat remains that the case study suggests that collectivity agents' behaviour as a function of outcomes achieved is not easily fit into the proposed CAS performance landscape model.

Performance outcomes – Wealth

Which brings us, finally, to the last performance outcome based on agent value objectives, namely wealth. As noted above, wealth as a value objective must be linked to one or more of the three primary value objectives, but is nevertheless a separately measured outcome. Furthermore, wealth may be the most important value objective of an organising agent, relegating the underlying utility, production or collectivity value objective to a supporting role in the organising activity. Finally, wealth impacts cannot be measured without linking together several component agents, which makes it additionally complicated. Profit has been mentioned several times as a measure of wealth creation and, not surprisingly, this outcome measure was mentioned by every interviewee from the private sector. To generate profits requires that an agent engages in at least one purchase and one sale transaction and, in most cases, production activity as well, an interaction among agents that was identified in the previous chapter at some length. Measuring profit is, at its most basic, the simple subtraction of costs from sale price received, however this calculation may be complicated significantly depending upon the nature of the underlying utility and production activities.

While the concept of profit as a measure of wealth creation is rather simple, its measurement is somewhat complicated by the fact that it is necessary to link several agents together to calculate a relevant measure, that its measurement is highly subject to accounting rules that apply in the given industry and the fact that, for some agents, it is measured over an arbitrarily selected time period – generally a year (or more specifically a 'fiscal' year). Nevertheless, many CAS models use profit as their outcome measure, ignoring these complications (or assuming them away).

What of the other type of wealth identified in the previous chapter. i.e., that of the wages paid to participants in production and collectivity agents? In micro-economics this is generally treated as a variable affecting the calculation of profits, but this ignores the importance attached to employment and wage levels in certain sectors. Employment and wages in the construction industry are closely monitored by the Irish government, not to mention the Construction Industry

Federation and SIPTU (Services, Industrial, Professional and Technical Union). The creation of wealth (income) for participants (employees) as an 'outcome' of production agents is clearly an important measure for policy-makers and industry and labour associations. However, this measurement did not feature in the decision-making of the agents responsible for actually creating this value in the first place, since interviewees from the public, private and non-profit production agents in the Irish housing system rarely mentioned the provision of incomes for employees as affecting their strategic decision-making. Hence, this measure belongs in the list of aggregate agent performance measures arising from the activity of one type of agent, i.e., production agents, with an impact on the behaviour of a different type of agents, i.e., collectivity agents.

Finally, there is the wealth impact on renters of dwellings which may be measured on its own (as a negative wealth impact), or maybe included as part of the proxy consumer surplus measure described above.

To conclude, there were three performance outcome measures identified by interviewees as having an impact on their decision-making which could be related to a value objective: 1) new dwellings produced (production), 2) dwellings maintained/managed (production) and 3) profit (wealth). In addition to these, four additional measures of performance outcomes have been proposed to address the remaining value objectives: 1) consumer surplus against a 'base cost' (utility), 2) 'experienced' utility (utility), 3) degree to which constituents agree with policies/rules (collectivity), 4) degree to which individuals are satisfied with systems outcomes (collectivity).

It is interesting to note that measures related to production and wealth creation already exist in the Irish system, while those related to utility and collectivity require further research and development. This suggests that management and economics have a stronger foothold in the outcome measurement aspect of organisational systems than do political science and sociology – an observation that is likely to apply in many housing systems across the world. In spite of the lack of official measurements, however, it is the case that organisational agents in the Irish housing system that pursue one (or more) of these value objectives evaluate the results of their organising activity in terms of these objectives. Industry associations regularly poll their members to determine their views and the degree to which there is consensus around relevant policies. Politicians do the same with their constituents. Renters, homeowners and landlords consult newspapers and websites to check on movements in the price and quality of available dwellings. This behaviour suggests that collectivity and utility outcomes are evaluated by agents, even if they are not available using system-wide standard measures. Hence, these outcomes, along with the more widely available outcomes of production and wealth, must be included in any model of agent behaviour and relevant measures developed.

Agent-level outcomes - Productivity

We may now move onto productivity outcomes, which were identified in Chapter Four as potentially important agent-level outcomes. Productivity outcomes were defined as "the ratio of agent performance result achieved to the resources required to achieve the result." However, not all resources matter to agent decision-making, as only those resources that are scarce require attention in regard to the productivity of the agent. For example, one can imagine any number of resources that go into producing a dwelling, but very few interviewees were concerned about the number of trees or the amount of cement used. Productivity only becomes an issue when the resource being used is in such short supply that its availability is uncertain, or when the cost of the particular resource forms a large proportion of the overall cost of the production output. Hence, we can restrict the search for productivity measures to those which incorporate measures of resources considered by interviewees to be scarce.

The resource considered 'scarce' by a majority of interviewees in the Irish housing system was capital. This was particularly true in the non-profit and public sectors, but also showed up in the private utility and collectivity agents. In fact, the only interviewees that did not refer to capital as a scarce resource were those from private production agents. Capital appeared not to be an issue for private developers and builders because the Irish economy was booming, the demand for housing was high and house prices were skyrocketing. Having noted this fact, interviewees from these types of agents (e.g., developers, builders, architects, etc.) mentioned profit *margins* at least as often as they mentioned profits as an important outcome that influenced future decision-making. Since profit margin is simply the ratio of profit over the production cost, this is, in fact, a measure of the productivity of capital in relation to wealth outcomes, even though the interviewees did not suggest explicitly that capital was a scarce resource. So we may put **profit margins** as the first example of productivity outcomes driving decision-making in housing, and define them as the ratio of wealth outcome over cost of production:

(1) Productivity (profit margin) outcome (PM_X) = $Wealth_X$ / $Cost_X$

Production agents from the public and non-profit sectors, i.e., housing associations and local authorities, made explicit their concerns about capital resources and, for them, the ratio of dwellings produced to the total cost of producing them was critical. This suggests a second productivity measure which may be stated as:

(2) Productivity (Cost) outcome (PAC_X) = $Production_X$ / $Cost_X$

While this measure appears to be as straightforward as the profit margin calculation, it presents significantly more difficulties in practice. The first problem is determining comparable production units across agents and the second is calculating (and allocating) costs to particular production units. To give a sense of the complications involved, a production unit in housing can be anything from a hostel bed-space to a sprawling mansion, while costs may be spread out over time (as in the case of dwelling maintenance) or across units (as in the case of administrative costs for a construction company). Furthermore, there are ongoing debates about how to treat the environmental costs of particular housing designs/technologies including waste, CO_2 emissions, energy consumption, etc..

In spite of the complications, benchmarks exist in the Irish housing system for 'average' cost/dwelling. In relation to production, there are cost limits established by the Department of the Environment, Heritage and Local Government (DEHLG) for 'social' housing construction (public and non-profit) which vary depending upon the size of the house (e.g., 1 bedroom, 2 bedroom etc.) and the location (urban, town, rural). Presumably, the latter characteristic is meant to capture the cost of land, while the former addresses the building cost. There are indices published by the Department, as well, for land prices and building costs in the market which could be used to calculate average cost changes over time. As far as measures for production units go, the aforementioned 'bedroom' measure is widely used in both public and private sector statistics – i.e., the number of bedrooms in a dwelling as an indicator of its size. However, there are no obvious candidates for metrics indicating quality of construction, fittings, design, etc., which is a problem, particularly in the private sector. It appears to be clear that a productivity measurement that compares dwelling units to production cost, while possible to construct, would need to be tailored to individual production agents' needs for it to work as a feedback mechanism, while at the same time would need to be standardised across all agents to function as an aggregate systems measure. What might be simpler, in theory, would be to assign a shadow price to the dwellings produced and then construct a measure of productivity for the public and non-profit sectors that is quantitatively similar to profit margin for the private sector. The difficulty with this measure is that it would be subject to the variability in prices arising from utility transactions and hence would be subject to fluctuations unrelated to the production levels achieved.

After capital, **labour** was the next most frequently identified scarce resource. This was the case for a majority of private sector and non-profit interviewees, but was less of an issue for the public sector. Leaving the discussion of why perceptions of scarcity might differ across sectors to Chapter Seven, we will simply note here that labour is clearly a resource that a range of interviewees consider to be scarce and so a measure of productivity should be constructed that compares production output to labour required. Of course, the same issues apply to the measurement of production units as described above, but the measurement of labour units has long

been a feature of government statistical reports in Ireland. Furthermore, 'productivity' of the construction sector overall in terms of contribution to GNP over total labour hours is a measure that is reported by country in OECD reports on an annual basis. Note, however, that these measures tend to use a market-based measure of production, i.e., the value of the dwellings produced on the market. This complicates the model somewhat, as the value of dwellings produced is a function of the number of dwellings produced for sale and the sale price achieved. Hence it incorporates outcomes from production and utility agents, and is also influenced by the proportion of dwellings that are designated as social housing – which is influenced by collectivity agents. In order to simplify the measure conceptually, if not its measurement in actuality, a better measure for productivity of labour in the proposed performance landscape model is:

(3) Productivity (labour) outcome (PL_X) = $Production_X$ / $Labour\ Hours_X$

Clearly capital and labour are key resources to agents involved in production and wealth creation. Surprisingly, land was mentioned by fewer than 20% of interviewees as a critical scarce resource, in spite of the media attention over the period of the research on the crisis in land availability. The issue was concentrated in the Dublin local authorities (public sector) and, even in this group, was mentioned by only 30% of interviewees. It would appear that, in Ireland at least, land scarcity is not yet a significant decision-making issue, except for a small minority of agents operating in a constrained geographical area and having no access to wealth-creating utility transactions to facilitate land purchase.

These three productivity measures (profit margin, cost, labour) were the only ones mentioned by interviewees as outcomes that influenced decision-making. However, we know from transaction cost economics (Williamson 1985) that exchange transactions aimed at the creation of utility also incur 'transaction costs' and, as these costs increase, fewer transactions will occur. This suggests that there is a feedback process that applies to utility agents that has to do with the evaluation of utility vs. the cost of achieving that utility. Therefore it might be useful to construct a measure of 'productivity' for utility agents consisting of the ratio of one or the other measures of utility (consumer surplus or experienced utility) over the total transaction cost associated with the utility created, e.g.,

(4) Productivity (transaction costs) outcome (PTC_X) = $Utility_X$ / $Transaction\ Costs_X$

Note that in the transaction cost literature there is no distinction made between the time required to accomplish a transaction and the cost of accomplishing the same transaction. Time (to search for the best price/quality opportunity, negotiate contracts or secure financing) is incorporated into the cost calculation and so the two resources of cost and time are considered to be equivalent.

However, in relation to collectivity agents, it is not cost that is the resource against which outcomes are measured, but time. In research conducted for a separate project on urban regeneration (Rhodes & Murray 2007), there were indications that the time required to reach agreement was a resource that individuals participating in a collectivity agent believed to be precious, if not precisely scarce. Assuming this is the case in housing, an interesting measure of productivity might be the percentage of participants who agree on a given policy (or a rule) over the time taken to reach this agreement, e.g.;

(5) Productivity (elapsed time) outcome (PET_X) = Percentage of Participants in Agreement$_X$ / Time Required to Reach Agreement$_X$

Intuitively, this could provide some insight into the time required to achieve one additional "unit of agreement", which may be of interest to policy-makers as well as to industry/labour association leaders.

Hence we may conclude that measures of productivity for the four agent-level value objectives (production, utility, collectivity and wealth) may be constructed as ratios of the performance outcome quantity achieved over one (or both) of the cost or time required to achieve this quantity of outcome. In the Irish system, the main productivity measures identified were related to production and wealth outcomes, but productivity measures for utility and collectivity are certainly conceivable and may indeed contribute to understanding agent behaviour that cannot be explained by models that exclude these outcomes.

Agent-level outcomes - Fitness

Now that we have proposed specific measures for performance and productivity outcomes, we can proceed to the identification of thresholds that apply in the determination of agent fitness in Irish housing. Recall that a fitness threshold is the level of performance/productivity below which the agent cannot survive. In biological systems, the agent dies, while in organisational systems the implication is that the participants in the agent choose to stop engaging in the organising behaviour that created the organising agent in the first place. In previous chapters, three types of fitness thresholds were identified: 'subjective', 'institutional' and 'environmental'. Subjective thresholds are ones that pertain to a particular agent according to the whims of the participants. Institutional thresholds are those that are established as rules for survival by groups of agents interacting over time. Environmental thresholds are those that are 'imposed' upon the agent by conditions in the environment such as political, economic, social or technological factors.

An example of a subjective threshold was provided in Chapter Five in the discussion of agent characteristics which was the proposed 'random exit' agent characteristic that would cause the agent to dissolve for reasons unrelated to performance/productivity outcomes. This proposal was based on the reports from interviewees of decisions to dissolve a (private) organising agent for a variety of reasons including family disputes, lack of interest from volunteers, the death or retirement of key partners, etc..

This observation raises the possibility of fitness thresholds relating to *individual participation* in an organising agent. In the most limiting case, where there are no people willing or able to participate in an agent, it is impossible for one to form or to continue. If the value produced by an existing agent is so low that participating is considered a waste of time by people with spare time and ability, then it will quickly die as people leave the organisation and are not replaced. This is particularly noticeable in non-profit/voluntary organising agents in which people have no financial incentive to remain, although it may also be observed in the private sector where incentives to participate are deemed insufficient. A simple equation to capture this dynamic as a constraint on organising would be:

(6) $HP_X > HP_{min}$, where:

HP_X is the number of human participants in agent X, and
HP_{min} is the minimum number of human participants required.

In the above formula, HP_{min} could be defined for each agent with a general minimum of two persons across all agents in the system by definition.

The question of participant involvement and its impact on agent fitness for survival also brings up the conundrum observed by Meyer and Zucker (1989) and Anheier (1999). Marshall Meyer's and Lynne Zucker's (1989)[36] discussion of 'permanently failing organizations' provided detailed examples of four organisations (and many more less detailed examples) that were clearly failing in comparison to other similar organisations, using various measures of success including profitability (of a newspaper and a meat-packing plant), numbers of customers (in a school system) and/or productivity of workers (in the steel industry). These organisations continued to exist in spite of the fact that it was clearly more advantageous to the 'owners' of the organisations either to close down or to redeploy their resources into different endeavours. What Meyer and Zucker proposed in their *"theory of permanent failure"* was that organisations with low relative performance will 'persist' (continue to exist) under conditions in which: a) other stakeholders in the organisation (organisational 'dependants') are able to thwart the prerogatives of the owners to

[36] A discussion and analysis that continued in their separate contributions to Anheier (1999)

redeploy resources or b) the interests of the owners diverge to such an extent that they can neither agree to close the firm nor agree on how to improve organisational performance. In Marshall and Zucker's analysis we can observe the power of subjective fitness over environmental fitness and also see evidence of how an organisational agent can persist in spite of - or even because of – the lack of alignment of the goals of organising participants. Given the above, it would appear that participation levels may act either to dissolve an agent in spite of performance fitness, or to cause an agent to persist in spite of performance failure – making participation levels a powerful organising dynamic indeed.

Average profit margins were found to be an important institutional threshold, particularly for agents involved in the production sub-types of housing development and maintenance/rental (landlords). Interviewees from these types of agents repeatedly referred to the "industry margins" as factors that would cause them either to enter into or exit from the system. While average margins are widely estimated by banks and estate agents in the housing rental market, there is no reliable source of information on average margins in housing development in Ireland, so it is difficult to imagine an objective or even shared perspective on average profit margins in development. Therefore this threshold, while consistent with the conceptual definition of institutional thresholds, is rather closer to a subjective threshold in practice. Whether institutional or subjective, however, the average profit margin threshold may be expressed as:

(7) $PM_X > IPM_{avg}$, where:

PM_X is the profit margin for X, and
IPM_{avg} is the (perceived) average profit margin for agents in the same industry.

In terms of environmental thresholds, only those related to wealth outcomes appeared to have any impact on agent formation or dissolution. Production agents appeared to be able to operate at very low levels of outputs: there were builders/developers operating at zero output in a given year, a majority of private landlords own two or fewer dwellings, and the majority of non-profit organisations managed fewer than 10 dwellings (Mullins et al.2003) in spite of suggestions that these levels were far below sustainable minimum scale (Brooke 2001). Even more surprising was the lack of observable or reported thresholds in terms of productivity, which contradicts the generally assumed impact of competition on private firms. The lack of productivity thresholds in the case may have been due to the unusually robust levels of demand in the marketplace, but it was also a feature of the public and non-profit sectors. This is not to say that interviewees had no concerns about productivity, but rather that these concerns did not translate into reasons to discontinue organising. Changing suppliers, firing/training/hiring staff, choosing different locations – these were all considered as ways to improve productivity outcomes, but not one

interviewee suggested that if productivity were not improved then they would be out of business. Utility and collectivity were also not mentioned in terms of fitness, but this was unsurprising as measures for these outcomes were few and far between.

Which brings us back to wealth and its role as an environmental threshold. The ever present measure of 'profit' – and its related public/non-profit sector measure, 'funding level' – were the only reported environmental fitness thresholds in the interviews conducted. Agents in the development and banking sectors were particularly sensitive to profit levels with failure to meet these resulting in dissolution and/or merger/acquisition by a competitor. Funding level refers to the amount of money required for a public or non-profit sector agent to continue in operation, net of the funds that it can generate from its own organising activities. Funding level is similar to profit as it is equal to the income the organisation receives less the costs it incurs, but, unlike in the private sector, the result is usually a negative number (the reciprocal of which is defined as the 'funding level'). The survival of all agents receiving public funding is dependent upon the continued receipt of funds at or above its minimum funding level.

This observation about the primacy of profit (or funding level) in establishing environmental fitness thresholds was not unexpected, however, the data in the case suggested that profit/funding as a fitness threshold required some enhancement to work more generally across all agents. Profit/funding level, while critical to some agents, did not impact on all agents equally. There were examples of private construction and professional firms and landlords that operated at a loss for years, and non-profit/public organisations rarely closed because they cost more than others to operate. The more salient threshold was the impact of the profit/funding level achieved in a given period on the resources available to finance the organising activity of the agent in the next period – or *total owner wealth*. For example, if a construction company incurred losses in one year, this did not necessarily mean that it would go out of business. This depended more on the resources available to the owners of the firm and their projections of future profits. The same basic logic applies to the public/private sector in terms of funding levels, with the constraint being the resources available to the public sector agent (i.e., tax revenues). This being the case, the fitness threshold relating to wealth could be stated as:

(8) $\mathbf{WO_X + \Phi_X > WO_{min}}$**, where:**

$\mathbf{WO_X}$ is the total wealth resources available to the owners (or funders) of X,

$\mathbf{\Phi_X}$ is the profit/funding level of agent X (expressed as a negative number for funding levels and losses), and

$\mathbf{WO_{min}}$ is the minimum level of resources that owners can tolerate before dissolving the agent.

So we may conclude this discussion of fitness thresholds in the Irish housing system as consisting of:

1) *Individual participation* (HP_{min}): the minimum level of human participants required to sustain the organising initiative (*subjective at levels above 2*)
2) *Average profit margin* in industry (IPM_{avg}): average level of profit across agents in an industry (*institutional*)
3) *Total owner wealth* (WO_{min}): the minimum sustainable wealth level of owners/funders (*environmental – according to the wealth of the owners / funders*)

Systemic (aggregate / emergent) outcome measures

In this section, systemic outcomes influencing agent decisions are identified using the interview data in conjunction with existing literature on housing policy and performance[37]. Furthermore, recent measures of these outcomes are presented in comparison to both EU average figures and a selection of comparator countries to give the reader a sense of the relative outcome 'performance' of the Irish housing system. Three countries were chosen as comparator countries; Portugal, the UK and Finland. Portugal was similar to Ireland in its economic standing in the EU initially and it is instructive to compare Ireland to Portugal, as both countries were recipients of significant funding support from the EU over the latter two decades of the 20th Century. Both countries have a long history of involvement by the Catholic Church in the religious, political and community spheres, making the socio-cultural context more similar between these two countries than among others in the EU. Although quite different in terms of size, history and population, there are many cultural similarities between Ireland and the UK, due to England's influence on the culture, public service ethos and economy of Ireland arising from centuries of colonisation and, after 1922, close economic and cultural ties. Finally, Finland is of similar size to Ireland, but with quite different economic, social and political characteristics.

Based on the interviews and related literature, there appear to be five types of systems level outcomes that affect agent decision-making and/or are deemed relevant measures for housing policy analyses in Ireland. These are: 1) amount of housing, 2) type and quality, 3) price, 4) economic contribution and 5) accessibility. Each of these is discussed in turn and compared to the agent level outcomes identified in previous sections to discover whether these outcomes are aggregates of agent level outcomes or more 'emergent' outcomes arising from interactions and/or agent perceptions of 'problems' that need to be fixed through organising behaviour.

[37] See Pfretzchner 1965, Baker & O'Brien 1979, Blackwell 1988, Norris & Winston 2004, NESC 2004

Amount of housing in the Irish system

The first systems level measure of housing outcomes identified by both interviewees and the literature consulted was the total amount of housing provided. This is generally divided into measures of the existing stock and measures of additions to the housing stock. A recent estimate of housing stock put the number of houses at 1,554,000 in 2003 (Norris & Shiels 2004), with housing production figures at around 80,000 each year from 2004-2006. However, this figure is difficult to compare against other states and so housing stock is often presented relative to the number of persons in the country or the size in terms of landmass (housing density). As noted in the introduction to this chapter, Ireland has a relatively low density of housing as well as a low level of dwellings per person compared to the rest of Europe. Ireland is well below the European average in number of houses per inhabitant, and well above the average in persons per household (see Table 1). Recent analyses (Norris & Winston 2004, NESC 2004, Ball 2005) suggest that these figures reflecting unmet housing demand and the rate of price increases over the last several years would support this contention. It seems clear that there is room for expansion of the housing stock in Ireland both in terms of land availability and human habitation requirements.

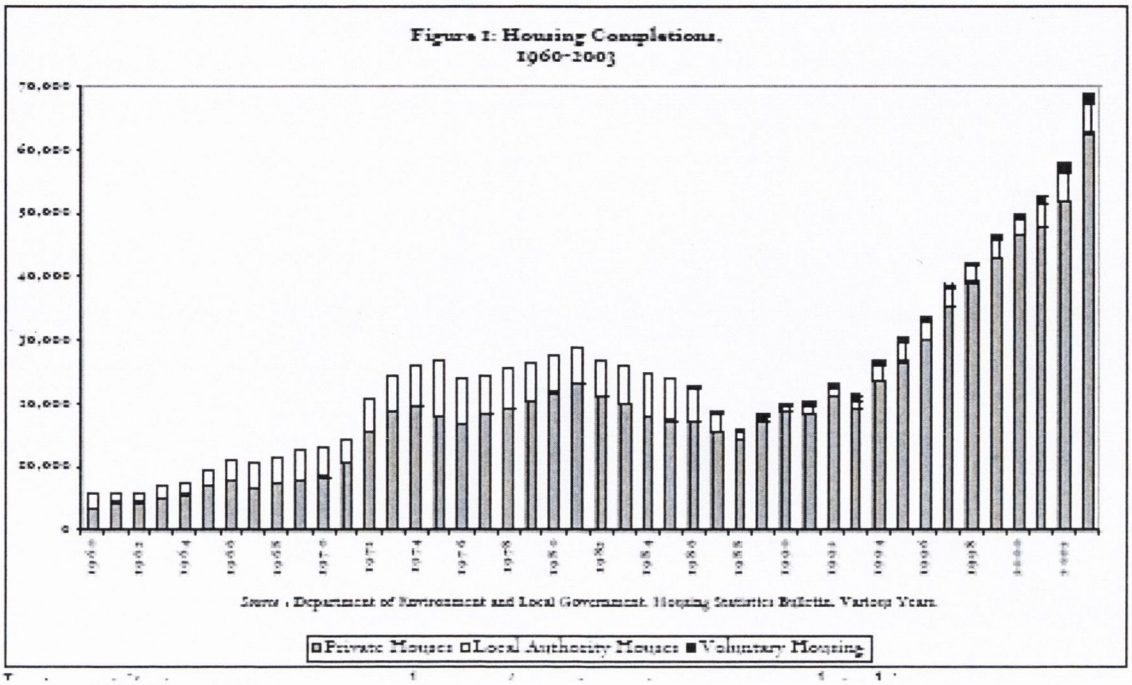
Table 6.1: Housing in relation to number of people (2002)[38]

	Ireland	**EU Avg**	**UK**	**Portugal**	**Finland**
Houses per 1,000 inhabitants	**330**	422	417	482	494
Average number of persons per household	**2.94**	2.6	2.4	2.8	2.3

While still low in comparison to Europe, it must be noted that the figures for dwellings per person are the result of significant and sustained increases in housing output over the past decade, without commensurate increases in household formation. Housing output in Ireland has reached record levels in each of the past 10 years (see Figure 6.1) and the output per person has been the highest in Europe for several of those. Average household size has dropped significantly from 3.94 in 1971 to 2.94 in 2002 and houses per 1,000 inhabitants has shown a similar change.

[38] Source Norris & Winston (2004)

Figure 6.1: Housing Completions



Source: O'Sullivan 2004

Two other measures are occasionally used when reporting aggregate production outcomes of housing systems; the number of vacant houses and the number of second homes. These figures are used to 'adjust' housing stock outcomes to reflect the number of dwellings that are occupied full-time by households. In Ireland, vacancies (not including second homes) were almost insignificant over the period in which this research was conducted (Norris & Sheils 2004), however second homes were a significant factor in housing stock. In fact, the building of second homes has been a major component of the increase in house building in Ireland with the National Economic and Social Council (NESC) estimating that 50% of all new dwellings built between 1998-2003 were second homes. The housing stock figure for 2003 of 1.5m is estimated to include approximately 230,000 second homes[39], or 15% of the total housing stock. This level is consistent with the percentages of second homes found in holiday destinations in Europe such as Greece and Spain, as well as countries with long coastlines such as Finland (Ball 2005).

These systems level outcomes are easily identified as aggregates of the production agent outcomes discussed earlier. Developers, builders and the related functional areas of local authorities and housing associations are engaged in the production of new housing, while owner-occupiers, private landlords and social landlords are engaged in maintaining the existing housing stock. These aggregate production outcomes are of interest to political and industry association agents and are factors that influence policy-making over time.

[39] Calculated as follows: Total stock in 2003 – (total households in 2002 census + (50% * new private sector build in 2003)). The estimate of new houses in 2003 that were 2nd homes was found in NESC 2004, p.35.

Furthermore, the calculation of this systemic outcome makes clear the fact that owner-occupiers are major contributors to aggregate production outcomes in that they, too, are engaged in the maintenance of housing stock. This raises the question whether or not owner-occupiers should be considered 'organising agents' in the housing system, given that they contribute to the reported systems outcome, without (normally) being included in the list of housing 'producers'. The answer to this question is a resounding 'yes', as home-owners must continually engage in organising activity to maintain their homes (production value) and preserve/enhance their satisfaction with housing (utility value). It is rare, however, that owner-occupation is viewed as a production activity (though Blackwell 1988 is an exception to this rule), more often owner-occupation is measured as 'type' of housing tenure that contributes to utility – which brings us to the next systems outcome identified.

Type/quality of housing

Watson & Williams (2003) suggested that Irish residents' perceptions of housing quality and satisfaction are statistically related to three variables: tenure, dwelling age and location, with tenure being the most correlated with varying perceptions of quality. 'Tenure' is by far the most prevalent systemic measure reported in Ireland and throughout the EU, and is most closely identified with aggregate utility. Tenure measures are usually expressed as the percentage of households in each tenure 'type' – generally broken down into: owner-occupation, private rented and social housing. Policy in Ireland is perceived to have targeted high levels of owner-occupation (Norris & Winston 2004). In fact, up until very recently, the mission statement of the Department of the Environment, Housing and Local Government included owner occupation as an objective.[40] Unsurprisingly, Ireland has a high percentage of owner-occupied housing, but it is by no means unusually high for Europe, although it is higher than average. Based on the fact that it is an outcome specifically targeted by policy, it may be concluded that tenure is an important measure of aggregate utility which policy-makers have been relatively successful at influencing. Table 6.2 provides comparisons to the EU and the selected countries.

[40] The current mission statement of the DEHLG includes the statement "to enable every household to have available an affordable dwelling of good quality suited to its needs, in a good environment and, as far as possible, at the tenure of their choice", however earlier versions explicitly referred to facilitating owner occupation (Blackwell 1988)

Table 6.2: Tenure of households in selected EU countries[41]

Tenure (date of data)	Ireland (2002)	EU Avg (na)	UK (2001)	Portugal (2001)	Finland (1999)
Owner-occupied	**77.4**	69	69	75.7	58
Private rented	**11.1**	17	9.3	21	17
Social Housing	**8.9***	10.1	20.8	3.3	17
All other	**2.6***	7.2	0	0	1

* These figures have been adjusted from the original source to move non-profit housing from 'all other' into 'social housing' for consistency with other figures. The remaining 2.6 % of 'all other' includes 1.7% occupied rent-free and 0.9% not stated in the census data.

Dwelling size is also a measure that is reported widely and contributes to satisfaction, but appears to be less important for Irish policy-makers, at least not in the last few decades. While size was not mentioned by interviewees, over 90% of the Irish housing stock is in single family homes, either detached, semi-detached or small terraced dwellings – a proportion that is significantly greater than comparator countries and the EU as a whole (see Table 6.3). Furthermore, Ireland reported the second highest figure in all of Europe for average number of rooms per dwelling (5.2) vs. an average in Europe of 3.6 (Norris & Shiels 2004). Size, like tenure, is also easily measured at the individual agent level and so is a good candidate for linking together agent level (utility) outcomes with systems outcomes.

Table 6.3: Dwelling types (Mean % 94-97): Ireland, EU and selected countries [42]

Dwelling Types	Ireland	EU Avg	UK	Portugal	Finland
Detached, semi-detached	**51%**	34.9	22.5	51.1	47.2
Small terraced	**42.9**	26.6	58.8	26.7	17.6
Apartment complex	**2.3**	15.8	11.3	13.8	2.4
Large Apt. complex	**0.9**	17.9	3.9	4.9	30.0

[41] Source: Norris & Shiels (2004)
[42] Source: Norris & Winston (2004)

Average dwelling age and location were identified by Watson & Williams (2003) and so these, too, could be considered as potential measures of housing utility. However, neither of these receives anything near the attention in policy literature or government policy programmes that tenure does. Average dwelling age is measured, with Norris & Shiels (2004) reporting that Ireland has a relatively 'younger' housing stock with 25% of all dwellings built after 1990, compared to an average figure of 8% across Europe. In addition to contributing to household satisfaction, average age is a measure used by planners and housing construction analysts to anticipate future requirements and so is a good candidate for a systems level measure that has impact on policy and agent decision-making.

In addition, reference to the aggregate average location of dwellings, in terms of rural vs. urban locations, is found in the planning literature and there is certainly attention paid by purchasers and renters of a dwelling on its location. But the findings are mixed in Watson & Williams as to the way rural vs. urban locations impact on satisfaction. Satisfaction with access to services tends to be higher in urban locations, while satisfaction with size and community features is higher in rural locations. Therefore, it is probably more appropriate to consider access to services, dwelling size and community characteristics as the underlying features that contribute to utility levels, rather than the location itself. However, access to services and community characteristics are problematic in terms of defining what is meant by these terms and measuring their occurrence. Some work has been done on this in Northern Ireland around indices of deprivation (Tomlinson & Kelly 2002) in communities, but these are not used in the Republic.

Finally, although not identified as correlated with satisfaction by Watson & Williams (2003), a number of other features of dwellings are regularly reported in government housing reports as contributing to the overall 'quality' of housing. Statistics on the availability of hot running water, indoor toilets, measured level of dampness, etc. are regularly reported in Ireland and Europe as shown in Table 6.4 below. Furthermore, these are assumed to be associated with satisfaction and, except for measure of "objective over-crowding" [43], appear to be so in Ireland for the figures shown.

[43] Defined as the number of households in which people outnumber rooms

Table 6.4: Quality measures (Mean % 94-97): Ireland, EU and selected countries[44]

Various Quality measures (%)	Ireland	EU Avg	UK	Portugal	Finland
Housing dis-satisfaction	**5.9**	6.4	6.8	11.3	3.5
No hot running water	**4.0**	8.7	0.2	22.6	1.8
Damp	**9.6**	12.6	13.0	33.4	3.8
Objective over-crowding	**14.8**	9.2	5.2	19.9	13.3
No Flush toilets	**2.0**	11.8	n/a	11.2	4.0

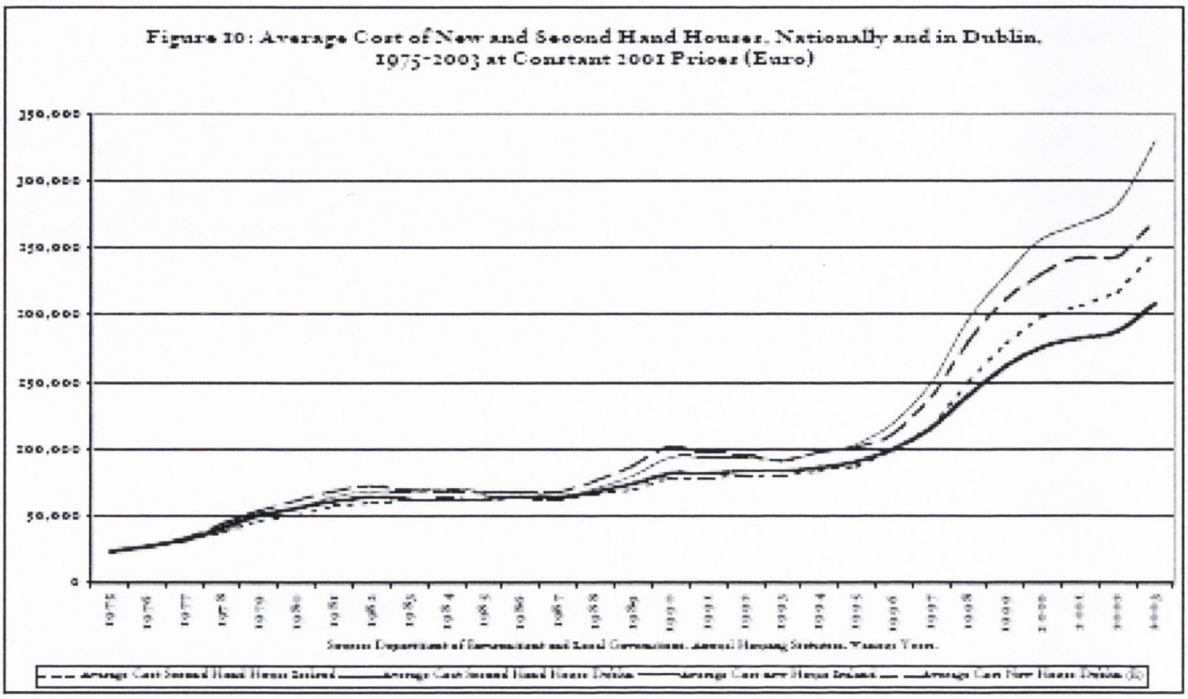
Of the range of possible systemic measures discussed above, tenure appears to be the most important measure of aggregate utility in Ireland, influencing policy makers to such an extent that it is included in the DEHLG's mission statement. Dwelling age, size and location are also measures that may be aggregated from the characteristics of the dwellings produced and maintained by agents in the housing system and the literature suggests that these measures may also be considered as proxy measures for satisfaction – or utility – which is useful, given that measures of 'experienced utility' as discussed earlier are difficult to come by. However, a note of caution must be sounded since the utility that one person has from owning a large, new, semi-detached house (with good access to services) is unlikely to be the same as another person's utility. Nevertheless, it is cause for some optimism from a modelling perspective that measures can be constructed that have relevance at the agent level as well as having policy implications at the aggregate systems level.

Price of housing

A measure that is used extensively in Ireland as elsewhere to report on the systemic outcome of the housing system is the price of housing. However, price may be reported in any of a number of ways, with three being the most prevalent in Ireland. The first of these is the average price (generally indexed) to purchase a dwelling and, as shown in Figure 6.2 below, this has skyrocketed in Dublin over the last decade.

[44] Source: Norris & Winston (2004) and Norris & Shiels (2004)

Figure 6.2: Average cost of new & second-hand houses, nationally and in Dublin 1975-2003 (constant 2001 prices)



Source: O'Sullivan 2004

The second measure used is a ratio of house prices to household incomes, which is meant to capture 'affordability' and which, unsurprisingly, is also quite high (meaning that dwellings are relatively less affordable) relative to other countries in the OECD[45] (see Table 6.5).

Table 6.5: house prices and relative price-to-income ratios in selected countries[46]

	Ireland	**OECD Avg**	**UK**	**Portugal**	**Finland**
Avg house price 2004 in €1000	**295***	n/a	270	n/a	99
Price to income ratio (relative to OECD sample average	**150**	100	145	n/a	95

*Second-hand houses

Price and price-to-income ratio are not aggregates of all individual utility transactions, but rather averages across a particular set of utility transactions, namely those in which the ownership of a dwelling is transferred from one person to another in return for a sum of money. As such, price

[45] Average figures not available for EU
[46] Source: Girouard et al.(2006)

represents the average wealth transfer between sellers and buyers. Returning again to micro-economics, the dynamics of price determination at a systems level is well-trodden ground and could be captured in a model of a housing system without resorting to CAS performance landscape modelling. So, too, is the relationship between price and incomes, and good examples of economic models addressing the price-related dynamics of the Irish housing system may be found in Bacon (1998) and McQuinn (2004).

It is the third measure of 'price' outcome that is often reported by economists and other policy analysts, but which is difficult to incorporate into models of the housing system. This is a measure of housing expenditure over total household expenditure which is often used to measure affordability more broadly by including tenures other than owner-occupied housing. This measure ignores sales price and instead includes housing related monthly (or weekly) expenditure, i.e., rent paid, mortgage cost, maintenance and utility costs divided by the total household expenditure in the period. The idea of this measure is to more accurately reflect the proportion of total expenditure that housing consumers must allocate to the cost of shelter and, more specifically, determine if there are 'inequities' among tenures, locations, socio-economic groups etc. Interestingly, in contrast to the first two measures, housing expenditure as a percentage of total household expenditure in Ireland is surprising low when compared to other European countries (see Table 6.6). This is due to the high rate of owner occupation and low interest rates that drive low mortgage costs, as well as lower user costs in Ireland (e.g., maintenance, sewage, water, electricity and heating).

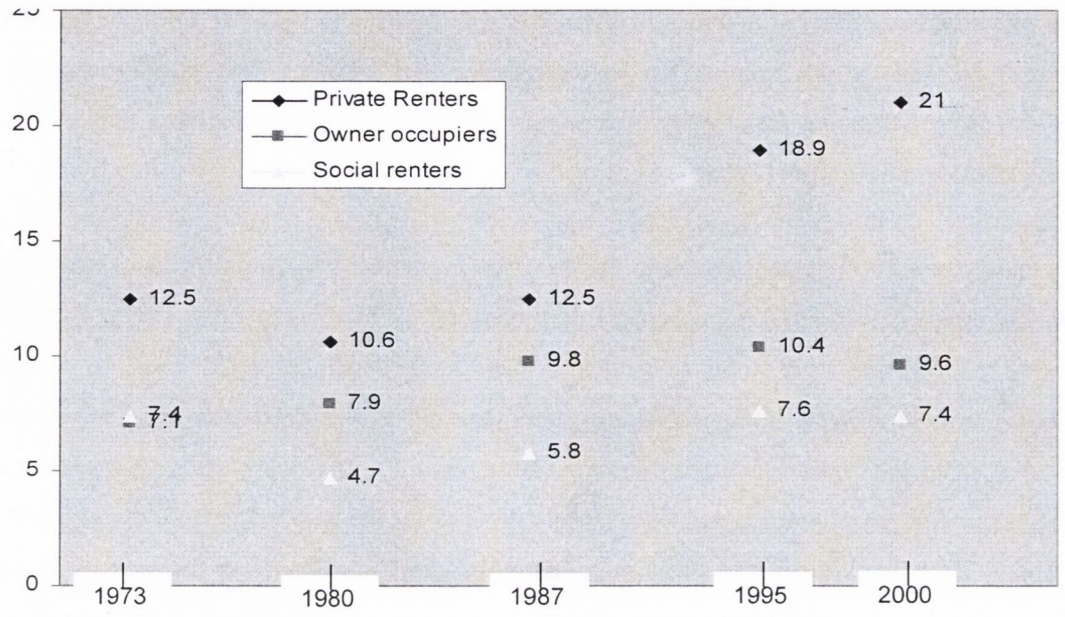
Table 6.6: Housing Expenditure as a % of Total Expenditure (2002)[47]

	Ireland	**EUAvg**	**Portugal**	**Finland**	**UK**
Housing cost[48] as % of income	**12.7**	NAV	19.8	25.6	18.7

However, this low overall average housing cost masks a significant difference in the cost of housing relative to total expenditure between owner occupiers, renters and social housing tenants. In 2000, private renters paid 21% of their total household expenditure on housing, while owner occupiers spent under 10% and social renters paid only 7.4% (Norris & Winston 2004). This difference between tenures, particularly between private renters and homeowners, has worsened considerably during the period of the housing boom in Ireland (See Figure 6.3).

[47] Source: EU 2003
[48] Includes rent or imputed rent (OO), plus repairs, maintenance, water, sewage, heating

Figure 6.3: Weekly rent & mortgage payments as a % of household expenditure



What the above suggests is that the systems outcome of average price – or average price over incomes – is not a good indicator of the 'cost' of housing as experienced by all housing consumers. Its not even a good indicator for all owner occupiers since average price figures only capture the cost of housing for those who purchased in the past year – but not those who purchased their dwellings in prior years. Therefore, while average prices are certainly a touchstone for Irish housing ministers and policy spin-doctors, it only affects a small proportion of the population in any given year. A better measure of overall wealth impact of housing activity is the third measure of 'price', that is the cost of housing relative to total household expenditure – which could also be compared to some benchmark 'base price' to calculate consumer surplus.

However, there is little evidence that renters and purchasers actually make this calculation of housing cost as a proportion of incomes, but lots of evidence from the interviews and literature that they use purchase (or rental) price when deciding whether or not to move. Furthermore, as discussed in the previous chapter, average price is a key information element used by producers in their decision-making processes. Price, for producers, is an important contributor to their calculation of wealth value that can be achieved through the production of housing. Anecdotal evidence suggests that this is also true for consumers of housing in that the change in average house prices is seen as a potential (if not an actual) impact on home owners' wealth and significant contributor to the decision by renters to 'get on the housing ladder' by buying a house. This is an example of how an aggregate outcome affects individual agent decision-making, although it is only one factor, and actual price achieved and production and/or purchase costs must be taken into account in order to measure the agent-level wealth impact of production or purchase/sale activity.

For production agents this is (relatively) easily accessed, as profit measures are routinely calculated by producers and investors in housing. Wealth accruing to home-owners is rather more difficult and so price changes are often used by homeowners as proxy measures of wealth impact.

In conclusion, there are three systemic measures related to the price of dwellings that appear to be relevant to policy makers and, in some cases, to individual consumers and producers of housing. The first of these is the average price of dwellings sold which is of interest to policy makers, producers and consumers as an indicator of the potential wealth impact of housing activity. This is an aggregate measure that is relatively easy to calculate and acts as a proxy for other, more accurate but more complicated, measures of wealth impact. The second and third measures are derived from the ratio of housing cost to average incomes, which is of interest to policy makers as an indicator of affordability. This ratio could be used to generate measures of utility in the form of consumer surplus or equity in the form of relative affordability across households. It was noted, however, that neither of these measures is used by policy makers to any great extent. The fact that these measures are less influential in policy making may be partially due to complications in their calculation, but may also have to do with the fact that they are more like emergent measures since they rely on the interaction of a range of agent behaviour as well as an exogenous changes to household incomes.

Economic Contribution

Economic contribution measures used in the Irish housing system may be broken down into three separate, but related, categories. The first is that of employment provided by the firms involved in housing provision, including builders, developers, architects, etc.. While employment figures are available covering the construction industry in Ireland, it is not possible to split out those involved in residential housing vs. commercial or public construction. Furthermore, even if it were possible, the employment in architectural firms, estate agents, banking, insurance, local authorities and non-profit organisations related to housing is not separately identified in published statistics, so it is impossible to gather a system-wide figure for the numbers of people employed in housing provision[49]. Figures are available for overall construction employment, which is not equivalent to housing construction as it includes commercial, public and infrastructure construction as well. Nevertheless, this figure does give an idea of the relative contribution that construction makes in the Irish economy, which is significant and higher than all of the comparator countries in 2005. The figure of 12.7% shown below represents approximately 250,000 jobs.

[49] However, DKM (2005) estimated that employment in industries that were indirectly involved in construction, such as materials suppliers and construction-related professional services, would add an additional 40% to the employment numbers in construction

Table 6.7: Construction Employment as % of Total Employment (2005)[50]

	Ireland	EUAvg	UK	Portugal	Finland
Construction employment	**12.7**	NAV	8.0	11.0	7.0

While a figure for total housing employment could clearly be aggregated from individual agent participation figures, it is not the case that production agents have as their objective the creation of jobs. In fact, a significant minority of interviewees commented that the elimination of jobs would contribute to other performance objectives they did have (i.e., profit and/or decreased funding levels). Job creation, then, is equated with *lower* performance by the agents that actually create jobs, although there are other agents for whom higher employment levels are a goal (labour unions, for example). However, while they can be very powerful in influencing the retention of jobs, wages and working conditions, labour unions are largely unable to create new jobs. This can only be done by production (or utility facilitating) agents. Here we have the first clear example of a systemic emergent outcome related to inclusion – i.e, the level of individual participation in the production of housing. It is an outcome that has no importance to the individual agents that produce it, but instead is deemed to be important by different agents that work to influence the behaviour of producers of this outcome at a systems level.

The second category of economic contribution measured in the Irish housing system is the output of the housing system measured as a percentage of all economic activity. Again, the same issues apply to gathering this information and the same proxy figure (construction) will be used to convey a sense of the role of housing in the Irish economy. Table 6.8 provides figures for gross value added to output by the construction industry as a percentage of all economic activity in Ireland and other EU countries. Clearly the two categories of 'employment generated' and 'contribution to overall economic output' are significantly higher in Ireland than in the rest of the EU making construction an important contributor to Irish economic performance.

Table 6.8: Gross value added by construction industry as a percentage of economic activity 2005[51]

	Ireland	EUAvg	UK	Portugal	Finland
Construction industry	**9.0**	5.9	6.1	6.4	5.4

[50] Source: Eurostat 2005

[51] Source: Eurostat 2005: Gross value added is defined as the value of all newly generated goods and services less the value of all goods and services consumed. Depreciation is not taken into account.

Again, this measure of little or no interest to the agents responsible for creating this outcome. Gross revenue figures were never mentioned as important measures of performance by interviewees, although one could imagine that total sales price of dwellings handled by estate agents would be of interest since this is a figure from which income is largely derived. However, the aggregate measure is of significant interest to policy analysts and economists who monitor this figure and advise government as to the likely issues that may arise from too high or too low a figure.

The third category of economic contribution is the net amount of tax revenue generated as a consequence of agent activities in the system. This is rarely reported on by government, for obvious reasons, but is often the subject of policy analyses performed by independent entities, and is certainly a major part of the annual budget and partnership processes engaged in by government and invited stakeholder representatives. Furthermore, economists often include an analysis of tax policy and impact in their models, but as a tool for influencing the system, rather than as an outcome of the system.

However much the financial impact of various tax and public funding programmes might be studied, it is rare that all the pieces are joined together. This is an unfortunate, although again understandable, oversight on the part of policy and systems analysts as the extent to which a public service system generates more tax revenues than it uses (or vice versa) impacts on the ability of government to fund other public services. This makes it a measure of public wealth impact. As an example, the NESC calculated that the tax revenues on housing production and sales in 2003 totalled €3.4 billion, including stamp duty (6-9%), VAT (13.5%) and contributions from developers under Part V of the 2002 Planning and Development Act (15%). This does not include the taxes collected for capital gains related to housing or land (primary residences are exempt from capital gains tax), corporation tax on firms engaged in housing related activities or income tax on individuals engaged in housing related activities. On the spending side, the Department of Finance publishes a report on "Revised Public Expenditure Estimates" every year in which expenditure on housing is clearly identified. However, some government expenditure is 'current' expense and some is capital investment, which makes it difficult to combine these into a figure that is comparable in financial terms to the tax revenue figure. Again, the NESC report (2004) makes a stab at this calculation with the result that they estimate that government expenditure on housing totalled €2 billion, of which €1.4 billion was on social housing and €0.6 billion was on subsidies for private housing.[52] This suggests that the net tax impact of the housing system was roughly €1.4 billion in 2003 – which was 4% of the total non-housing government spending that year.

[52] Social housing expenditure = €720 million cost of capital in LA/Vol sector housing, €160 million on regeneration and remedial works, €330 on rent supplements, €90 million on other current expenditure on

This is an example of an outcome that is not only of little interest to the agents within the system that contribute to it, but is of little interest to any but a small number of policy-making agents within the system. However, its component parts, i.e., the taxation policies and social housing programmes, are of significant interest to a large number of participants in the housing system, due to their impact on other performance outcomes such as production levels, utility, equity and profits. For policy-makers with system-wide accountability and impact, a perspective on the impact on public wealth arising from housing-related taxation and public investment would provide a useful context for the analysis and negotiation processes around housing taxation and support policies. The fact remains, however, that systemic outcomes related to economic contribution that influence policy making are largely confined to the first two measures: labour participation (inclusion) and construction revenues as a proportion of total GNP (wealth) – both of which are emergent outcomes.

Accessibility of housing

This brings us to the last measures identified as systems outcomes of the Irish housing system. These measures are emergent in that they are largely aimed at the value objective of 'equity', which is itself an emergent value objective. Affordability measures as discussed previously are often used as a measure of accessibility, with the differences between private renters and all others in the proportion of total expenditure spent on housing highlighted as an indication of inequity in the system (Blackwell 1988, Fahey 2004). However, at 21% of total expenditure, private renters in Ireland are well within the reasonable 'base cost' for housing that bankers interviewed for this research and housing policy literature (Pfretzchner 1965) suggest. If a relative measure of affordability were needed, it is conceivable that some kind of 'GINI' index[53] could be formulated that relates only to housing to try and capture the difference between what the poorest in society pay for their housing and what the richest pay, but there are no examples of this in housing policy literature consulted for this thesis.

The real problem of accessibility lies with those households that are unable to afford accommodation which is suited to their needs. These are generally referred to as measures of housing need (O'Sullivan 2004, Edgar et al.2004) and they vary considerably across policy analysts and among European states. Recently there have been attempts to create generally accepted definitions and commonly applied measures (Edgar et al.2004), however there is still a running debate as to what constitutes housing need.

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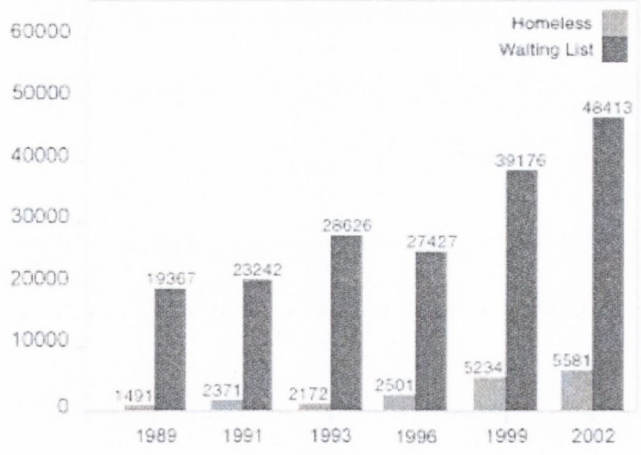
housing, €55 million deficit in rents vs. maintenance costs. Private housing subsidies = shared ownership / discounts / loans / grants / mortgage subsidies

[53] A 'GINI' index is a measure used to calculate the difference among income deciles for all households.

In a study published in recently (O'Sullivan 2004), two different interpretations of housing need in Ireland gave rise to two different figures. The 'maximalist' interpretation, which includes households that qualify under local authority rules as being in housing need, households in receipt of rent subsidies, but not registered with the local authority and households that are in homeless shelters, but not registered with the local authorities, results in a figure of 88,438 households in housing need in 2002[54], which was updated by Drudy & Punch (2005) to 106,000 households. Alternatively, the 'minimalist' interpretation includes households on the local authority waiting lists, but excludes all households in receipt of rent subsidies, households that are on the waiting list but temporarily housed by other providers and those who have been on the housing waiting lists for four or more years. This definition results in a figure of 27,768 households in housing need in 2002.[55] Note that neither of these figures includes the 7,000 immigrants in temporary housing reported in Edgar et al. (2004).

Having regard to the difficulties stated above, the figure for people in housing need is most often reported in Ireland as the combination of two figures – those on the housing list and those who are deemed to be homeless. In 2005, the DEHLG reported this figure as 43,700, which is down from 2002 (see Figure 6.4) – but still roughly 3% of the total number of households in Ireland. O'Sullivan (2004) suggested that the inclusion of all households in receipt of rent subsidies on the local authority waiting list would add approximately 40,000 households to the 2002 figure, which may also be the case for the 2005 figure. Based on the above, it is probably safe to say that between 3-5% of all households are unable to afford accommodation suited to their needs.

Figure 6.4 Waiting lists & homelessness 1989-2002



Source: Focus Ireland

[54] Local authority waiting list = 48,413, registered with LA but housed in temporary social housing = 7,720, households in receipt of SWA-rent allowance, but not registered = 31,000, homeless households = 1,305. Source: O'Sullivan (2004)

[55] Local authority waiting list = 48,413, less households in receipt of SWA-rent allowance and registered on waiting list = 14,557, less households on the waiting list for four or more years = 7,393, plus homeless households = 1,305. Source: O'Sullivan 2004 (*corrected*) Note that the logic for excluding households that have been on the waiting list for four or more years is that they have likely refused several offers of housing and are therefore deemed to effectively be in adequate housing if they are unwilling to move.

Comparable figures in other jurisdictions are not available due to problems with widely differing definitions of housing need and the lack of consistent data collection over time and across Europe (Edgar et al.2004). However, what may be said is that the Irish figure has grown considerably in the last 10 years in spite of the reported decline in 2005, indicating a widening gap between those who can afford decent accommodation and those who can not. This is particularly concerning given the record output in new housing over the last 10 years and the fact that Williams & Watson (2003) reported that there was a relatively high proportion of households that were living in accommodation that was larger than objectively required.

Essentially, the measures described above are measures of equity – whether in relation to the distribution of utility/wealth based on relative affordability or of utility/production based on measures of housing need. Policy-makers as well as public and non-profit housing providers identify these systemic emergent measures as affecting their decision-making and so these must be included in the performance landscape model as outcomes affecting agent behaviour.

Conclusion: a 'fitness function' for organising agents

The purpose of this chapter was to identify outcomes in the Irish housing system that influence agent behaviour using empirical data from interviews and Irish and EU housing reports. By identifying outcomes that affect agent behaviour we take the first steps towards an empirically based 'fitness function' for Irish housing agents, since it is the evaluation of outcomes that drives agent movement on the performance landscape. Fitness functions in a CAS model are the means by which agents evaluate their overall status versus their objectives or other criteria, and are generally stated in terms of an equation incorporating one or more measures of selected outcomes. Based on their evaluation of their current status and the potential increase/decrease in 'fitness' that is anticipated from a considered change, agents will move (or not) on the landscape.

As noted by Anderson (1999), defining the fitness function for organisational agents is a highly complex endeavour, which is made even more so when one includes agents pursuing different value objectives such as production, utility, collectivity, wealth, equity and inclusion. This difficulty has been apparent for decades and Anderson references March and Simon (1958) when he claims that "organizations and the individuals in them juggle a host of conflicting expectations and assessments that create a payoff function too difficult to assess and optimise" (Anderson 1999: 225). Nevertheless, Anderson acknowledges that fitness functions are central to the specification of complex adaptive systems models and hence it is necessary to find or propose outcome measures that could be used in the particular system studied to progress this research.

Which is what has been accomplished in this chapter. The general fitness function for agents in the Irish housing system can be stated as follows:

$F_X = P_X + U_X + C_X + W_X + E_{SYS} + I_{SYS} + PCL_X$, subject to constraints:

1) $PM_X > IPM_{AVG}$;

2) $HP_X > HP_{MIN}$;

3) $WO_X > WO_{MIN}$

Where :

F_X = Fitness level for agent (x);

P_X = Production outcome of agent(x) [new dwellings and maintained stock];

U_X = Utility outcome of agent (x) [consumer surplus, tenure and selected quality measures];

C_X = Collectivity outcome of agent (x) [% of population in agreement];

W_X = Wealth outcome of agent (x) [profit and price change];

E_{SYS} = Equity outcome of system [distribution of utility outcomes, distribution of production outcomes];

I_{SYS} = Inclusion outcome of system [labour participation in construction];

PCL_X = productivity of selected performance measures in relation to one or both of time or cost to achieve the performance outcome;

PM_X = profit margin for agent (x);

IPM_{AVG} = average profit margin for all agents in similar industry;

HP_X = number of participants in agent (x);

HP_{MIN} = minimum number of participants for agent (x) [at/above 2];

WO_X = total wealth of owners of agent (x);

WO_{MIN} = minimum acceptable wealth for owners of agent (x).

A complicated fitness function indeed. However, as discussed in this chapter, not all of these conditions will apply to all agents. Some agents will focus on only one of the fitness outcomes and some will focus on several, but to varying degrees. Of course, while this fact may simplify the fitness function for individual agents, it significantly complicates the overall modelling challenge as different agents will have materially different functions. Mathematically this is simply a question of weighting the outcome measures based on the agent's prioritisation of outcomes and varying the sensitivity to constraints. But from an analytic point of view, determining weights and sensitivities that reflect the actual decision processes of agents will require substantial additional research.

Nevertheless, the proposed ten potential elements of a fitness function for all agents in Irish housing provides another empirically grounded foundation on which to build a CAS model for public service systems. However, while mathematically relatively simple, this fitness function represents yet another complicated modification to the original NK model from Siggelkow & Levinthal.

Adding multivariate fitness functions that vary across agents will add significantly to the processing power required to support simulations and it is likely that the actual fitness functions used will need to be much simpler than what the case might suggest in order to generate results in a reasonable timeframe, nevermind cost, Still, the proposal also provides as conceptual strawman for further development of governance theory for public services by providing a list of outcomes that need to be considered in any formulation of governance theory. Additional case studies of other housing systems or different public services in Ireland could focus on whether or not this list is applicable in different contexts or for different services and in that way advance arguments for or against generalisability of the fitness function proposed.

One additional issue arising from the analysis of the Irish housing case is the identification of a current lack of statistics relating to what have been identified as relevant outcomes at both agent and systems level. Gaps in quantitative data exist for collectivity and utility performance outcomes, fitness outcomes, and – at the systems level - economic contribution, accessibility, equity and inclusion outcomes. Without some baseline figures for the actual outcomes of a given system over time, it would be impossible to develop credible models as one of the basic steps in model development is testing the model against empirical data. Without empirical data, there is no way to verify that the model represents reality in some meaningful way and so little possibility for evidence-based policy formation or decision-making at agent level. Having acknowledged this gap, however, it paves the way for future researchers to focus in on those outcome measures that are of greatest potential benefit in theory development and/or interest for policy-makers.

Chapter Seven: The Performance Landscape

"Our problems are man-made, therefore they may be solved by man. No problem of human destiny is beyond human beings." John F. Kennedy

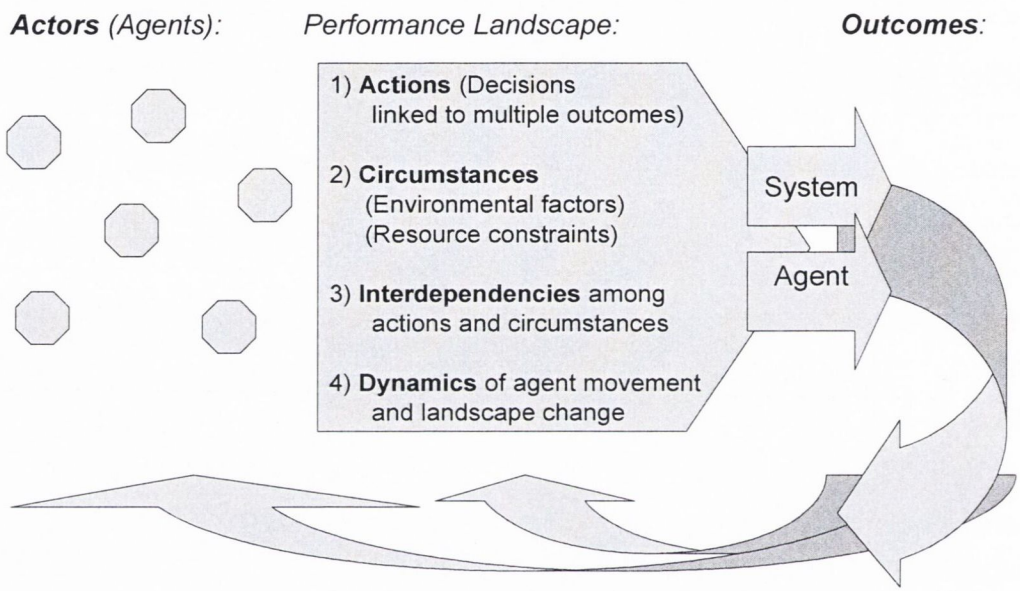
Introduction

In this chapter, the findings relating to the performance landscape are presented, again drawing from the Irish housing case study. However, unlike the previous two chapters, this chapter is concerned only with the *production* landscape, leaving the analysis of the utility and collectivity landscapes as research objectives for a later date. There are several reasons for focusing on the production landscape, the main one of which is simply to manage the scope of the research. Once the performance landscape model was identified as the most appropriate one for developing governance theory and, subsequently, that different performance landscapes were likely to be required to address the range of actors, actions, circumstances and outcomes involved in housing, it was apparent that a detailed empirical analysis of all three landscapes would require more time than was available. It then became a question of which of the three proposed landscapes would provide the richest source of relevant information to develop governance theory for public services.

The production landscape was selected because: a) outcome measures were widely available for production agents and therefore could be incorporated into future simulations for the purpose of testing hypotheses, b) production agents were the main focus of the management, public administration and systems literature consulted so comparing empirical findings with existing literature was likely to be more enlightening, and c) interviewees from all three sectors (public, private and non-profit) as well as from the relevant functional subtypes (development, construction, manufacturing, maintenance and professional services) were more easily accessible for empirical data collection. While this narrowing down of scope limits the detail of the theoretical propositions that can be made about collectivity and utility-focused organising activities, it does not exclude them from consideration within the framework proposed, at least in terms of how the production landscape influences and is influenced by these activities. In terms of the implications for the research objectives overall, the lack of empirical detail for landscape features related to collectivity and utility represents a research opportunity for further development of governance theory within the basic framework of complex adaptive systems. The findings in the production landscape also provide signposts to the specific aspects of the utility and collectivity landscapes most likely to be of critical importance in the overall functioning of a public service system and therefore should be high on the list of empirical research objectives to progress theory development.

The chapter is organised into five sections following this introduction. Four sections cover the four features of the landscape as developed in Chapter Four and shown in the figure below, with a fifth section summarising the findings contained herein. In this final section, the results of the mapping of performance landscape for Irish housing producers are summarised in terms of their implication for future research efforts and the usefulness of the model as a basis for governance theory.

Figure 7.1 High level conceptual model (from Chapter Four – Figure 4.7)



The data for this section was drawn from the interviews conducted with managers from production agents over the period from 1998 – 2003. Each interview was reviewed for occurrences of specific characteristics within each element. Each occurrence of an element characteristic was coded and tracked in a spreadsheet (an example of which is included in Appendix 3.5). For example, if an interviewee mentioned that one of the barriers to achieving the firm's growth objective was finding qualified staff, then this was noted in the spreadsheet under two columns: one column to indicate a growth decision and another to indicate a labour factor (circumstance) identified as an 'issue'. If, on the other hand, an interviewee commented that their growth strategy was enabled by their skilled workforce, then a growth decision indicator was also entered into the spreadsheet, but the column under labour factor indicated that this was an 'opportunity' for this firm. Once the spreadsheet was completed for all interviewees, the data in the columns was analysed to determine the number of times various characteristics were mentioned, interviewees' classifications of factors as issues or opportunities, patterns in the occurrence of characteristics (in particular correlations between decisions and factors that would indicate interdependence) and, finally, indications of agent movement rules or patterns that would provide a starting point for simulations. Findings based on this analysis were then compared with existing literature and

similarities/differences are highlighted as appropriate. Findings for each of the elements (Actions, Circumstances, Interdependencies and Dynamics) are presented in the following sections.

Action (Decisions) and related outcomes

Recall from Chapter Four that actions in the proposed performance landscape are the decisions that agents can make. Decision-making is represented in the model as agents 'searching' the landscape to find a set of decisions that increases their performance against one or more value objectives. Each decision is linked to outcomes that reflect the level of performance that can be achieved against the relevant value objective. The first question for the empirical research on the landscape is: what are the decisions that make up the landscape such that these can be linked to the value objectives that agents have and the outcomes that result from the decisions made. In Chapter Six, it was shown that value objectives and outcomes may be linked both conceptually and empirically, so it is reasonable to assume that agents that make a decision with a particular value objective in mind are expecting to achieve an improved outcome in relation to that value objective. The interview data used to link decisions and outcomes relies on this assumption. However, the relationships between decisions and outcomes on the production performance landscape proposed will require some further research to test the linkages in a more robust way before a simulation derived from these findings could be relied upon to reflect the actual decision environment faced by agents.

Note that decisions relating to agent characteristics such as value objective and legal status will not be discussed in this chapter as they have already been extensively covered in Chapter Five. Furthermore, these are decisions that are generally taken or emerge at the formation stage of the agent and remain relatively unchanged over the course of the agent's existence, which makes them inappropriate for inclusion as decisions that may be changed as the agent moves around the performance landscape. However, decisions relating to the other agent characteristics discussed in Chapter Five, such as organising mode, information processing capability and resource access/efficiency, do appear in this chapter to the extent that they were mentioned by interviewees. At the end of this section (p. 179), the different types of decisions described by interviewees are presented in tabular form, indicating the number of times a particular decision was mentioned by interviewees in the each of the three different legal status sectors.

Production inputs/capabilities

The most frequently mentioned types of decisions across the 48 interviews conducted were those related to the agent characteristics described in Chapter Five, namely resource access, organisational mode and information processing capability. This was a noteworthy finding since the management literature is mixed with regard to whether or not these types of decisions should

be considered strategic or not. Mainstream strategy authors (e.g., Hambrick & Frederickson 2001, Johnson & Scholes 1999, Whittington 2001) generally group these types of decisions under 'implementation', with the implication that they are decisions that are of less importance to those that constitute the strategy of the organisation. However, the somewhat more venerable literature on resource dependence (Pfeffer & Salancik 1978), strategy/structure links (Chandler 1962) and the strategic importance of information processing (Galbraith 1977) suggests that these sorts of decisions are key contributors to the performance of the organisation. The findings in the Irish housing case study would support the latter view, at least to extent that managers perceived these types of decisions as 'strategic'. Having noted this, it was also the case that interviewees linked these types of decisions to production outcomes alone, as compared to other decisions that were perceived as having a direct impact on wealth and/or equity outcomes. Since wealth accumulation is generally considered the dominant objective in private enterprise, while equity (and/or inclusion) dominates public and non-profit organising initiatives, there is a case to be made from the data that the production focussed decisions may improve the performance of an agent on a particular (strategic) location on the production landscape, but are not in and of themselves strategic. The discussion of each type of decision below provides some further grist for the theory development mill in this regard.

Resource access: Decisions relating to resource access were the most prevalent in this group of decisions and second only to relationship decisions in terms of the number of times they were mentioned by all interviewees. 26 out of 48 organisations described decisions of this type, with non-profit organisations being most engaged in this type of decision. In fact, not only were non-profits more likely to consider resource access as a strategic decision, but they were also likely to be concerned a wider range of strategic resources, i.e. labour, land, capital, knowledge/skills and legitimacy. Private sector interviewees only cited land and labour related decisions, while those from the public sector mentioned labour, knowledge/skills and information. Furthermore, non-profit interviewees, on average, described two separate resource decisions as being strategic, while private and public sector respondents only cited one. In the table below, the breakdown of resource acquisition decisions by sector is provided. Resources targeted by all three sectors are shown in black, those targeted by two sectors in grey and those appearing in only one sector are left unshaded.

Table 7.1: detailed breakdown of resource acquisition decisions

Sector / Resource	Private	Non-profit	Public	Total
Labour	**3**	**6**	**2**	**12**
Knowledge/ Skills	**1**	**4**	**3**	**8**
Legitmacy	**0**	**6**	**0**	**6**
Land	**3**	**2**	**0**	**5**
Capital	**0**	**5**	**0**	**5**
Information	**0**	**1**	**2**	**3**
Total	***7***	***24***	***7***	***39***
(# agents)	***(7)***	***(12)***	***(7)***	***(26)***

The difference between the non-profit sector and the other two is likely a reflection of higher levels of resource dependency on other organisations by organisations in this sector. Specifically, the non-profit sector relies heavily on favourable decisions by public sector agents to access capital and land resources and, recently, on developers for access to land designated for social housing under Part V of the Planning & Development Act, 2000. The private sector needs capital and land as well, but is generally able to acquire these resources without depending upon other organisations' good will. Public sector agents do depend on other agents to access the resources necessary to carry out agreed policies – i.e., taxes or legislation established by collectivity agents – but this is perceived by interviewees more as a division of labour arrangement, rather than as a dependency.

What is interesting to note, however, is that labour related decisions - whether straightforward hiring/firing of staff or more complicated efforts to acquire/develop particular knowledge/skill sets - appeared in all three sectors. Furthermore, several of the interviewees in the public and private sectors mentioned decisions relating to relationships with labour unions as being of strategic importance (these are included in the relationships discussion). This suggests that labour/skills are crucial resources in the production landscape, access to which becomes a contributor to organisational survival particularly under circumstances of scarcity and/or centralised control.

Organisational mode/structure: The next most popular choice in this group of decisions was to reorganise/restructure the firm. Seven firms in the private sector had plans to change their organisational structure, and an additional two firms were undergoing significant turnover at senior partner level. A similar pattern was found in the non-profits with six organisations reporting structural changes, principally due to expansion in their activities. In the case of the non-profits this took the form of regionalisation strategies and/or partnership/joint venture strategies for service delivery. The public sector response reflected the organisational changes being undertaken in the main local authority in Dublin, in which nearly half of the managers interviewed in this

organisation referred to significant restructuring decisions in their functional area. Restructuring in this case was aimed at improving efficiency, new or significantly changed services, or improving the customer responsiveness through localisation.

Essentially, the reorganising reported consisted of introducing new modes of operating (i.e., moving to a market mode by outsourcing functions or introducing new hierarchical roles to improve delivery and accountability) or strengthening the current organising mode in order to deal with expansion or diversification decisions. The link between organisational restructuring and growth or diversification plans observed in the non-profit and, to some extent in the public, sectors is a common theme in the 'strategy-structure' literature (Chandler 1962, Greiner 1998), but strangely, the seven firms planning to restructure in the private sector were not the same seven firms that were planning to grow. Only four of the firms planning to grow were also planning to restructure. Of the three remaining firms planning to grow without organisational restructuring, two were planning to go into joint ventures with other builders (adopting a network/market mode) and the third was planning to buy out a competitor. Furthermore, the fact that only six non-profits had restructuring plans, but 13 had plans to grow – and the majority of these through organic growth – suggests that the link between growth and structural change is more complicated than may be reflected in the literature.

Information processing capability: Lastly, a few interviewees identified decisions to improve their information processing capability as 'strategic'. Six interviewees, four of which were in the public sector and one each in the non-profit and private sectors identified a range of information related decisions including major implementations of organisation-wide systems, sector-wide information requirements planning and systems development, major research initiatives and initiatives to improve communications with customers. In addition to facilitating the production objectives of the organisation, information processing was also linked to equity and/or inclusion outcomes (relating to the ability to develop and deliver the right services to the target beneficiaries), which suggests that, of the three types of decisions that relate to changing agent characteristics, those related to information processing have a slightly broader impact on the performance outcomes of agents. This finding is consistent with management literature on the strategic importance of information management (Galbraith 1973, 1977; Flynn & Flynn 1999), and also with the more recent focus on e-Government in public management.

Table 7.2 Reported links between production capability decisions and outcomes

		Outcomes		
Decisions		Prod.	Wealth	Equity
Production inputs / capabilities				
1	**Resource access**	X		
2	**Change organisational mode**	X		
3	**Develop info processing capability**	X		(X)

Production outputs

In contrast to the mixed views on the role of decisions relating to production inputs and capabilities, decisions having to do with the volume and type of outputs of a production agent are recognised by most strategy literature as being central to the organisation's strategy. In the case of Irish housing, this was certainly found to be true as decisions around growth and/or diversification were cited by a large number of interviewees. Furthermore, these decisions were linked with all three of the value objectives identified by interviewees as shown in the table at the end of this section and discussed in more detail below.

Growth: In the private sector, seven out of 14 interviewees said that their organisations were planning to grow in the near future. This is consistent with the generally positive feeling about the market during the period in which the interviews were conducted and with the growth plans in the public sector. But a closer analysis of the data indicates that this optimism was not shared across all value sub-types. Specifically, of the six developers, four did not describe plans to expand. In fact, two were considering dissolving their firms, one expected to wind down significantly because of the difficulty in securing development land in Dublin and the fourth felt that uncertainties around housing policy (in particular the status of part V of the Planning and Development Act 2000) meant that he would be "taking a 'wait and see' attitude over the next little while". In the public sector, in spite of government policies to encourage growth in social housing provision, public service interviewees cited a lack of development land and capital constraints as reasons for conservative growth expectations.

This mixed attitude towards growth was in striking contrast to the results in the non-profit sector, in which 13 out of 17 interviewees reported plans to grow. Interviewees from this sector perceived significant opportunities for growth and few barriers. It is in the comparison between this sector and the private sector that we can see most clearly the impact of wealth objectives on production decisions. With no concern for profit, significant demand and sufficient resources, the non-profits as a group were poised for expansion. The 'for-profit' agents, on the other hand, faced the same

environment (high demand, sufficient resources) but had concerns about their ability to generate sufficient profits, leading to a more conservative attitude towards growth. It is worth noting, however, that the reported conservatism regarding growth from the private sector interviewees was in stark contrast to the actual output figures for the sector as a whole during the period of the research in which private housing output hit record-breaking levels each year from 1998 through to 2005.

Diversification: Reported diversification decisions were even more skewed between private and non-profit organisations. Only one private firm reported plans for any diversification of their activities or markets and the diversification had been more of a "happy accident" that a strategic decision. Certainly, however, the decision to diversify was seen as one that would contribute to wealth outcomes over production outcomes. In contrast, diversification was a strategic choice for six non-profit organisations and four public sector interviewees. In general, diversification plans took two forms: either the organisation was planning to diversify into new 'types' of housing or they were planning to offer new services to their existing tenants. The new types of housing that were considered were permanent accommodation (vs. hostels for homeless persons) and affordable housing (for sale). The new services included youth training programmes, tenant education, social care and community development services.

Interestingly there was a significant split between responses from non-profit interviewees in the two interview periods. Of the seven non-profit organisations interviewed in 1998/1999, not a single one had plans to diversify. On the other hand, of the 10 organisations interviewed in 2001/2002, six had plans to diversify. This suggests that something changed between the periods to encourage more diversification in this sector that did not affect either the private sector or the public sector (in which there was an equal split between the two periods in which data were collected). The discussion on movement rules and environmental change dynamics later in this chapter will pick up this point.

Table 7.3 Reported links between production output decisions and outcomes

			Outcomes		
	Decisions		Prod.	Wealth	Equity
	Production outputs				
Relationship management	**4**	**Growth**	**X**	**X**	**X**
	5	**Diversification**	**X**	**X**	**X**

The next group of decisions identified by interviewees had to do with how they related to other agents in the system, including collectivity and utility facilitating agents as well as to other production agents. These decisions took the form of either actively targeting other agents with

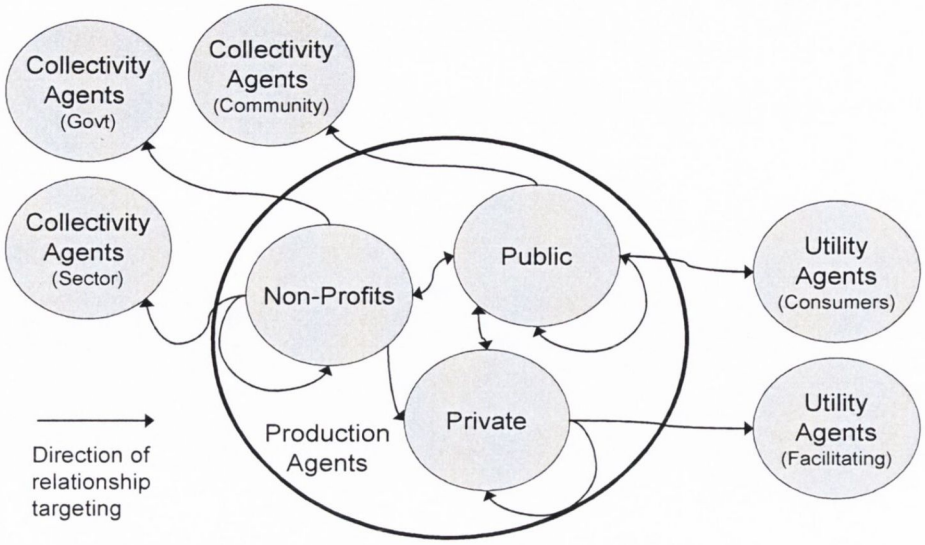
whom to strengthen relationships or adopting a general stance regarding competing or cooperating with other production agents. Active relationship management appeared to be strongly correlated to decisions around resource access and exhibited a similar pattern in terms of the number of times this type of decision was mentioned across the three legal status sectors. This link between relationship and resource access is well documented in the resource dependence literature and therefore was unsurprising to find in the case study. What was relatively more interesting was the difference among agents of different legal status in terms of the entities they targeted for relationship building as discussed below.

Build/maintain relationships: While interviewees from all three sectors reported making decisions of this type relatively often, interviewees in the non-profit sector were most likely to report decisions around relationships with other agents. The agents with whom links were built were mostly production agents and included other housing associations, local authorities, developers and other members of a service network. In addition to production agents, non-profits also reported actively managing links to collectivity agents such as the sector associations - Irish Council for Social Housing (ICSH), the National Association of Building Co-operatives (NABCo) - and politicians.

Private sector interviews were more likely to mention links with utility facilitating agents, including bankers and estate agents, but also mentioned links with other production agents – as service providers and joint venture partners. Interestingly, it was mostly developers who reported these decisions as strategic, with interviewees from the other functional sub-types rarely mentioning these types of strategic decisions. Note that none of the private sector interviewees reported active management of relationships with collectivity agents, which may reflect sensitivities around perceptions of corruption in the case of government links, but is somewhat surprising in relation to the powerful CIF and IHBA associations.

In the public sector, there was also no report of active management of collectivity agents, and in this case it may reflect a similar perception of the split between policy-making activity and implementation in the public sector that was commented upon in the previous discussion of resource access decisions. The relationships that were the focus of public sector production agents were other production agents across the public, non-profit and private sectors as well as with groups representing the communities that the local authorities were meant to serve. This focus on strategic links to client groups was unique to the public sector and bears further investigation as to the reason for interviewees perceiving these relationships as strategic. The following figure provides an overview of the different types of relationships identified as strategic by interviewees in each sector.

Figure 7.2: relationship decision targets by agent type



Compete/cooperate: From the above figure, it may be seen that all production agents engage in relationship building/management with other agents from their own sector as well as with those in other sectors. In general, agents of a particular legal status assumed a 'default' stance vis-à-vis the decision to compete or co-operate with other production agents. Private sector agents generally expected to compete with each other, while public and non-profits generally expected to co-operate. However, there were two private sector interviewees that specifically described their approach as not competing. One of these was a small builder and the other was a town planner in private practice. In both cases, the interviewees felt that there was a lot of work available and it was in their best interests to maintain good relationships with others in their industry by not competing directly. While none of the other interviewees described a 'no-compete' approach there was a clear sense from a number of interviewees that the competition in the sector amongst developers and builders was not of the pure market variety. The view that a small group of developers were privy to information about available properties prior to it becoming generally known was held by several interviewees, one of whom described "informal fora of the big contractors and various other industry players that meet to discuss the state of the market and opportunities/issues that arise". Another interviewee commented that, "it is always the same people who are aware of and bidding for property in Dublin".

Similarly there were only a very few interviewees in the non-profit and public sectors who reported explicit decisions to compete with each other. Three interviewees in the non-profit, and only one in the public sector, mentioned competition as part of their strategic decision-making. One non-profit was a housing association with origins in England – an environment in which competition has become a feature of the social housing system – and the second was a large housing association that felt that it was a fact of life that they had to compete for land with other associations in regard to local authority allocations. In the latter case, however, the same

interviewee mentioned a 'gentleman's agreement' among housing associations – facilitated by the ICSH – not to submit competitive proposals for local authority land allocations if there was already an association 'bidding' for the land. This was not mentioned by any other housing association, so it is impossible to confirm/deny if such an agreement existed. The third interviewee felt that it was necessary to compete with other social service providers for government funding that they perceived as being limited in the area of homeless service provision – a situation that has since changed due to significant increases in funding and the co-ordinating efforts of the Homeless Agency. Overall, competing/co-operating is seen as a decision that follows 'norms' that are established for agents with similar legal status, and which are generally seen as contributing to wealth and equity outcomes, if not to production.

Table 7.4 Reported links between relationship management decisions and outcomes

		Outcomes		
Decisions		Prod.	Wealth	Equity
Relationship management				
6	**Build / maintain relationships**	**X**	**X**	**X**
7	**Compete / co-operate with similar agents**		**X**	**X**

Target beneficiaries

The fourth most reported group of decisions relate to target beneficiaries of the production activities; usually characterised by socio-economic and/or geographic factors pertaining to households and, in the private sector, referred to as "market segment" decisions. These decisions are generally considered to be core strategic decisions in the management literature relating to private sector strategy, but are less evident in the public and non-profit strategy literature. However, in the Irish housing case, non-profit interviewees were more likely to report these sorts of decisions than were their counterparts in the private sector. In particular, most non-profit organisations targeted a particular sub-group within the social housing sector, as well as choosing a location and deciding whether to be national or regional providers. The private sector interviewees mentioned only location and, in a few cases, decisions about entering into the social housing 'market'. Consistent with accepted wisdom, public sector interviewees did not consider any of the decisions related to target beneficiaries as strategic, as they considered themselves to be constrained by legislation and local council policy in this regard. Having said that, local authority managers reported significant leeway in their interpretation of the DEHLG's guidelines on how to prioritise different types of housing need. Also, development managers in local authorities target particular geographic areas within their jurisdiction as more/less appropriate for social housing

development. However, these were considered implementation rather than strategic decisions by the local authority managers.

Hence, three decisions were identified under target beneficiaries: 1) **location** (including the decision about whether to be local, regional or national), 2) **market type** (private/social) and 3) **social-economic segment** (e.g. immigrants, homeless, single parents, people with disabilities, etc.). the first of these appeared in some way in each sector, while the decision to choose private or social only appeared in the private sector and the explicit targeting of particular groups was far more prevalent in the non-profit sector. With regard to outcomes, location decisions were associated with all three performance outcomes, while market type was related to production outcomes for private sector agents, and segment was related to equity outcomes for the non-profit agents and wealth outcomes for the one private sector interviewee reporting this type of decision.

Table 7.5 Reported links between target beneficiaries decisions and outcomes

			Outcomes		
	Decisions		Prod.	Wealth	Equity
	Target beneficiaries				
Value discipline	**8**	**Location**	**X**	**X**	**X**
	9	**Market type (social, private)**	**X**	**X**	
	10	**Socio-economic segment**		**X**	**X**

Decisions relating to what Treacy & Weirsema (1993) call 'value disciplines' were mentioned by interviewees the least. According to Treacy & Weirsema and other management strategy authors (e.g., Porter 1985, Kaplan & Norton 2004), the decision around the value discipline is a core strategic decision for a firm and so this finding was somewhat surprising. A value discipline defines how the firm will compete with other firms to create value for its customers. For example, the classic distinction between a cost versus differentiation focus in strategy (Porter 1985) is an example of a firm choosing a value discipline. Other possible value disciplines include customer focus - or 'intimacy' in Treacy & Weirsema's terminology – and product innovation (Kaplan & Norton 2004, Treacy & Weirsema 1993).

Since public and non-profit organisations generally do not consider themselves in competition with one another, it was expected that decisions around value disciplines would be less apparent in these sectors, but, in fact, interviewees from these sectors did report decisions of this type, albeit less frequently than did private sector interviewees. **Customer focus/intimacy** appeared in just over half of the organisations that reported having a value discipline, largely due to the focus on particular tenant types. Customer focus organisations in the non-profit sector saw themselves as having a particular expertise with respect to the needs of their target groups and promoted

themselves to funders and other government agencies based upon this expertise. Public sector interviewees were less clear about what they meant by their version of this value discipline and there was the distinct impression that they were simply parroting the new city manager's agenda of customer responsiveness following the 1996 "Better Local Government" policy document.

However, what they were quite clear about was the decision to pursue an unusual value discipline – that of **Liaising/information sharing**. This was unique to the public sector in the case data and had to do with the creation of links amongst two or more groups involved in public housing or among the citizens they served. These links were generally achieved through some sort of structured or unstructured information sharing. For example, estate management in Dublin City Council plays a key role in facilitating communications between tenants in large social housing estates and other sections in the housing department. This same type of value was identified by the community development section, but in their case involves communication with other agencies such as the gardaí and social welfare agencies. Several interviewees suggested that they had an important role to play in assisting citizens to navigate their way through the complexities of the public organisation(s) established to serve them.

Two of the four interviewees that reported liaising/information sharing as their value discipline also viewed their role as identifying gaps in the provision of services to a particular constituency. This role required research into what services were required for whom, and how they might best be delivered. The information collected was then passed on to policy-making bodies for consideration, or, if already within the remit of the organisation, to senior decision-makers. In this way, the public sector production agent may act as the "eyes and ears" of a collective decision-making agent, passing along data that informs the collective decisions made.

In the private sector, the three different value disciplines reported were more aligned with the traditional options in management literature. These included a low cost or 'value for money' discipline that involved delivering either inexpensive dwellings or ones that represented good value for the price paid. Private sector interviewees that reported adopting a **Cost/value** discipline also did a significant amount of work for local authorities, which suggests that a focus on social tenants is correlated with this decision, which was also found in both the non-profit and public sectors. Furthermore, agents producing relatively large numbers of dwellings promote themselves on their ability to deliver good value and to deliver it "on time and on budget" – linking the price/value proposition with high volume operations. This link is well documented in strategy and operations management literature (Slack et al. 2004).

Unique to the private sector was the value discipline of **Quality** – which was reported by roughly the same number of private sector interviewees as had reported Customer focus and Cost/value.

Two of these firms had pursued industry quality marks of various types in order to support their position. In addition, three other firms claimed to be shifting towards a quality approach from their predominantly price/value approach, which leads to the conclusion that the "build 'em fast and sell 'em cheap" approach recalled by one interviewee as being the main value proposition in the 1980s and early 1990s was no longer dominant by the turn of the century. This is supported by several of the interviewees who suggested that the overall quality of Irish homes and developments is improving, and somewhat by the statistics reported in Chapter Six on the quality of Irish housing.

None of the private or public sector interviewees reported **Innovation** as a value discipline, and only one interviewee from the non-profit sector did so. The organisation in question had its origins in England where this strategy may have facilitated the parent organisation's ability to compete. In Ireland, however, this organisation struggled to get its projects off the ground and encountered significant difficulties amongst its management team. The fact that none of the private or public sector organisations mentioned innovation suggests that its appearance in the data is somewhat of an aberration. However, innovation still has a role to play in the system as we shall see in the discussion of environmental factors.

Having noted the existence of value disciplines in the non-profit and public sectors, it is nevertheless the case that interviewees from these sectors were less likely to identify one of the above as the source of value for their customers than were interviewees from the private sector. In fact, most prevalent among these interviewees was the lack of a clear value discipline. Instead, interviewees were quite likely to refer to "social gain" – by which they generally meant the achievement of equity/inclusion in housing. Eight organisations (six in non-profits, two in the public sector) defined their value propositions as addressing an unmet social need by providing housing to those who would otherwise be unable to access it. Another five public sector interviewees described their value proposition as 'meeting targets' for the production of social housing. In other words, these thirteen interviewees did not see that their value discipline was different in any way from their basic purpose for organising – i.e., their value objective. Furthermore, three of the private sector interviewees suggested that the development of empty or underutilised land into dwellings was sufficiently valuable to customers to achieve accomplish their wealth objective. Given this, it seems clear that a value discipline is not required – contradicting much of the strategy literature – and indeed does not appear in one third of the organisations included in this study. This reported lack of a value discipline decision is actually a default (decision) back to the value objective and is shown in the mapping to outcomes below as linking to all three outcomes.

Table 7.6 Reported links between value discipline decisions and outcomes

		Outcomes		
Decisions		Prod.	Wealth	Equity
Value Discipline				
11	**Default to value objective**	**X**	**X**	**X**
12	**Customer Focus**	**X**	**X**	**X**
13	**Cost / value**	**X**	**X**	**X**
14	**Quality**		**X**	
15	**Liaising / information sharing**	**X**		**X**
16	**Innovation**	**X**		

Summary of decisions and outcome linkages on the landscape

The table below provides a summary of the types of decision and number of times a given decision type was reported by interviewees in organisations by legal status sector. Decisions that were common across all sectors are highlighted in light grey; across two sectors remain dark grey and unique to one sector in black. From the table we may observe that there are nine decisions that are common across all sectors and five that are sector-specific. Since Innovation as a value discipline decision was identified by only one interviewee, this was left off the proposed list of decisions for inclusion in any future simulation.

Table 7.7: Production agent decisions by legal status of agent

		Private	Non-Profit	Public	Total
	Number of interviews	**(14)**	**(17)**	**(17)**	**(48)**
Strategy Decisions					
Production capability:					
1	**Resource access**	**7**	**12**	**7**	**26**
2	**Change organisational mode**	**7**	**6**	**3**	**18**
	Develop info processing	**1**	**1**		**6**
Production outputs:					
4	**Grow**	**7**	**13**	**6**	**26**
5	**Diversify**	**1**	**6**	**4**	**11**
Relationship Management:					
6	**Build/maintain relationships**	**7**	**13**	**8**	**28**
7	**Compete / co-operate (explicit)**	**2**	**3**	**1**	**6**
Target beneficiaries:					
8	**Location**	**5**	**4**	**0(a)**	**9**
9	**Market Type**	**4**	**2**	**0**	**6**
10	**Segment**	**1**	**11**	**0**	**12**
Value Proposition:					
11	**Default to value objective**	**3**	**6**	**7**	**16**
12	**Customer focus**	**3**	**7**	**4**	**14**
13	**Cost / value for money**	**4**	**3**	**3**	**10**
14	**Quality**	**4**	**0**	**0**	**4**
15	**Liaising / information sharing**	**0**	**0**	**4**	**4**
16	**Innovation**	**0**	**1**	**0**	**1**
	Total number of decisions	**56**	**88**	**53**	
	No. decisions per interviewee	***4***	***5.2***	***3.1***	

(a) While interviewees from the public sector did not report location as a strategic decision, location decisions were reported as playing a key role in the successful development and management of local authority housing estates and so location has been classified as a decision that is common across all sectors.

The table suggests that decisions are either common to all sectors or unique to one. There appear to be slightly more decisions in common than unique to a particular sector, which suggests that a common performance landscape – at least in terms of decisions – could be used for modelling production agents across sectors. However, there are clearly 'blind spots' in each sector which will need to be reflected in agent schema – i.e., agents of a certain legal status type may be unable to perceive decision options that are perceived by other agents. Not only does this imply that some decisions are 'unavailable' to some agents, but also that the one source of variation and change in a system may be "boundary-spanning" interactions between organisations in different sectors in which new strategic decisions are observed.

Furthermore, there appear to be differences in the number of decisions that agents of a given legal status will make in a given period, as seen from the figures in Table 7.6 for the number of

decisions reported divided by the number of interviewees in each sector. It would not be wise to make too much of this finding given that the interview protocol was not designed to capture the total number of decisions made, but rather was focused on distinguishing types of decisions. Nevertheless, as there was no difference in the protocol between the sectors, this observation raises the question (to be left for future researchers) as to why differences in the number of decisions described arose.

In all cases, the decisions were related to the identified value outcomes of production, wealth, and/or equity, with a small number of decisions linked by interviewees to inclusion objectives, although inclusion as a value objective for these agents did not appear that often. In all cases, these linkages were identified only in the public sector – a finding which suggests that the objective of inclusion is highly reliant on the production, management and distribution of information.

The findings overall generally confirm what is found in management and strategy literature. Decisions about market segments (Hambrick & Frederickson 2001), value disciplines (Treacy & Wiersema 1993), output levels and types (Johnson & Scholes 1999), organisational structure (Chandler 1962), information processing (Galbraith 1977) and resources and relationships (Pfeffer & Salancik 1978, Contractor & Lorange 2002) have all been documented before. However, it is rare that literature on strategic choice attempts to take a perspective across organisations operating in the private, public and non-profit sectors. Those that deal with multiple sectors (e.g., Oster 1995, Johnson & Scholes 2001,Whittington 2001), tend to see the private sector as operating with a different set of objectives than the public/non-profit sectors and conclude from this that the decisions are therefore different. The above suggests that the similarities are at least as great, if not more so, than the differences. This is good news with respect to the applicability of the NK model as an underlying framework for governance theory, as this supports a relatively simple transformation of empirical facts to modelling features. But perhaps the difference lies not in the decisions that are made, but rather in the factors that are considered – which brings us to the second major component of the performance landscape geography: environmental factors.

Circumstances as environmental factors and resource constraints

Environmental factors are contexts, capabilities or limitations that are perceived by the decision-maker to influence their organisation's strategic decisions. For example, interest rates or demographic changes are often considered to be factors that affect the demand for housing, which in turn, affects supply (i.e., decisions to expand or diversify). As in the previous section on decisions, this section will describe each of the various factors reported by interviewees in descending order based on the number of times the factor was mentioned by interviewees. The

first part of this section will also address the question of environmental resource constraints, as these were identified by interviewees as factors affecting decision-making. As part of the interview protocol and case analysis, factors were identified as presenting either issues or opportunities for decision-makers and, where appropriate, this distinction will be discussed. Comparisons with existing literature are provided throughout as relevant and, at the end of this section, there is a summary table (p. 195) of the factors by legal status and a brief discussion of the implications of the findings.

Resource factors/constraints

The most frequently mentioned factor affecting decision-making in the Irish housing system was resources. Given that decisions relating to resource access were one of the top decisions reported, this is an unsurprising result. The main resource highlighted as a factor was labour – which was largely considered to be an issue in decision making, rather than an opportunity (see Table 7.8 below). Specifically, labour shortages and difficulties with labour quality featured in the interviews as having a significant impact on strategic decision-making. Five interviewees identified issues with "problematic" and/or "unreasonable" unions, labour relations problems in the anticipated downturn, or difficulties related to the overall shortage of planners (both as private contractors and as Local Authority staff). Several interviewees in the private sector considered 'good' relations with unions, contractors and/or paid staff as strategy enablers, but this only serves to underscore the overall point that labour is a critical resource across all sectors. Finally, while two interviewees did mention labour cost as an issue, the overall impression from the interviews was consistent with economic models of the Irish housing system (Bacon 1998, McQuinn 2004) that indicated wage costs were not a major factor.

Table 7.8: Resource factors reported by sector by issue/opportunity

Sector / Resource	Private		Non-profit		Public		Total Reported	
	Iss	Opp	Iss	Opp	Iss	Opp	Iss	Opp
Land	**3**	**0**	**1**	**7**	**6**	**0**	*10*	*7*
Labour	**5**	**3**	**12**	**0**	**4**	**0**	*21*	*3*
Capital	**0**	**0**	**7**	**8**	**8**	**1**	*15*	*9*
Information	**0**	**0**	**0**	**0**	**9**	**2**	*9*	*2*
(# agents reporting resource factors)	***(7)***		***(16)***		***(17)***		***(40)***	

Capital was mentioned an equal number of times by interviewees, but the pattern of observations was different. Capital was a factor for decision-making only in the non-profit and public sectors and was considered to present an opportunity nearly 40% of the time by these agents.

Interestingly, the vast majority of interviewees mentioning capital as an opportunity were from the non-profit sector, while issues spanned both sectors. This pattern was more or less repeated with respect to land, although there were three private sector interviewees who also mentioned land as an issue, and the split between the non-profit and public sectors was more pronounced. It would appear that resource factors do not affect every agent equally and that, during the period in which the research was conducted, the non-profit sector had a noticeably more positive view of the resource environment than did the public sector. This is consistent with the increasing funding and support for non-profits that was a feature of the period during which the interviews were conducted and also provides some explanation for the more optimistic growth and diversification plans in non-profits when compared to the private sector. Having said this, it is still the case that the main resource constraint operating on all agents was in the area of labour availability and quality.

While the factors considered by the private sector and non-profits largely reflected the findings in resource access decisions in these sectors, this was not the case in the public sector. Recall that the public sector's resource access decisions were broadly similar to the private sector in that they were: a) primarily concerned with labour and skills acquisition, and b) comparatively few when compared to the non-profit sector. Resources as factors, however, display a rather different pattern in the public sector. Interviewees reported nearly as many concerns about resources as did the non-profit sector, although without the opportunities related to land and capital. Furthermore, information appears as a factor that is unique to this sector. Overall, this suggests that the public sector is highly resource dependent, but has little ability to act to acquire the necessary resources. Furthermore, it is the only sector in which access to information - relating to needs, services provided, policy objectives, resources available or inter/intra-agency co-ordination – is seen as a strategic limitation or opportunity.

Relationships

Running a close second to resources as factors influencing decision-making were relationships. In fact, the factor that private sector interviewees mentioned most often was the quality and/or nature of the firm's relationships, either internally or with other agents in the system. Eleven private sector interviewees mentioned relationships as a factor affecting strategic decisions, with seven seeing these as opportunities, two identifying both issues and opportunities and two with relationship issues only. The range of relationships that were seen as opportunities was quite broad, but the majority were related to relationships with other private sector agents in the production and utility landscapes. Developers, in particular, were linked opportunistically with bankers, planners, the Irish Agrément Board (a quality standards organisation), architects, builders, specialist contractors, estate agents, farmers (as potential sellers of development land), and the

local GAA (Gaelic Athletic Association). Builders listed relationships with architects, developers, and suppliers as presenting opportunities. As noted previously, several builders and developers mentioned the relationship with a particular union as being problematic although these were generally considered resource issues as opposed to relationship issues.

Note that there was no mention by any of the private sector interviewees of links to the CIF (Construction Industry Federation)/IHBA (Irish Home Builders' Association), local authorities (outside of one architect), customers or non-profit housing organisations as presenting relationship issues or opportunities. Non-profit organisations, on the other hand, were much more likely to cite relationships with collectivity agents such as the Department of the Environment (DEHLG) and the ICSH/NABCo. In the latter case these were generally seen as presenting opportunities, but with government agencies, interviewees were just as likely to mention issues. Overall, however, relationships were largely seen as presenting opportunities in this sector with eleven interviewees citing opportunities and three mentioning a combination of issues and opportunities.

In the public sector building relationships with other agents was also considered a strategic activity. Specifically, interviewees mentioned relationships with private sector production agents, other government agencies both in housing production and in other types of service provision, collectivity agents (i.e., local councils and government departments) and communities. As found in the private and non-profit sectors, relationships were considered to present more in the way of opportunities than issues with seven interviewees citing opportunities, one citing both issues and opportunities and four citing issues only.

So it may be concluded that relationships play different roles in decision-making depending upon the sector. In the case of the private sector, relationships were considered to be factors in location, resource access and production output decisions, while in the non-profit sector, relationships were largely a factor in resource access decisions. In the public sector, relationships were linked more with outcomes (production, equity and inclusion), but were not mentioned often as impacting on resource access decisions. While there is a range of literature dealing with relationships in public administration, including policy networks (Marsh & Rhodes 1992), governance networks (Kickert et al.1997), intergovernmental relations (Wright 1995, O'Toole 1999) and institutional theory (Dimaggio & Powell 1983), there is little that links specific decisions made by agents with particular types of relationships. Instead the literature tends to focus on the shape and nature of relationships and the extent to which participants in network relations are influenced by or influence other agents. The findings from the case study suggest that more research is needed to provide details on how relationships shape particular types of decisions as well as on how decisions may shape relationships. Furthermore, this finding presents empirical evidence that the exclusion of relationship characteristics and dynamics from a model of public service systems is

highly problematic and reinforces the concerns raised in Chapter Four around the lack of a CAS model that could incorporate these features as well as the other salient elements of governance theory.

Political factors

Political factors were the next most cited category of environmental factors affecting decision-making. A total of 27 interviewees, evenly spread across the three different sectors mentioned one or more political factors, although the nature of the factors varied across the sectors. Of the eight interviewees in the private sector, five identified issues, two identified opportunities and one identified both issues and opportunities. 'Big' political issues such as the anticipated war in Iraq and uncertainties in party politics were mentioned, generally in terms of their effect on house prices, while issues more specific to housing such as the 'volatility' of housing policy and a perceived lack of effectiveness of government policy in 'managing' the housing market were also mentioned. Political aspects relating to production such as delays and lack of transparency in planning decisions and unfair or unequally applied regulations completed the list of issues ascribed to politics by private sector interviewees.

In the non-profit sector, interviewees were mostly concerned with issues of the latter type, i.e., production decisions that were affected by what interviewees considered to be 'politics'. In particular, interviewees were frustrated with local government attitudes towards, and interactions with, non-profit development activity, suggesting that local government impeded the process of non-profit development unduly and, in some cases, in ways that ran counter to the intent of national government policy. In general, and particularly in the second round of interviewing, national policy was seen as presenting opportunities for non-profits, although some organisations did identify particular pieces of legislation that were problematic in relation to the their objectives. In fact, non-profit interviewees were most positive about the impact of political factors, reporting four opportunities to six issues in this category.

In contrast, the public sector was as pessimistic as the private sector about the impact of political factors, but the specific issues were different again to those raised in either the private or non-profit sectors. In this sector, issues were related to policies that were either poorly thought-through (in the opinion of the interviewees) such as the Surrender Grant Scheme in 1984 and Part V of the Planning and Development Act (2000), or were too weak to protect the interests of particular groups such as the law(s) governing the private rented sector. In addition, there were issues related to 'turf battles' between departments, in particular amongst the Departments of the Environment, Heritage and Local Government, the Department of Health and Children (DoHC) and Department of Social and Family Affairs (DSFA). Interviewees commented on the difficulty

in delivering services to groups that crossed the areas of responsibility of several departments, such as the homeless and/or those individuals in subsidised rental accommodation. Finally, interviewees identified issues that had to do with different constituencies in society coming into conflict over interests. This was particularly noted in the case of the location of social housing or homeless accommodation and the registration of tenancies/rental accommodation. Those who perceived opportunities arising out of political factors pointed to the increase in allowable housing densities in urban areas, the increase in funding available for social housing, improved legislation relating to specific areas of the housing system such as estate management and the private rented sector, and the publication of two national plans; the National Development Plan (1999) and the National Spatial Strategy (2002).

Note that there were several interviewees in both the private and public sectors who, without being asked directly, commented that corruption was not a major factor either for their decision-making or in the overall dynamics of the housing system. While they acknowledged that corruption had occurred "in the past", the effect of the 'Flood' tribunal[56], the Freedom of Information (1997) Act and the increased emphasis on compliance with planning regulation by local and national government was seen to significantly limit the advantages and to increase the risks associated with corrupt behaviour.

From the above we may conclude that collectivity agents have a direct impact on production agent decisions through rules created in the form of laws, policies, incentives and regulations. In addition, uncertainty relating to these rules, which can arise from frequent changes in policies, lack of transparency in rules or unequally applied regulations, also impacts on output decisions, but even more than this, it impacts on people's willingness to make decisions. Interviewees across the legal status spectrum referred to this as political 'uncertainty' or 'risk' and generally indicated that increases in perceived uncertainty/risk made it less likely that strategic decisions would be made and/or that they would result in the anticipated outcomes. This manifests as a kind of 'freezing in place' in terms of decision-making, with agents choosing not to make changes in their location on the landscape until there is more certainty around the probable outcome of those changes. This dynamic may be linked to Kurt Lewin's theory of organisational change in which organisations go through three stages of unfreezing – transforming – refreezing (Marrow 1969). What is suggested by the case is that unfreezing is an organising activity that may indeed be driven by characteristics of the organisation, but it can also be facilitated/blocked by characteristics of the environment, i.e., a rich resource environment facilitates unfreezing, while an uncertain environment makes it more difficult to 'unfreeze'.

[56] The 'Flood' Tribunal is the more media friendly title for the "Tribunal of Inquiry into Certain Planning Matters and Payments", which was presided over by Mr. Justice Feargus Flood from its inception in 1997 through to 2004.

Finally, a number of interviewees, largely from the non-profit sector, identified differences between the stated intent of government policies and the way these policies were implemented by local government agencies. This has long been a feature of policy implementations in Ireland, but, as a "fact of life" in public service systems, continues to generate significant levels of frustration. In relation to the private sector, this can often be perceived as corrupt practice, particularly if the local variations profit some firms more than others. Public sector interviewees, on the other hand, see this as necessary flexibility in implementation or, in extreme cases, a sub-optimal response to unworkable policies. For the non-profits that highlighted this issue, the difference between intent and implementation was perceived as a bias on the part of the local implementing agencies favouring their own goals over the facilitation of non-profit activity. In all cases, however, this difference between policy and implementation created uncertainty and frustration that affected decision-making across production agents and echoed the literature regarding difficulties in inter-organisational policy implementation (Pressman & Wildavsky 1979) .

Organisational capacity

Organisational capacity as a factor in decision-making was cited across all three sectors, principally related to growth, the current capacity of the organisation and the likelihood of being able to increase capacity in line with perceived growth opportunities. It was therefore unsurprising that the private sector reported far fewer issues relating to organisational capacity than did either the non-profit or public sector, as private organisations are far more flexible in their ability to hire/fire staff and have direct access to the capital needed to grow – either through the market or owner resources. Only four interviewees from the private sector reported issues relating to organisational capacity, while non-profits and public sector reported nine and eleven respectively.

Private sector and non-profits were similar in other respects, however, with interviewees from both sectors linking organisational capacity issues with the identification of labour factors (shortages and quality) impacting on decision-making. Neither of these was the case with the public sector reports, however, as the descriptions of organisational capacity issues ranged across a much more internally focused set of issues, i.e., communication amongst functional areas, mobility policies, low status of one department vs. others, lack of adequate training, board management and labour relations. Furthermore, organisational capacity did not appear to be correlated with the mention of labour factors, but instead with relationship factors.

The above suggests that while non-profits may be more capacity-constrained than private sector organisations, these constraints arise from the same sources, namely growth and access to labour resources. Public sector capacity issues, on the other hand, appear to be more internally complex,

with organisational configuration, human resource policies and inter-departmental relations creating limitations on capacity. These limitations affect the organisation's ability to meet existing output targets - never mind grow – which may contribute to the difficulties experienced by the public sector over the period of the research in achieving the housing output targets set by government.

Social factors

Social factors were identified almost exclusively as affecting the public (9/17) and non-profit (10/17) sectors, with interviewees referring to these as 'issues', but when it came to coding these for subsequent analysis it became clear that these were really more like opportunities in terms of how they drove agent decision-making. This is no surprise, since agents in these sectors are formed to address inequities in housing that are often associated with the socio-economic status of those households in need of housing. As in most developed countries, the type of social issues highlighted in Ireland included increased homelessness, marginalisation of people due to housing status, breakdown of the family unit, poverty, domestic violence and decaying urban communities. In fact, these issues are what create the demand for the products and services produced by public and non-profit agents in the first place.

Social factors that appeared to be more specific to the Irish housing system were factors relating to Irish 'culture' as it affects housing preferences. Several interviewees commented that the embedded Irish preference for owner-occupation marginalised both social and private rental accommodation, weakening the ability of both providers and consumers to produce/demand high quality services in these markets. One interviewee felt that the centuries of colonisation by the British affected this preference for owner-occupation, and had resulted in a legacy of lack of respect for landlords and their property, particularly on local authority estates. Finally, three interviewees suggested that the Irish people had a preference for a rural, family lifestyle over urban living more so than did other Europeans – hence the standard house design of 2-3 bedrooms, with back and front gardens. Furthermore, a large proportion of the new housing being built in Ireland is in rural locations, creating headaches for transport and other public service planners and providers.

Social factors appear to have two basic impacts on decision-making. First, they affect the formation and ongoing value creation of public and non-profit agents whose value objective is to address inequities in housing through the production and allocation of dwellings. The greater the need – as determined by various socio-economic measures – the more production / allocation is required. The second effect is more pervasive throughout the system and is rooted in cultural norms that emerge over time to influence individual and collective decision-making and thereby

influence the production of housing by all production agents to respond to individual preferences and collectively established rules.

Innovation/learning

Innovation also affected decision-making in two distinct ways. The impact of specific innovations is one factor in decision-making and the second is the overall rate of innovation and learning in a sector. However, interviewees' attitudes towards these factors varied significantly depending upon the sector, with those in the private sector perceiving opportunities arising from innovation, while those in the non-profits identifying issues. The public sector was rather closer to the private sector pattern, with the majority of interviewees perceiving opportunities.

Innovation opportunities related to specific innovations in the private sector could be grouped into two broad categories. The first was linked to innovations arising from preferences (utility) and rules (collectivity) in that higher density planning and/or the desire for higher quality design by consumers was forcing/facilitating new architectural designs. The second category was linked to production suppliers, i.e., new building materials/systems were being introduced by suppliers and/or building contractors that could cut costs and/or improve quality. From these examples, one might conclude that innovation appears to be 'thrust upon' customer facing private production agents in Ireland, rather than being driven by the builders, landlords and developers themselves. This observation is further supported by the lack of interviewees from these types of agents identifying innovation as central to their value proposition. In the public sector, innovation opportunities took the form of new agents, e.g., PPPs or other contractual arrangements with the private sector, to provide social housing. This type of arrangement was also identified by non-profit interviewees as one of the few innovation opportunities, i.e., new models of service provision that involved links with the private or public sectors. Note that the private sector interviewees did not identify these new models of service provision as presenting opportunities and, in fact, one of the interviewees from a sector association suggested that PPPs and/or other public-private sector links could potentially represent "poisoned chalices" due to unforeseen risks and costs of involvement.

The main issue with innovation in the non-profit sector had to do with perceived difficulties in transferring knowledge and innovations among agents in the sector. Several interviewees gave examples of difficulties relating to the dissemination of best practice in housing management, applying for funding and responding to changes in homeless service provision. Two interviewees commented that the direction of change in policy was proving difficult to implement and might turn out to be wrong-headed. Further supporting this issue of learning across the sector, Mullins et al.(2003) noted that the lack of a professional body for educating/supporting social housing

managers in the Republic of Ireland was a weakness in terms of the professional development of employees in the non-profit housing sector.

In sum, innovation as a factor in decision-making was generally perceived as presenting opportunities for growth and/or generating additional profits in the private sector, but with the caveat that innovations tended to be thrust upon the housing providers rather than being initiated by them. In the public and non-profit sectors, new forms of service provision – generally involving the private sector – were perceived as the main innovation opportunities for the sectors, but this perception was not shared by interviewees from the private sector. Finally, the difficulty in disseminating innovations and 'best practice' knowledge across the non-profit sector was perceived as an issue for agents in this sector, with the implication that learning/dissemination weaknesses may constrain opportunities arising from innovation.

Economic factors

Economic factors were mentioned across the range of production agents, but with some interesting twists. Only five private sector interviewees mentioned economic factors as impacting on strategic decisions, while seven public sector interviewees reported the same. Furthermore, in the most successful economy in Europe, the vast majority of interviewees cited issues rather than opportunities arising from economic factors, with only two out of 17 identifying opportunities. The majority of interviewees referred to high prices for housing as presenting issues – even in the private sector where one would have anticipated that high prices would be seen as an opportunity. However, the issue with prices, when examined more carefully, had to do with the concerns about the sustainability of price levels and rising uncertainty around the magnitude and effect of any correction in the market. For example, a number of interviewees were pessimistic about the Irish economy (in 1998, as well as in 2003), and three were concerned that economic prosperity would result in runaway inflation, widening gaps between rich and poor and/or a decrease in funding from the EU.

Broadly speaking, economic factors largely consisted of concerns about house prices, which were perceived as having different impacts on different agents, but which were generally considered to have increased to 'too high' a level to be sustainable. Tax incentives (or more precisely the elimination of these incentives) were mentioned as presenting an issue, but could equally have presented an opportunity under different fiscal policies. Government funding was perceived at being at risk due to economic factors, in one case an anticipated slump was expected to result in funding cutbacks, while in another case it was increased prosperity that was going to drive the cutbacks. Finally, uncertainty around rising/falling prices, increasing/decreasing funding, demand

levels in various locations and/or in different social segments was also a feature of the general pessimism around economic factors affecting production agents.

Although not part of the core research on production agents, it is very interesting to note that interviewees in utility facilitating agents, i.e., bankers and estate agents[57], were generally positive about economic factors, particularly regarding prices and buoyant demand, although bankers were somewhat bearish about pressures on their margins and potential over supply. Furthermore, every one of the interviewees from utility facilitating agents cited economic factors as affecting decisions, while only one in three interviewees in the production agents did the same. This split over the importance and direction of economic factors between utility agents and production agents supports the proposed modelling of these agents on different performance landscapes.

Sector identity

A concern with sector identity was largely confined within the non-profit sector, represented by over half of interviewees (9/17) from this sector and only one or two from each of the other sectors. The non-profit sector's low profile – or lack of identity – featured as an issue that had ramifications for individual agent's ability to generate support for its activities within the community and, more specifically, from key statutory agencies such as Local Authorities. In contrast to this view, there were several interviewees who felt that the sector's identity afforded opportunities. The specific examples of this were the rising awareness of the problem(s) of homelessness amongst the public, the inclusion of the sector association agents (ICSH, NABCo) in various 'partnership' fora and the perception that the wider voluntary sector was appearing more and more on the radar screen of government policy as an alternative to direct public provision.

Mullins et al.(2003) devoted an entire chapter to identities in their report, in which they characterised organisational identities according to various features such as organisational values, positioning of the sector vis-à-vis other sectors, branding, leadership and governance approaches – characteristics that would be equally at home in a study of diversity in private sector firms. In the Mullins et al. (2003) account, in fact, the non-profit housing sector 'identity' was not an homogenous one. The authors proposed that there were four different models of non-profit identity which, in some ways, mirrored the idea of value proposition in the private sector, since organisations chose different 'identities' according to perceived need in the social housing market.

This concern with organisational identity notwithstanding, the majority of interviewees in this study were referring to sector identity as a factor affecting decision-making. Only two organisations referred to their organisational identities as being problematic and this had to do with

[57] Two estate agents and three bankers were interviewed during the research conducted for this thesis

the being different from the 'norm' in the sector. One interviewee felt that his organisation had been 'sidelined' because of its English origins, while the other commented that large organisations operated in a 'no-man's land' in the sector due to the focus on small organisations by the ICSH. The characterisation of the sector as consisting of home-grown, community-based and small voluntary organisations apparently was not advantageous to all.

Sector identity issues in the private sector were mentioned by only two interviewees having to do with concerns about "cowboy" contractors and the high profile media coverage of the Flood planning tribunal inquiry into corruption in the planning system. "Cowboys" in the Irish housing system are those contractors who are perceived as being less reliable and less professional than 'qualified' or long-standing building contractors and who enter and leave the industry on a purely opportunistic basis. They are often blamed for bringing the reputation of the sector into disrepute both for the low quality of their work and for their propensity to leave clients with half-completed jobs for which they have been paid up front. It was not clear, however, how either the perception that cowboys or corruption were present in the industry affected the decision-making of agents.

Sector association(s)

While sector identity was a factor largely confined to the non-profit sector, sector associations were mentioned as often by the private sector as by the non-profit sector interviewees. Five interviewees in the private sector and six in the non-profit sector mentioned associations as facilitating (or not) the achievement of their organisations' objectives. Although the Construction Industry Federation (CIF) is an umbrella organisation for the vast majority of private sector organisations, four different associations were mentioned by interviewees in the private sector, including the CIF, Irish Home Builders' Association (IHBA), Royal Institute of Architects in Ireland (RIAI) and the Timberframe Industry Association. In the non-profit sector, the Irish Council for Social Housing (ICSH) was mentioned almost exclusively as the relevant industry association.

Three types of activities by associations were seen as influential: one was lobbying government to achieve sector-wide (or even firm-specific) objectives; a second was attending to the image of the sector in media, government and community circles; and the third was supporting (or not) innovations and/or best practices in the industry. Interviewees in the private sector were more critical of the achievements of the main association, the CIF, than were interviewees in the non-profit sector of the ICSH. Interviewees from both sectors, however, were not impressed with their respective associations' achievements in regard to the innovation/best practice. In fact, counter to their constituents' views on innovation, interviewees from the sector associations focused on innovation related issues, e.g., quality concerns, increased uncertainty in the sector and confusion

around sector identity. This finding suggests that the formation of industry or sector associations may have a constraining impact on the introduction and dissemination of innovations, as the price to be paid for the increase in institutional certainty and sector influence.

While few interviewees felt that association activities could directly impact on outcomes, many felt that the associations should work to influence economic, social and political factors that were considered to present opportunities or threats to the sector. This suggests that agents perceive the role of the associations as acting to influence the agents' external environment. In addition, associations were expected to address operational issues such as facilitating negotiations with labour unions, government funders and/or insurance providers, educating members about new rules/regulations or technologies, and ensuring the maintenance of quality standards. This suggests that resource access, relationships and production decisions are also impacted by the activities of sector associations.

Co-ordination among agents

A factor that was unique to the non-profit and public sectors was the co-ordination of activities between and among organisations, with roughly similar proportions of interviewees in both sectors mentioning this as impacting on their decision-making. Examples of co-ordination issues include difficulties in co-ordinating activities across different departments within local authorities, lack of linkages among non-profit housing providers – particularly those in the homeless sub-sector, lack of agreement on goals among different agencies, and difficulties in acquiring and/or leveraging scarce skills across different agents – particularly the non-profits (e.g., development, finance, service provision to particular groups, etc.).

While the issue of skills recalls the organisational capacity discussion, it is different to the extent that interviewee comments are aimed not at gaps in their particular organisations, but related to the sector broadly defined. Also, interviewees often linked their comments to skills that had passed their sell-by-date and needed to be updated. The replacement of rent collectors with community development, involving social tenants in housing management decision-making and the large scale development targets for non-profit organisations are all examples of areas of sector-wide skills gaps.

Amongst interviewees in both sectors, there was a sense that the activities of independent agents were not generally co-ordinated – either through the mutual adjustment of agents or the intervention of a co-ordinating body. The Homeless Initiative / Agency was seen as having the potential to be more of a co-ordinating entity in the Dublin region around homeless services, but one interviewee felt that this potential had not yet been realised (in 2001). As of 2006, more

progress had been made in tackling homelessness, and coordination has been improved across both non-profits and statutory agencies. Nevertheless, there were still issues around co-ordination. In the executive summary of the PricewaterhouseCoopers (2004) evaluation of the Homeless Agency, the authors commented:

> *"The difficulties inherent in developing an on-going productive partnership between different groups are... evident. The emergence of tensions between groups should not be seen to be 'part and parcel' of the strive for a collective response from a number of organisations each with different remits." (PWC 2004: 1)*

One knowledgeable source in homeless provision in the Dublin region said that, notwithstanding the institutional power of the Homeless Agency, "co-ordinating the activities of the voluntary (sic) sector is like herding cats".

Co-ordination as a factor was linked with a range of strategic decisions including output decisions, inputs, changing organisational structures, relationship building, resource acquisition, information management and active efforts at co-operation. In fact, there was not a single decision identified by the non-profit and/or public sector that was not linked at least once to perceptions around the issues/opportunities related to co-ordination within and between the sectors. Given the powerful impact of this factor, it is not surprising that efforts at co-ordination, even to the extent of engaging in corrupt or collusive behaviours, do occur in the private sector – although these remained unacknowledged in the interviews.

The planning system

This brings us, finally, to the last factor mentioned by interviewees as impacting on decision-making and the *bête noire* of many in the private sector – the planning system. Six interviewees from this sector mentioned the planning system/process as an issue in relation to strategic decisions. Introduced over four decades ago, planning as a rule affecting the development of new housing was still perceived as a source of significant uncertainty and/or malpractice to these interviewees[58]. Architects and planners (three interviewees in all) and three of the developers all mentioned the planning system as impacting upon strategic decisions. Furthermore, many interviewees felt that there were inordinate delays in the planning process, but this was more of an implementation issue impacting on the timing and volume of production outcomes than a strategic

[58] Note that planning legislation was introduced over 40 years ago in the Local Government (Planning & Development) Act, 1963. However, according to many interviewees in the pubic and private sectors it was not until the mid-1990s that local authorities really applied planning laws with any regularity. Furthermore, except for one plan in Dublin in the 1960s, there were no regional or national planning guidelines until the National Development Plan (1999) and the National Spatial Strategy (2002).

one. Planning issues were linked to political factors in the study and represent a clear example of rule creation by collectivity agents affecting the behaviour and outcomes of production agents. The fact that it is the least mentioned of all of the factors reported by interviewees suggests that this type of intervention in the system tends to have limited strategic impact when compared to the other factors identified.

Summary of environmental factors affecting production agents

In this section on factors affecting decision-making, 11 different factors were described that were mentioned in four or more of the 48 interviews conducted. Following the strategy literature on environmental analysis (de Wit & Meyer 1998, Johnson & Scholes 2001, Courtney 2001), many of these factors may be grouped into internal and external factors in relation to the organisational agents. An internal environmental analysis involves examination of strengths and weaknesses, resources available to the organisation, organisational structure and processes, and culture; while an external environmental analysis involves examination of opportunities and threats, competitive stance, political, economic, social and technological influences, etc. resource access, relationships and organisational capacity are internal factors since they may be affected directly by organisational decisions, while political, social and economic factors are external to the organisation's decision-making influence.

What is largely ignored in the literature that describes the features of an organisation's environment are those that arise from the interactions among agents, including innovation /learning factors, sector identity, sector associations, the level of co-ordination among agents. While mentioned less frequently than those in either the internal or external categories, these factors were nevertheless perceived by interviewees to have significant impact on outcomes and decisions. As such, the identification of these factors is an important contribution of this research, made even more so by the observation that these factors arise from the interaction of agents within the system, thereby making them 'emergent' factors using CAS terminology. The planning system as a factor affecting decision-making is of a different type altogether in that it is really a rule constructed by collectivity agents in the political system – like that of tax policies, regulations, etc. - and may therefore be grouped with the political factors under external factors.

The table below shows how many times a particular factor was mentioned by interviewees in each sector. Factors common across all sectors are highlighted in black, factors that appear in only two sectors are in grey and factors unique to one sector are not shaded. The factors are grouped into the above categories proposed, namely internal, external and emergent.

Table 7.9: Environmental factors affecting outcomes and strategic choices by sector

	Private	Non-profit	Public	Total
# interviewees	(14)	(17)	(17)	(48)
Factors				
Internal:				
1) Resources	**7**	**16**	**17**	**40**
2) Relationships	**11**	**14**	**12**	**37**
3) Org. Capacity	**4**	**9**	**11**	**24**
External:				
4) Political	**8**	**10**	**9**	**27**
5) Social	**1**	**10**	**9**	**20**
6) Economic	**5**	**5**	**7**	**17**
7) Planning system	**6**	**0**	**2**	**8**
Emergent:				
8) Innovation/learning	**5**	**8**	**6**	**19**
9) Sector identity	**3**	**9**	**1**	**13**
10) Sector assoc.	**5**	**6**	**0**	**11**
11) Co-ordination	**0**	**4**	**6**	**10**
Total factors	*55*	*93*	*79*	*227*
No.factors per agent	*3.9*	*5.5*	*4.6*	*4.7*

The first observation to be made from the table above is that internal factors are way out ahead of the other categories is terms of the number of times they are mentioned. Also, agents from all sectors appear to be affected by largely the same internal and external factors – apart from social factors which only affect non-profit and public sector agents and the planning system which is a concern only to the private sector. But the social factors identified are effectively 'demand' factors for the public and non-profit sectors – similar to economic factors for private sector agents – in that these are drivers of demand for their outputs. The planning system applies to all agents equally, so it may be that the private sector is simply more aggravated by these rules than are agents in the other sectors. With this in mind it appears that, at least in regards to internal and external factors, agents operate on similar landscapes.

However, this is not the case for the emergent factors. These factors display significant variation among sectors as, aside from innovation/learning, the other four emergent factors appear in only one or two sectors, but not in all three. This is an important finding, particularly in comparison to

the commonality of factors across sectors for internal and external factors. It appears that, while organising agents across all sectors have much in common with respect to their external environments and how they must configure themselves internally in order to achieve their strategic objectives in this environment, over time the interactions among agents of a particular legal status create emergent features of their environment which are unique – or unusual – within the wider system. In the Irish system, non-profit agents interact to establish an identity for the sector which then creates both opportunities and issues for agents in subsequent periods. Co-ordination across agents becomes crucial to achieving individual agent objectives as agents proliferate in the public and non-profit sectors. In the private sector, the response to proliferation of agents is, of course, competition – at least that is what economic and strategy literatures would lead us to conclude – the level of which will affect future behaviour. Sector associations have relevance to private and non-profit agents as they are supported (or not) by constituent agents and acquire influence (or not) over agent behaviour or other collective decision-making organisations. As a potential source of diversity and unanticipated outcomes in a public service system these emergent factors, and the interactions/relationships from which they emerge, may be central to understanding the complex cause and effect processes in public service systems.

These findings in the production landscape are highly relevant to the development of governance theory, particularly in relation to how policy-makers might influence agent behaviour indirectly. The finding that organising agents across all three sectors are influenced by the same set of internal and external factors provides specific examples of some generally applicable 'levers' that policy-makers have for increasing or decreasing production in a particular policy domain. Individually, none of the internal and external factors identified were surprising, but as a group they represent a particular subset of the nearly infinite range of factors that could potentially be considered as appropriate policy targets. The emergent factors identified represent a relatively under-explored range of potential policy targets which will require further research to determine if and how they can be influenced in particular directions and also if there are patterns of predictability between these factors and agent production levels.

However, while illuminating with respect to the nature of the factors influencing decision-making, the detailed mapping of the empirical case to the model suggests further enhancements of the model are required. In particular, the model needs to accommodate the impact of agent decisions on 'factors' in the environment. The emergent factors discussed above are likely to provide the greatest challenge in this area, but there is also the question of how agent decisions impact on internal factors. For example, decisions around 'organisational structure' or 'resource acquisition' are likely to have an impact on the internal factor of 'organisational capacity'. Which brings us to the next feature of the landscape, namely interdependencies among actions (decisions) and circumstances (factors).

Interdependencies among actions and circumstances

With the identification of the decisions and factors that make up the production landscape, it became feasible to assess the level and nature of interdependencies among these elements. Recall that decisions/factors in the performance landscape model proposed are the 'N's of an 'NK' fitness landscape as per Siggelkow & Levinthal's (2003) formulation, with 'K' representing the degree to which the 'N's are interdependent. Having identified 26 'N's in the Irish housing landscape, K may be any number from 0-25, with 0 representing completely independent decisions and factors and 25 representing dependencies between all decisions/factors.

As described in Chapter Three, the approach taken to identify 'K' was to perform a statistical analysis of the 26 landscape elements (15 decisions and 11 factors) across the 48 observations (interviews) to discover the extent to which these elements exhibited interdependence. Chi-squared analyses within the 'crosstabs' feature of SPPS was used for this purpose, consistent with the type of data (yes/no) being analysed. The first pass through the data, in which 325 cross tabulations were run, turned up 33 possible binary relationships based on a significance level => 0.05 for the Pearson Chi-Squared value (see appendix 7.1a for a matrix of the observed significance levels for all possible relationships among the 26 decisions / factors). This would suggest that, on average 'K' is between 1 and 2 for the 26 'N's identified in the case study. However, further exploration of the statistics for these potential interdependencies showed that the there were only six binary relationships for which the null hypothesis of independence between the two variables could be rejected and an interdependency between them assumed (see appendix 7.1b for the results of the statistical analyses for these relationships). This low level of statistical significance for the interdependencies initially identified was due to an insufficient number of cases in relation to the number of decisions and factors, which resulted in expected values of less than 5 in one or more cells of the Chi-Squared matrix.[59] Additional data (interviews) are required in order to pursue a statistically supported estimate of K for future simulation.

However, when the analysis of interdependencies was undertaken after splitting the observations into groups based on legal status, a different picture emerged. The decision to split the data into three groups based on legal status was based on the evidence of differences uncovered during the initial analysis of decisions and factors as presented in the previous two sections, as well as on a cluster analysis performed on the SPSS data file to identify groups of similar agents. The clustering analysis performed was an agglomerative hierarchical matching approach in which the

[59] As per Norusis (2003) who states "a conservative rule for the use of the chi-squared test requires that the expected values in each cell be greater than 1 and that most cells have expected values greater than five (p. 167)"

values for each decision / factor reported by an agent were clustered into successively fewer groups and the similarity between members of each group measured. The more similar agents were to other agents in their respective groups, the greater the average similarity measure reported. In the clustering analysis performed, the similarity between agents remained quite high as the hierarchical grouping of agents progressed through to measuring the similarity between agents clustered into a single group – providing support for the hypothesis that agents are more similar than they are different in terms of the decisions they make and the factors they consider. However, when two clusters were created, a pattern of difference appears between agents classified as private sector and all other agents (see Appendix 7.2). The proportion of agents classified as group '1' from the public and non-profit sectors is about the same at around 60%, while the proportion of agents classified as group '1' in the private sector is about 30%. Moving the number of clusters up from two to three, four and five made very little difference in the membership of groups, except in the case of the non-profits which exhibited significantly more variation than either the public or private sectors (see Appendix 7.2 – rows in grey). Hence the classification of agents into three groups based on legal status was deemed appropriate with the caveat that the non-profit group was a group by virtue of its member's tendency towards variation, as compared to the similarity between members of the other two groups, i.e., the public and private sectors.

Because the number of observations in each group was quite low, further statistical analyses were deemed to have little value and so more rudimentary analysis was performed to search for dependencies. Potential dependencies among elements were identified through a simple sorting of the original spreadsheet used to load the data into SPSS and each element was analysed to determine if its presence indicated the presence of another element. For example, the four interviewees that reported a cost value discipline in the private sector also reported that politics, resources and relationship factors played a role in decision-making. The three tables below show the potential dependencies among elements in each of the three sectors as identified through this analysis, with the presence of an element in the columns indicating the presence of an element in the rows[60]. Only elements that were reported three or more times were included in the analysis.

[60] A potential dependency of element A on element B was identified if the occurrence of element B always, or with the exception of only one observation, was concurrent with the occurrence of element A

Table 7.10: Potential dependencies among elements in the public sector

	Elements in columns influence elements in rows																
	Factors								Decisions								
	Social	Resrcs	Politics	Econ	Rltnshps	Capcty	Coord	Innov	Grow	Org Mode	Diversify	Rcs Acc	Dvlp Info	Bld Rltns	Customer	Liaise / Info	Cost / val
	9/17	17/17	9/17	7/17	12/17	11/17	6/17	6/17	6/17	3/17	4/17	7/17	4/17	8/17	4/17	4/17	3/17
Social											X						
Resources																	
Politics											X						
Econ																X	
Rltnshps	X					X			X		X	X	X				
Capacity										X							
Coord																X	
Innov																	
Grow																	
Org Mode						X											
Diversify																	
Resource Access																	
Devlp Info Capblty																	
Build Relatnshps																	
Customer																	
Liaise / Info																	
Cost / val																	

Table 7.11: Potential dependencies among elements in the private sector

	Factors									Decisions								
	PlngSys	Econ	Politics	Rltnshps	Capcty	Resrcs	Innov	Sec Ident	Assoc	Grow	OrgMode	Rsc Acc	Bld Rltns	Location	Mkt Typ	Cost/Val	Customer	Quality
	6/14	5/14	8/14	11/14	4/14	7/14	8/14	3/14	5/14	7/14	7/14	7/14	7/14	5/14	4/14	4/14	3/14	4/14
PlngSys																		
Econ																		
Politics												X				X		
Rltnshps										X	X		X	X		X		X
Capcty															X			
Resrcs												X				X		
Innov																		
Sec Ident																		
Assoc																X		
Grow					X		X		X									
OrgMode					X													
Rsc Acc					X	X										X		
Bld Rltns											X				X			
Location																		
Mkt Typ																		
ost/Value															X			
Customer																		
Quality																		

Table 7.12: Potential dependencies among elements in the non-profit sector

	Elements in columns influence elements in rows																		
	Factors										Decisions								
	Econ	Social	Politics	Rltnshps	Capcty	Resrcs	Identity	Innov/lrng	Assoc	Coord	Grow	Compete	Diversify	OrgMode	Rsc Acc	Bld Rltns	Segment	Cost/Val	Customer
	5/17	10/17	10/17	14/17	9/17	16/17	9/17	8/17	6/17	4/17	13/17	3/17	6/17	6/17	13/17	13/17	11/17	3/17	4/17
Econ														X					
Social	X																		X
Politics							X	X	X				X	X		X			
Rltnshps								X			X		X					X	X
Capcty													X	X	X				
Resources																			
Identity																			
Innov / learning																			
Assoc																		X	
Coord																			
Grow	X								X			X	X	X		X		X	
Compete																			
Diversify												X		X					
Org Mode					X							X							
Resource Access																X			
Build Rltnshps																			
Segment																			X
Cost / value																			
Customer																	X*		

X indicates that relationship is with Customer and Default value discipline*

These potential dependencies among elements can not be relied upon until additional data can be collected and statistical analyses performed. Nevertheless, there are three observations that are relevant to the research question to be made from the above as well as from the initial analysis of interdependencies. The first is that 'K' is clearly greater than zero for the 'N's found in the Irish case study, but it is unlikely that 'K' is so great as to create instability in the system. Furthermore, dependencies between decisions and factors appear to increase within legal status sectors, which suggest that the overlapping landscape proposal requires modification. Although the types of decisions and factors in the three sectors appear to be similar, interdependencies among these decisions/factors appears to be different, a situation which would decrease the likelihood of identifying associations among elements across agents from different sectors.

The second observation arises from a comparison of the number of dependencies identified in each sector. The public sector appears to have relatively fewer interdependencies among elements than either of the other sectors, and the non-profit sector appears to have the most interdependencies. This suggests that, under the definition of complexity in Kauffman (1994, 1995), the public sector landscape is less complex, while the non-profits operate on the landscape of greatest complexity. Specifically, if the relatively lower levels of interdependence among decisions in the public sector vs. the non-profit and private sectors is borne out in subsequent research, it would indicate that public sector managers have less complexity to deal with in this aspect of decision-making. Why this should be so is a matter for future deliberation and research, but it certainly adds another

perspective to existing public administration strategy literature that suggests the public sector is more complex than the private sector due to the multiplicity of objectives that managers in the public sector face. Furthermore, there is no literature that I am aware of that suggests that decision-making in the non-profit sector is so much more complicated than the public sector – rather non-profit and public sector strategy texts tend to lump the two together in terms of the decision-making challenges.

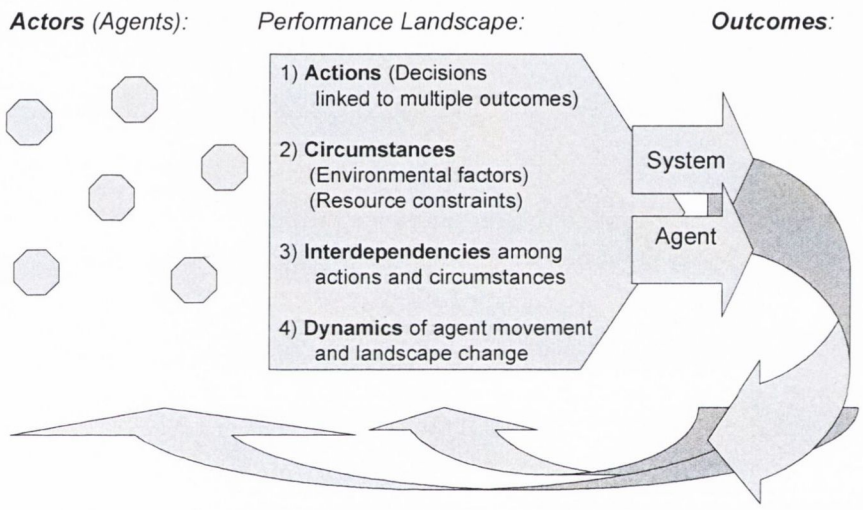
Finally, the third observation requires some subtle interpretation of the tables presented and also challenges some of the long-held views on the dynamics of decision-making. If one studies the location of the preponderance of potential dependencies in the three tables shown, it will become apparent that the *direction* of dependence is counter-intuitive. There are more potential dependencies in the upper right quadrant of the three tables than occur in all of the other three quadrants of the tables put together. This upper right quadrant contains dependencies that occur between decisions and factors, but *in the opposite direction than most decision-making theory would assume*. In other words, an 'X' in this quadrant means that the appearance of a particular factor is dependent upon the appearance of a particular decision, and not the other way around. For example, in the case of the private sector, interviewees that reported pursuing a cost value discipline also reported concerns with political, relationship and resource factors. However, reports of these factors by private sector interviewees did not always indicate the decision to pursue a cost value discipline. In the case of the public sector, a diversification strategy appeared along with social, political and relationship factors, but a concern with these factors did not necessarily mean that a diversification strategy would be pursued. If this pattern of dependency can be statistically supported through the collection and analysis of additional data, it would mean that a case could be made for changing how we understand the nature of decision-making and environmental analysis. It would mean that decisions – or the consideration of taking a particular decision – drive how the decision-maker perceives the environment rather than the other way around.

Of course, these observations are only preliminary and require additional data collection and analysis to build an empirical base for developing theory. Furthermore, the next round of data collection on decision-making by organisational agents should not only focus on decisions/factors being considered at the moment, but should also explore with interviewees the current assumptions or positions with respect to each of decisions and factors identified in this case. This would facilitate the modelling of dependencies among each of the landscape elements in a richer way than was accomplished in this analysis. Insofar as these findings suggest anything with respect tot eh applicability of the model to public service system governance, they do suggest that the level of interdependency among features of the decision landscape is not so great as to make it impossible to develop reasonably stable (but not 'frozen') simulations of agent behaviour and outcomes.

Dynamics on the performance landscape

As discussed in Chapter Four, the dynamics of the performance landscape consist of the movement of agents and the changes to the features of the landscape. It may be useful to review at this point the basic modelling framework to consider how the pieces fit together before embarking on this last piece of analysis to complete the mapping of the conceptual model to the empirical data on the Irish housing system.

Figure 7.3 High level conceptual model (repeated)



Organisational agents (actors) are formed with value objectives in mind and have several characteristics that influence their actions on the performance landscape. Chapter Five provided a detailed analysis of value objectives and relevant characteristics of agents as they appeared in the Irish housing system. The performance landscape(s) on which agents pursue these value objectives consist of actions and circumstances that together affect the level of performance that agents can achieve, and measures relating to performance levels in the Irish housing system were discussed in Chapter Six. In that chapter, the connections between agent level performance outcomes and those outcomes relevant at the systems level were also explored, with the conclusion that simple aggregates of agent level outcomes were one type of relevant system outcome, but that other, *emergent* outcomes were also important. These included such outcomes as house prices and relative distribution of housing production and utility across the population (equity). The evaluation of these outcomes (modelled as a fitness function) by agents is a crucial aspect of the dynamics that are discussed in this section, initiating as they do each round of decision-making aimed at improving an agent's performance over that already achieved

In this chapter, a list of decisions and factors facing agents on the production performance landscape in Irish housing was developed based on interviewees' reporting of their respective organisations' strategic decisions. The decisions were linked to relevant outcomes, and correlations between decisions and factors were explored. In this way, the basic geography of the Irish housing production landscape was mapped. This is a significant step towards the development of governance theory for public services in that it narrows down the range of elements that need to be explored from a potential infinite list to a much more manageable set. Having said that, it may or may not be the case that other public service systems display the same geography of decision-making, but at least there now exists a straw man against which to compare subsequent empirical cases to confirm or challenge these findings.

But an understanding of the agents, outcomes and landscape elements is a static and inadequate basis on which to build theory. What is required in addition is an understanding of how these elements change over time. Hence the need to explore the dynamics of these elements and, in particular, to determine what sort of patterns may be found in the Irish case study with respect to agent movement on the landscape and changes to the elements of the landscape itself. However, it must be noted that the data gathered for this study was not longitudinal, in spite of the fact that it was gathered over a long period of time. Each interview represented a decision-making instance in time for the targeted organisations and only two organisations were visited in two separate periods. What could be gleaned from this data, however, were some initial observations on the drivers of agent entry onto/exit from the landscape (agent formation and dissolution), the number of different decisions that agents make in a single period – which gives some indication of the range of movement on the decision landscape, and to what extent agents may be constrained from making particular choices (movements) on a given landscape. These observations are discussed in more detail below. However, in order to flesh out these initial observations about dynamics, a different type of study would need to be constructed to test how change actually occurs.

Agent movement on the landscape

Several of the elements of agent movement dynamics have already been alluded to in the previous chapters. The first of these is the dynamic of agent formation which, while not specifically highlighted, was nevertheless contained in the discussion of agents in Chapter Five. In essence, the discussion of value objective in that chapter implied that agent formation is a function of the perception by individuals that value may be created through organising. Therefore, the more potential there is for value creation through organising, the more likely agent formation becomes. This is a fairly simple dynamic to model in the case of equity and inclusion objectives since agent formation becomes a function of the level of equity or inclusion in the system in question. Agent formation also becomes more likely as the possibility for wealth creation increases – a dynamic

that is well known in economics, but may be somewhat more difficult to incorporate into the proposed model, since the potential for wealth creation in one service system is likely to be affected by other systems. Utility, production and collectivity value potential are also somewhat difficult to conceptualise, but it is not necessary to completely explore how these concepts might be measured in order to imagine how they might fit into the dynamics of agent formation.

As far as the dynamic of agent exit from the system – or the dissolution of a particular organising initiative – this arises from the application of the fitness function discussed in Chapter Six (p. 163). To the extent that participants in an agent determine that the value achieved (F_x) is incommensurate with the level desired, or that no further value can be achieved by the continuation of the organising activities, the participants will leave the initiative and, eventually, the number of individuals participating in the agent will fall below the level required (HP_{MIN}) to continue its existence. The agent will then be dissolved and will exit the landscape.

A third dynamic or, more precisely a pattern of movement, was implied in the discussion of decisions in this chapter in which agents with different legal status characteristics had different 'blind spots'. A blind spot exists when an agent does not 'see' a particular decision option on the landscape – i.e., when a non-profit agent does not perceive an option to compete with other agents. As discussed, there were six different decisions that were determined to be blind spots for some agents and the existence of these blind spots means that the agent is effectively barred from moving to certain positions on the landscape.

Another pattern in the data underpinning a fourth dynamic relates to the number of decisions/factors that agents can consider at a time or, in modelling terms, the number of different location options available in a single move. In the case of decisions, the average number of decisions reported by interviewees was four, although there were different numbers for each sector. Non-profit interviewees reported five current/recent decisions, while those from the public sector only reported three and private sector interviewees reported four. Again, this sort of analysis must be treated with extreme caution as the interview protocol was not aimed at determining the exact number of decisions made in a period, but still it gives modellers something to start with. As for the variation among sectors, this provides both a range for possible movement as well as a puzzle to solve. The puzzle is why there are differences in movement range between the sectors and three possibilities may be considered. The first is that a decision-maker's view of the resource environment (positive / cautious / negative) will have an impact on the number of changes that are considered. The non-profit interviewees were considerably more positive about the resources available to them, while the public sector was cautious to negative. The second possibility is that norms for decision-making in a given sector vary, as in agents in some sectors are inherently more conservative in the number of changes they will consider at any one time. The

third possibility is that sectors may go through periods of more/less change in which a few agents start to make a number of changes and then this gets amplified throughout the sector through processes of isomorphism. Any one of these possibilities, or others that may be imagined by future researchers, is worthy of focused research.

In terms of the factors considered by agents when making decisions, there was also some variation across agents. Public sector interviewees considered slightly more factors than did private sector interviewees, and the non-profits again led the group in the average number of factors considered. In the discussion of interdependencies, the possibility arose that decisions are what drive the consideration of factors, which would make it relatively easy to model the dynamics of which factors are considered and how agents may move from the consideration of one factor to another. It would simply be a matter of mapping which factors are considered to each decision and then letting the agent 'move' between factors based on their movement between decisions. However, things may not be as simple as this and some further research is recommended.

An additional dynamic relating to the number of decisions that an agent will make in a given period was indicated in the discussion of uncertainty in Chapter Five and again in this chapter in the section on factors. Uncertainty about changes in political (rules) or economic (prices) factors were cited by several interviewees as keeping them from making decisions, i.e., freezing them in place on the landscape. Here we can see the effect of activity in different landscapes – i.e., in the collectivity and utility landscapes – having an impact on the movements of agents in the production landscape. This would need to be incorporated into a model of production agents in the housing system, thus requiring that measures of the volatility of house prices and politically defined rules be one of the outcomes of those landscapes as well as a dynamic input into the decision-making of agents on the production landscape.

These five dynamics of agent movement cover both the system rules for movement as well as the agent-specific rules as outlined in the conceptual model. To review these: 1) agents will be formed when there is a perceived opportunity for value creation, 2) agents will exit the landscape according to their evaluation of outcomes and constraints as described in the fitness function, 3) agents have decision blind spots based on their legal status and therefore may not be able to move to certain locations on the landscape, 4) on average, agents appear to make four decisions in a given period, but this may vary based on their legal status and 5) the level of environmental uncertainty will affect agent movement. All but the last are easily accommodated in the proposed model. Modelling the impact of environmental uncertainty, however, will require modifications to the production landscape model, as well as the specification of the other two landscapes and their interaction with the production landscape. This reinforces the analysis in Chapter Five in which it

was first proposed that the empirical data from the Irish housing system suggested the need for three interacting landscapes, rather than one.

Changes in landscape features

An analysis of the pace and nature of changes to the performance landscape elements identified was well and truly beyond the scope of this research project, but nevertheless deserves a brief mention for the sake of completion. In order to understand the periodicity of change to the factors, decisions, links to outcomes and/or interdependencies among factors/decisions, a rather different study would be required that was longitudinal in design and examined the length of time between one manifestation of the elements identified and another. So, for example, a research project could be imagined that would study the average length of time between changes to relevant housing legislation, house prices, tax policies (affecting wealth outcomes), labour productivity, etc. to give some sense of how often and by how much these elements of the decision landscape were changed. It would also be necessary to look at the rate of change that was deemed to be acceptable in terms of uncertainty levels, and at what point the rate of change created the freezing effect described above. One marker for this type of study was found in the data collected when it was observed that the decision to diversify became noticeably more prevalent in the non-profit interviews in 2002/2003 when compared to the interviews conducted in 1998/1999. This suggests that something in the environment of the non-profits changed over that period of three years such that diversification was more attractive as a decision option. Hence three years might be a starting point for the development of theory related to environmental changes that affect decision-making.

With that said, much remains to be done to link any modelling assumptions regarding landscape changes to what actually occurs in a given public service phenomenon. Siggelkow & Rivkin (2005) incorporated environmental 'turbulence' – a particular type of change – into the basic performance landscape model simply by randomly changing the relationship between decisions (Ns) and performance outcomes to see how different rates of change would affect agent performance outcomes across the system. So it is fairly straightforward to incorporate this type of change into simulations based on the proposed model, it just requires that empirical bases for the change dynamics be developed.

Conclusion

In this chapter, the elements of the performance landscape for production agents were defined based on the Irish housing case data. The findings were based on data collected over the period 1998-2003 from interviews of 48 senior managers of production agents in the Irish housing system, spanning the public, profit and non-profit sectors. Arising from this analysis, Action

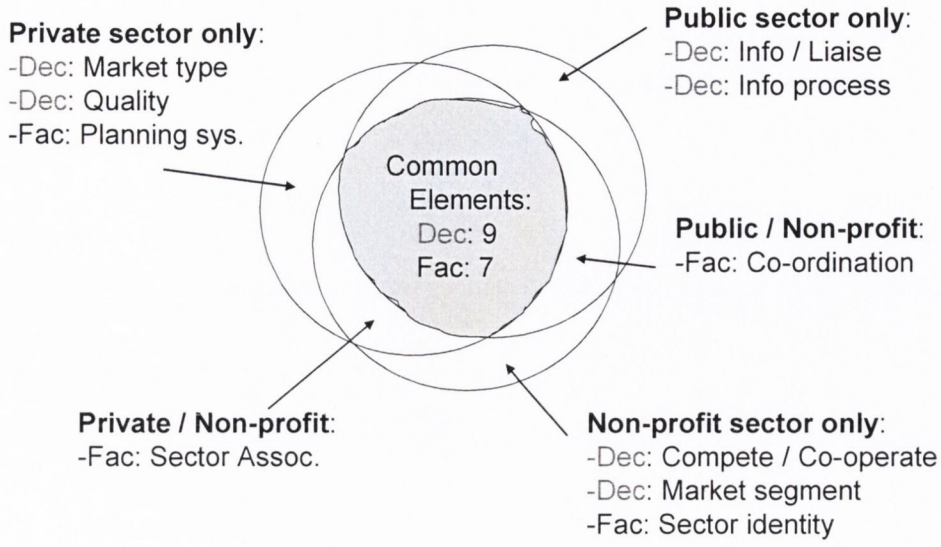
decisions, Circumstances, Interdependencies and Dynamics were described and classified, along with the observed links to outcomes and agent characteristics. These findings are summarised below. Following this summary, the main insights into practice and theory are highlighted and any issues/additional research opportunities are identified.

Actions (decisions): The types of action decisions identified by interviewees numbered 15 (excluding Innovation as a value discipline), with nine of these appearing to be common across all sectors and the remaining six appearing uniquely in one sector (see p. 179, Table 7.7). These decisions were further grouped into five categories of decision types relating to production capabilities, production outputs, relationship management, target beneficiaries and value propositions. The nine common decisions were proposed as the core set of 'N's for any future modelling of the Irish housing performance landscape, with the other six decisions as 'N's that were only available to some agents on the landscape. The decisions identified were largely consistent with strategy literature, although there were some interesting findings with regard to value discipline. One third of interviewees did not consider a value discipline to be part of their strategic decision-making, while four interviewees in the public sector identified information sharing/liaising with other organisations as their main differentiating value, a value discipline that does not feature in strategy literature reviewed for this thesis. Further research is required to determine if these findings are indications of key differences between value disciplines in the private and public sectors.

Each decision type identified was mapped to an agent's value objective(s) as they appeared in the interviews, which was proposed as a proxy for the mapping of decisions to outcomes in the landscape. In the main, decisions could be found to be linked to the full range of possible outcomes for production agents, with the only exception of decisions under the *production capabilities* category. These decision types included resource access, organising mode and information processing decisions and were linked by interviewees to production outcomes only. This limited outcome linkage was proposed as one possible reason for the exclusion of these types of decisions from those considered 'strategic' in the private sector strategy literature.

Circumstances: These consisted of eleven environmental factors, which were identified by interviewees as affecting their decision-making. Seven of the factors were common across all agents, and four appeared in one or two agent types only (see p. 195, Table 7.9). This pattern of common and unique factors, mirroring that which was found in decisions, suggested the existence of overlapping performance landscapes based on legal status as indicated in the figure below.

Figure 7.4: Overlapping performance landscapes based on agent legal status



An important finding in this section was the identification of factors that were neither completely internal nor completely external to organisations but that emerged from the interactions and relationships among agents. This category of emergent factors do not appear in the environmental analysis literature and this fact, combined with the fact that they vary across legal status types, led to the suggestion that these factors may be contributors to the unanticipated and complex outcomes endemic to public service systems. The full set of 15 decisions (9 common and 6 unique) and 11 factors (7 common and 4 unique) make up the 26 'N's of the NK landscape and form the basis of a complex adaptive systems model of housing production agents.

Interdependencies among factors/decisions: Interdependencies among the decisions and factors identified represent the 'K' of the NK model, however it proved impossible to establish a reliable statistically based estimate of K based on the data gathered, although indicative findings were reported. Potential interdependencies among decisions and factors were identified and these were further expanded upon when the data was split into three groups corresponding to the three legal status types. This finding further supported the proposed splitting of the production landscape into three overlapping landscapes pertaining to each of the three types, i.e., private, non-profit and public sector agents. Furthermore, the data suggest that, if the landscape(s) are modelled in this way, 'K' will be large enough to generate multiple performance peaks, but no so large as to create chaos. In other words, there are patterns of performance that relate to decisions, factors and interdependencies, but these appear to be specific to agents differentiated by their legal status. While this certainly does not contradict the bulk of management and public administration literature, the observation that the most complex environment appears to be the non-profit landscape, while the least complex is the public sector is not commonly reported.

System dynamics: Although the research was not designed to provide longitudinal data, some observations regarding system dynamics were nevertheless facilitated by the decision-making data gathered. Five possible 'rules' for agent movement on the landscape were discussed which, taken together, provide the basis for building a simulation based on the performance landscape model proposed. The movement rules discussed were relatively simple compared to the other landscape features described, however they will require additional longitudinal research to flesh out these early modelling proposals. As far as the dynamics that pertain to environmental change, specifying these based on empirical data will require a very different research programme focused on systems level change. However, the narrowing down of the list of environmental factors that affect decision-making and which should be the focus of future research is a contribution in itself.

Key issues/insights arising from the analysis of the performance landscape

While the mapping of the conceptual model elements to the actual decision-making of production agents in the Irish housing system was shown to be possible, if somewhat complicated, several of the detailed findings should raise significant concerns about the capacity of the model chosen to incorporate important features of the decision-makers' world. These are summarised below.

1) Importance of relationships in decision-making: The first one of these was the identification of relationships as core decision and factor elements on the landscape. The building/maintaining of relationships was the decision type observed in the interviews most often, while relationships of one kind or another featured as the second highest factor (to resources) impacting on decisions. Clearly relationships figure hugely in the Irish housing system, where the old adage, "it's not what you know, it's who you know that's important" appears to be well and truly embedded. However, relationships are not part of the performance landscape model, nor are they prominent in any of the complex adaptive models discussed in Chapter Four. The findings in this chapter highlight the fact that the exclusion of relationships decreases the 'descriptive capacity' (Frederickson & Smith 2003) of any theory built upon the conceptual model proposed. Therefore, some accommodation of the dynamics and influence of relationships among agents needs to be incorporated into the performance landscape model – and, in truth, into any complex adaptive systems model – for it to be able to support theory building in the governance of public services. Relationships are targets of decision-making as well as factors that influence decision-making, and also appear to play a role in managing uncertainty, hence they are pervasive features of the system that must be addressed.

2) Relationships as drivers of emergent factors: As noted earlier, there is quite a lot of literature in public administration that purports to deal with the nature and effects of relationships among individuals and organisations, however little of this clearly differentiates among nature of

relationships, nor are there empirical studies of how particular relationships affect decision-making, so little guidance is available in the literature to flesh out the findings in the case. In fact, the second key insight provides some indications of the nature and impact of relationships in that they appear to result in 'emergent' environmental factors that affect decision-making, such as coordination across agents, learning in a sector/industry, the strength and focus of sector associations and the degree to which agents compete or cooperate with one another. The emergence of these factors from agent interactions and relationships is clearly an important dynamic of the system which must be incorporated not only into the proposed model but also into future research into governance of public services.

3) The information/coordination role of the public sector: The final insight arising from the case study is the particular role and concern of interviewees in the public sector around information management and co-ordination across agents. This came through in the identification of unique features of the sector, including a value proposition that focused on liaising/information sharing, the higher importance of information exchange with end-users, and the emphasis on coordination within and outside of the sector as a factor impacting on decision-making. This was a particularly interesting finding in that it suggests that a unique and critical function of private sector production agents is the facilitation, through information sharing, of production activities of multiple agents in the system. This finding supports the case for focusing on the 'governance' role of public agencies (Ingraham & Lynn 2004) and, more specifically, on the information management and co-ordination activities in which these agents engage. It also provides a specific focus for exploring the mechanism(s) by which public sector agencies can engage in 'steering' of public service networks (Rhodes 1988, Kickert et al 1997). Further research is required to determine whether or not there is a relationship between achievement in this particular value activity and improved outcomes across multiple agents, and, if confirmed, this would be a significant feature of public service governance.

The three issues described above are not the only enhancements arising from the analysis of the production landscape for Irish housing, although they are the most complicated. Others include the need for specifying 'overlapping' landscapes based on legal entity, modifications on agent movement rules and the dynamics of environmental change and uncertainty. The full list of model enhancements, not to mention the additional research required, is a daunting prospect in the quest to develop a model to underpin a theory of public service governance. This observation is taken up in the concluding chapter in the discussion on implications for theory and limitations of the research.

Chapter Eight: Conclusion

"...sometimes we simply have to keep our eyes open and look carefully at individual cases – not in the hope of proving anything, but rather in the hope of learning something." Eysenck, H.J. (1976:9)

Research aims, methods and model

The objective of the research presented here was to understand how public services 'worked'. A number of theoretical frameworks for analysing the provision of public services were found to co-exist in public administration literature, with 'governance' theory appearing to have the most potential for dealing with public services as they are currently configured, as well as for integrating a range of other theories under its umbrella. Furthermore, governance theory as defined by Lynn et al. (2000) and management theory as defined by Carlile and Christensen (2006) were seen to be highly complimentary, suggesting that a governance theory framework could lead to better management, and equally that a management theory framework could contribute to better governance. Lynn et al's (2000) formulation of the fundamental question to be answered in the development of governance theory is presented as an equation in which outcomes are a function of environmental factors, actors, 'treatments', structures and management[61]. Carlile and Christensen (2006) propose that a fundamental question in management is also about outcomes as one of the four dimensions that management theory must address; namely outcomes, actors, actions and circumstances. Since the Carlile & Christensen dimensions could encompass those proposed by Lynn et al., as well as relevant concepts from other related disciplines, their formulation was selected as the basis on which to progress the research objective of discovering how public services worked. Specifically, the research question to be addressed was:

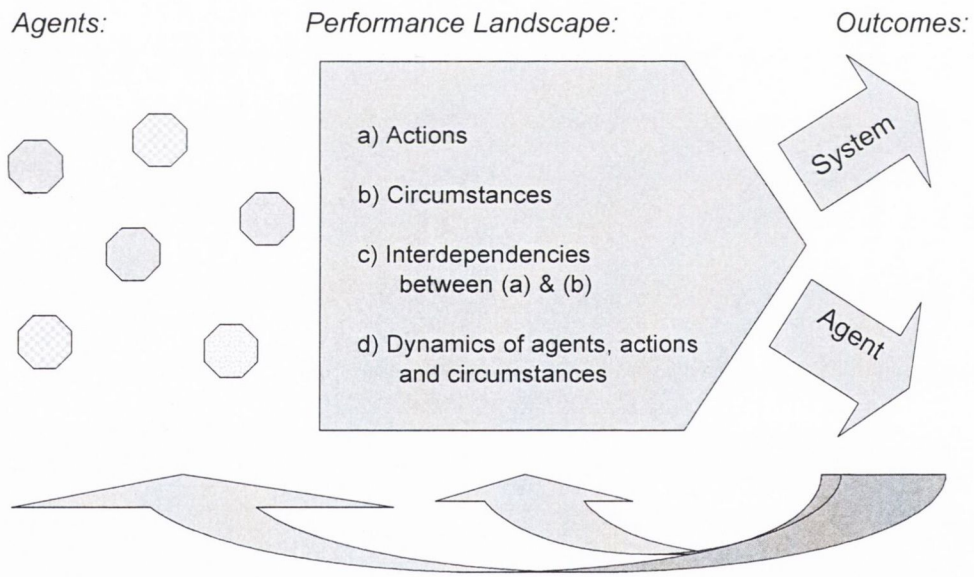
"What are the relevant actors, outcomes, actions and circumstances in the delivery of public services and how do each of these elements relate to one another?"

To answer this question, a three phase research programme was conducted consisting of an exploratory case study in Irish housing, followed by a soft systems analysis and in depth literature review, and concluding with a comparative case study of agent decision-making in the Irish housing system. The core finding from the first phase was that housing as a public service in Ireland was and could be conceived of as a type of system. Furthermore, that the range of actors and scope of activity within this system was quite broad, with no single literature or theory purporting to explain all of the components. The second phase drew upon interviews conducted in the first phase, a broad range of literatures addressing the various aspects of public administration and housing, and feedback from participants and academics involved in the housing

[61] See Chapter One for details.

policy/practice domain to ascertain the type of system and the key features of the system that must be explored if one were seeking to explain how the system worked. The core finding from this phase was the proposed conceptual model for public service systems which addresses the four dimensions of governance/management theory, and also provides a framework for how these dimensions relate to one another. Chapter Four explores this proposition in detail, responding to existing criticisms of the systems approach in general and laying out the case for a particular type of systems framework, i.e., a *Complex Adaptive System*, and a particular modelling approach, i.e., *'NK' modelling* (Kauffman 1993, 1995). Siggelkow & Levinthal's (2003) *performance landscape* model was selected as an NK model with significant potential for developing governance theory that would reflect the complexity of the phenomenon of public service, as well as provide a firm basis for future simulations and theory testing. In the course of developing this conceptual model, two additional dimensions were added to the original four, namely 'interdependencies' among actions and circumstances, and 'dynamics' of agents, actions and circumstances as shown below.

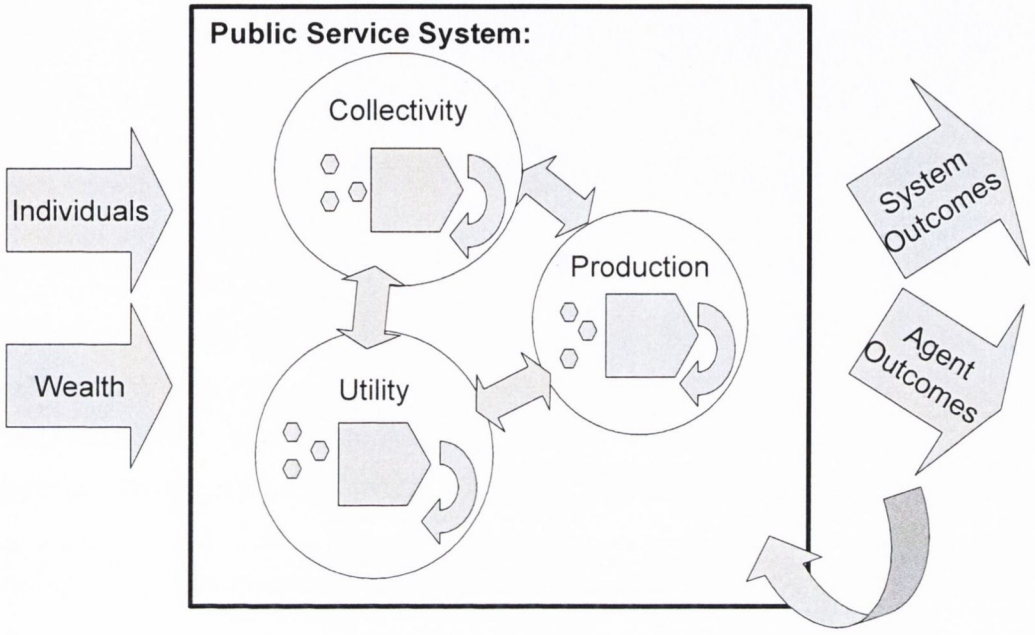
Figure 8.1 Performance Landscape conceptual model *(repeated)*



In the third phase of the research, each element of the proposed conceptual model of the Irish housing system was explored through a detailed examination and cross-case comparison of the decision-making activities of agents. It became apparent early on that the landscapes on which agents moved were different, driven largely by the type of value (value objective) that agents pursue, and so the latter half of this research phase was devoted to examining the features of the *production* performance landscape. This landscape was one of three interconnected performance landscapes identified in the first half of this research phase and which were discussed in detail in Chapter Five (see figure below). The production performance landscape was selected as being the most relevant to the governance/management orientation of this thesis, as well as being most

consistent with the performance landscape models of Siggelkow & Levinthal and their collaborators. The exploration of collectivity and utility landscapes as the remaining two landscapes that make up a public service system was left to future research, assuming that the findings here supported the considerable allocation of time and effort that would be required.

Figure 8.2 Public service system – multiple landscapes arising from different agent types



At the end of this third phase of research the high-level answer to the research question was that public services work as if they were interconnected performance landscapes on which organising initiatives (agents) of various types pursue their value creation objectives. These objectives are realised, or not, in the achievement of outcomes which may be measured at different levels of aggregation and may also 'emerge' as unanticipated by-products of the actions and interactions of agents. Outcomes are evaluated over time by agents seeking to improve upon their own performance or the performance of the system as a whole by making different decisions and thereby moving to new 'locations' on the performance landscape. Environmental factors also play a role in agent decision-making and these factors may be categorised as external, internal or emergent depending upon the degree of influence the agent has over the relevant factor.

Over the course of this mapping exercise, however, it became clear that the underlying CAS model chosen to represent a public service system had to be stretched significantly – perhaps beyond the limits of feasability – in order to provide a viable basis for governance theory development. Numerous modifications were proposed, with varying degrees of impact on the overall complexity of the model, and there were a few features of the case that could not be accommodated at all in

the model. These are summarised in the section entitled "Limitations of the research thus far and proposed next steps" in this chapter.

The details of agent types, value objectives, actions, interactions, outcomes, movement and factors were all explored in the empirical analysis of the Irish housing system and presented in Chapters 5-7 of this thesis. Summaries of these chapters are provided in the next section. Following this review of the findings, the main theoretical contributions of the research are summarised along with the implications of these findings for policy and practice in the delivery of public services.

Findings: how public services 'work'

As noted in Chapter One, the main objective of this thesis is to progress the development of governance theory in relation to public services. The identification and empirical grounding of a specific systems model (i.e., performance landscapes) to provide the basic framework for governance theory is a core achievement in this endeavour. In selecting the performance landscape model as an appropriate basis for developing governance theory, the dimensions of actors, circumstances, outcomes, actions, interdependencies and dynamics are all addressed. However, if one were to stop at this point, the analysis would remain at too high a level to progress governance theory as a testable set of hypotheses (Carlile & Christensen 2006) and/or to produce useful and reliable theory as defined by Frederickson & Smith (2003). These authors suggest that in order to be useful and reliable, theory needs to describe, explain and predict the dimensions of a real world phenomenon, although the latter suggest that, "the tendency is to expect too much of prediction in [public administration] theory (Frederickson & Smith 2003:6)". Identifying a model whose elements appear to account for the dimensions of public service provision in Irish housing provides only an outline sketch of the phenomenon and more details are required if descriptive, explanatory and predictive capacity of theory based on this model is to be achieved. Chapters 5 to 7 provided a range of details to flesh out the model and the developing theory, largely focusing on developing the descriptive and explanatory capacity, with predictive capacity to be addressed through future simulations and hypotheses testing based on the model proposed. The findings in each chapter are summarised below.

Chapter Five addressed the details relating to actors within the housing system, which were referred to as 'agents' in the performance landscape conceptual model proposed. One of the major challenges in developing a theory of governance for public services was finding a way to classify the wide range of different agents involved, including firms, government agencies, non-profit organisations, consumers, and policy-makers, as well as the regulatory agencies, research bodies and associations that develop and promulgate the rules that govern the behaviour of agents. The review of organisational theory suggested that the fundamental 'agent' for organising was neither

an individual, nor an organisation. Instead, organising consisted of *organising initiatives* of individuals engaged in the creation of value through interlocking behaviour (Weick 1969). Initiatives could be as short-lived as a house purchase transaction or as long-lived as a government agency, and organisations were often made up of many organising initiatives.

With 'agents' defined as any group of individuals organising to create value, it then became necessary to identify types of 'value' and 'organising'. Organising has been the focus of a rich history of organisational, management and institutional literature, and from these literatures *organising mode* (Galbraith 1977) was selected as a way of classifying different types of organising. Institutional organisation theory (Powell 1990, Thompson et al.1991) provided the basic typology of organising modes; i.e., hierarchy, market and network, which were also found to be present in the Irish housing case.

There was little available in the literature regarding value classification and, in fact, Anderson (1999) suggests that determining the specific nature of agent value creation is one of the challenges of developing organisational theory using complex systems. Therefore, Chapter Five drew upon the interviews conducted for the case study to suggest that the value created by organising behaviour of individuals could be described by one or more of six *value objectives*. Three of these, production, utility and collectivity, were proposed as 'basic' value objectives, since the other three, i.e., wealth, equity and inclusion, were generated through agents engaging in one, or more, of the basic value objectives. Value objective was shown to be of central importance in determining agent type; driving the activities in which the agent engaged, the fitness function used to evaluate outcomes, and the agent's 'schema'; i.e., their perception of the actions available to them as well as the relevant features of the environment. In fact, the differences in agent behaviour associated with value objective were so great as to result in the proposed three performance landscapes model shown in Figure 8.2 above.

Also found in the interviews, and supported by the literature was the identification of a third key characteristic of agents, namely *legal status*. Legal status influenced an agent's prioritisation of value objectives and was shown in Chapter Seven to have significant influence over an agent's view of the landscape, in particular the decisions that they would take and the factors they would consider. While the precise classification of legal status proved to be something of a challenge due to the range of inclusion and distribution strategies that could be adopted by agents, the commonly used classifications of private, non-profit and public types were proposed as capturing the main differences between agents as well as providing identity benchmarks for agents over time.

These three characteristics of agents; value objective, legal status and organising mode, were proposed as the key attributes of agent type with value objective identifying the main landscape on

which the agent moved, legal status influencing what aspects of the landscape were visible to the agent (its 'schema') and organising mode influencing the performance of the agent on its current location and its ability to move to new locations. As such, these characteristics increased the basic explanatory capacity of the developing theory by providing explanations for a) the different landscapes proposed, b) how agent perceptions of the landscape are influenced, c) the performance levels achievable by agents at a given location on the landscape, and d) the range of movement available to a particular agent on the landscape.

In **Chapter Six**, outcomes relevant to all types of agents and landscapes within the system were described based on empirical data, inductive reasoning, and a number of secondary sources in housing policy, economics and Irish government documents. The literature review provided the basic typology of outcomes to be explored, which included: 1) performance outcomes, 2) productivity outcomes, 3) fitness outcomes, 4) aggregate outcomes and 5) emergent outcomes, and each type was mapped to actual measures of outcomes found in the Irish housing system. These outcomes provide the basis for the definition of an agent 'fitness function' – which is a formulaic representation of agents' evaluation of their current and potential future positions on the landscape and is at the core of the feedback dynamic that drives agent movement and outcomes. Based on the Irish housing case, a generalised fitness function was proposed that incorporated measures of performance outcomes related to the six value objectives defined in Chapter Five, along with constraints relating to productivity, participant wealth and number of participants.

As anticipated by Anderson (1999), this fitness function was complicated and varied across agents depending upon the importance attached to different value objectives and agent-specific thresholds for the constraints. Nevertheless, measures for each element were either already available in the Irish context or possible to conceive of measuring – a 'finding' that was sought after by Anderson and considered unachievable by March & Simon (1958). Hence the definition of outcomes and the mapping of these to agent decision-making further enhanced the explanatory power of the model by linking agent value objectives with outcomes in a feedback loop that was supported by the empirical findings in the Irish housing case.

Chapter Seven was the most complicated chapter as its objective was to flesh out the features of a public service performance landscape including actions, circumstances, interdependencies and dynamics. Due to the practical limitations on the scope of the thesis, the research focused on only one of the proposed three landscapes, namely the production landscape, which was deemed to have the greatest potential for performance landscape modelling. The main source of data for this analysis was the interviews conducted with 48 decision-makers across the private, non-profit and public sectors over the period 1998-2003.

In the literature review, the fundamental *action* engaged in by actors in public services was identified as 'decision-making', following public administration and management theory. Furthermore, Siggelkow & Levinthal's (2003) model of a performance landscape model defined the 'N's of their NK formulation as *decisions* that agents could take to improve their performance on the landscape. Hence, the decisions of production agents in Irish housing were analysed in Chapter Seven with the result that 15 types of decisions were identified and grouped into five categories: 1) production capability, 2) production outputs, 3) relationship management, 4) target beneficiaries, and 5) value proposition.

The same analysis was conducted for *circumstances* – or *environmental factors* - that agents consider when making decisions, with the result that 11 types of factors were identified and grouped into three categories: 1) internal, 2) external and 3) emergent. For both decisions and factors agents were more alike than different – supporting the proposition that agents operate on a common landscape. The differences among agents appeared to arise from their different legal statuses – which was the basis for choosing legal status as one of the key agent characteristics defining how agents perceive their environment. The identification of a limited number of decisions and factors across 48 different interviewees, as well as the commonality among agent decisions and factors, represented significant progress in defining the features of the (production) performance landscape for future modelling and theory development. Furthermore, it was evidence that it should be possible to construct a computer simulation of a public service performance landscape that reflected a relatively accurate and comprehensive picture of the decision environment in which real actors operate.

The analysis of interdependencies among decisions and factors painted a somewhat different picture. Agents of different legal statuses exhibited quite different interdependencies, so much so that few statistical correlations appearing among decisions and factors across the full range of agents. Nevertheless, by analysing agents in sub-groups of different legal status, there appeared to be the potential for significant interdependencies among decisions/factors, although additional observations are required to provide statistical support for these. Hence, the analysis of interdependencies in the Irish case provided inconclusive evidence as to the relevance of the NK model for supporting the development of governance theory. On the other hand, the relatively straightforward identification of agent movement dynamics based on the Irish data gave some comfort that the model had some 'empirical warrant' – defined by Frederickson & Smith (2003) as the potential for "gaining empirical confirmation for the hypotheses and probabilistic assessments generated by the theory (p. 230)"

To summarise, the performance landscape for production agents was described in detail in Chapter Seven, including actions (decisions), circumstances (environmental factors), interdependencies

(among decisions and factors) and system dynamics (agent entry/exit, agent movement and changes to the features of the landscape), based upon empirical data in Irish housing and relevant literature. Although further research will be required to fully specify a computer simulation of the housing system as interrelated performance landscapes, the basic groundwork is laid and the gaps identified. Appendix 8.1 contains a summary of the simulation specifications thus far arising from the Irish housing analysis as a basis for future development of computer simulations along the lines of Siggelkow & Levinthal's work to date.

Contribution to the development of governance theory for public services

From the above we may conclude that the analyses presented herein have addressed each of the dimensions of governance in relation to public services as identified by Frederickson & Smith (2003) and Lynn et al. (2000), as well as providing explanations for how these dimensions influence one another. Progress in developing governance theory was made in six main areas: 1) the identification of Complex Adaptive Systems theory and NK systems modelling approaches as an appropriate base on which to build coherent and multi-disciplinary governance theory, 2) the mapping of a particular example of the NK modelling approach (i.e., performance landscapes) to the features of a real-world public service (i.e., Irish housing) and the implications for governance theory and CAS modelling arising therefrom, 3) detailed descriptions and classifications of each of the four dimensions required as well as the identification of two additional dimensions required by the use of the particular model chosen, but also found in the range of literature reviewed, 4) providing evidence of the similarity in governance and decision-making among public, private and non-profit agents, 5) proposing a broadening of the focus of institutional theory as it relates to governance to incorporate uncertainty as a feature of the organisational environment that has similar provenance and effect to rules, and 6) the identification of systemic outcomes and the role that public sector agents play in influencing these. In addition, the proposed extensions to the performance landscape model developed by Siggelkow & Levinthal represent a contribution to the efforts of organisational researchers working on the development of complex adaptive systems models - which is the seventh theoretical contribution of this thesis. Each of these is discussed in turn below.

1) The research and theory-building effort presented in this thesis progressed the programme for the development of governance theory (R.A.W. Rhodes 1997, Lynn et al. 2000, Kjaer 2004) by focusing on the development of a general (governance) theory of public services based on a complex adaptive systems framework. The use of a complex systems framework for building such a theory follows calls by public administration theorists (Boston 2000, Weber 2005) to draw upon the vast body of research and model-building activity being conducted by complexity theorists working in a wide range of disciplines to reinvigorate as well as reintegrate the "drifting and

largely ignored" field of public administration theory. Furthermore, the grounding of the CAS-based theory development in an empirical case study addressed the oft-repeated criticisms of the use of complex systems frameworks, that they are too abstract and/or are only suitable as 'metaphors' for reality, instead of models (Rosenhead 1998, Burnes 2005).

2) The detailed analysis of Irish housing as a performance landscape system is the second contribution to theory development as it illustrates how the model proposed may be 'mapped' to a real-world phenomenon and thereby provides clear guidance to future researchers in this area. The definitions, types and categories proposed, and examples provided, in chapters five, six and seven will facilitate subsequent testing of these against features found in other public services, enabling researchers to determine whether and how these elements are manifest in different states and/or in different public service domains. In this way a gradual inventory of cases may be built up and the theoretical elements challenged, improved upon or confirmed at a level of detail that is conducive to the development of testable, generalisable and relevant to the highly complex social phenomenon that is public service.

However, this mapping exercise also highlighted the difficulties and limitations that arise when trying to make an existing model of complexity fit the actual experience of complexity in human organisational phenomena. While there were aspects of complexity that were accommodated by the NK model selected, i.e., the interdependencies among features of the decision landscape and the ability of agents to adapt over time, other aspects required significant modifications to the model and some were not possible to accommodate. In terms of modifications, the diversity of organisational purposes / goals and the variety of organisations required the specification of multiple landscapes, decision 'blind-spots', multi-factor (and variable) fitness functions, movement rule variability and flows of information, rules, goods and services among agents. Furthermore, environmental factors needed to be incorporated into the NK landscapes as additional types of 'N's (along with the decisions themselves) and some of these will be affected by the decisions that agents make. In the latter case, the relationships among agents could not be accommodated at all (see discussion on weaknesses later in this chapter). It remains to be seen through future model development and testing as to whether or not these modifications and exclusions make the model either too unwieldy or else an insufficient representation of the phenomena of public services.

3) Definitions, key characteristics, types and relationships among the four dimensions of governance theory were all provided based on existing literature and the Irish housing case. **Actors** (agents) were defined as organising initiatives with three main characteristics; value objective, organising mode and legal status. There were six types of value objective identified, three types of organising mode and a continuum of legal status was proposed on which there were

three 'modal' locations identified depending upon the level of inclusion and value distribution within the agent. There were fifteen different **actions** (decisions) that were observed in the case and these were classified into five separate categories following established strategy literature. Eleven different **circumstances** (factors) were observed in the case and these were classified into three different categories, with two being well established in strategy literature and one category, that of 'emergent' factors, being a relatively new way of thinking about how features of the environment emerge and change over time. **Outcomes** were classified into five types, largely relying on public administration and economic literature, but there was also an 'emergent' category proposed here, with outcomes in this category arising from the interactions and cognitive processes of agents. Finally, one category of outcomes, that of 'performance' outcomes, was identified as the main contributor to the elements of the required fitness function for agents that drives the basic feedback dynamic of the performance landscape overall.

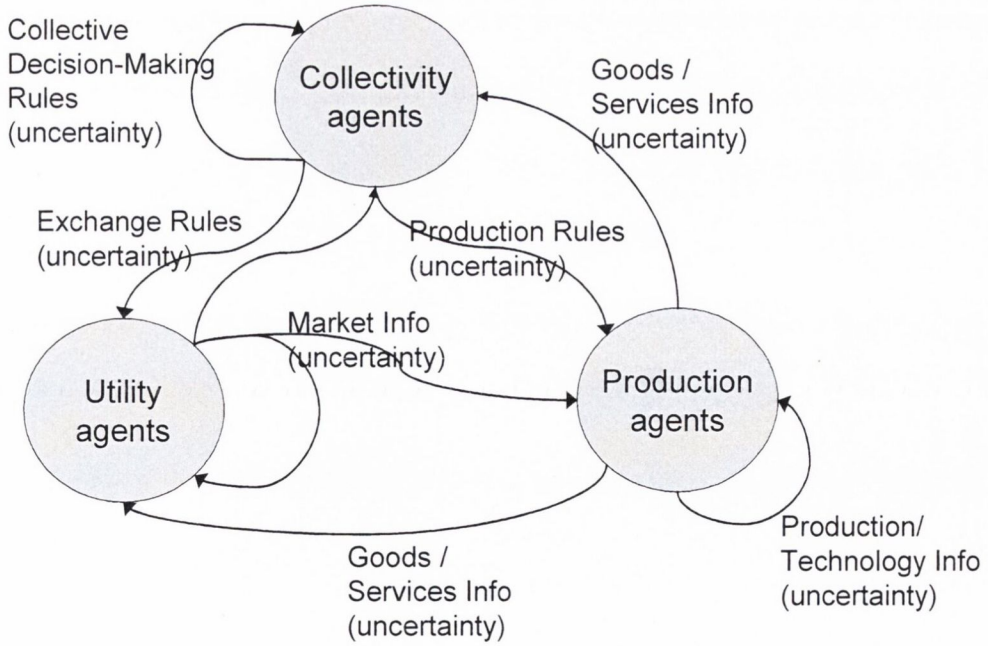
This brings us to the two additional elements requiring specification if the performance landscape model is to be used in developing governance theory; namely dynamics and interdependencies among landscape decisions/factors. In the latter case, there was little that could be determined from the data collected, as the number of observations failed to provide enough data to identify statistically significant associations among decisions/factors that would indicate **interdependencies**. It was suggested that this was due to differences between interdependencies as perceived/experienced by agents with different legal status. Preliminary analyses of interdependencies within legal status groups were presented that supported further research into this possibility. The findings with respect to system **dynamics** were rather more promising with case data supporting the definition of a fitness function, a range for the number of decisions that could be made in a single period and rules governing agent entry into and exit from the landscape. On balance, the findings presented supported further development of governance theory based upon the performance landscape model, albeit with some concerns discussed in the last section of this chapter.

4) The observation that public private and non-profit agents in Irish housing face broadly similar decision landscapes is the fourth contribution to governance theory in public services. While there are differences in decisions, factors and, most obviously, in the interdependencies between decisions/factors, there is sufficient evidence in the Irish case to suggest that actors are all playing on the same landscape, albeit with blind spots and often with different priorities guiding their fitness function. Much of the literature in public administration and strategy suggests a rather different picture of the decision landscape in that the different sectors are seen to operate in largely separate spheres of activity, driven by their values, priorities and target populations. While this perspective may be accommodated in the proposed model, it is also possible to conceive of a public service production landscape in which public, private and non-profit agents operate under

the same basic assumptions and rules, with as much potential for competition or cooperation with agents from different sectors as with those from their own. This was an unanticipated finding arising from the research that will require follow-up testing to determine if the observations in the Irish housing case are robust across different services and different societies.

5) In Chapter Five the case was made for treating public services as three interconnected landscapes, with the connections between landscapes consisting of rules and other kinds of information (see diagram below). In particular, rules governing utility and production activities are created by agents operating on the collectivity landscape, but may also emerge from the movements of agents on their own landscape, although these are often 'institutionalised' through the formation of a collectivity agent to make their content explicit and to facilitate/enforce their application. This is well-trodden ground in institutional theory (North 1990, Scott 1995). However, it was also observed that other types of information such as house prices, product standards, product availability, technological innovations and the like had a similar provenance to rules in that this type of information emerged over time from the actions and interactions of agents. Furthermore, new agents, or existing ones, were observed to play a role in institutionalising this type of information as well, such as the banks and brokers that published house price indices and the sector associations that circulated information about new products and new technologies.

Figure 8.3 Information flows among different landscapes



Finally, 'uncertainty' regarding these rules and/or the market/product information was incorporated into the proposed framework as being generated by agents operating on the three landscapes, and affecting agent behaviour both on the landscape on which it is generated as well as

on other landscapes. Examples of the nature of uncertainty and its effect on agent behaviour were provided in Chapters Five and Seven and the inclusion of uncertainty as a key feature of the organisational environment affecting agent behaviour was broadly supported in organisational literature going back several decades (Thompson 1967, Perrow 1970, Galbraith 1977). In the Irish case, relatively high levels of uncertainty appeared to have a kind of 'freezing' effect on the movement of agents in the production landscape, causing them to limit the range of changes considered and/or acted upon, although again this observation will require further exploration to determine its generalisability.

The arrows in the figure above represent an expansion of the conceptualisation of 'institutions' in public services, the definition of which is generally limited to the rules or 'structures' that shape the behaviour and outcomes of organisational actors. While uncertainty is not the same as a 'rule' in that it is not created by a law, or group norms, it nevertheless appears to have a similar role in organisational behaviour, i.e., that it arises from the interactions of many agents, becomes a part of the cognitive environment of decision-makers and hence influences agent behaviour.

6) One of the difficult challenges for the development of governance theory is the identification of and the explanation for systemic outcomes that arise from networks of interacting agents and/or the interdependent activities of independent agents (Rhodes 1997, Lynn et al 2000, Pollitt & Bouckhaert 2004, Kjaer 2004). In addition, the definition of 'public value' (Moore 1995) and its creation by individual public sector agents presents a challenge for academics and practitioners both. This research contributes to advancing theory in relation to both of these challenges. In the first instance, the classification of five types of outcomes, including emergent outcomes, based on a range of cognate disciplines in chapter two provides a solid basis for examining actual public service systems outcomes under a given set of circumstances and determining how particular outcomes came about. The mapping of these categories to the actual outcomes of the Irish housing system provided further guidance as to how outcomes might be measured and produced along with the current gaps in publicly available data. Both of these provide a focus for future research and data collection efforts.

In addition, in Chapter Seven, a unique role for the public sector agents in the production landscape was identified, namely that of information creation / dissemination, liaising, and co-ordination among other agents in the pursuit of public value objectives. This finding suggests a particular set of tasks relating to the governance role of individual public sector agents and expands the horizon of public value objectives beyond simply those of the individual public agent. The Irish housing case study suggests that, while the main arena for influencing network / systems behaviour is the creation of rules in the collectivity landscape, in the production landscape as well, the role of the public sector incorporates unique tasks aimed at establishing the conditions that

facilitate choices by other agents which will move the system in the desired direction. Of course, determining the desired direction is, in itself a challenging task and one that is as much a result of negotiations and interactions among the production agents themselves as it is an outcome of the organising activity in the collectivity sphere of the system.

7) In addition to the various aspects of governance theory for public services addressed in this thesis, there were also several modifications to existing CAS theory and modelling approaches as applied to organisational phenomena proposed. Specifically, while organisational NK models, such as those used by Siggelkow, Levinthal and their collaborators were proposed as the 'best fit' currently for organisational phenomena such as public services, several extensions were required. The key modifications proposed were: 1) the addition of new types of 'N's to the performance landscape to accommodate environmental factors, 2) new system variables to indicate resource scarcity/control and the rate of change in landscape features, 3) a new stochastic variable for agent accuracy in interpreting landscape features and 4) an expansion of agent movement rules to differentiate between the number of changes to 'N' that an agent makes during one period ('neighbouring states') and the number of different 'N' values that an agent is aware of in one period ('alternative states').

In discussing the original model with Nicolaj Siggelkow in 2004, it was clear that the proposed enhancements implied a significant increase in the mathematical computing capacity required to run simulations. The detailed specifications required were not pursued as many other aspects of the model were yet to be explored and, in particular, the analysis of the decision-making mini-cases had not yet been completed. Given the findings from the case study, it would appear that the performance landscape (NK) approach does have significant potential for generating hypotheses that can be tested using computer simulations and which also may be compared with actual public service phenomena. Further research and development of the simulation model is therefore recommended to pursue this avenue of theory development.

Contribution to public administration policy and practice

While the main focus of this thesis was on the development of governance theory for public services, there are also some lessons to be drawn from the analysis presented here for policy-makers and practitioners. Different analysts may have different views of what these lessons are, but there are two that appear to be relevant to Irish policy-makers and a third and fourth that should be of interest to public sector managers as well as policy-makers. The first two have to do with managing uncertainty and incorporating emergent factors into assumptions about agent behaviour, the third relates to defining policy and/or management objectives, and the fourth

focuses on the role of public sector agents as information managers and liaisons to facilitate coordination. Each of these lessons is briefly discussed below.

1) The observations around the impact of uncertainty suggests that public policy-makers need to take into account not only the direct effect of the rules they create, but also the indirect effect that changing the rules may have on agent behaviour. For example, over the period of the research, the government changed the rules governing tax incentives, standards and legal status relating to rental property every couple of years with the result that the rental market became 'frozen' in the words of one interviewee, with investors and property managers choosing to hold off on major decisions until the rules became 'clearer'. As of 2006, the rental market appeared to be growing again (in terms of available dwellings), but it is arguably the case that this was due to the earlier massive growth in output of new dwellings stimulated by the favourable market for owner-occupied housing, and the recent decline of demand for this type of housing arising from unfavourable economic conditions. The lesson here is that change comes with a price in terms of the uncertainty that it creates, and policy-makers need to incorporate this realisation into their models and deliberations around the probable impact of policy interventions.

2) The identification of a new category of 'emergent' environmental factors affecting agent decision-making in Irish housing is also a lesson for policy-makers. To the extent that policy interventions are based on assumptions about behaviour driven by 'external' and 'internal' factors alone, they are likely to result in unanticipated outcomes arising from these emergent factors, i.e., sector identity, levels of competition/coordination, rates of innovation, and the role and influence of sector associations. Incorporating these factors into policy models, however, is no easy job as there are few available indicators that measure these factors and, even if there were, it is not clear exactly how these factors mitigate or amplify the impact of policy interventions. Nevertheless, simply being aware of these additional factors and their nature may improve the sophistication of policy-making and the reliability of the anticipated policy outcomes.

3) The six value objectives identified in the Irish case (production, utility, collectivity, wealth, equity and inclusion) provide useful guidance to policy-makers and practitioners in that they provide a kind of 'checklist' of policy/management objectives against which the specific goals of a particular policy or individual agency may be compared. Policy-makers in particular would do well to ensure that a given policy considers the impact of a proposed intervention on each of the six outcomes in order to avoid unanticipated and unwelcome results in one, through a blinkered focus on another. Irish housing policy during the 20th century is littered with examples of just this kind of pathological outcome. Managers of organisations engaged in public service provision would also benefit from a clear understanding of the relative importance of each of the six

outcomes to the mission of their organisation to facilitate better prioritisation of strategic options and to improve communication to staff and stakeholders.

Unfortunately, it is abundantly clear that measures for four out of the six outcome types are woefully lacking - in the Irish case certainly, but also in public management literature in general. Measures for housing equity, inclusion, collectivity and, somewhat surprisingly, utility are largely unavailable in official statistics, which are focused on the outcomes of production and wealth, along with numerous measures that focus on inputs (i.e., labour, land, capital and costs). If, as many public administration theorists claim, the sea change in public administration over the past few decades has included a shift of focus from inputs/outputs to performance outcomes, it appears that this has not yet resulted in the development of adequate measures of the range of outcomes targeted by actors in public services. Without adequate measures, it is impossible to see how individual managers or policy makers could develop effective policies or strategies to influence outcomes.

4) The last significant policy/practice lesson arising out of the analysis of the dynamics of the Irish housing system was that the unique strategic activity of the public sector was not related to different or broader value objectives as suggested in strategy literature (Johnson & Scholes 2001, Whittington 2001). Instead, it appears that public sector agents, at least in Ireland, are uniquely concerned with informational and coordination activities across all agents in the system and consider these to be part of their strategic mission. To the extent that these activities are undertaken in the private and non-profit sectors, they appear as elements of implementation efforts, and are rarely undertaken for the benefit of multiple agents, never mind the system as a whole. If information sharing and coordination of efforts across agents is a condition of success in a public service system (as much of the current public administration literature suggests it is), then this finding has two clear implications for policy/practice: 1) that policy guidance for public sector agents should attend to the coordination and information management role of government agencies more explicitly, and 2) that measuring the performance of public sector agencies will fail to account for a significant component of their activity, since it is only indirectly related to the six performance outcomes identified. This is not to suggest that additional performance outcomes should be introduced into the model, but rather that some of the strategic decisions of public sector agencies contribute to (or may be a barrier to) the ability of other agents to achieve their performance objectives.

Limitations of the research thus far and proposed next steps

As has been noted previously (in Chapters Four and Seven), the main weakness of the research was the inability to incorporate relationships among agents directly into the conceptual model. In

Chapter Four, the full range of interactions among actors and decisions were painstakingly mapped on to the selected model with the result that interactions among decisions were able to be directly incorporated, modifications were proposed to indirectly account for resource dependencies among agents, and social network ties and direct information exchanges were excluded from the model. Prior to the empirical analysis, it was not known whether or not these limitations in the model were significant with respect to the actual behaviour of agents. However, given the findings reported in Chapter Seven on the importance of relationships to all agents both as strategic decision areas and environmental factors, along with the attention paid by public sector agents to information sharing, it became clear that the model excludes key elements of agent behaviour and therefore cannot be a comprehensive model of public service governance without further enhancement. In particular, three enhancements are required. The first is the incorporation of the structure and dynamics of social networks among agents into the model, probably along the lines of Granovetter's (1985) ideas on organisational 'embeddedness', which would account for the nature and impact of organisational ties on both agent decisions and performance outcomes. The second enhancement required is a direct modelling of resource dependence among agents (again both in terms of the patterns of dependence and the dynamics of change) along the lines of Pfeffer & Salancik (1978) and Ulrich & Barney (1984). Finally, an enhancement is required to address the dynamics of information creation and dissemination among agents which can be linked into the already specified index of information complexity. These enhancements represent a rather ambitious research and model development agenda, but certainly not an impossible one.

The second area of weakness is more a question of time and resource constraints as the scale of the research proved to be greater than the time allotted for a single Ph.D. Several elements of the model had to be left for future research including a detailed study of the collectivity and utility landscapes, the mapping of realised performance outcomes to decisions and factors, and the inability to reliably establish a value for 'K' among decisions/factors from the number of interviews conducted. Each of these could be rectified with further research, but until such time as this is accomplished, the findings as presented here must be considered progress towards a framework that as yet may be proven to be inadequate to the job at hand.

Finally, the research methodology has some potentially significant weaknesses arising from 1) the reliance on subjective reports of decision-making rather than observations of decisions taken over time, and 2) the limitations endemic to case study research. In the first case, it is possible that the reports by interviewees of their recent strategic decisions and those currently under consideration were biased in some way due to the desire to conform to their own or the interviewer's perspective of competent strategic decision-making. While every attempt was made to leave the question of what constituted 'strategic' open to the interpretation of the interviewee, and thus to avoid directly influencing the interviewee's response, it is nonetheless likely that some interviewees described

what they believed the interviewer wanted to hear, or what they thought would show them in the most positive light.

However, the feedback received from several interviewees after receiving their interview write-up, suggested that providing a 'mini-case study' of strategic decisions which relied, not only on the interviewee, but also on documents provided by the interviewee and gathered separately, was a useful way of challenging the interviewee to think more deeply about the decisions and the contexts in which they were made. A majority of interviewees provided comments back on their interview write-ups and several were concerned that the information not be made public as they felt it could present difficulties either for them personally or for the organisation. This latter response was felt to be a positive indicator of the accuracy and relevance of the mini-case data.

In terms of the weaknesses of case studies overall, there have been many spirited critiques (as well as many justifications) of the use of case studies for building and/or testing theory. Flyvberg's (2004) contribution is perhaps one of the more spirited defences, in which he systematically refutes the main critiques – which he calls "the Five Misunderstandings about Case Study Research". The basic thrust of his argument is that case studies provide context sensitive knowledge about "human affairs" which is equally, or perhaps even more, valid than rule-based' scientific knowledge and, furthermore, that social science researchers needs to acknowledge that the predictive, rule-based theory sought after in the physical sciences is unattainable in their chosen domain. This is not to say that generalisable theory is unattainable and Flyvberg along with many others (Yin 1993, Eisenhardt 1989, Barzelay et al 2003) provide specific guidance as to how to go about developing such theory from cases. The specific steps followed in this research effort were described in Chapter Three and will not be repeated here, except to highlight the use of an exploratory case approach followed by a comparative case approach as the elements of the developing theory emerged from iterations of empirical data collection and analysis, review of and comparisons to relevant literature and review/critique from academics and stakeholders with specific knowledge of the phenomenon under study. In this way, the proposed elements of a governance theory of public service were built up from interweaving existing theory, inductive reasoning, empirical analysis and conceptual development into a coherent framework that, while not complete, has significant potential for integrating existing strands of public administration theory while demonstrating descriptive, explanatory and predictive capacity, along with empirical warrant. The two remaining dimensions of Frederickson & Smith's (2004) evaluative framework for the performance of public administration theory, namely parsimony and replicability, are unlikely to be rated very highly in relation to the proposed complexity framework, in the first case due to the number of elements involved and in the second case due to the contextual nature of the findings. As Weick (1979) pointed out, however, no theory can achieve in all categories of excellence and one must make trade-offs between accuracy, generalisability and simplicity. This

thesis clearly emphasises the first of these categories and it is to be hoped that future researchers will advance the work performed to date to address the other two.

Next Steps

In the main, the next steps to progress this research agenda into developing governance theory for public services are centred around extending the research to address outstanding model elements. These include relatively straightforward additional research into interdependencies and links to performance outcomes to complete the empirical research needed to support the specifications for the production landscape, along with rather more complex and lengthy research required to specify the utility and collectivity landscapes and the nature of the interaction among the three landscapes. However, before the latter research projects are undertaken, there needs to be some reflection and perhaps revisiting of the available complexity based models to determine if a different modelling framework would be better positioned than the selected NK / performance landscape framework to incorporate relationships among agents, as well as all of the elements of public service systems already addressed. Specifically, the models would need to incorporate each of the enhancements identified above, and a key next step would be to review the vast range of complexity models already existing or under development to determine whether or not this functionality is already available or nearing completion.

Whether or not a better complexity modelling framework exists, it is clear from the research presented here, that taking a 'complexity view' of public administration is not an easy task, and developing complexity based simulations of the variety of participants and behaviours that make up public service systems may, in fact, be beyond the capability of existing models or current computing capacity. Nevertheless, there are insights to be gained from such a perspective and from a thorough grounding of complexity model elements in empirical data. Finally, complexity frameworks may be just what is needed to reinvigorate public administration theory and provide a coherent basis for reintegrating the various strands that contribute to the discipline's 'drifting and largely ignored' status (Weber 2005), and progressing towards a new phase of robust and relevant theory development.

Appendices

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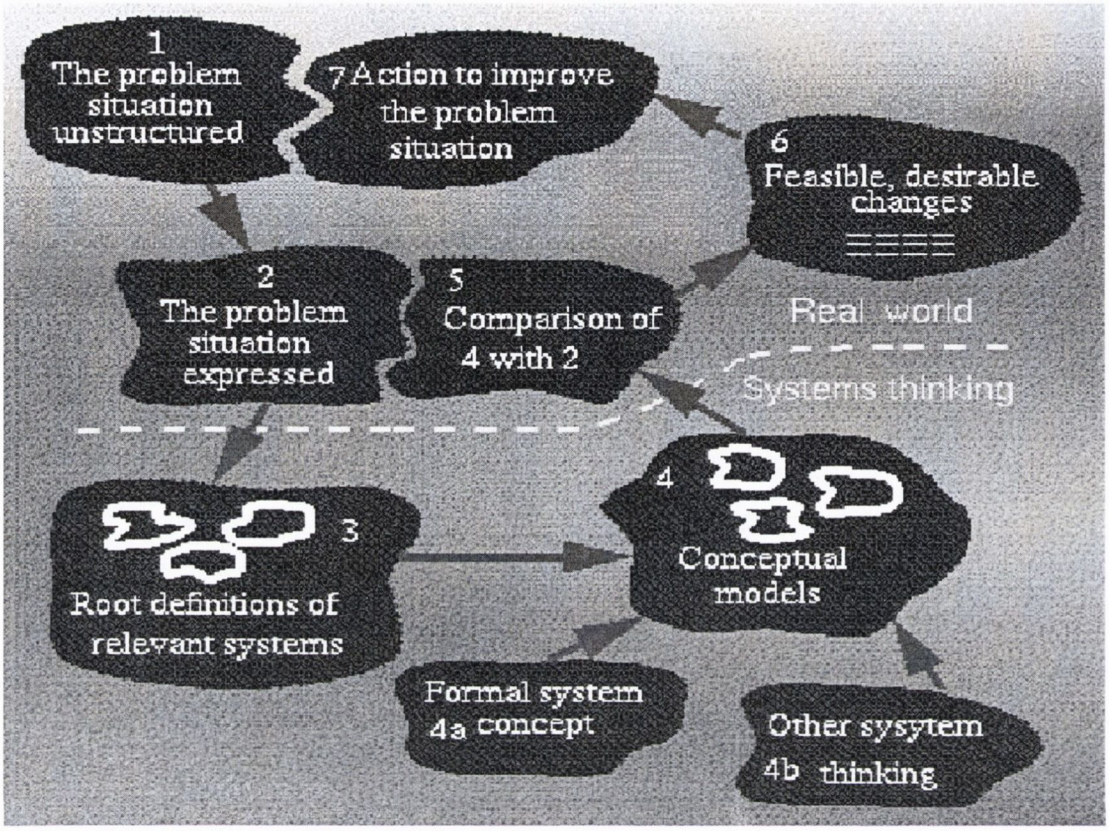
Appendix 3.1: Summary of Soft Systems Methodology

Diagram of 7-step SSM [62]



Description of steps:

1) *gather* descriptions of the problem (phenomenon) from participants

2) *sort / classify / organise* the data gathered and build a 'rich picture' – pay particular attention to boundary definitions

3) *describe* the problem / phenomenon as 'transformation' processes involving customers, actors, owners, and environmental constraints – explicitly recognize the 'worldview' adopted. These are 'root definitions'

4) *develop* a conceptual model of the system based on the above

5) *compare* this model with participant views of the problem to determine relevance

6) *agree* changes to processes among participants based on conceptual model

7) *implement* changes agreed and evaluate effect (another iteration of SSM)

[62] source: http://sern.ucalgary.ca/courses/seng/613/F97/grp4/ssmfinal.html

Appendix 3.2a: Interview stage I - Introductory fax

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Trinity College Dublin

Fax

To: Mr. X	**From:** Mary Lee Rhodes
Fax: **888-xxxx**	**Pages:** 5 (including cover)
Phone: 679-xxxx	**Date:** 5 Feb 1999
Re: Interview Background	**CC:**

☐ **Urgent** ☐ **For Review** ☐ **Please Comment** ☐ **Please Reply** ☐ **Please Recycle**

• **Comments:**

Dear Mr. X,

Attached please find some background regarding my research interests and what sort of information I have been collecting. The first 3 pages are what I send to all of the people I interview and the last page is a list of some specific questions that pertain to the Department of the Environment. If you have a chance to glance through it, it may be of some assistance in focussing our discussion.

Please don't worry about going through it in detail as our meeting is more informal and I hope to cover most of these points with Ms Y. The purpose of our meeting is to introduce myself and perhaps to follow up on some points that you might be in a better position to address.

Thank you for agreeing to see me and I look forward to meeting you.

Sincerely,

Mary Lee Rhodes

Appendix 3.2b: Interview stage I - Introduction to research

Urban Service Management: Structure, Processes and Information Requirements

Overview of Ph.D. Research - Mary Lee Rhodes
Trinity College Dublin

Cities now contain nearly half the population of the world and, in their emerging role as regional capitals, are focal points for much of the activity in economic, social and environmental management planning. Once economists divided their world into micro and macro, relating to the firm and the nation-state as the economic units of interest. More recently the city/region has become a third unit, one which over time may have a more immediate relevance to the lives of a large percentage of the population than either of the previous two. Along with this emerging economic importance, the city has become a crucible for experimentation and analysis in public policy, econometrics, organisational management, sociology and development. In large cities where policy makers and public service officials struggle with a mosaic of neighborhoods, perspectives and cultures, insights drawn from these disciplines are increasingly applied to issues that would have historically belonged to the architect and the policy guru. But with the intractability of problems of poverty, crime, unemployment and homelessness, new perspectives are being sought and new approaches tried.

Within the broad area of city management, my focus is on understanding the city in terms of the services it provides in order to propose alternatives to current management practices and structure. I will draw from the various disciplines discussed above, using existing work and attempting to understand what disciplines are most prevalent in the objective setting stages of service providers. In addition, I will draw from my own experience in systems and information management and focus on the information dimension of these services. This last area is one that has not been analysed as thoroughly as some of the others and I expect it to result in some useful insights. I hope to cover the following topics:

- An analysis of current thinking in systems theory, economics, urban planning, organisation theory, sociology and systems and information strategy to create a typology of concepts across these disciplines that could be used in the analysis of urban service systems

- A brief history of the evolution of cities, focusing on the creation of institutions that provide city services and a proposed inventory of urban services that would provide a scope for the next stage of my research

- A comparative study of several European and North American cities focusing on a subset of the services inventory defined above. Questions to be answered in this comparison will include:

    1) what type(s) of institutions/groups provide the services, what is their structure?
    2) what is the scope of the service 'market' - in terms of current and potential consumers and value?
    3) how do service users learn about the service? institutions learn about policy? policy makers about requirements?
    4) what is the nature of the information set that each institution requires, e.g., what type of informational complexity does it face?
    5) what is the capacity for innovation? within an institution? across the system?
    6) what are the objectives of each institution/group? what types of issues/concerns recur within and across institutions?
    7) how does it measure how its doing? (in the private sector standard measurements are financial statements, market share, share price, client feedback, etc.)
    8) how does an institution decide what to do to achieve its objectives - what information does it use from its environment? how are the budgeting decisions made?
    9) what are the main processes used in achieving objectives? what processes are not directly related to the objectives, but undertaken for other purposes?
    10) what trends in service provision are emerging (where are institutions headed)?

- Research into the effect of a systems and information strategy approach designed to reduce complexity and/or improve flows applied to a given service in one of the cities studied previously.

- Recommendations for further research

Appendix 3.2c: Interview stage I - Introduction to researcher

3 Questions to be answered in introductory meetings:

1) What is Mary Lee Rhodes doing and why?

- research into urban public service systems, particularly 'human services' including housing, health, education and welfare

- the research approach will be to gather information on several different service systems in different cities and to look for 1) potential reasons for similarities and differences in the way services are delivered and 2) areas in which improved information management could result in improved performance against objectives

- Mary Lee has over 15 years of experience in systems and operations as well as degrees in economics, business administration and systems analysis. She left J.P.Morgan in April 1997 and has been pursuing her Ph.D. at Trinity College Dublin since October of that year.

2) What does she want from me?

- The principle need is for approximately 2 hours of your time, which could be broken into 2 separate meetings of 1 hour each. This time would be used to discuss the objectives of your institution or functional area as well as the major issues associated with those objectives. In addition, you will be asked to describe the key activities and information requirements for your institution/area.

- Documents covering any of the topics of interest described above would be very useful. If copies of these cannot be provided, Mary Lee will ask to spend time reviewing such documents and to make notes and/or copies of key sections subject to your approval.

3) What can I expect from her?

- All interviews will be considered confidential unless otherwise agreed. Interviewees will receive a summary of the notes from their interview(s) and may modify their comments as required. No interviewee will be quoted in any report produced from this research, unless they agree in advance.

- A copy of the draft 'factbase', including findings from statistical analysis, institutional research, urban context and client interviews (see research workplan) will be provided to all participants in the research. Comments or proposed changes to the 'factbase' will be discussed and appropriate changes will be made.

- Continuation of the analysis and/or brainstorming sessions to discuss possible action areas arising from the research in a particular public service is not planned as part of this research project. Note that similar research is to be undertaken for several different public services and cities. Any more comprehensive analysis arising out of these efforts will be made available to the participants on an as requested basis.

Appendix 3.2d: Interview stage I - Interview guidelines

Urban Public Service Delivery - Guideline for interviews

Institution: *Individual:*
Title of Interviewee and responsibilities

1) Institutional Role / Objectives:

- find out why this organisation is in existence – what are the indicators of success / failure? Clarify question with 'strategic objectives', if necessary

- can also pick up activities here – ask what are the main activities of the individual in support of the organisational objectives.

- explore what other organisations are also in this 'business' and how the organisation interacts / competes (?) with these

2) Institutional History/Size/Structure:

- try to get a sense of where the organisation came from, its growth pattern, current size in terms of employees / budget / customers

- get an organisation chart if available or, if not, find out the main functional areas, who is responsible and how they interact

3) Critical decisions under way and issues facing institution and individual:

- this is the crucial part of the interview – spend a good deal of time here. Let interviewee describe as many decisions / issues as they wish. Try to get them to link decisions with objectives and issues with decisions if possible

4) Historic/Cultural/Legal Context:

- pick up PEST factors here, but may not need to ask questions directly as interviewee will refer to these in the previous discussion

5) Information / Resource Flows:

- discuss how capital, labour, land are sourced. Any other key resources? Any difficulties / opportunities linked to resources?

- pay attention to exchanges of information between organisations and within the organisation. Any gaps? Any difficulties / opportunities linked to information?

Appendix 3.3a: Interview stage II - Introductory fax

Mary Lee Rhodes
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TEL: +353-1-608-1583
FAX: +353-1-679-9503

Trinity College Dublin

Fax

To:	Name omitted	**From:**	Mary Lee Rhodes
Fax:	457-xxxx	**Pages:**	2
Phone:	087-257-xxxx	**Date:**	15-Feb-2003
Re:	Housing Research	**CC:**	

☐ **Urgent** ☐ **For Review** ☐ **Please Comment** ☐ **Please Reply** ☐ **Please Recycle**

Further to our conversation today, I am attaching a summary of my research programme for housing in Dublin. The relevant part for our proposed conversation is the creation of mini-case studies of developers/builders operating in the Dublin area. Specifically, I would be interested in a bit of your own history and that of your real estate investments, the structure of any companies that you own, a sense of your current strategic objectives and any issues relevant to you and/or the building industry as a whole.

I am looking forward to meeting you on Wednesday at 10:30 at 'the Tram'.

Appendix 3.3b: Interview stage II - Introduction to research

Research Summary: Irish Housing System

Mary Lee Rhodes, Trinity College Dublin

Objective of research:

To improve the understanding of complex urban service systems which will contribute to the formation of improved policy and management strategies by key actors in the system. The research will focus on the housing system in Dublin, Ireland as an example of a complex service system.

Motivation for the research:

1) record of failure or limited success in key service areas[63] of urban management in the developed and developing world

2) increasing complexity of urban service systems stemming from the expansion of cities in general and the effect of New Public Management strategies of privatisation, decentralisation and partnership

Research approach:

Prepare case studies describing the characteristics, history, goals, networks and key strategic decisions of 'agents' in the system under study. In the case of housing, the agents studied will include: developers and builders, estate agents, local authorities, banks and building societies, industry associations and policy makers. Focus will be on the decision-making processes of agents and the key resources employed in pursuing strategies. In addition, prepare a trend analysis of key resources and outputs of identified sectors[64] and the system as a whole over a specified period and relate agent behaviour to these trends. Focus on the role of policy agents and industry association agents in the historical analysis and gather perspectives on anticipated key actions of these agents.

Work completed to date:

Interviews with public and non-profit sector agents are nearing completion. Private sector interviews began in January. A major study on the non-profit housing sector will be published in 2003. Data on sectoral trends is being collected.

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[63] e.g., housing, health care, education, etc.

[64] e.g., private sector, public sector, non-profit sector

Appendix 3.3c: Interview stage II - Interview guidelines

Housing as public service - Guideline for interviews

Institution: *Individual:*
Title of Interviewee and responsibilities

1) Institutional Role / Objectives:

- find out why this organisation is in existence – what are the indicators of success / failure? Clarify question with 'strategic objectives', if necessary

- can also pick up activities here – ask what are the main activities of the individual in support of the organisational objectives.

- explore what other organisations are also in this 'business' and how the organisation interacts / competes (?) with these

2) Institutional History/Size/Structure:

- try to get a sense of where the organisation came from, its growth pattern, current size in terms of employees / budget / customers

- get an organisation chart if available or, if not, find out the main functional areas, who is responsible and how they interact

3) Strategic decisions under way or recently completed:

- this is the crucial part of the interview – spend a good deal of time here. Let interviewee describe as many decisions / issues as they wish. Try to get them to link decisions with objectives and issues with decisions if possible.

4) Barriers / enablers to achieving objectives:

- explore these in relation to current decisions, but also in relation to overall objectives

- discuss how capital, labour, land are sourced. Any other key resources? Any difficulties / opportunities linked to resources?

- pick up PEST factors here and also look for references to organisational characteristics affecting ability to achieve desired outcomes

5) Characteristics of interviewee:

- education, personal story of how he/she came to be in this organisation, networks; note down any observations about personality

Appendix 3.4a: Cover fax for Interview notes

Mary Lee Rhodes
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TEL: +353-1-608-1583
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Trinity College Dublin

Fax

To:	Mr. XXXXX	**From:**	Mary Lee Rhodes
Fax:	**872-xxxx**	**Pages:**	4 (including cover)
Phone:	872-xxxx	**Date:**	25 February 1999
Re:	Interview Notes	**CC:**	

☐ **Urgent** ☑ **For Review** ☐ **Please Comment** ☐ **Please Reply** ☐ **Please Recycle**

• **Comments:**

Dear XXXXX,

Please find attached my notes from our discussion of February 20th. I had several questions (see sentences highlighted in bold) that I hope I will able to follow up on with you in the near future. Also, you mentioned that there might be some documents relating to budgets and the plan to split your organisation into 3 new organisations that I could take a look at. I will call you later this week to follow up on these points, if that is convenient.

I very much enjoyed our conversation and appreciated your generosity both in terms of the time allowed and the glass of beer! I look forward to talking to you soon.

Sincerely,

Mary Lee Rhodes

Appendix 3.4b: Sample interview notes (Phase II)

Notes from Meeting: Feb 20, 2003 Sector phase analysis – private sector role
Institution: FIRM X
Individual: NAME OMITTED, Managing Director

1) Professional History – NAME OMITTED

XXXXX went into engineering somewhat serendipitously through the advice of his sister, who thought civil engineering sounded 'nice'. He is from a farming family in Sligo and interested in science in secondary school, but wasn't really sure what he wanted to do in 3rd level education. While he found engineering a bit difficult, he enjoyed it and completed his diploma in 1981 at UCG *(correct?).* He came to Dublin in that year to work as a site engineer with FIRM A and then went to the US in 1983 – like many Irish graduates of that era.

In the US, he worked as a site engineer for a number of projects, including penthouses in NYC. He found that construction work carried a lot more respect in the US than in Ireland *(check to make sure this was* XXXXX *that said this).* He wanted to come back to Europe, however, for personal reasons and did so in 1986. He rejoined FIRM A in England (the company is headquartered in Wembley, England) and stayed there for 7 years – becoming a site manager in the process. In 1995 he returned to Ireland to join FIRM B as a site manager working on several large projects in Dublin.

He left FIRM B in 1997 to take a job as contracts manager at FIRM X where he was in charge of a minimum of 3 projects at any one time, although he was often managing 5 including housing, hotels and other large construction projects. In 2001, the Managing Director left FIRM X and XXXXX was promoted to this role. The company has been going through a transition in the last few years and XXXXX has been instrumental in seeing through the changes that are required (see history/structure section below).

2) History/structure of FIRM X

FIRM X was founded in the early 70s in Louth. It's a family business with headquarters in Louth although most of the work is within a 30-mile radius of Dublin. Mr. FIRM X is the founder and currently Chairman of the board. A significant proportion *(what percentage?)* of their business is in the public sector and they are currently involved in the Ballymun regeneration project *(is this the largest project for the company at the moment? – approximately how big is the job?).* They also do large private sector projects, e.g., hotels, office complexes, etc. The firm has grown in the last few years with turnover of €20-24 million in 1997 increasing to approximately €50 million in 2002. (In 2001, turnover was €42 million)

The firm was managed in a fairly unstructured way for much of its history. XXXXX describes the early days as "managing from the boot of the car", with the first step towards more structured management commencing with the hiring of an MD (Mr. Y) in the mid-1990s. However, Mr. Y was a very hands-on manager and was not particularly good at delegating (down) to the contracts managers or communicating (up) to the founder and Chairman, Mr. FIRM X. Also, there were problems with cost control and decreasing

revenue generation. A management consultant was hired in 2000 (*is this the correct date?*) and made several recommendations relating to administrative processes and management structure. His report precipitated the exit of the MD, after which XXXXX was promoted to this position.

A large part of the consultant's recommendations focussed on changing the operating practices in purchasing and surveying in order to improve cost control and site management. In addition, the board felt that there needed to more of a 'pyramid' structure in management and the role of contracts manager has been expanded with XXXXX indicating that the current level of three contracts managers will be increased to five. *There are four directors: Mr. Firm X (marketing and chairman), his daughter (name? – finance & accounting), XXXXX (Managing Director and Operations) and Mr. C (Quantity Surveyor – does a lot of pricing of LA projects).*

While there is a desire to manage in more of a 'pyramid' structure, in actuality the firm is run as a team, with people taking on roles/responsibilities as required rather than having more formal job descriptions and rigorous reporting lines. All members of the board participate in marketing efforts. XXXXX deals with most of the operating issues but significant decisions are made by the management team. Board meetings are held every two weeks and the agenda is whatever is topical at the time.

An example of the decision-making process for bidding for jobs is as follows: An opportunity is identified (or an RFP is received); the Board gets together and assigns a contracts manager based on whoever is free at the time (out of a total of 4 available, XXXXX plus the other 3); the contracts manager assembles the bid for review by the Board. If the contract is won, the contracts manager that put together the bid will do the work programme and will liaise with the surveying department and purchasing teams in FIRM X along with sub-contractors as required. Typical team for a project is the contracts manager (who will have several projects), the site manager, an engineer, quantity surveyor and a 'finisher' (*what is the function of this person?).*

At the end of 2001 there were 120 employees in FIRM X *(is this about right currently?) Are site managers direct employees or sub-contractors – or a mix? What other types of personnel are directly employed?*

3) Key objectives and recent strategic decisions

Following on the recommendations of the management consultant, a key objective is improving the management processes to ensure more effective cost control as well as improve communication and site management. In addition, XXXXXc commented that the board is actively engaged in generating new business.

There is a willingness in FIRM X to engage in new processes and to introduce new products into their construction projects. They were the first to use timberframe housing for a local authority project (3 years ago in Malahide) and this generated significant interest on the part of local government and the National Standards Authority (NSAI). XXXXX commented that he would like to see a time when entire houses could be built 'in the factory' and then assembled on site. He noted that this is already done in other countries and that the Irish weather makes this an attractive alternative as rain delays are a particular problem when using the traditional concrete block and mortar methods. Also, the bricklayers union could be difficult to work with and factory built housing would limit

the need for this type of labour (see issues section). Note that timberframe was tried in the 60's, but failed to take off due to design flaws and resistance from some builders, the concrete industry and the unions.

4) Issues and Future key decisions

As noted above, FIRM X is currently in the process of restructuring its management processes and structure and this will be ongoing for the next few months. In terms of other key decisions, XXXXX did not really identify any key ones, except the need to hire two more contracts managers. *Any other critical decisions coming up in the next 6-12 months?*

In terms of issues, XXXXX commented that the trades no longer take much pride in their work and the bricklayers union is particularly difficult to deal with. Finding good operatives is difficult and the overall industry is not as concerned with quality as they might be. In fact, the "housebuilding fraternity", made up of small builders that produce approximately 60% of the overall residential output, are both unstructured ("boot of the car") operations and focused on making as much margin as they can. Quality is not that high on the list of priorities and innovation is even further down the list. XXXXX gave the example of a builder that might have an architect draw up 3-4 designs for houses and then simply use these over and over without regard to the specific circumstances of the scheme or the changing needs of homeowners. He commented that there is a split between general contractors and 'home builders' such that the former group see the latter group as containing a large number of 'cowboys'.

When asked if corruption was a concern, XXXXX observed that corrupt practices with respect to planning were more a feature of the development aspect of the construction industry as opposed to building. Also, the recent revelations in the tribunals along with the introduction of better planning rules and higher quality planners have limited this type of corruption significantly

5) Role of CIF/IHBA

The CIF doesn't represent the industry very well, and XXXXX commented that it had "no teeth". As far as the IHBA goes, it is split up into regions with the result that it is difficult for the organisation to speak with one voice on a national front. The Dublin branch is active, however.

Other key players in the industry?

Appendix 3.5: Research stage III - Sample coding spreadsheet

			Demographic Data						Strategy Indicators							Org. Structure Indicators(1)								
		Date	Org.	Date	Origins	LegStrc	Size	Geogrphy	Delib.	Value	Profit					Centrlzd		Decnt/Hldg		JV/Pship		Merge/TO	
	Org. name.	Intvw	Type(0)	Formed	E/P/O(1)	(6)	(2)	(3)	Dec.Scale	Strt(4)	Only?	Growth	Compete	Diversify	Change?	Cur	Fut	Cur	Fut	Cur	Fut	Cur	Fut
7	Firm A	Jan-03	MD	1987	P	U	M	L	1	N	Y	N	Y	N	Y	Y	Y	N	N	Y	Y	N	N
4	Firm B	Feb-03	MC	1972	E	C	L	R	3	C/I	N	Y	Y	N	Y	Y	Y	N	N	Y	Y	N	N
2	Firm C	Feb-03	LC	1975	P	L	L	R	1	P	N	N	Y	N	Y	N	N	Y	Y	N	N	N	N
15	Firm D	May-03	Arch	1953	P	*L*	M	R	2	P	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
6	Firm E	Feb-03	SD	1995	P	P	S	R	2	N	Y	N	Y	N	Y	Y	N	N	N	N	Y	N	N
14	Firm F	Feb-03	Arch	1986	P	??	J	N	2	Q	N	N	Y	N	N	Y	Y	N	N	N	N	N	N
13	Firm G	Apr-03	TP	????	E	S	S	N	3	C	N	N	N	N	N	Y	Y	N	N	N	N	N	N
8	Firm H	Feb-03	LD	1979	P	L	L	N	2	P	N	Y	Y	N	N	Y	Y	N	N	Y	Y	N	N
3	Firm I	Nov-02	SC	2001	E	S	S	L	3	C	Y	Y	N	N	Y	Y	Y	N	N	N	N	N	N
5	Firm J	Feb-03	BS	1990	P	??	J	I	1	Q/I	N	Y	Y	N	N	Y	Y	N	N	N	N	Y	N
19	Firm K	Nov-02	LD	1985	E	?	L	N	?	N	?	Y	Y	N	N	?	?	?	?	Y	?	?	?
1	Firm L	Feb-03	LC	1859	E	C	J	I	1.5	Q	N	Y	Y	Y	Y	N	N	Y	Y	Y	Y	N	N
9	Firm M	Mar-03	LD	1965	P	??	L	N	3	P	Y	N	Y	N	N	Y	Y	N	N	Y	N	N	N
10	Firm N	Apr-03	LD	1955	P	??	M	L	1	Q	N	N	Y	N	N	Y	Y	N	N	N	N	N	N

0) LC/MC/SC = lg, med, sm contractor; BS = bldg supply; LD/MD/SD = lg, med, sm developer; EA = estate agent, Arch = architect, Fin = financial inst.; Assoc = industry assoc.

1) E = Entrepreneur, P = partners (from other firm), o = Other

2) Jumbo = > €50 mil/annum revs, Large = €25-50 mil, Medium = €5-25 mil, Small = < €5 mil

3) Global (not Irish co), International (Irish / other cos.), National (ROI / NI), Regional = in 2-3 contiguous counties, Local = 1 county

4) P = Price (low cost) value creation, Q = Quality value creation, C = Customer focus (Target group) value creation, I = Innovation value creation, B = Basic social good value creation

5) Codes = N (none), I (issue), O (opportunity)

6) Codes = C (Corporation), L (Ltd.), P (Partnership), S (Sole Prop.), U (Unlimited Company)

Appendix 3.5: Research stage III - Sample coding spreadsheet (cont.)

		HR Strategy Indicators						Resource Issues/Opps. (5)										Environmental Issues/Opportunities(5)									
		Contractors		FT Paid		Hire SenMgmt		Land		People		Capital		Relationships		Org. Dvlpmt		Sector		Political		Economic		Social		Innovation	
	Org. name.	Cur	Fut	Cur	Fut	Cur	Fut	Cur	Fut	Cur	Fut	Cur	Fut	Cur	Fut	Cur	Fut	Cur	Fut	Cur	Fut	Cur	Fut	Cur	Fut	Cur	Fut
7	Firm A	Y	Y	N	N	Y	N	N	N	N	N	N	N	I/O	I/O	I	I	N	N	N	N	I	I	N	N	N	N
4	Firm B	Y	Y	N	N	Y	N	N	N	I	I	N	N	N	N	I	I	I	I	N	N	N	N	N	N	O	N
2	Firm C	N	Y	Y	N	Y	Y	N	N	I	I	N	N	I	I	I	N	O/I	O/I	N	N	N	I	N	N	N	N
15	Firm D	N	N	Y	Y	Y	N	N	N	O	O	N	N	I/O	I/O	N	I	I	I	I	I	N	N	I	I	O	O
6	Firm E	Y	Y	N	N	N	N	I	I	N	N	N	N	I	I	N	N	N	N	I	I	I	I	N	N	N	N
14	Firm F	N	N	Y	Y	N	N	N	N	I	I	N	N	N	N	N	N	O/I	O/I	O	O	N	N	N	N	O	O
13	Firm G	N	N	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	O	O	O	O	N	N	N	N	N	N
8	Firm H	Y	Y	N	N	N	N	N	I	I	I	N	N	O	O	N	N	I	I	I	I	I	I	N	N	N	N
3	Firm I	Y	Y	N	N	N	Y	N	N	N	N	N	N	O	O	N	N	N	N	N	N	N	N	N	N	N	N
5	Firm J	N	N	Y	Y	N	N	N	N	N	N	N	N	O	O	N	N	N	I	I	I	O	O	N	N	O	O
19	Firm K	?	?	?	?	?	?	N	N	N	N	N	N	O	O	N	N	I/O	I/O	N	N	N	N	N	N	N	N
1	Firm L	Y	Y	N	N	N	N	N	N	N	N	N	N	O	O	N	N	N	N	N	N	N	N	N	N	O	O
9	Firm M	N	Y	Y	N	N	N	N	N	O	O	N	N	O	O	N	N	I	I	I	I	N	N	N	N	N	N
10	Firm N	Y	Y	N	N	N	N	N	I	O	O/I	N	N	O	O	N	N	N	N	I/O	I/O	N	N	N	N	N	N

Appendix 3.6: Data matrix for SPSS analysis

Agent	PS	NP	LA	LOC	MKT	SEG	DFL	CUST	PRC	QUAL	LIAS	INNV	GROW	OD	OSTR	DVRS	COMP	COOP	RES	POL	ECON	SOC	RLTN	ORGC	INNO	IDNT	ASSO	CORD	PLNG
Org1	2	2	1	2	2	2	1	2	2	2	2	2	2	1	2	1	2	2	1	1	1	2	1	1	1	2	2	2	2
Org2	2	2	1	2	2	2	1	2	2	2	2	2	2	1	2	2	2	2	1	1	1	2	2	1	1	2	2	1	2
Org3	2	2	1	2	2	2	1	2	2	2	2	2	2	1	2	2	2	2	1	2	1	2	2	1	2	1	2	2	2
Org4	2	2	1	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	2	2	2	2	2	2	1
Org5	2	2	1	2	2	2	2	2	1	2	2	2	2	1	1	2	2	2	1	2	2	1	2	1	2	2	2	2	2
Org6	2	2	1	2	2	2	2	2	2	2	1	2	2	1	2	2	2	2	2	2	2	1	1	1	2	2	2	2	2
Org7	2	2	1	2	2	2	2	2	1	2	2	2	2	1	1	2	2	2	1	2	2	1	1	1	2	2	2	1	2
Org8	2	2	1	2	2	2	2	2	2	2	1	2	2	2	1	1	2	2	1	1	1	1	1	2	1	2	2	2	2
Org9	2	2	1	2	2	2	2	1	2	2	2	2	1	1	1	2	2	2	1	1	2	1	1	1	2	2	2	1	2
Org10	2	2	1	2	2	2	2	2	2	2	1	2	1	2	1	2	2	2	1	2	1	2	1	2	2	2	2	2	2
Org11	2	2	1	2	2	2	2	1	2	2	2	2	2	1	2	2	2	2	1	2	2	2	1	1	1	2	2	2	2
Org12	2	2	1	2	2	2	1	2	2	2	2	2	1	2	2	2	2	2	1	1	1	2	2	2	2	2	2	2	1
Org13	2	2	1	2	2	2	1	2	2	2	2	2	1	2	2	1	2	2	1	1	2	1	1	2	1	2	2	2	2
Org14	2	2	1	2	2	2	1	2	2	2	2	2	2	1	2	2	2	2	1	1	1	2	1	1	2	2	2	2	2
Org15	2	2	1	2	2	2	2	2	2	2	1	2	1	1	2	1	1	2	1	2	2	1	1	1	2	2	2	1	2
Org16	2	2	1	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	1	2	2	1	1	2	1	2	2	1	2
Org17	2	2	1	2	2	2	2	1	2	2	2	2	1	2	2	2	2	2	1	1	2	2	1	2	2	2	2	1	2
Org18	2	1	2	1	1	2	2	2	1	2	2	2	1	1	1	1	1	2	1	1	2	2	1	1	1	2	1	2	2
Org19	2	1	2	2	2	1	2	1	2	2	2	2	1	1	1	2	2	2	1	1	2	1	1	1	1	2	1	1	2
Org20	2	1	2	2	2	2	2	2	1	2	2	2	1	2	2	1	2	2	1	2	2	2	1	2	2	1	1	2	2
Org21	2	1	2	1	2	2	1	2	2	2	2	2	1	1	1	1	1	2	1	1	1	1	2	1	2	2	1	2	2
Org22	2	1	2	2	2	1	1	2	2	2	2	2	1	1	1	1	1	2	1	1	1	1	1	1	2	2	2	2	2
Org23	2	1	2	2	2	1	2	1	2	2	2	2	2	2	2	2	2	2	1	1	2	1	1	2	1	1	2	1	2
Org24	2	1	2	2	2	1	2	1	2	2	2	2	1	1	2	1	2	2	1	1	2	1	1	1	1	1	1	2	2
Org25	2	1	2	2	2	2	2	2	1	2	2	2	1	2	2	2	2	2	1	1	1	2	1	2	1	1	1	2	2
Org26	2	1	2	2	2	1	1	2	2	2	2	2	1	1	2	2	2	2	1	2	2	2	1	1	2	1	2	2	2
Org27	2	1	2	2	2	1	2	1	2	2	2	2	2	2	2	1	2	2	1	1	2	1	1	2	1	1	2	2	2
Org28	2	1	2	2	2	2	2	2	2	2	2	1	1	1	1	2	1	2	1	1	2	2	1	1	1	1	2	1	2
Org29	2	1	2	2	2	1	2	1	2	2	2	2	1	1	2	2	2	2	1	2	2	2	1	1	2	2	2	2	2
Org30	2	1	2	1	2	1	1	2	2	2	2	2	1	1	2	2	2	2	1	1	2	1	2	1	2	2	2	2	2
Org31	2	1	2	2	2	1	2	1	2	2	2	2	1	2	2	2	2	2	1	2	1	1	1	2	2	1	2	2	2
Org32	2	1	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	2	2	2	2	2	2
Org33	2	1	2	1	1	1	1	2	2	2	2	2	2	1	2	2	2	2	1	2	1	1	1	2	1	2	2	2	2
Org34	2	1	2	2	2	1	1	2	2	2	2	2	1	1	2	2	2	2	1	2	2	2	2	1	1	2	2	1	2
Org35	1	2	2	1	2	2	2	2	2	1	2	2	1	2	1	1	2	2	2	2	2	2	1	2	1	2	2	2	2
Org36	1	2	2	2	1	2	2	2	1	2	2	2	2	1	1	2	2	2	1	2	1	2	2	1	2	2	1	2	2
Org37	1	2	2	2	2	2	2	1	2	2	2	2	1	1	1	2	2	1	2	2	2	2	1	1	2	2	2	2	2
Org38	1	2	2	2	1	2	2	1	2	2	2	2	1	1	1	2	2	2	1	2	2	2	2	1	1	2	1	2	2
Org39	1	2	2	2	2	2	2	2	2	1	2	2	1	2	2	2	2	2	2	2	2	2	2	1	2	2	1	1	2	2
Org40	1	2	2	1	2	2	1	2	2	2	2	2	2	2	1	2	2	2	1	1	1	2	1	2	2	2	2	2	2
Org41	1	2	2	1	2	2	1	2	2	2	2	2	2	2	1	2	2	2	2	2	1	2	1	2	2	2	2	2	2
Org42	1	2	2	1	2	2	2	2	1	2	2	2	1	2	2	2	2	2	1	1	1	2	1	2	2	2	1	2	2
Org43	1	2	2	2	1	2	2	2	1	2	2	2	2	2	2	2	2	2	1	1	2	2	1	2	2	1	2	2	1
Org44	1	2	2	1	2	1	2	2	2	1	2	2	2	2	2	2	2	2	1	1	2	2	1	2	2	2	2	2	1
Org45	1	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	1	2	1	2	2	2	2	2	2	2	2	1
Org46	1	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	1	1	2	2	2	2	1	2	2	2	1
Org47	1	2	2	2	1	2	2	2	1	2	2	2	1	1	1	2	2	2	1	1	2	1	1	1	1	2	1	2	1
Org48	1	2	2	2	2	2	1	2	2	2	2	2	1	2	2	2	2	2	2	1	1	2	1	2	1	2	2	2	1

Appendix 4.1: Elements and their characteristics in the Conceptual Model

Element / (#) Characteristic	Definition
Agents:	An initiative involving interlocking behaviour of individuals pursuing the creation of value through organising
1) Value Objective (Purpose)	The particular type(s) of value that an agent is formed to produce
2) Characteristics affecting movement on the landscape	Characterisitics of the agent that influence the range of decisions and the environmental features that are perceived, as well as the number of decisions that can be changed in a given period. Candidates for these include: organising mode, legal status, information exchange and strategy processing capability
3) Characteristics affecting performance outcomes	Characteristics of the agent that affect the level of performance that a particular agent can achieve at a given location on the landscape. Candidates for these include: resource efficiency, information processing capability, knowledge, etc.
Performance Landscape:	The decision environment in which agents pursue their value objective(s)
4) Action decisions (N_a)	Decisions that may be taken by agents that give rise to the performance 'peaks' and 'valleys'
5) Environmental factors (N_e)	Political, economic, social and technological factors outside of the agent's control that agents perceive as influencing the performance outcomes of their decisions
6) Interdependencies among Ns (K)	This is a measure of the number of decisions / factors that influence the probability of another decision / factor occurring (being selected) by an agent. K can range between 0 and (N-1).
7) Performance outcomes of N_as	The 'level' of performance outcome related to each decision specified above. Note that there may be several performance outcomes each of which will need to be associated with each decision.
8) Systemic movement rules	Rules that apply generally to all agents relating to the number of decisions that can be made / considered in a given period
9) Agent-specific movement and performance rules	Variations in systemic movement rules or in the performance level achievable at a given location on the landscape that are based upon

	agent characteristics
10) Resource scarcity/control indexes	These are two separate measures relating to resource availability in the system. The resource scarcity index provides a measure of the relative amount of resource available to the total requirements for the resource across all agents in the system. The index of centralised control is a measure of the number of different agents that control a scarce resource.
11) Fitness thresholds	Thresholds of performance or productivity that operate across all agents in the evaluation of whether or not an agent can remain on the performance landscape
12) Environmental change rules	Rules that relate to changes in the features of the landscape, i.e., the number of periods that elapse before one or more features of the landscape (i.e., i thru vii) may change.
Outcomes	Results of the movement of agents on the landscape
13) Agent-level outcomes	The individual result 'achieved' by an agent through its movement on the landscape including performance, productivity and fitness outcomes
14) Systemic outcomes	Aggregate of agent outcomes, or emergent outcomes arising from agent interactions that are perceived by one or more agents in the system to be relevant to their decision-making.

Appendix 5.1: Estimating the number of purchase and rental transactions in 2005

In the 2005 published housing statistics, the total number of new dwellings completed was 80,957 in 2005 – of which 75,398 were produced by the private sector. This latter figure represents a good estimate of how many new dwellings were sold given the high demand and the way the data is collected (via banks reporting new mortgages). Although there are no official statistics of second-hand house transactions, there are figures for how many mortgages were paid out for new dwellings vs. second-hand dwellings in 2005. These figures were roughly equivalent (approximately 54,000 in each of the new and second-hand markets), so, absent some systemic reason as to why purchasers of second- hand homes would be more/less likely to take out a mortgage, it might be assumed that there were roughly 150,000 buy/sell transactions in 2005.

Estimates of the number of rentals in Ireland in 2005 are taken from the proportion of total housing stock in the 'private rental' sector (estimated at 10% based on reported figures for 2002 in Norris & Winston, updated with production figures from the annual Housing Statistics) times the total housing stock in 2005 (roughly 1.8 million dwellings – see Annual Housing Statistics). This calculation gives a figure of 180,000 privately rented dwellings in 2005.

Appendix 5.2: List of participating organisations in the 2006 Partnership talks in Ireland

Trade Unions: Irish Congress of Trade Unions (ICTU)

Business: Irish Business and Employers' Confederation (IBEC), Construction Industry Federation (CIF), Small Firms' Association (SFA), Irish Exporters' Association (IEA), Irish Tourist Industry Confederation (ITIC) and Chambers Ireland

Farming: Irish Farmers' Association (IFA), Irish Creamery Milk Suppliers' Association (ICMSA), Irish Co-Operative Organisation Society Ltd. (ICOS), Macra na Feirme

Voluntary / Community: Irish National Organisation of the Unemployed (INOU), Congress Centres Network, CORI Justice Commission, National Youth Council of Ireland (NYCI), National Association of Building Co-Operatives (NABCO), Irish Council for Social Housing (ICSH), Society of Saint Vincent de Paul, Age Action Ireland, The Carers Association, The Wheel, The Disability Federation of Ireland, Irish Rural Link, The Irish Senior Citizens' Parliament, The Children's Rights Alliance, and Protestant Aid.

Appendix 7.1a: matrix of observed significance levels for Pearson's Chi-Squared values

	Target Benef.			Value Proposition						Strategic Choice						External				Internal		Emergent				
	LOC	MKT	SEG	DFL	CUST	PRC	QUAL	LIAS	INNV	GROW	OD	OSTR	DVRS	COMP	COOP	RES	POL	ECON	SOC	RLTN	ORGC	INNO	IDNT	ASSO	CORD	PLNG
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
	9/48	6/48	12/48	16/48	14/48	9/48	4/48	4/48	1/48	26/48	25/48	17/48	11/48	5/48	2/48	40/48	27/48	18/48	20/48	36/48	25/48	19/48	12/48	11/48	10/48	8/48
LOC	X	0.33	0.52	0.12	0.03	0.77	0.09	0.32	0.63	0.93	0.61	0.16	0.41	0.20	0.49	0.62	0.49	0.27	0.57	0.83	0.61	0.24	0.29	0.41	0.09	0.62
MKT		X	0.61	0.36	0.47	<.01	0.43	0.43	0.70	0.83	0.10	0.09	0.70	0.59	0.59	0.24	0.74	0.82	0.66	0.61	0.10	0.58	0.61	<.01	0.18	0.24
SEG			X	0.48	0.07	0.06	1.00	0.23	0.56	0.32	0.24	0.12	0.84	0.79	0.4	0.07	0.87	0.3	0.04	0.44	0.24	0.87	0.02	0.55	0.68	0.37
DFL				X	<.01	0.02	0.14	0.14	0.48	0.68	0.31	0.29	0.81	0.74	0.31	0.58	0.22	<.01	0.68	0.03	0.31	0.4	0.48	0.05	0.32	0.78
CUST					X	0.03	0.18	0.18	0.52	0.79	0.85	0.53	0.36	0.13	0.02	0.57	0.58	<.01	0.16	0.27	0.85	0.34	0.71	0.88	0.1	0.26
PRC						X	0.32	0.32	0.63	0.93	0.82	0.16	0.96	0.94	0.49	0.14	0.96	0.78	0.57	0.83	0.82	0.67	0.52	<.01	0.43	0.62
QUAL							X	0.53	0.76	0.86	0.03	0.65	0.92	0.48	0.66	0.06	0.79	0.11	0.08	1	0.03	0.66	1	0.92	0.28	0.06
LIAS								X	0.76	0.86	0.93	0.52	0.18	0.32	0.66	0.64	0.19	0.59	0.16	0.23	0.93	0.53	0.23	0.26	0.83	0.35
INNV									X	0.32	0.33	0.17	0.58	<.01	0.83	0.65	0.37	0.43	0.39	0.56	0.33	0.21	0.08	0.58	0.05	0.65
GROW										X	0.4	0.28	0.16	0.03	0.9	0.8	0.83	0.3	0.62	0.32	0.4	0.68	0.74	<.01	0.68	0.3
OD											X	0.06	0.85	0.02	0.95	0.09	0.23	0.41	0.35	0.24	<.01	0.95	0.4	0.38	0.2	0.01
OSTR												X	0.43	0.03	0.66	0.89	0.73	0.7	0.58	0.86	0.06	0.87	0.02	0.13	0.73	0.14
DVRS													X	<.01	0.43	0.44	0.21	0.93	0.09	0.17	0.85	0.06	0.84	0.23	0.28	0.09
COMP														X	0.62	0.29	0.26	0.9	0.38	0.79	0.02	0.98	0.78	0.34	0.27	0.29
COOP															X	<.01	0.87	0.26	0.22	0.4	0.95	0.24	0.4	0.43	0.46	0.2
RES																X	0.05	0.42	0.3	0.37	0.09	0.36	0.37	0.44	0.11	0.49
POL																	X	0.26	0.66	0.87	0.23	0.05	0.61	0.57	0.79	<.01
ECON																		X	0.36	0.3	0.41	0.2	0.73	0.93	0.04	1
COS																			X	0.5	0.35	0.96	1	0.68	0.19	0.3
RLTN																				X	0.24	0.61	0.12	0.84	0.68	0.07
ORGC																					X	0.95	0.4	0.38	0.2	0.01
INNOV																						X	0.87	0.25	0.14	0.9
IDNT																							X	0.32	0.68	0.37
ASSOC																								X	0.28	0.44
CORD																									X	0.11
PLNG																										X

Appendix 7.1b: Results of Chi-Squared analyses for 6 interdependent 'N's

1) Grow * Sector Associations Crosstabulation

			Sector Associations		Total
			Yes	No	
Grow	Yes	Count	10	16	26
		Expected Count	6.0	20.0	26.0
	No	Count	1	21	22
		Expected Count	5.0	17.0	22.0
Total		Count	11	37	48
		Expected Count	11.0	37.0	48.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	7.760(b)	1	.005		
Continuity Correction(a)	5.959	1	.015		
Likelihood Ratio	8.891	1	.003		
Fisher's Exact Test				.006	.006
Linear-by-Linear Association	7.598	1	.006		
N of Valid Cases	48				

a Computed only for a 2x2 table
b 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.04.

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.402	.005
	Cramer's V	.402	.005
N of Valid Cases		48	

a Not assuming the null hypothesis.
b Using the asymptotic standard error assuming the null hypothesis.

Appendix 7.1b: Results of Chi-Squared analyses for 6 interdependent 'N's (cont.)

2) Engage in Organisation Development * Organisational Capability Crosstabulation

			Organiational Capability		
			Yes	No	Total
Engage in Organisation Development	Yes	Count	25	0	25
		Expected Count	13.0	12.0	25.0
	No	Count	0	23	23
		Expected Count	12.0	11.0	23.0
Total		Count	25	23	48
		Expected Count	25.0	23.0	48.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	48.000(b)	1	.000		
Continuity Correction(a)	44.077	1	.000		
Likelihood Ratio	66.459	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	47.000	1	.000		
N of Valid Cases	48				

a Computed only for a 2x2 table
b 0 cells (.0%) have expected count less than 5. The minimum expected count is 11.02.

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	1.000	.000
	Cramer's V	1.000	.000
N of Valid Cases		48	

a Not assuming the null hypothesis.
b Using the asymptotic standard error assuming the null hypothesis.

Appendix 7.1b: Results of Chi-Squared analyses for 6 interdependent 'N's (cont.)

3) Political Factors * Innovation / Learning Crosstabulation

			Innovation / Learning		
			Yes	No	Total
Political Factors	Yes	Count	14	13	27
		Expected Count	10.7	16.3	27.0
	No	Count	5	16	21
		Expected Count	8.3	12.7	21.0
Total		Count	19	29	48
		Expected Count	19.0	29.0	48.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.884(b)	1	.049		
Continuity Correction(a)	2.800	1	.094		
Likelihood Ratio	3.998	1	.046		
Fisher's Exact Test				.075	.046
Linear-by-Linear Association	3.803	1	.051		
N of Valid Cases	48				

a Computed only for a 2x2 table
b 0 cells (.0%) have expected count less than 5. The minimum expected count is 8.31.

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.284	.049
	Cramer's V	.284	.049
N of Valid Cases		48	

a Not assuming the null hypothesis.
b Using the asymptotic standard error assuming the null hypothesis.

Appendix 7.1b: Results of Chi-Squared analyses for 6 interdependent 'N's (cont.)

4) Social Factors * Segment Crosstabulation

			Segment		Total
			Yes	No	
Social Factors	Yes	Count	8	12	20
		Expected Count	5.0	15.0	20.0
	No	Count	4	24	28
		Expected Count	7.0	21.0	28.0
Total		Count	12	36	48
		Expected Count	12.0	36.0	48.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.114(b)	1	.043		
Continuity Correction(a)	2.857	1	.091		
Likelihood Ratio	4.097	1	.043		
Fisher's Exact Test				.088	.046
Linear-by-Linear Association	4.029	1	.045		
N of Valid Cases	48				

a Computed only for a 2x2 table
b 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.00.

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.293	.043
	Cramer's V	.293	.043
N of Valid Cases		48	

a Not assuming the null hypothesis.
b Using the asymptotic standard error assuming the null hypothesis.

Appendix 7.1b: Results of Chi-Squared analyses for 6 interdependent 'N's (cont.)

5) Economic Factors * Default to Value Mode Crosstabulation

Crosstab

			Default to Value Mode		Total
			Yes	No	
Economic Factors	Yes	Count	12	6	18
		Expected Count	6.0	12.0	18.0
	No	Count	4	26	30
		Expected Count	10.0	20.0	30.0
Total		Count	16	32	48
		Expected Count	16.0	32.0	48.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	14.400(b)	1	.000		
Continuity Correction(a)	12.100	1	.001		
Likelihood Ratio	14.630	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	14.100	1	.000		
N of Valid Cases	48				

a Computed only for a 2x2 table
b 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.00.

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.548	.000
	Cramer's V	.548	.000
N of Valid Cases		48	

a Not assuming the null hypothesis.
b Using the asymptotic standard error assuming the null hypothesis.

Appendix 7.1b: Results of Chi-Squared analyses for 6 interdependent 'N's (cont.)

6) Economic Factors * Customer Focus crosstabulation

Crosstab

			Customer Focus		Total
			Yes	No	
Economic Factors	Yes	Count	1	17	18
		Expected Count	5.3	12.8	18.0
	No	Count	13	17	30
		Expected Count	8.8	21.3	30.0
Total		Count	14	34	48
		Expected Count	14.0	34.0	48.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	7.771(b)	1	.005		
Continuity Correction(a)	6.050	1	.014		
Likelihood Ratio	9.171	1	.002		
Fisher's Exact Test				.008	.005
Linear-by-Linear Association	7.610	1	.006		
N of Valid Cases	48				

a Computed only for a 2x2 table
b 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.25.

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	-.402	.005
	Cramer's V	.402	.005
N of Valid Cases		48	

a Not assuming the null hypothesis.
b Using the asymptotic standard error assuming the null hypothesis.

Appendix 7.2 Results of agglomerative hierarchical clustering of agents in SPSS

Case	5 Clusters	4 Clusters	3 Clusters	2 Clusters
Public Sector				
Public Agent 1	1	1	1	1
Public Agent 2	1	1	1	1
Public Agent 3	1	1	1	1
Public Agent 4	2	2	2	2
Public Agent 5	1	1	1	1
Public Agent 6	1	1	1	1
Public Agent 7	1	1	1	1
Public Agent 8	2	2	2	2
Public Agent 9	3	1	1	1
Public Agent 10	2	2	2	2
Public Agent 11	1	1	1	1
Public Agent 12	2	2	2	2
Public Agent 13	2	2	2	2
Public Agent 14	1	1	1	1
Public Agent 15	1	1	1	1
Public Agent 16	2	2	2	2
Public Agent 17	2	2	2	2
Non-profits				
Nonprofit Agent 1	4	3	3	1
Nonprofit Agent 2	3	1	1	1
Nonprofit Agent 3	2	2	2	2
Nonprofit Agent 4	5	4	1	1
Nonprofit Agent 5	5	4	1	1
Nonprofit Agent 6	2	2	2	2
Nonprofit Agent 7	3	1	1	1
Nonprofit Agent 8	2	2	2	2
Nonprofit Agent 9	1	1	1	1
Nonprofit Agent 10	2	2	2	2
Nonprofit Agent 11	3	1	1	1
Nonprofit Agent 12	1	1	1	1
Nonprofit Agent 13	1	1	1	1
Nonprofit Agent 14	2	2	2	2
Nonprofit Agent 15	2	2	2	2
Nonprofit Agent 16	1	1	1	1
Nonprofit Agent 17	1	1	1	1
Private Sector				
Private Agent 1	2	2	2	2
Private Agent 2	4	3	3	1
Private Agent 3	1	1	1	1
Private Agent 4	4	3	3	1
Private Agent 5	2	2	2	2
Private Agent 6	2	2	2	2
Private Agent 7	2	2	2	2
Private Agent 8	2	2	2	2
Private Agent 9	2	2	2	2
Private Agent 10	2	2	2	2
Private Agent 11	2	2	2	2
Private Agent 12	2	2	2	2
Private Agent 13	4	3	3	1
Private Agent 14	2	2	2	2

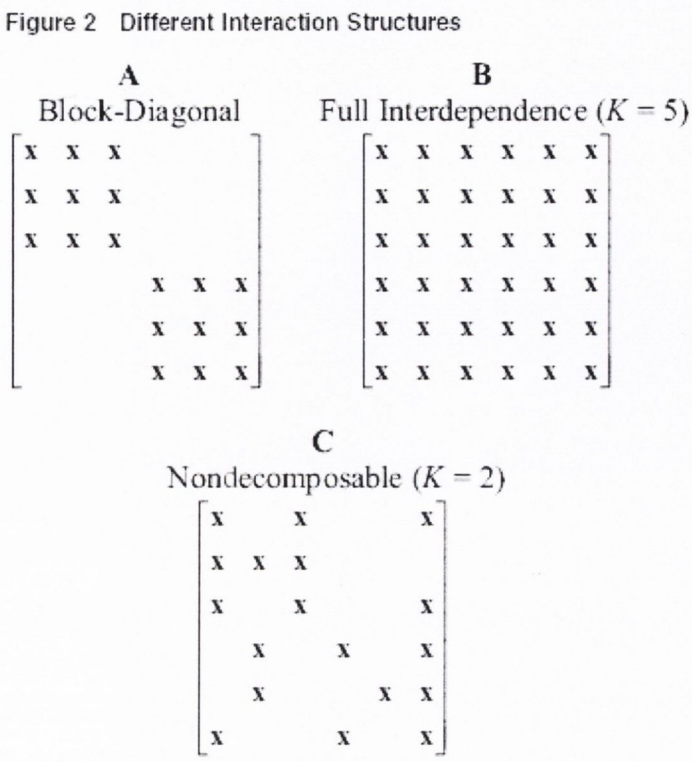
Agents that moved into new groups highlighted in gray

Appendix 8.1: Preliminary specifications for simulation based on the research

The proposed model for public services is an extension of the simulation model used in a series of studies by Nicolai Siggelkow and Daniel Levinthal and their collaborators (Levinthal 1997, Siggelkow & Levinthal 2003, Rivkin & Siggelkow 2003, Siggelkow & Rivkin 2005, Siggelkow & Levinthal 2005). The main components are 1) agents, 2) the performance landscape and 3) 'results' or outcomes generated by the movement of agents around the landscape. The following description of the simulation used by these authors is extracted from the main article referenced in this thesis (Siggelkow & Levinthal 2003), but this description may also be found in several of the other articles cited above.

> *"Conceptualizing firms as systems of activities, we assume that a firm has to make decisions concerning N activities, a_1, ..., a_N. For simplicity, it is assumed that each activity can take on two states. For instance, a_1 may represent the decision to sell products directly ($a_1 = 1$) or not ($a_1 = 0$), while a_2 may represent the decision to use resellers ($a_2 = 1$) or not ($a_2 = 0$). ... a performance landscape is a mapping of any possible set of firm activities $A = (a_1, a_2, ..., a_N)$ to performance values V(A). We create performance landscapes with a variant of the NK model (Kauffman 1993), which has been employed in a number of organizational studies (for a survey, see Sorenson 2002). The value of each individual activity a_i is affected by both the state of the activity itself and the states of a number of other activities $\mathbf{a}_{-i}$. For instance, the value of selling products directly is likely to be affected by the presence or absence of existing distribution through resellers. ... Denote the value of activity a_i by $c_i(a_i, \mathbf{a}_{-i})$. For each landscape, the particular values of all possible c_i's are determined by drawing randomly from a uniform distribution over the unit interval, i.e., $c_i(a_i, \mathbf{a}_{-i}) \sim u[0,1]$. The value of a given set of activities A is then given by:*
>
> $$V(A) = [c_1(a_1,\mathbf{a}_{-1})+(c_2(a_2,\mathbf{a}_{-2})+\ldots+c_N(a_N,\mathbf{a}_{-N})]/N.$$
>
> *The identity of a-1, i.e., the set of activities that affect each activity a_i, is given by the interactions structure of the firms decision problem. The interaction structure is either prespecified directly or generated randomly in a controlled manner. The interaction structures that we prespecify are depicted in panels A and B of Figure 2. An interaction structure is an N*N matrix, where an **x** in column j, row i, denotes that activity j affects activity i. In all simulations, we use N = 6. Panel A depicts a block diagonal structure. In this case, activities a_1-a_3 all affect each other and activities a_4-a_6 all affect each other, but no interactions can occur between any of the activities a_1-a_3 and a_4-a_6. Panel B depicts the case of full interdependence in which all activities affect each outher. When interaction structures are generated randomly, as in the typical NK setup (Kauffman 1993), only the overall degree of interaction is specified. In particular, the parameter K denotes the number of off-diagonal entries in each row, i.e., the number of activities that each focal activity is affected by. Panel C depicts an example of a K=2 random interaction structure." (p. 653-654)*

Figure 8.x: Model interaction structures reproduced from Siggelkow & Levinthal 2003



The above description provides the underlying specification for the performance landscape model upon which the proposed simulation for public service systems is based. However, as noted in the text, there are a number of enhancements – or perhaps more accurately, complications – that must be incorporated into this model in order for it to reflect the actors, circumstances, actions and outcomes that are relevant in public services. These enhancements are summarised below.

Enhancements to Siggelkow & Levinthal's performance landscape simulation

1) The number of N's must be increased to reflect the full set of decisions agents can make. In the case of the production landscape for Irish housing, these numbered 15.

2) It was also proposed to represent relevant circumstances (decision factors) as Ns on the landscape, which in the case of the production landscape number 11, bringing the total number of Ns to 26.

3) However, not all agents will consider all factors or decisions and so a schema 'filter' must be introduced into the model which will exclude certain decisions and factors from consideration depending upon the type of agent. The original Siggelkow & Levinthal (S&L) model caters for different types of agents, although their agent type is based on organising mode (centralised or decentralised), not legal status (public, private, non-profit) and the impact of agent type in the

original model is on the number and type of changes that an agent can make in a given period. Note that this relationship between organising mode and agent movement was also proposed as part of the public service model.

4) Performance is calculated based on a single type of performance – which is not specified in the S&L model – but which could be thought of as profit level in the private sector, meeting objectives in the public sector or increasing service levels in the non-profits. However, as noted in the text, agents are generally engaged in pursuing a range of performance outcomes albeit with different priorities. In the case of the production landscape, the three main performance outcomes identified by interviewees were Production, Wealth and Equity. Since Equity cannot be directly achieved by an individual agent, however, it is probably simpler in the first instance to leave this out of the agent level value calculation and leave it as a systems level calculation (discussed below). Hence, there would be two separate performance value calculations that need to be performed for each decision that can be made by an agent – one for production and one for wealth. In addition, the result of each calculation will need to be weighted based on the agent's value objective in order to come up with a total performance outcome for an agents location on the landscape.

5) In the original model, performance outcomes are randomly assigned to agent choices on the landscape, but this is inadequate for creating a simulation that would allow hypothesis generation and testing for the purpose of formulating policy. For the simulation to be useful, decisions must be linked to performance outcomes that a) matter to policy makers and organisations, and b) reflect the actual experience of agents in the real world. The first requirement is achieved by defining the outcomes based on the value objectives already identified for agents and the second may be achieved by embarking on a new research initiative to identify empirically based links between these outcomes and the decisions also already identified.

6) The same challenge applies to the specification of interdependencies among decisions and factors for the public service system performance landscape as for the performance outcomes, in that these need to reflect the real correlations between 'N's. In the S&L model, interdependencies are 'prespecified' or randomly generated in order to test various hypotheses about the effect of complexity (in terms of the number of interdependencies) on agent decision-making and outcomes. In order to use this model for policy and public administration theory development, however, interactions structures in the form shown in the figure above will need to be developed that reflect the actual interactions between decisions and factors. Examples of the type of matrix envisioned were shown in Chapter Seven based on initial observations of interdependencies among decisions and factors observed in the case study. However, additional observations are required to enable statistically significant correlation results to be generated and matrices to be developed.

7) Movement of agents on the performance landscape is much the same in the proposed model as in the S&L model. Agents will move to new locations on the landscape (denoted by the choice vectors described above) based on their evaluation of the value outcomes arising from changes to one or more of the component decisions. As discussed in the text, the initial guideline from the case study was that agents would/could make four separate changes in a given period, but this may vary based on the legal status of the agent. In addition, it might be useful to incorporate an agent characteristic that reflects the knowledge / experience of the agent which affects the probability that the agent will accurately gauge the performance impact of a given choice vector. In the S&L model all agents know exactly what the value outcome of a choice vector will be and so can move with perfect certainty that their anticipated outcome will, in fact, be realized. As this is patently not the case in the real world, it would more accurately reflect reality to have different agents with different knowledge levels assessing value outcomes with different levels of accuracy.

8) Agent level outcomes in the proposed model are also quite similar to those in the S&L model. The agent's set of decisions result in a performance outcome that is calculated based on the formulae discussed above and the interaction of decisions and factors. However, if the knowledge / experience feature described previously is incorporated into the model, this will mean that the anticipated value outcome will not always be the same as what is actually experienced. Therefore agents could actually move to lower performance choice combinations – which is also the case in the S&L model, but for different reasons. In their model, agent decision-making may be centralized or decentralized such that decentralized decision-making may result in lower performance outcomes being realized due to lack of awareness of the interaction effects among decisions. Centralised vs. decentralised decision-making was not a part of the research model. Instead, organisational structure was conceptualised as organising modes (hierarchy, network and market), the effect of which was on the range of movement for agents and potential performance levels. In fact, it was proposed that agents operating under hierarchy mode would be able to achieve higher performance levels at their existing choice location than would agents adopting either of the other two modes. Network mode enables more options to be considered, while market mode enables more changes to be made.

9) Finally, the entry and exit of agents on / off the performance landscape was not part of the original S&L model. Agents simply appear at the outset on randomly selected locations (choice vectors) and move around the landscape until they reach a performance peak – at which point they are likely to simply remain there until the simulation is stopped. In contrast, the proposed model would incorporate logic to generate entry of new agents depending upon the opportunities for value creation – which means there would have to be logic built in at the systems level for varying these opportunities (see next section). In the case of agent exit, one approach would be to set performance thresholds below which agent exit becomes highly probable. In addition, in order to

address the possibility of agents simply choosing to exit (i.e., the example of private sector firms dissolving for family reasons), logic would need to be added to randomly eliminate agents from the landscape irrespective of performance.

The above enhancements address a significant proportion of the behaviour and characteristics of agents, performance landscape and outcomes relevant to public service systems and more specifically to the production landscape for Irish housing agents as described in the body of this thesis. However, there are additional modifications / extensions that need to be incorporated into a public service system simulation in order to address the features identified in the literature review and the case study which go beyond the basic framework of the S&L model. These are summarised in the next section.

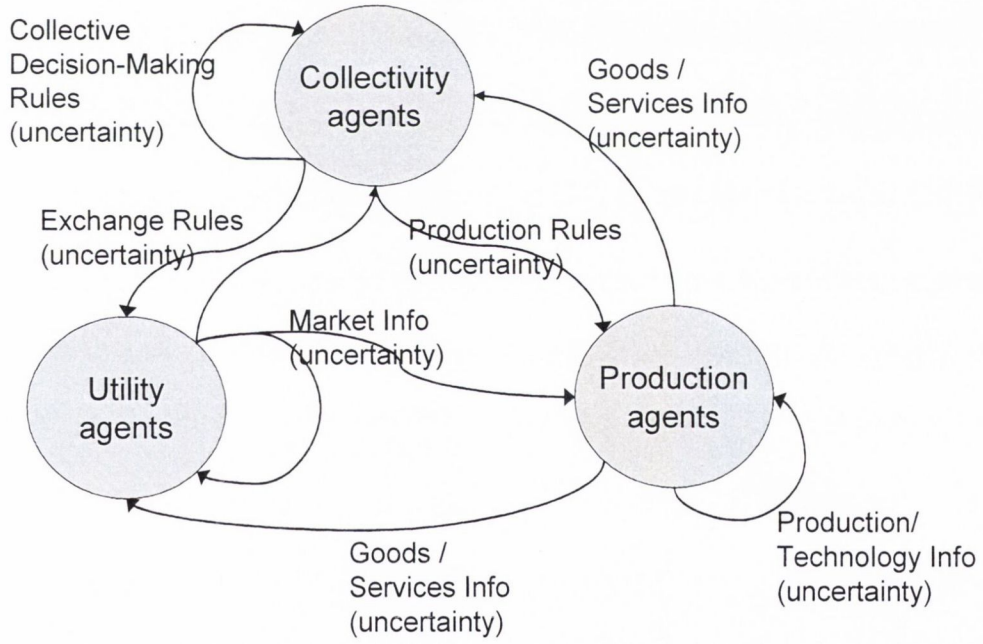
Addition systems-level enhancements required to model public services

1) In order to model the entry of agents on to the performance landscape, there must be logic added that determines the potential for value creation on the landscape, with greater potential resulting in a higher number of new entrants than lower potential. In part, this could be based on the average value created by existing agents at any given point in time, but there would need to be some countervailing logic added to avoid a positive feedback loop that would result in endlessly increasing numbers of new agents as existing agents improved their performance over time. One way of accomplishing this would be to incorporate a resource environment sub-model that would steadily decrease the availability of resources as more agents entered on to the landscape. As noted in the text, the most important resource for all agents appears to be labour, so a model that calculated the availability of labour resources based on the number of existing organising agents and the total amount of labour available to the system overall could be a useful first cut at dealing with both value potential and resource scarcity.

2) In addition to resource scarcity, it was proposed that a variable be established to indicate the level of centralised control over specific resources, which would affect access to these resources by agents on the landscape. Establishing the variable is straightforward – requiring only that a systems level index of centralised control over whichever resources are relevant (in this case labour and probably capital). However, the logic of how these indices change over time and how agents gain access under conditions of high levels of centralised control is a question that needs further consideration. One possible solution for the latter problem is to link an agent's decision to build relationships with increased probability of access to centrally controlled resources. Addition research and most likely some review of relevant models from economics and/or institutional theory is required.

3) The most complicated enhancement required is the creation of three interconnected models to represent the production, utility and collectivity landscapes. As shown in the diagram in Chapter Eight (and reproduced below) information, goods / services and rules flow between these three landscapes and affect the decisions made and the performance outcomes achieved. This aspect of the simulation needs a great deal of additional work to figure out how to model this interaction, although there is clearly the potential to incorporate the effect of rules and information flows into the production landscape through logic that would modify decisions, factors and performance outcomes based on these 'inputs' from the other landscapes. With respect to the utility landscape, the suggestion was made in the text that existing economic models might be slotted into a service simulation model that would adequately model the behaviour of utility agents, albeit with some modifications to address the behaviour of 'non-market' utility agents. The collectivity landscape, however, is largely unexplored and requires a dedicated research and modelling project to be undertaken at the level of that performed for the production landscape in order to propose model logic for this aspect of public services.

Figure 8.3 Information flows among different landscapes



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