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The Provision of Public Planning Information and Services on the Internet by Irish Local Authorities

A User Centric Perspective

Submitted as fulfilment of the requirements for the degree of PhD by research to

Trinity College, University of Dublin

2007

Mairéad de Róiste

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Abstract

The Internet is increasingly used to disseminate local government information and to provide public services. Although this is still a developing area of research, the needs of users of local government information are often overlooked in the research and the benefit of online provision is seldom rigorously tested. This study evaluated the current provision of planning information on the Internet in Irish local authorities from the users' perspective. The provision was evaluated using methods that acknowledge the user's importance in determining the suitability of online information. In this research, the users of the planning information were identified and their characteristics and needs were assessed via an online questionnaire. Finally, local authorities were selected based on the evaluation of the local authority online provision and interviews were conducted regarding their views of users and their provision. The provision of online information varies drastically across the different local authorities. From the perspective of the user, the information provided also varies in usability and accessibility. Users have certain needs and expectations of online planning information. The findings indicate that while the users are generally satisfied with online provision, a number of gaps between user needs and the local authority provision exist. The current provision does not match users' expectations of online provision. The findings of the study indicate that users demand consistency. Although ideological reasons are put forward for the implementation of eGovernment, the local authorities are motivated primarily by the easing of pressures on local authority resources, such as counter services. Service provision, rather than other local authority roles, is the focus of online provision. While the other roles, such as the steering of the local community, can be facilitated they are not explicitly pursued through online provision.

Summary

Governments in many Western countries use the Internet to deliver information and services to the public. The Internet is a recent technological advance that allows the easy dissemination of information and the provision of services. The possible benefits of the use of the Internet in Government are enhancing democracy, facilitating governance and the greater involvement of citizens in government. Little research has been undertaken on the emerging area of public information provision and the users of the information and services are largely being ignored. Public information has unique features which require special attention. It is principally non-commercial and, due to Freedom of Information and other legislation, transparency and availability for all citizens are promoted.

This study investigated the current provision of planning services and information on the Internet by Irish local authorities from a user perspective. Planning is a principal function of local government and relies heavily on the use of spatial information. Historically, planning has been an early adopter or technology and makes an ideal case study for online local government provision. This study employs three methodological strands in its investigation. First, the current online provision was evaluated by applying usability and other appropriate evaluation methods. Second, the user needs and characteristics were assessed via an online questionnaire. Finally, local authority views were surveyed in semi-structured interviews.

The online environment is suitable for the provision of public information. Use of the Internet can benefit both the local authorities and the users. However, the extent to which the local authorities are employing the Internet varies, with some local authorities not providing a website. Certain tasks and information are most likely to be provided online, such as the development plan. The city and county councils have greater provision of information and services than the smaller town and borough councils.

This study found that users are not a homogenous group and that they have different needs. The users' needs vary according to different characteristics; among these are experience with the Internet and the planning system. While the local authorities believe they are familiar with the needs of their users, there are a number of gaps between the needs and current provision. A high proportion of users (between two and four in every ten users depending on the task) are unable to complete the purpose of their visit to the local authority website. User expectations are, however, realistic and users mainly expect only those services and information currently

available in other local authorities and public agencies. Consistency of provision across the country was identified as a core need of many of the users of planning information.

While government literature associates eGovernment and online provision with enhancing democracy, improving government and increasing public involvement, the findings indicate this is not a primary motivating factor for online provision. Additionally, provision is not driven by user needs; rather it focuses on relieving pressure on local authority resources. Although current provision is focused on the service function of local authorities, governance practises and public participation procedures can be affected by online provision. The Internet has the ability to correct asymmetric information problems in governance and current participation practises. However, unless there is explicit political motivation and incentives, the provision of online participation facilities and flexible governance methods is unlikely.

Table of Contents

Declaration 3
Abstract 5
Summary 7
Table of Contents 9
Acknowledgements 13
Table of Abbreviations and Acronyms 15
List of Figures 17
List of Tables 20
Chapter 1: Introduction 23
1.1 Introduction to Research 23
1.2 Research Problem 23
1.3 Research Aim and Objectives 26
1.4 Research Questions 26
1.4.1 Research Question 1 26
1.4.2 Research Question 2 27
1.4.3 Research Question 3 27
1.5 Study Methodology 28
1.6 Outline of Thesis 28
Chapter 2: Literature Review 31
2.1 Introduction 31
2.2 Local Government in Ireland 32
2.3 The Irish Planning System 36
2.4 Theoretical Framework 42
2.4.1 Democracy 42
2.4.2 Governance 43
2.4.3 Participation 47
2.5 ICTs as Enabling Technologies 52
2.5.1 Internet 53
2.5.2 GIS 54
2.5.3 The Internet as a Method of Public Information Provision 58
2.5.4 eGovernment 63
2.5.5 Digital Democracy 68
2.6 Importance of Online Public Information 70
2.7 General Model of Technological Change 72
2.8 Usability 74
2.8.1 Common Usability Issues 75
2.8.2 Users 77
2.8.3 Evaluation Methods 78
2.8.4 Web Accessibility 81
2.9 Summary and Conclusions 83
Chapter 3: Methodology I: Usability Evaluation 87
3.1 Introduction 87
3.2 Planning Authority Internet Presence 88
3.3 Choice of Case Study Areas 89

3.4 Locating the Local Authority Websites 92
3.4.1 Justification 92
3.4.2 Method 93
3.5 Choice of Study Tasks 95
3.6 Clickpath 98
3.6.1 Justification 98
3.6.2 Method 98
3.7 Accessibility 99
3.7.1 Justification 99
3.7.2 Method 100
3.7.3 Evaluation Issues 105
3.8 Prominence and Location of Planning Information 106
3.8.1 Justification 106
3.8.2 Planning Information Pixels (Prominence) Method 106
3.8.3 Planning Information Schema (Location) Method 110
3.9 Map Evaluations 110
3.9.1 Justification 110
3.10 Problems and Reliability 112
3.11 Conclusions 113
Chapter 4: Results I: Usability Evaluation 115
4.1 Introduction 115
4.2 Planning Authority Internet Presence 115
4.3 Locating the Local Authority Websites 117
4.4 Availability of Study Tasks 117
4.4.1 County and City Councils 118
4.4.2 Borough and Town Councils 119
4.4.3 Borough and Town Councils on County Council Websites 119
4.5 Clickpath 121
4.6 Site Structure 123
4.7 Accessibility 124
4.8 Prominence and Location of Planning Information 129
4.8.1 Planning Information Pixels (Prominence) 129
4.8.2 Planning Page 132
4.8.3 Planning Information Schema (Location) 135
4.9 Map Evaluations 143
4.10 Conclusions 146
Chapter 5: Methodology II: Questionnaire Creation 149
5.1 Introduction 149
5.2 Aim of Questionnaire 149
5.3 Target Audience 150
5.4 Questionnaire Design 152
5.5 Pilot Questionnaire 155
5.6 Questionnaire Delivery 158
5.7 Questionnaire Design Elements 159
5.8 Post-Processing and Analysis 162
5.9 Problems and Reliability 162
5.10 Comments on Future Questionnaire Design 165
5.11 Conclusions 165

Chapter 6: Results II: Questionnaire Findings 167
6.1 Introduction 167
6.2 Questionnaire Completion 167
6.3 Demographics 168
6.4 Computer and Internet Experience 172
6.5 Experience of the Local Authority Website 178
6.6 Planning Awareness and Use 180
6.7 Map Use 194
6.8 Conclusions 199
Chapter 7: Methodology III: Local Authority Interviews 203
7.1 Introduction 203
7.2 Choice of Methodology 203
7.3 Selection of Local Authorities for Interview 204
7.4 Local Authority Interviews 205
7.5 Other Interviews 209
7.6 Problems and Reliability 210
7.7 Analysis of Interviews 211
7.8 Conclusions 211
Chapter 8: Results III: Local Authority Interviews 213
8.1 Introduction 213
8.2 Context 213
8.2.1 Relationships with Other Local Authorities 214
8.2.2 Relationships with Support Services 215
8.2.3 Importance of Planning 215
8.2.4 Users 215
8.3 Website Provision 216
8.3.1 History of the Websites 216
8.3.2 Drivers for Creation 216
8.3.3 Responsibility for Content 217
8.3.4 Benefits of Website Provision 217
8.3.5 Disadvantages of Website Provision 218
8.3.6 Future Website Provision 218
8.4 Website Design 219
8.4.1 Evaluation Methods 219
8.4.2 Future Developments 220
8.5 Mapping 221
8.5.1 Relationship with the National Mapping Agency 222
8.6 Public Involvement and Participation 223
8.6.1 Participation Practices 223
8.6.2 Internet Participation Practices 223
8.6.3 Enabling Participation on the Internet 223
8.6.4 Advertising 224
8.7 Conclusion 224
Chapter 9: Discussion 227
9.1 Introduction 227
9.2 The Need for Planning Information 227
9.2.1 The Users of Online Planning Information 228
9.2.2 Demand and Usage of Online Planning Information 232
9.2.3 Online Planning Information 235

9.3 The Provision of Planning Information 236
9.3.1 Finding the Website 237
9.3.2 Task Provision 238
9.3.3 Site Structure 241
9.3.4 Navigation 242
9.3.5 Clickpath 246
9.3.6 Finding Planning Information 248
9.3.7 Web Accessibility 248
9.3.8 Mapping 250
9.3.9 Suitability of Methods Employed 254
9.4 Online Service Provision 257
9.5 Motivation for Online Public Information 265
9.6 Local Governance and the Internet 269
9.7 Online Public Participation 271
9.8 Addressing the Research Questions 277
Chapter 10: Conclusion 283
10.1 Introduction 283
10.2 Summary of Findings 283
10.3 Recommendations 287
10.4 Recommendations for Further Research 292
10.5 Final Conclusions 293
Bibliography 295
Legislation 310
Appendix A: Provision of Planning Information 311
Appendix B: Questionnaire Email Contacts 345
Appendix C: Questionnaire Code 349
Index.html 349
SectionA_Planning.html 350
SectionB_LocalAuth.php 371
SectionC_Internet.php 388
SectionD_demographic.php 393
final.php 403
Surveysettings.css 407
definitions.html 408
Appendix D: Online User Questionnaire 410

Acknowledgements

My family have been supportive and encouraging always. I owe a huge debt of gratitude to Ally, Jimmy, Martina, Pádraic and Diarmaid – someday I hope to be able to repay it! Thank you.

I wish to thank my supervisor Dr Krysia Rybaczuk for her help, understanding and guidance. I cannot express my appreciation for her kind words and patience.

I am very grateful to the staff and students of the Geography Department in Trinity. They have encouraged a keen interest in all things geographical. Terry and Mabel were particularly helpful and, in many cases, went beyond the call of duty. The postgraduates and the staff of the GIS laboratory in the department has been a source of support and friendship over the course of my studies. Thank you Abi, Jean, Pablo, Paddy, Pat, Peadar, Viv, Rob and Tale.

A huge thank you to all my friends and colleagues. To Fiona for being a true friend and for putting up with my increasingly thesis-centred conversation. Emily, my almost roommate, thanks for the chats! To my small army of proofreaders; Garry, Frances, Vanda, Lisa and Freea – thank you for your advice and comments. You're truly soubriatic!

I appreciate the time and effort given generously of the pilot respondents, survey respondents, interviewees and local authority employees. I am also very indebted for the comments on versions of my questionnaires by my colleagues and friends. In particular, thanks are due to Dr Myra O'Regan of the Statistics Department in Trinity and Dr Maureen Killeavy of the Statistics Department in UCD.

During my research, I was fortunate to spend some time working in the GIS/CAD unit in Dublin city council and attribute my interest in GIS to my very encouraging colleagues – thank you. I was a member of two GIS committees (Irlogi and the RGS GISc) during my postgraduate. The committee members of both were helpful and encouraging.

I am grateful for the funding provided by the Trinity Award, Schol and the Broad Curriculum which afforded me the opportunity to complete my postgraduate research in Trinity. The Geography Department, Graduate Studies in Trinity and the Geographic Information Science Research Group (GIScRG) have all kindly facilitated

me present my research at international conferences. This support has significantly aided me in my research and is greatly appreciated.

Gabhaim míle buíochas libh go léir

Table of Abbreviations and Acronyms

AAP	Area Action Plan
BC	Borough Council
BLG	Better Local Government
BMW	Border, Midlands and Western
CBC	Clonmel Borough Council
CSS	Cascading Style Sheets
CGM	Computer Graphics Metafile
CMC	Computer Mediated Communication
CSS	Cascading Style Sheets
CTC	Castlebar Town Council
CTM	Content Technology Matrix
DCC	Dublin City Council
DETR	Department of the Environment, Transport and the Regions
DPI	Dots per inch
DOE	Department of the Environment
DOELG	Department of the Environment and Local Government
EIS	Environmental Impact Statements
EU	European Union
FAQs	Frequently Asked Questions
FTP	File Transfer Protocol
GI	Geographic Information
GIF	Graphic Interchange Format
GIS	Geographic Information Systems
GISc	Geographic Information Science
GUIs	Graphical User Interfaces
HCI	Human Computer Interaction
HTML	Hyper Text Markup Language
HTTP	Hyper Text Transfer Protocol
ICTs	Information Communication Technologies
IMS	Internet Map Server
IP	Internet Protocol
IR	Information Retrieval
ISP	Internet Service Provider
IT	Information Technology
JPEG	Joint Photographic Experts Group (Image format)
KBC	Kilkenny Borough Council
LGCSB	Local Government Computer Services Board

NRA	National Roads Authority
MCC	Mayo County Council
OSi	Ordnance Survey Ireland
PAGI	Public Administration Geographic Information
PC	Personal Computer
PEN	Public Electronic Network
PHP	Hypertext Pre-processor
PPGIS	Public Participation GIS
PPP	Public Private Partnership
RNIB	Royal National Institute of the Blind
RPG	Regional Planning Guidelines
SMTP	Simple Mail Transfer Protocol
TC	Town Council
TCP/IP	Transmission Control Protocol/Internet Protocol
UDC	Urban District Council
UE	Usability Evaluation
UK	United Kingdom
URL	Uniform Resource Locator
US	United States
VOIP	Voice Over IP
VRML	Virtual Reality Markup Language
W3C	World Wide Web Consortium
WCAG	Web Content Accessibility Guidelines
WHO	World Health Organisation
WWW	World Wide Web

List of Figures

Figure 2.1: City, County, Borough and Town Local Authorities 38
Figure 2.2: Planning Permission Process 40
Figure 2.3: Development Plan Process 41
Figure 2.4: Ladder of Citizen Participation 50
Figure 2.5: Structures for the Organisation of Information on the Internet 54
Figure 2.6: Limited Online Map Functionality 59
Figure 2.7: Increased Online Map Functionality 60
Figure 2.8: General Model of Technological Change 73
Figure 3.1: Outline of Usability Methods 88
Figure 3.2: Irish Planning Authorities in the Study Area 91
Figure 3.3: Google's Irish Search Engine 94
Figure 3.4: Sample Search Results Displaying Results for "Dun Laoghaire Rathdown County Council" 95
Figure 3.5: Bobby Logo for Pages with AA Accessibility Levels 100
Figure 3.6: Failed Colour Contrast Check for Text on the Mayo County Council Homepage 103
Figure 3.7: Output from Table Linearization of a Mayo County Council Webpage .. 104
Figure 3.8: Graphical Non-Planning Related Link referring to Waste 107
Figure 3.9: Link on South Tipperary Homepage to a General Map of the County .. 108
Figure 3.10: Browser and System Controls 109
Figure 4.1: Galway City Council Splash Page 124
Figure 4.2: Galway County Council Splash Page 124
Figure 4.3: South Tipperary Main Planning Page 133
Figure 4.4: Galway City Council Main Planning Page 134
Figure 4.5: Graphical Representation of Category 1 Elements 137
Figure 4.6: Graphical Representation of Category 2 Elements 137
Figure 4.7: Graphical Representation of Category 3 Elements 137
Figure 4.8: Graphical Representation of Contact Elements 138
Figure 4.9: Graphical Representation of Search Elements 138
Figure 4.10: Graphical Representation of Other Planning Elements 140
Figure 4.11: Graphical Representation of General Planning Elements (Main Planning Page) 140
Figure 4.12: Graphical Representation of Contact Elements (Main Planning Page) 140
Figure 4.13: Graphical Representation of Search Elements (Main Planning Page) . 142
Figure 4.14: Graphical Representation of Home Elements (Main Planning Page)... 142
Figure 4.15: Graphical Representation of Category 1 Elements (Main Planning Page) 142

Figure 4.16: Graphical Representation of Category 2 Elements (Main Planning Page) 143
Figure 4.17: Graphical Representation of Category 3 Elements (Main Planning Page) 143
Figure 4.18: CTM Surface for Irish Planning Authority Websites 144
Figure 4.19: An Example of a C2T4 PAGIweb 144
Figure 4.20: CTM surface for Italian Public Administration Websites 145
Figure 4.21: CTM Surface for Danish Municipal and County Public Administration Websites 145
Figure 5.1: Methodological Approach for Questionnaire Development 149
Figure 5.2: Survey Progression Indicator 160
Figure 5.3: Hyperlink to Explanation of Term 160
Figure 5.4: Explanation Popup Window for Hyperlinked Terms 161
Figure 5.5: County and Planning Authority Questions 161
Figure 5.6: County Menu Options 161
Figure 5.7: Relevant Planning Authority Options for the Selected County 162
Figure 5.8: Raw Data for Membership of Firms by Staff Members 164
Figure 6.1: Number of Times Questionnaire Accessed by Date 168
Figure 6.2: Age Distribution of Respondents 169
Figure 6.3: Respondents' Highest Level of Education 170
Figure 6.4: Respondents' Highest Level of Education and their Use of the Planning System as part of their Work 170
Figure 6.5: Occupation of Respondents who Used the Planning System as part of their Work 170
Figure 6.6: Size of Respondents' Firms 171
Figure 6.7: Membership of Firms by Staff Members 172
Figure 6.8: Number of Respondents who Used Planning as Part of their Volunteer Work by Volunteer Category 172
Figure 6.9: Internet Access Locations 173
Figure 6.10: Internet Connection Type 174
Figure 6.11: Frequency of Internet Use 175
Figure 6.12: Time Spent on Internet per Day 175
Figure 6.13: How Respondents Normally Find Information on the Internet 176
Figure 6.14: Most Frequently Used Search Engines 176
Figure 6.15: Tasks Completed by Respondents on the Internet 177
Figure 6.16: Frequency of Local Authority Website Use 179
Figure 6.17: How Respondents Found the Local Authority Website 179
Figure 6.18: Satisfaction with Local Authority Webpages 180
Figure 6.19: Reasons Respondents Visited a Local Authority Website while Submitting Planning Applications 184

Figure 6.20: Reasons Respondents Visited a Local Authority Website while Commenting on Planning Applications 184
Figure 6.21: Reasons Respondents Visited a Local Authority Website while Viewing Planning Applications 184
Figure 6.22: Reasons Respondents Visited a Local Authority Website while Making a Submission to a Development Plan 186
Figure 6.23: Reasons Respondents Visited a Local Authority Website while Viewing a Development Plan 186
Figure 6.24: Reasons Respondents Visited a Local Authority Website while Undertaking Other Planning Task 187
Figure 6.25: Satisfaction with Planning Tasks 189
Figure 6.26: Number of Respondents who Think Providing an Online Utility would be of Benefit 191
Figure 6.27: Perceptions of Online Planning Information 193
Figure 6.28: Where Respondents Recalled Maps Used on Local Authority Site 195
Figure 6.29: Type of Maps Recalled by Respondents 196
Figure 6.30: Satisfaction with Local Authority Maps 197
Figure 6.31: Number of Respondents who Recognised Benefit in Providing Mapping Applications with Local Authority Services 197
Figure 6.32: Map Features of Most Benefit 198

List of Tables

Table 2.1: Recognised Public Participation Techniques 49
Table 3.1: Definition of Homepage 88
Table 3.2: Webcontent.gov Definition of a Homepage 89
Table 3.3: Local Authorities Evaluated 90
Table 3.4: Sample Planning Tasks 96
Table 3.5: Accessibility User Checks 101
Table 3.6: Standardised Accessibility Evaluation Issues 105
Table 3.7: Planning Information Categories 107
Table 3.8: Content Technology Matrix 111
Table 4.1: Summary Statistics for Website, Planning Main Page and Planning Pages 116
Table 4.2: Task Availability on County Council Site for Town or Borough Councils 120
Table 4.3: Frames and Splash Pages by Local Authority 123
Table 4.4: Summary of Accessibility Results for Local Authorities 126
Table 4.5: Priority 1 and 2 Summary Statistics for Accessibility Results 127
Table 4.6: Priority 3 Summary Statistics for Accessibility Results 128
Table 4.7: Percentage of Screen Devoted to Planning Information by Category ... 130
Table 4.8: Planning Main Page 135
Table 4.9: The Placement of Category 1 Elements 137
Table 4.10: The Placement of Category 2 Elements 137
Table 4.11: The Placement of Category 3 Elements 137
Table 4.12: The Placement of Contact Elements 138
Table 4.13: The Placement of Search Elements 138
Table 4.14: The Placement of Other Planning Elements 140
Table 4.15: The Placement of General Planning Elements (Main Planning Page)... 140
Table 4.16: The Placement of Contact Elements (Main Planning Page) 140
Table 4.17: The Placement of Search Elements (Main Planning Page) 142
Table 4.18: The Placement of Home Elements (Main Planning Page) 142
Table 4.19: The Placement of Category 1 Elements (Main Planning Page) 142
Table 4.20: The Placement of Category 2 Elements (Main Planning Page) 143
Table 4.21: The Placement of Category 3 Elements (Main Planning Page) 143
Table 4.22: CTM Classification for Irish Planning Authority Websites 144
Table 4.23: CTM Classification for Italian Public Administration Websites 145
Table 4.24: CTM Classification for Danish Municipal & County Public Administration Websites 145
Table 5.1: Survey Participants Sources for Survey Participants 151
Table 5.2: Manual Validation Criteria 152

Table 5.3: Pilot Participants 156
Table 6.1: Users Aware of Planning Applications and Development Plan (Number of Respondents) 181
Table 6.2: Planning Tasks Undertaken by Respondents 181
Table 6.3: Number and Valid Percentage of Respondents who used the Local Authority Site while Undertaking Planning Task 182
Table 6.4: Completion of Purpose of Visit to Local Authority Site 187
Table 7.1: Selection Criteria for Local Authorities for Interview 204
Table 7.2: Local Authorities Interviewed 205
Table 7.3: Local Authority Questions 206
Table 7.4: Questions for Local Authorities without Websites 208
Table 7.5: Interview Questions for Ordnance Survey Ireland 209
Table 9.1: Order of Tasks Undertaken and Tasks Undertaken Online 233
Table A.1: Planning Authorities with Websites 311
Table A.2: Website and Planning Section Availability and Google Result Position for Local Authorities in Study Area 313
Table A.3: Task Availability on Local Authority Websites 314
Table A.4: Tasks Availability for Smaller Local Authorities on County Council Websites 316
Table A.5: Combined Town and Borough Council Websites with County Council Websites 318
Table A.6: Clickpath for Planning Authorities 319
Table A.7: Task Availability via County Council Websites 321
Table A.8: Borough and Town Council Clickpath Combined with County Councils . 322
Table A.9: Local Authority Accessibility Results: Homepage 323
Table A.10: Local Authority Accessibility Results: Planning Main Page 325
Table A.11: Local Authority Accessibility Results: Development Plan Chapter 326
Table A.12: Local Authority Accessibility Results: Development Plan Map 327
Table A.13: Local Authority Accessibility Results: Planning Application 329
Table A.14: Local Authority Accessibility Results: Planning Application Maps 331
Table A.15: Local Authority Accessibility Results: Planning Application Form 333
Table A.16: Local Authority Accessibility Results: Planning Application Fees 335
Table A.17: Local Authority Accessibility Results: Information on Objecting Process 337
Table A.18: Local Authority Accessibility Results: Information on Appeals Process 339
Table A.19: Local Authority Accessibility Results: Planning Contact Details 341
Table A.20: Local Authority Accessibility Results: Contact Details 343
Table B.1: First Contact Email to a Specified Contact in a Community Group 345
Table B.2: Second Contact Email to an Unspecified Contact in a Community Group... 346

Table B.3: Third and Final Contact Email to an Unspecified Contact in a Community Group 347

Chapter 1: Introduction

1.1 Introduction to Research

In the last 10 years, the Internet has emerged as a powerful communication tool and a means of providing information and services. It has permeated many areas of day-to-day life in Western countries. Banking, shopping and many other commercial and financial activities can be undertaken online and much of the information currently created is digital. The Internet's role in society is likely to expand as more digital information is created and more businesses provide services online.

The Internet and the development of other Information Communication Technologies (ICTs) have caused a re-evaluation of the delivery of government services and information. Many Western governments, including the Republic of Ireland, are promoting the use of ICTs, particularly the Internet, in all areas of government. ICTs are seen as beneficial, and even desirable, in government interaction with citizens. Government literature associates the use of the Internet with reducing costs, increasing citizen information and participation and the delivery of better government services (Ireland 2003, ODPM 1998). Local authorities are creating online presences and their services are increasingly being provided via the Internet, e.g. e-service provision by all local authorities in the UK (Chapallaz 2001) and the *Mobhaile* project in Irish local authorities (LGCSB 2004a).

There is governmental recognition that much of government data is geographic in nature (Ireland 2003). Local authorities, with their clearly demarcated local remits, provide public information and services for a specific geographic area. Spatial planning is a core and information rich government activity (Grist 2003a) and possibly the most well known of the local government functions. Additionally, it is the section of local government most members of the public will have interacted with (Grist 2003b). In the past, Geographic Information Systems (GIS) and other digital systems have been used to deliver this local government service. More recently, many local authorities in the Republic of Ireland have made their development plans and the location of planning applications available in a number of formats ranging from the more limited (e.g. jpeg) to those with increased functionality (e.g. dynamic mapping).

1.2 Research Problem

While online provision of public information has been linked with better government, new and improved methods of governance, enhanced democracy and greater participation, the actual benefits of such provision are largely unknown. Much of the

debate regarding the appropriateness of the Internet for the delivery of public information and services has centred on its benefits and, in many cases, it has simply been assumed by the advocates of eGovernment (e.g. Department of the Taoiseach 2002) that it is a positive development. This assumption cannot be taken at face value. In the absence of an understanding of the role of the Internet in the provision of such services and information to users, the aims of eGovernment may not be accomplished.

An investigation of the provision of online public information is required. Public information may not be suited to online provision. Public information requires special attention as it is expected to fulfil a number of different functions, e.g. governance and the delivery of public services. It has special characteristics, such as its applicability to the wider community and its non-commercial nature. Additionally, much government information is spatial in nature (MacEachren & Kraak 2002). The storage of Geographic Information (GI) requires an understanding of spatial properties and its representation is best suited to cartographic form and GI has a particular set of design rules (Slocum *et al.* 2002). Providing GI on the Internet, therefore, requires special consideration, such as the suitable use of colour and symbology. Research on online commercial information, such as studies by Nielsen and Tahir (2003), Markum and Hall (2003) and Bernard (2001), may not be directly applicable because of the different requirements and characteristics of public information.

The suitability of public information for use by the public is dependent on whether or not it fulfils a need for this information by society. Public information is provided for the user. However there is rarely a consideration of what this actually entails. Are both current and potential users included and does it automatically follow that the user needs or can use this information? For example, simply increasing information provision is unlikely to create a better informational environment; thought has to be given to the value and quality of information for the user. Little analysis has been undertaken on the role of these information systems in fulfilling public need. The provision of this type of information from a user perspective has not been examined. The Internet has the power to ease citizen interaction with government but practical based research into whether this is being achieved is needed. Usability methods, which examine information from a user perspective, are currently available for commercial information. For the most part, these methods have not been applied to online public information.

Even if a public need is being fulfilled, the conceptual leap to democratic enhancement, better governance and greater citizen involvement is not obvious. The evolution of the Internet, as a medium of mass communication, has spawned a body

of opinion which sees the Internet as a method for further public participation in all areas of governmental processes and as a means to improve democracy (Bodum 1999, and discussion in Shenk 1997). Perceptions of alienation, democratic failure and public apathy have lead to a re-examination of the function of stakeholders[1] in local governance. The questioning of governance has created a greater role for the public within local government decision-making processes. Pushes for further public participation through greater access to information are reflected in most models of public participation processes, for example in stage three of Arnstein's (1969) eight stage participation ladder, stage two in Carver's (2001) e-participation ladder and in the Information Sharing attribute of Bayley and French's (2005) attribute hierarchy. The ideals of greater government transparency and public involvement are being linked with providing public information and services on the Internet. It is generally accepted that decision-making can be enhanced by timely and better information (Turban & Aronson 1997). The introduction of technological methods of public information display, such as GIS, and the increasing dissemination of information via the Internet can be viewed within such a framework.

This study focuses on planning information provided online by local authorities in the Republic of Ireland from a user perspective. These providers operate in the same legislative, regulatory and societal environment and are relatively small in number. These factors facilitate a meaningful comparison across the local authorities. This comparison can then be used to explore the factors behind differences in provision, if any, observed. Planning is a core local government function (Oasis.gov 2006). It is not simply a public service provided by local government but affects the local community, economy and physical landscape (Healey 1997, Sassi 2000). The planning system relates to the development of the local authority area. Planning is an information rich activity. Due to its geographic nature, history of cartographic representation, and large quantities of information, planning has been a first mover in the application of ICTs in local government (IGIP 1988) and has been identified by the Irish government as an area suitable for online service delivery (O'Brien 2004). Planning information is related to the local area and in many cases to specific coordinates. While planning information is inherently geographical, this characteristic may not be recognised or used in its representation. When planning information is not represented spatially, it does not take from its inherent spatial nature. This study accounts for the cartographic representation of planning information but overlooking its interlinkages with other planning information would not accurately reflect the true interaction with local government information online. In the context of this study, planning information is information is that relates to the planning of the local authority

[1] A stakeholder in this context refers to a group or individual affected by the area of interest (Babiuch & Farhar 1994).

area. In practical terms, it is also information contained on the local authority website. The definition of planning information is not exact. Certain information created in other local authority departments may be essential to the planning process but is not intrinsically planning related. When that information is presented in a different context or on its own, it will not be associated with planning or any of the planning processes.

1.3 Research Aim and Objectives

Research into online provision is an emerging area and little research has been conducted on the provision of public information by public agencies. In addition, the users of this information have largely been ignored in research. This research explores the issues surrounding the suitability of the Internet for the delivery of public information and services from a user perspective. It focuses on the provision of planning information on the Internet in local authorities in the Republic of Ireland. For the remainder of this thesis, Ireland and Irish local authorities refer to the Republic of Ireland only and not to the island of Ireland.

To achieve the aim of this research, a number of objectives were devised:

- Derive methods to assess accessibility, usability and spatially represented information on local authority home and planning pages. The methods derived should be appropriate for use within the local authorities and rely on the research in adjoining areas.
- Establish, through usability testing of local authority websites, the applicability of the methods derived and the value of the information available, paying particular attention to spatial information.
- Identify the users of online planning information.
- Determine the users' need of online planning information through a targeted online questionnaire.
- Assess the local authority view of public information provision through semi-structured interviews.
- Establish the motivation behind the provision of online public information.
- Ascertain the relevance of participation, governance and democracy to online provision through an examination of the results of this study.

1.4 Research Questions

1.4.1 Research Question 1

What is the level of provision of public information in terms of presentation, quality and quantity via the Internet; focusing on publicly available planning information and where appropriate spatial represented information?

This research will compare the provision of planning information across the different types of Irish local authorities. The provision of public information can then be assessed in terms of governmental aims of greater transparency and citizen involvement. Usability methods, which assess different aspects of online provision from a user perspective, will be used to explore the presentation and quality of the information provided.

1.4.2 Research Question 2

*Do gaps exist between the public **need** for publicly available information and the local authority **provision** of that information?*

Little of the literature on government provision of public information and services is focused on the users. This thesis will establish whether there is a need for online public information created by the users. Furthermore, this thesis will establish the extent of that need as it relates to planning information. This research question will be answered by establishing, through a comprehensive web survey, what needs the public have of the local authority website and of planning information. The needs will then be compared with the provision of information and any gaps in provision will be identified.

1.4.3 Research Question 3

What is the motivation behind the increasing governmental emphasis on service provision via the Internet and is the provision of online public information driven by user need?

There are a number of possible motivations for the provision of public information and services on the Internet. Governments are promoting the use of ICTs in their processes. The impetus for this drive, according to government literature (e.g. Environment 1996) appears to be ideologically based and centred on the enhancement of democracy and governance. This thesis explores the theoretical framework for this ideological approach. The second research question deals with the evaluation of the differences, if any, which exist between the need and provision of planning information on Irish local authority websites. The gap between the provision and demand for planning information may be the main impetus in the increasing provision of planning information on the Internet. If these motivations do not directly drive the development of online services by the development of online services by the local authorities, they can still elucidate aspects of current provision and predict the future direction.

1.5 Study Methodology

This study is practically and empirically based. There are three research strands adopted in this thesis to answer the research questions posed. First, a series of methods were selected, adapted and used to evaluate the provision of local authority planning information available on the Internet in Ireland. Second, the users of the information were contacted to establish their needs. Third, using the results compiled from the evaluation of the provision of online planning information completed in the first research strand, a number of local authorities were contacted to establish their motivations in information and service provision on the Internet and to establish a context for the results of the other two methodological strands. The results of the three strands inform each other and give a more complete picture of public provision of information online than they would separately.

The study contacted actual users of planning authority websites to establish how effective the authorities were in the delivery of eGovernment and its wider implications. However the other sections of the methodology encompassed potential as well as actual users in assessing how suitable the Internet was in the delivery of planning services. Additionally, the actual users give a metric with which to estimate the implications for the wider access of the online services by the general public.

1.6 Outline of Thesis

Chapter 2 explores the context for this study and the theoretical framework. The Irish local government system is described and the planning system is detailed. Public information and services are provided within a framework of governance, democracy and participation. These three theoretical areas are then explored. The application of the Internet and GIS to the delivery of local government is investigated within this theoretical context. This thesis focuses on the users of online public information and the literature surrounding the design of systems for users is examined.

There are three methodological strands of this thesis. The first methodological strand evaluates the current provision of public planning information on Irish local authority websites using a range of methods developed in Chapter 3. The methods are based on usability and accessibility principles as well as evaluating the mapping information provided online using GI and PP (Public Participation) evaluation methods. Methods in related areas were investigated and adapted where necessary to assess the provision of local authority information. These methods were then evaluated for their applicability to spatial information. The results of these evaluations are presented in Chapter 4.

The second methodological strand of the thesis (Chapter 5) identifies and, then, surveys the users of the planning information to ascertain their need of this information. Important characteristics were also identified which will allow the local authorities to better design their websites. The results of this survey are presented in Chapter 6.

The final methodological component uses the results of the current provision of information to interview a range of different local authorities. The interviews are used to place the results of the other methodological strands into context. The methodological approach to these interviews and the criteria for the selection of the local authorities are presented in Chapter 7. The results of these interviews are presented in Chapter 8.

The results from the three methodological strands of the thesis are discussed in Chapter 9 and the results are, then, assessed within the context of the current literature in this area. The research questions are explored and the provision and need of planning information on the Internet in Irish local authorities is assessed. The local authority views of the process and the wider ideological motivations for online provision are questioned and evaluated.

In Chapter 10, the findings of this research are summarised and recommendations arising from this work are made. Finally, future areas of research are identified and discussed.

Chapter 2: Literature Review

2.1 Introduction

The role of government in society is changing. There is increasing recognition by governments that government as a single paternal governing body for society is untenable (Brillantes 2007, Henton *et al.* 2007). Democratic changes are being sought to provide greater citizen input into the methods of government and governance. The application of Information Communication Technologies (ICTs) to government, public service delivery, public information dissemination and public participation are proposed by the public sector as fundamental changes to the system and to improve democracy (Ireland 2003). These technological advances are affecting the delivery of planning information and other local authority services. This chapter, through the introduction to planning and local government in Ireland, its theoretical basis and the development of certain ICTs collates the disparate areas of literature which now supply the foundation for online public information delivery.

First, this chapter introduces Irish local government, its functions, structure and position within government as well as possible power distribution models and the role of the public. Section 2.3 presents the planning system in Ireland, its functions and role within the community and citizen involvement.

Section 2.4 covers the theoretical basis of this thesis. It looks at ideas of governance, democracy and participation. The growing area of governance is presented and its application to local areas and planning is investigated. The concept of democracy is examined and its relevance to Ireland is explored. Many of the ideals of democracy and local government depend on the participation of citizens. Some justifications for participation are put forward and the techniques used are presented. A number of models of participation are described and barriers to true or meaningful participation are discussed.

The use of ICTs in government is increasingly common and two such technologies, the Internet and GIS, are presented in Section 2.5 and their evolution is charted. The Internet as a method for public information provision is assessed in subsection 2.5.3. Implications for government and democracy caused by these enabling technologies are dealt with in Sections 2.5.4 and 2.5.5. Section 2.6 gives an overview of the importance of the online environment for public information provision and Section 2.7 outlines West's (2005) model for the adoption of technology.

The penultimate two sections of this chapter are more closely associated with the methodology employed in this thesis. Section 2.8 introduces the concept of usability and the types of usability problems encountered on websites. The usability measures used to evaluate websites are presented and the importance of using real users in testing a site's usability is examined. The accessibility of information on websites is dealt with in subsection 2.8.4. Other literature associated with the methodologies employed in this thesis is dealt with where required.

2.2 Local Government in Ireland

The modern system of local government in the Republic of Ireland was established in 1898 by the Local Government (Ireland) Act and was heavily influenced by the British model of local government (DETLG 2003). British influence on Irish policy and legislation remains strong to this day and much of Irish legislation in based on their British counterpart (Neil Collins & Cradden 2001). However, this is increasingly tempered by the growing influence of the European Union (Chubb 1992, Neil Collins & Cradden 2001). Every five years, 114 different local authorities are democratically elected (DEHLG 2006a). There are four types of local authority; city, county, town and borough councils. The main providers of local government services are at 34 local authorities at the county (29 county councils) and city (5 city councils) level. At the sub-county level, 88 town and borough councils provide varying levels of local government services (Grist 2003a).

Local authorities, with their clearly demarcated local remits, provide public information and services and promote local policies for specific local geographic area. While the local authorities are probably best known for their public service provision, they are not simply service providers or public administration. In the provision of many of the services, the local authority is simply a local branch of central government and has little discretion over how the service is provided (Callanan 2003a). Wilson and Game (2002) identify the four main roles of local government as multi-service providers, regulation, strategic policy formation and promotion and advocacy. Local authorities are municipal service providers charged with promoting "...the interests of the local community, including the social, economic, environmental, recreational, cultural, community or general development of the local authority area" (Oasis.gov 2006). The spatial remit of local government seeks to build upon an identification with locality to some extent (Callanan 2003a).

Local authorities fund their operations including the provision of these services, through a combination of central funding, monies accruing from the provision of certain services (such as planning fees and housing rents), the sale of assets, borrowing and rates on commercial buildings (DEHLG 2006b). In recent years, this

local authorities' service provision role has changed significantly. Previously focusing on quantity rather than quality provision, the local authorities have developed a more customer-oriented outlook and followed a more commercial *modus operandi*, in many cases outsourcing the provision of its traditional services (Wilson & Game 2002). The functions directly provided by local government have therefore decreased as the local authorities have moved away from direct service provision to service commissioning. This reduction in the direct provision of services can have implications for the public's view of local governance. Local government is less visible and less immediately associated with the maintenance of the local area (Wilson & Game 2002). The privatisation of municipal services has occurred to a lesser extent in the Republic of Ireland than has been the case in the UK as certain services, such as health and education, were always outside the control of the Irish local authorities (Oasis.gov 2006). However, developments, such as the emergence of quangos (Quasi-Autonomous Non-Governmental Organisations) and Public Private Partnerships (PPP) (Madden 2003), suggest some similarities between the Republic of Ireland and the UK. Both quangos and PPPs are flexible bodies with diverse working practices and composition and may not be under the control of the local authority (Wilson & Game 2002). While their roles are generally complimentary to the local authority, their direction may come into conflict with local authorities when the remit of both overlap (Healey 1997).

Local government is charged with the provision of services and discharge of roles that are deemed best administered at the local level (at least, in the eyes of central government). Local government is then best placed to decide on the priorities for issues at the local level. However, the extent of local services provided is limited (Callanan 2003a). Central government dictates the services and direction for the local authorities through legislative measures (both in the form of Acts and the use of Statutory Instruments), formulation of national policy, the issue of guidance and circulars, finance and other less frequently used controls. As a considerable source of funding, central government control over local authority services is significant without recourse to legislative measures. Functions can be devolved from and reclaimed by central government as judged appropriate and returned to central government (Wilson & Game 2002). The provision of a minimum level of service is given as a reason for uniformity rather than the local authorities setting their own priorities (Callanan 2003b).

The provision of the services by local authorities required by central government and in their wider role as a strategic planner, civic leader and representation of the local community (Bulkeley & Betsill 2003) have partial autonomy (Callanan 2003a) similar to that in the UK as described by Wilson and Game (2002) and Bulkeley and Betsill

(2003). Following local government legislation in 2001 (Local Government Act (2001)) the more restrictive *ultra* vires was replaced with the power of general competence (Callanan 2003a). *Ultra vires*, a Latin term meaning "beyond its power" (Wilson & Game 2002;27) meant that local authority powers were limited to those specifically granted through legislation by central government. The power of general competence expanded their power to specifically facilitate the promotion of local interests. This affords the local authorities greater autonomy but is dependent on the availability of funds and personnel (Callanan 2003a). Wilson and Game (2002) contend that the discretion of local authorities in the UK has been reduced due to the erosion of their powers and responsibilities by central government. Wilson and Game (2002) propose that this diminished responsibility does not preclude a degree of individuality or innovation. Keyes (2003) described a similar trajectory for Ireland where centralisation and limited funds have restricted certain actions, innovative practises were followed in a number of local authorities.

Recent local government reform culminated in the Local Government Act (2001). The reform was heavily influenced by two policy documents; Better Local Government - A Programme for Change (Environment 1996) and A New Deal for Local Government (DOEHLG 1998). The policy documents and subsequent legislation emphasised corporate planning, effective and efficient resource use, value for money and improving local democracy (Keogan 2003). The Act, where practical, promotes the idea of a "unified local government service provided to [the public]" (Local Government Act (2001) 65), emphasising improved public service. The internal structures of the local authorities changed significantly in the wake of this legislation and the focus of the policy direction of the local authority could determine the creation and amalgamation of departments. Importantly, a greater focus on service provision and the public as customers resulted. While steps were taken to improve local government, Keogan (2003) questioned whether local government was simply changed rather than reformed and highlighted the need to develop a keen understanding of the distinctiveness of local in comparison to central government.

Legally, local authorities are required to liaise with other interested local authorities and other prescribed public and non-governmental organisations as part of policy formation processes for their areas (Local Government Act (2001)). In addition to interacting with the local authorities in relation to service provision, the public have some opportunities to influence policy within local government (Tierney 2003). Consultation and participation by the general public is provided for in the Local Government Act (2001). However, the means and extent are left to the discretion of the individual local authorities. The Act allows the public attendance of council meetings for open business, the arrangement of information meetings and the

involvement of experts whose knowledge would add to the policies of the committees. It further authorises the authorities to publicise the consultation process through the media including the Internet, radio public displays of plans and policies "at suitable locations" (Local Government Act (2001); 102).

Participation is not limited to individual citizens or businesses, local groups play an important role in representing local community views to the local authorities (Keyes 2003). Stoker (1991) defines four types of local groups; community, cause, economic and voluntary sector groups. The groups represent community related interests such as residents associations, specific causes (such as environmental groups), commercial or economic interests (such as chambers of commerce) and voluntary service providers (such as food delivery to disadvantaged members of the community). Provision is also made in local government legislation for the consultation of organisations with an interest in the local community as recognised by the local authorities. The local authorities may also devolve some of their functions to such organisations or associations. However, methods of participation are left unspecified. Moran (1989) defines a pressure group as "... any group which tries to influence public policy without seeking the responsibility of government." (Moran 1989;121). This definition can obviously be extended to community groups.

Individual local authorities are presided over by an elected council which in turn is headed by a non-directly elected mayor (Local Government Act (2001)). The elected council oversees a council manager (appointed by central government) and a number of departments dealing with the different service and policy functions of the local authority. The manager is responsible for the efficient and effective operation of the council, implementing the council decisions and managing the administration and business of the local authority. The manager is charged with the day-to-day provision of services and, in this role, can approve expenditure on maintenance and repair. However, policy formation is the exclusive remit of the elected representatives. Any developments in excess of these day-to-day functions must be debated and ratified by the elected council. Furthermore, the manager for each county council is also the manager for each town and borough council in the county's administrative area and every joint body if that body's spatial remit is completely contained within the county council's area (Local Government Act (2001)). The role of the elected representatives at a local level is limited and in many cases, the council's power is concentrated in the hands of the council manager (Lenihan 2006).

Wilson and Game (2002) summarise three models of power distribution within local authorities between the elected representatives and the employed officers. The formal model conceptualises the distribution of power according to the formalised

structures set out in the local authority. Elected representatives make decisions supported by information and expertise supplied by the officers which are implemented by the officers. This model is heavily criticised as too simplistic and is generally regarded as out-dated.

The technocratic model asserts that policy formulation is dominated by the officers. The officers' expertise and technical knowledge are more important than the inexperienced and part-time elected representatives. This model may apply where councillors are newly elected and unaware of the working of the local authorities but it is too crude an approach. Wilson and Game (2002) do concede that the officers' expertise and knowledge allows them to formulate policy in the absence of policy direction from elected members of the council.

The third model, the joint elite model, provides a more representative view of observed power distribution and policy formulation. This model argues that in a system of party politics, minority parties and junior officers play a small role in determining policy direction, while majority parties and senior officers have the strongest role. However, Wilson and Game (2002) raise doubts about the extent of the exclusion of minority parties and non-senior officers. They mention intra and inter-party influences as well as inter and intra-departmental relations as important factors in determining policy. They conclude that all three models are flawed but remain important in gaining an understanding of the power distribution within the local authorities. Kenny (2003) discussed the interplay between what he termed macro party politics and micro interparty politics in Irish local authorities. His findings stress the importance of party factors within the local authority. Furthermore, Keogan and Callanan (2003) commented that the reliance on central government can bled into the effectiveness of local government. Local government if striped of responsibilities may turn to central government to solve its problems.

While there are obvious benefits to local government, such as reacting to unique local conditions, there are a number of problems with localised government. The cost of multiple providers and the resultant duplication of services cause an increase in the cost of provision in terms of effort and finance. Smaller agencies can find it more difficult to attract and retain experienced and innovative staff due to smaller budgets and potential funding shortages. In addition, services supplied by different providers will differ between the areas and for types of users (Wilson & Game 2002).

2.3 The Irish Planning System

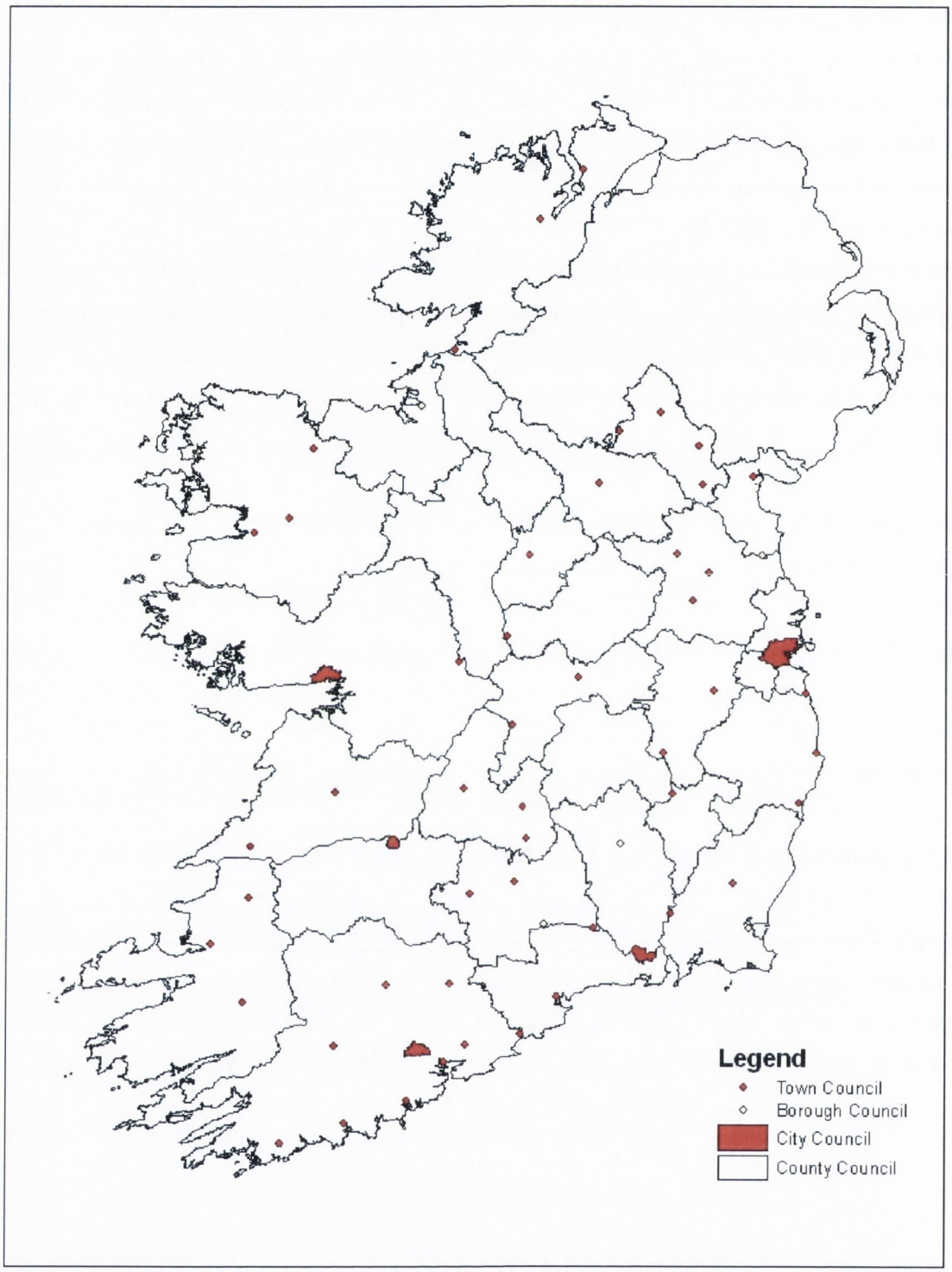
Planning is one of the core, possibly most well known and controversial of the local authority functions (Haslam 2003). The present planning system in the Republic of

Ireland was introduced in 1963 with the enactment of the Local Government (Planning and Development) Act, 1963 (Grist 2003a). With the exception of town commissioners, all local authorities were given powers and responsibilities in relation to the planning and development of their functional areas. Currently the Republic of Ireland has 88 planning authorities (Figure 2.1). These planning authorities have two main functions; strategic planning and development control. A key strategic planning function is the formulation of the development plan, which sets out the planning authority's policies and objectives for the area, providing a blueprint for the shape of future development. The development control system is the primary mechanism for ensuring that proposals for new development comply with the planning authority's vision for the area, as set out in the development plan. To this end, the planning permission process evaluates all submitted developments with respect to the plan (Grist 2003a).

Planning is an amenity service and the guidelines affecting its procedures and regulations are shaped by the needs of the local community (Wilson & Game 2002). Planning can have a profound influence on the local environment and can affect the behaviour and quality of life of residents and other stakeholders within the local authority area (Sassi 2000). In particular, planning designates specific land uses for different geographic areas, affecting the residents' employment and education opportunities, travel patterns, leisure activities and residential facilities (Healey 1997).

Planning activities are undertaken by a large number of citizens in Ireland every year. In 2001, 75,786 applications for planning permission were made, 71,890 decisions on the applications were taken by the relevant planning authorities and 12,128 planning applications were refused (16.9%) (DOELG 2001). Planning is an information rich activity and Lenk (1999) identified three types of planning information; basic information and the functioning of services, information on entitlements and rights and general information, including information on planning procedures.

Figure 2.1: City, County, Borough and Town Local Authorities



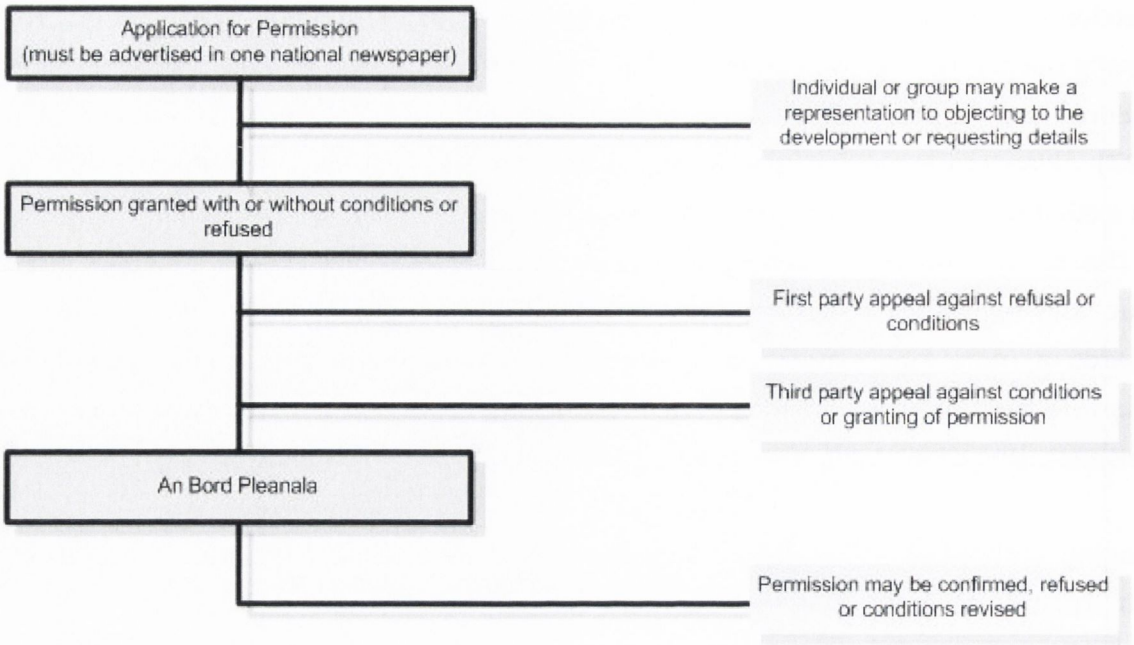
Planning practice has changed dramatically over time. It has shifted from the traditional dominant planning paradigm of rational planning whereby professional planners conducted surveys, analysed the data collected and made 'objective' decisions on the basis of the results, to a recognition of the importance of the role of community input in shaping the vision of a local area (Bannon 1989, Dalton 1989, Healey 1997). In the late 1960s and early 1970s, there was mounting political

interest and public pressure for greater involvement of citizens in determining the direction of planning policy. Writers, such as Herbert Gans, argued that planners are morally obliged to improve conditions for disadvantaged residents and others, such as Davidoff and Reiner, called for citizen participation in the planning system (Healey 1997). Planning is now seen as an interactive process that requires interpretation of the exchanges among participants into policy (Healey 1997). This movement is based on the recognition that planning is a political activity, is not innocent and "carries value and expresses power." (Healey 1997;84). Changes in the planning process towards a more citizen-oriented approach were a dramatic step and a significant departure from previous practice. Public participation was seen as the front line in the transformation of planning, the design of cities and local governance (Healey 1997).

Planning authorities are statutorily obliged to facilitate public consultation processes with regard to both the development plan review and development control. Applications for planning permission are made to the local authority by prospective developers or their agents, such applications are then available for public scrutiny and objections or comments may be submitted by interested parties. The local authority's decision to grant, grant subject to conditions or refuse planning permission may be appealed to *An Bord Pleanála*, which provides a national appeals process. The Irish planning system has long been considered unusually open within the European context, as third parties or members of the general public may appeal decisions, in addition to the first party or applicant. This process is graphically represented in Figure 2.2. Planning authorities are obliged to ensure that decisions with regard to planning application comply with the policies and objectives set out in the development plan. A lengthy formal procedure, with the involvement of the elected representatives, must be followed in order to grant permission for a development which would materially contravene the development plan (Grist 2003b).

The development plan is updated according to a rigid timetable every six years and requires a public consultation process (outlined in Figure 2.3) (Grist 2003b). Submissions can be made in advance of the preparation of the draft development plan and further submissions can be made during the public display phases.

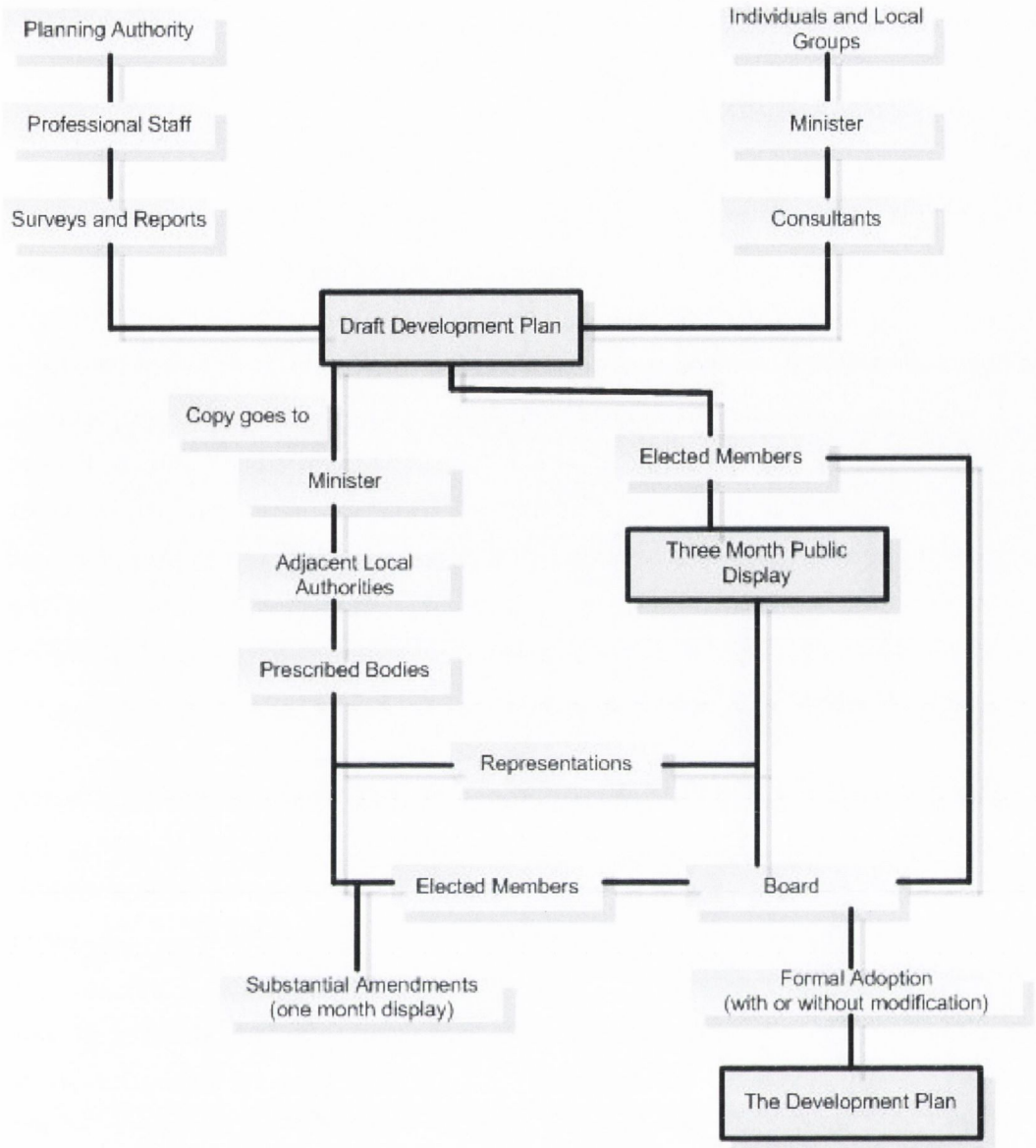
Figure 2.2: Planning Permission Process



(McGuirk 1991;7)

Planning can be contentious and adversarial when the interests of a prospective developer infringe the interests of another party or the common good. Similarly, the development plan can favour the interests of some parties at the expense of others. As a result the potential for corruption within the planning system may be higher than in other local government activities. The tribunal of inquiry into certain planning matters and payments was established in November 1997 in Ireland (TICPMP 2006). The tribunal has revealed widespread payment of bribes to politicians in order to rezone land for large developments. Thus, the planning process could benefit greatly from transparency and citizen involvement in the process to minimise conflicts and opportunities for corruption. Additionally, the planning process requires access to a large number of relevant documents normally housed at the local authority offices. Access to the documents may be restricted by the difficulties some citizens face in getting to the local authority offices at the appropriate times. To compound the access problem if the local authority is slow to process applications, the documents may not be available for public consultation during part of five weeks of that phase of the process (Grist 2003b).

Figure 2.3: Development Plan Process



(McGuirk 1991;8)

The movement towards a consensus based approach to planning, however, is not without its critics. Among these Flyvbjerg and Richarson (2002) observed that the success or otherwise of this approach has not been established. The basis for much of consensus based planning stems from the work of Jürgen Habermas. Flyvbjerg and Richarson (2002) commented that in cases of conflict, consensus building is difficult and poorly integrated into consensual planning. A more complete understanding is dependent on a greater understanding of the role of power in conflict. Flyvbjerg (1998) contended power is needed to control power. Within such a framework the necessity of understanding power is obvious. Rather than a negative aspect of the planning system, conflict should not be suppressed. Flyvbjerg and Richarson (2002) identified conflict as a core and necessary component of a greater understanding of the planning process which more accurately reflects what actually happens rather than

the idealised version. This conflict or it resolution should not restricted to the judicial process component of the planning process (Flyvbjerg 1998).

2.4 Theoretical Framework

2.4.1 Democracy

While the history of democracy can be traced back to ancient Greece, it is only recently this political ideology has been widely accepted (Held 1987, Lakoff 1996)[2]. The direct translation of the term democracy is 'people rule'. The nuances of this term are open to interpretation: what exactly is meant by 'rule' and who are 'the people'; and how can 'the people' actually participate in the ruling process (Lane & Ersson 2003). A number of different democratic positions can be taken, ranging from direct involvement of the people in decision-making processes to the concentration of power in the hands of rulers acting in the people's interest. Held (1987) notes that the majority of political actors describe themselves as democrats, regardless of where on the right-left political spectrum they are located.

Democracy has been closely aligned with a number of core values: "equality, liberty, moral self-development, the common interest, private interests, social utility, the satisfaction of wants, efficient decisions" (Held 1987;3) and freedom (Lakoff 1996). But Held (1987) pointed out that successful democracy may rely on other prerequisites such as a level of literacy, peacetime stability and social wealth. He further postulated that some level of apathy is necessary for the stability of any political system. High levels of participation can "readily lead to increased social conflict, undue disruption and fanaticism" (Held 1987;204). This view is not universally held. Hill and Hughes (1998), for example, identified three measures of the extent of democracy in a particular nation; valid elections, safeguarding of rights and freedoms and public participation.

Direct democracy or pure democracy is where government decisions are made by the people themselves. This form of democracy is logistically difficult to implement but promoted by Karl Marx and Friedrich Engels as reducing the influence of a capitalist state. There are a number of distinct advantages to the implementation of direct democracy, including:

- the decisions made in such a way are directly representative of the wishes of the electorate (or at least those members of the electorate who voted on the matter);
- conflicts of interest will not arise, such as pay increases due to politicians;

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[2] Lakoff (1996) contends that the modern belief in democracy proliferated from after World War II.

- the possibility of corruption is reduced as power is not concentrated in the hands of a few; and
- transparency is increased as all parties are involved in the decision making process (Held 1987).

There are however a number of drawbacks to this system:

- voters may not be directly interested in exercising their voting power on all issues (voter apathy),
- the complicated nature of some issues will mean voters, with other demands on their time, may not be able to fully understand the nature of the issue,
- the size of the democracy may make its practice impractical or inefficient,
- superficial arguments may sway votes while not dealing with the core of the issue;
- voters may act entirely in their own self interest and the causes of minorities may be ignored (Held 1987, Lakoff 1996).

These drawbacks rationalize the existent of protective measures, such as legal frameworks (Lakoff 1996).

Ireland is an elected representative democracy. The members of government, both central and local, are elected by Irish citizens over election age[3] who are resident in the country (Oasis 2006). Callanan (2003a) emphasised the importance of local government within Ireland's democratic system. Representative democracy relies primarily on elected representatives to make decisions. Representative democracy in Ireland and elsewhere may include a number of features of direct democracy, for example referenda. The form of democracy currently in operation in Ireland can be viewed as an expression of pluralism. Pluralist theory arose from a critique of competitive elitist democracy based on empirical observations (Held 1987). Unlike the isolated citizen with limited access to decision making and power modelled in competitive elitist democracy, pluralism theorises that there are a number of interconnections between the private sector, community and voluntary groups and elected rulers where these interconnections ensure more satisfactory policy outcomes (Held 1987). Where elite democracy places the power in the hands of the elected representatives, pluralism more closely aligns itself with emerging theories of governance.

2.4.2 Governance

Government has changed at an international, national and local level (Commission of the European Communities 2001). Globalisation has accounted for the emergence of

[3] The legal voting age in the Republic of Ireland is 18 (Oasis 2006).

international companies operating at a global level and increasing prominence of international bodies, such as the European Union. At a more national and local level, the privatisation of core government services, greater commercialisation of government and a recognition of the influence of private sector activities, community groups and non-elected organisations have been seen. These developments have resulted in a re-evaluation of the understanding of government (Pierre 2000a).

The theories of governance stem from a recognition that government alone is not sufficient to perform a leadership role in society (Healey 1997). Concepts of governance recognise that first, the ability of governments to govern within a nation's borders is limited and that other organisations and agencies are necessary to effect change and second, due to increasing emphasis on the globalisation of economies and the dominance of international agencies, nations are not autonomous.

The term governance is derived from the Latin *gubernare* meaning to steer or to rule (Pearsall 1998;794). It represents a number of different and interconnected meanings; defined seven meanings of the term; corporate governance, new public management, 'good governance', international interdependence, socio-cybernetic system, new political economy and networks (Peters 2000). This thesis focuses on the role of government and governance rather than writings on other aspects of governance, such as business and economic governance as discussed by Dixit (2001), Gamble (2000) and Hirst (2000) among others. Within this context, governance is concerned with the steering of the national interest by public, private and voluntary actors for the common good (World Bank 2006) and the focus on partnerships with citizens or economic interests is commonly recognised (Jessop 2002). Jessop (2003b) defined governance as "reflexive self-organisation of independent actors involved in complex relations of reciprocal interdependence, with such self-organization being based on continuing dialogue and resource-sharing to develop mutually beneficial joint projects and to manage the contradictions and dilemmas inevitably involved in such situations" (Jessop 2003b;1). The change of emphasis from government to more inclusive governance does not necessitate equal redistribution of power or benefits.

Jessop (2002) postulated that the shift from government to governance resulted from a dominant neoliberal view that state failure was probable. The state failures stem from an ineffective or inefficient system (Jessop 2003a). Some form of collaborative governance is implied by four features of the capitalist system as identified by Jessop (2002); the organisation of procedures, balancing economic tensions, repercussions of public and private decision making and consideration of individual against societal good. Nixon (2000) contended that the change from government to governance has

coincided with an increase in the information produced and the demand for that information.

Healey (1997) argued that the role of government lies within the broader framework of collaborative governance. Governance does not simply mean involving the citizen but also the interests of economic activity in the area and other organisations with public service provision and government roles. Government provides the structure within which consensus building is possible (Healey 1997). This wider view of governance does not preclude the effectiveness of some government intervention (Kooiman 2000). Government can steer through partnership and other methods, by encouraging communication, supplying grants and subsidies (Stoker 2000). Kooiman (2000) maintained that the movement from government to governance is a movement from traditional one way traffic to two way communication. Some forms of governance will fail as a single framework will not be effective in all instances (Rhodes 2000, Stoker 2000) and flexibility and variety is important (Stoker 2000).

The increase of collaborative and non-traditional means of governance is not universally welcomed. The increasing dependence on the private sector through public private partnerships and Quangos and the shifting of traditional governmental services and functions to these and collaborative bodies has led to a criticism that governance results in a hollow state rather than a socially beneficial endeavour (Klijn 2002).

2.4.2i Local Governance

The multiscalar nature of governance implied by the changing world economy (Jessop 2002) extends to the local level. Here, local governance is not simply a matter of local government. It is the interaction between and the exercise of control by different actors across different levels of local, regional and central government as well as the varied agencies and actors in the public, private and voluntary sector (Somerville 2005). Therefore, local governance is the steering of the local community through the creation of flexible partnerships using a diverse range of methods and strategies (Healey 1997). Although local government is partially dependent on central government in fulfilling this function, there may be a greater sense of self-governance (Bulkeley & Betsill 2003) and has been described as significant (Keyes 2003). Local authorities have been involved in the promotion of their local areas to business interests and for tourism (Keyes 2003).

Somerville (2005) argued that at a community level the "highest degree of democratisation" (Somerville 2005;120) is possible. However, some local methods of governance will undoubtedly fail (Callanan 2003b). Additionally, the spatial extent of

community and local government area can differ significantly. A citizen's idea of their community area is usually less than that of their local authority's spatial remit. Additionally, using a collective notion of community areas in local or community governance will encounter problems as a substantial amount (almost one third) do not identify with the area in which they reside at any spatial scale (Somerville 2005). Sommerville (2005) summarised an argument for the application of community governance to 'multiscalar citizen governance' whereby an appropriate scale is identified based on the idea of identifying an ideal spatial community and service dependence for a variety of traditional governmental services, such as transport. Within this localised scale, Keyes (2003) noted that greater public involvement was being sought.

In contrast to the theoretical possibility that community or small scale governance is most effective, Wilson and Game (2002) argued that with increased privatisation and commercialisation, the discretion that local authorities in the UK once possessed has now been significantly eroded. The extent of the local authorities' discretionary powers has a marked impact on their role as civic leaders and as coordinators of activities within their areas. The enacting of local governance is also affected by a national move towards metagovernance, as described by Jessop (2003b). Metagovernance comprises of the governance or organisation of different hierarchies of governance (Jessop 2003b). However, the erosion of the local government power, as discussed by Wilson and Game (2002), does not facilitate the application of metagovernance at a local level by local government.

The effectiveness of community or local governance was questioned by Somerville (2005). A poor implementation may only serve to strengthen traditional local power structures or, at the other extreme, remove the ability to instigate changes at a national level from a local level (Somerville 2005). To counteract these potential situations, Somerville (2005) promoted the politicisation of existing community groups or the creation of locally based democratic groups. The use of groups in such a way would facilitate the interaction of the local community with governance mechanisms at local and larger scales. The influence of local issues and local lobby groups is not static and will transform during the course of the conflict (Cox 1998). This is supported by Jessop's (2003a) proposition that government and governance exist at different scales and the success at a particular scale may depend on events at other scales.

Cox (1998) described a scale division of politics which is obvious in the hierarchical nature of local, regional and central government within a particular state. Certain government services have a clear spatial extent. The limitation on scale is not simply

placed on local government as certain activities, such as local housing development, are dependent on locally specific knowledge of the area. Cox (1998) also noted that decisions taken at a local government level can be appealed to government at a greater spatial scale. The issues identified locally can be fought at a national level. However, the direction of scale change can only occur upwards and national issues, for example, cannot be resolved at a local scale. This unidirectional movement is especially pertinent in situations of potential local conflict, such as land use planning (Cox 1998).

2.4.2ii Planning and Governance

Planning is a particular example of the governance of the local community (Healey 1997). Decisions about the local environment can involve a large number of disparate organisations and individuals. Planning requires some degree of consensus building about the current and future manifestations of the local environment. Planning, as discussed in Section 2.3, is not simply a matter of the physical design of space and its management by a single authoritative source but a process which now requires involvement of the local community. Healey (1997) states that planning is a particularly interesting area of local governance as

> *"Local conflicts over space and place thus bring together not merely individuals with different interests and stakes, but people operating in different relational cultures, with different ways of conducting discussion about issues and different way of organising. A local environmental conflict may not just be about specific issues, therefore, but about conceptions of what is a problem and about organisational forms."*
>
> *(Healey 1997;60)*

Planning is a realistic opportunity for citizen involvement as it is locally based and the effects can be readily seen (Hague & Loader 1999).

2.4.3 Participation

It is widely recognised that citizens are largely disconnected from government and apathetic about its processes (Hands 2005, Hardin 2000, Komito 2005). With the exception of Held (1987), this situation is seen as a failure of democracy and low voter turnouts, such as those in Ireland[4] (Kavanagh *et al.* 2004), are symptomatic of this problem (Hale *et al.* 1999, Komito 2005). There are numerous theories regarding the cause of this failure and possible solutions. For example, the sources of apathy and the means to rectification are not widely agreed (Hale *et al.* 1999).

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[4] The voter turnout in Ireland for the general election in 2002 reached a new low of 63% (Marsh & Bernhagen 2006) and in 1999 voter turnout for local elections was 51% (Kenny 2003).

Participation measures are promoted by government to counteract perceived public apathy to governmental processes (Meldon *et al.* 2002, ODPM 1998). Participation is seen by some authors as a means of reconciling the actions of elected representatives with the views of citizens (Coleman 1999). In Ireland, there have been calls for greater participation (Meldon *et al.* 2002) and more local government which is seen to decentralise power and increase local autonomy (IPA 1971).

Participation, within the context of governance and democracy, can take place at a number of different levels. Wilson and Game (2002) cite participation as one of the justifications for local government. A certain amount of participation is expected and encouraged (Malina 1999) although the level and nature of that involvement can vary significantly (Chubb 1992). Chubb (1992) proposes that participation in a democracy is a measure of the success of the democracy which can be judged by political participation, the ease with which people can run for office, the difficulty in running for office, access to elected representatives, to what extent elections are competitive and how representation is exercised. However, this type of participation is focused towards an interaction with the representative system rather than direct involvement with the decision making process and has been criticised as being "too blunt an instrument" (Tierney 2003;149).

Public participation is commonly used to refer to the inclusion of the public in the decision making process (Dennis 1972). At the local level, measures to promote public participation have stemmed from planning and environmental policy fields. As the rationale underpinning public participation and the methods utilised to facilitate participation have become more widely accepted, the methods have been incorporated into other areas such as transport planning and air quality management (Bickerstaff & Walker 2001). Participation is seen a method of increasing public consent to contentious planning issues (Dennis 1972) among other issues. Collaborative decision making is seen as a more valuable tool in guiding national and local development than the imposition of external policies (Harris *et al.* 1995). However, some element of conflict is inevitable as highlighted in Section 2.3. The link between participation and spatial planning is strong (Meldon *et al.* 2002) The Department of the Environment in the UK justified expenditure in this field as a means of educating citizens for greater involvement in the local government (DOE 1969).

In the UK, public participation became officially recognised in the 1960s when the British planning system had been in operation for almost twenty years (Dennis 1972), around the same time as the introduction of the planning framework in the Republic of Ireland. Indeed, the Local Government (Planning and Development) Act (1963) was notable within the European context, as it gave Irish citizens relatively strong rights,

particularly with regard to third party appeals. In more recent years, the Planning and Development Act (2001) has further strengthened statutory participation measures, particularly with regard to the development plan review process and local area planning. The planning authorities may supplement these statutory public participation measures with additional measures on a discretionary basis. Consultation in other local authority areas has also been promoted by legislation, such as Local Agenda 21 (Bickerstaff & Walker 2001). Similar legislative measures exist in the UK and other countries (Bosworth & Donovan 2003). In addition, the public also have greater access to governmental information under the Freedom of Information Act (2001).

The DETR (Department of Environment, Transport and the Regions) have compiled a list of recognised public participation techniques in the UK (Table 2.1). Of these, complaint and suggestion schemes and public meetings were employed by 85% or more of local authorities in the UK in 1997, while referenda (2%) and citizen juries (5%) were the least favoured method employed. Participation methods can also be conducted in an online environment. In 1997 online consultation was sought in the UK in relation to the White paper to the draft Freedom of Information bill, a first in any nation state (Coleman 1999). Ireland has a small number of online initiatives, such as the use of online forums by Dublin City Council (2002).

Table 2.1: Recognised Public Participation Techniques

Area/neighbourhood forums	Other opinion polls
Citizen juries	Public meetings
Citizen panels	Question and answer sessions
Community plans/needs analysis	Referendum
Complaints/suggestions schemes	Service satisfaction surveys
Consultation documents	Service user forums
Co-option/committee	Shared interest forums
Focus groups	User management of services
Interactive web-site	Visioning exercises
Issue forums	

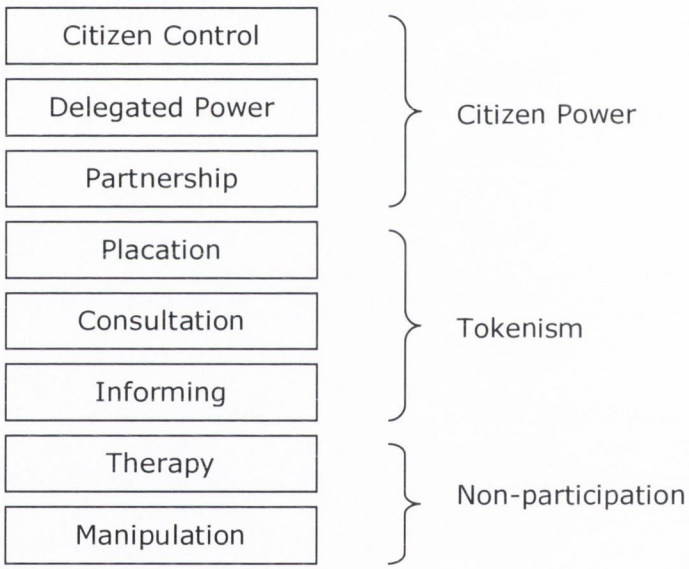
(DETR 1998b)

The methods identified by the DETR ignore the extent of participation and whether or not there was a redistribution of power in addition to the involvement of citizens in decision making processes. Arnstein (1969) proposed perhaps the best known model of citizen participation (Figure 2.4) based on her research into citizen power in disadvantaged neighbourhoods in the United States and utilizing an activist approach. The model arranges eight stages of participation as rungs on a ladder; each rung corresponding to the extent of citizen power. The first two rungs of the ladder represent what Arnstein (1969) termed non-participation. An example of which, could

be an education meeting in a town hall, where experts 'educate' the public as to why the decision has been taken.

The next three ladder rungs are designated as methods whereby a certain level of interaction takes place but the views of the public may be ignored by the decision makers. The final three rungs on the ladder are considered true participation where decision making powers are shared, devolved or completely given over to citizens. The important distinction made in this model of participation is the gradation of participation. Arnstein (1969) contended that not all participation methods are equal and only those with the sharing of power can be seen as true involvement of citizens. Further, she noted that where power sharing has occurred the power has been taken by the citizens and not given by the incumbents. Bickerstaff and Walker (2001) observed that most current participation is located on the lower rungs of the participation ladder.

Figure 2.4: Ladder of Citizen Participation



(Arnstein 1969;217)

Arnstein's (1969) linear model of citizen participation is not universally accepted and other authors have proposed a less linear conceptualisation of the participation process. However, Arnstein's (1969) model still informs current participation research, such as Carver *et al.* (2001) and Craig *et al.* (2002). Bayley and French (2005) identified a number of objectives for consideration in the design of a participation process. Each of the five objectives identified (information sharing, democratic ideals, community cohesion, practicability and decision) had a further level of attributes necessary for consideration. For example, a consideration of information sharing should include consideration of information flow, the direction of the flow and

its effectiveness, in addition to other attributes. The model facilitates a less rigid view of the participation process and rather than focussing on the difficult-to-quantify, power-sharing structures fundamental to Arnstein's (1969) ladder.

Arnstein (1969) listed a number of barriers to participation on both sides. The current power holders must want to participate and feel that the citizens are capable of making good decisions. The citizen may lack a proper knowledge base or access to the political infrastructure and may have to overcome previous feelings of distrust and alienation. Problems of how to include citizens within the processes have been debated by a number of authors (e.g. Coleman 1999, Hale *et al.* 1999, Healey 1997). Healey (1997) recognised that methods of collaborative planning can be problematic and contentious with interest groups engaging in divisive conflict. Reconciling the diverse interests is a difficult process and relies on consensus and relationship building.

Lenk (1999) identified four ways to support citizen participation in public planning; information, communication, debate and by directly supporting decision making processes. An inclusive approach is commonly acknowledged to encourage a diverse range of contributions and for participants to access the process (Coleman 1999, Healey 1997). This approach is not purely motivated by ethics as Healey (1997) stressed the importance of recognising the full range and variety of stakeholders to ensure that the process is stable as any exclusion may result in "the process, policies and practices will be challenged, undermined and ignored." (Healey 1997;70). The format and location of the discussion is important as some participants may find it difficult to speak in front of a large audience or an intimidating venue (Healey 1997). The implementation of the participation method should also be considered Healey (1997) identified three potential areas for consideration; style, language and representation. Styles and routines for participation undertakings can differ depending on the participants' cultural norm. The use of certain language will have different connotations for different participants. Participants may not always fully engage with the process but their presence and interaction may be appropriate for their representation (Jankowski & van Selm 2000). For example, not all subscribers on email discussion lists may contribute to the discussion (lurkers) but their opinions may be altered by their observation.

Hale *et al.* (1999) and Coleman (1999) highlighted the importance of civic education in enabling citizens to evaluate and understand policy concerns. This levels the playing field between less advantaged groups and elites already engaged with the process (Hale *et al.* 1999). Healey (1997) stressed the importance of good quality public data as a valuable resource both for educational purposes and to define the

problem and guide the development of appropriate policies. However, certain factors influence participation; childhood acculturation, social class, mass media and control over one's work (Hacker & van Dijk 2000).

There are costs to participation and resources are needed to participate. Coleman (1999) noted that significant time is necessary to consider policy concerns and issues. Carver (2001) observed that people may not want to get involved. Some citizens do not wish to participate as they see the role of elected politicians as representing their views on their behalf (Nixon & Johansson 1999). Healey (1997) argued that the costs of participation should be redressed and travel, child minding and other personal costs should be reimbursed. Additionally, Healey (1997) proposed that resources should be provided to provide good quality information and, more controversially, redress the losers of any decisions taken. Healey (1997) believed that an accountable and transparent process is dependent on the provision of information, the arguments used and the concerns considered which allow for "critical review and challenge" (Healey 1997;289).

Much of the participation literature (e.g. Arnstein 1969, Healey 1997, Lenk 1999) is focussed on citizen participation rather than business interests. The support of the state is necessary to encourage the growth of community groups and interaction between groups and local government support systems is needed (Healey 1997).

Within Ireland, participation measures are changing as a result of recent legislation, particularly within the field of spatial planning. A greater recognition of local government as a leader in community development has resulted in a greater emphasis on participation and the inclusion of business and voluntary groups through Strategic Policy Committees and County Development Boards as well as a greater outreach to the general public (Meldon *et al.* 2002). Meldon *et al.* (2002) found that there are a number of barriers to public participation in Ireland. Pilot projects, while successful may not be implemented on a wider basis and the commitment of resources, appropriate institutional structures, mechanisms for disseminating successful projects and facilitating a level of ownership by participants are required.

2.5 ICTs as Enabling Technologies

A number of important technological developments have changed the delivery of local authority services and have given rise to a body of literature which postulates that the incorporation of these technologies will change governance and democracy for the better (Bodum 1999, Shenk 1997, UNDP 2001). ICTs are digital technologies used to process, communicate and store data and information (Kelly 2006). ICTs have been

particularly identified as central to changes in the operation of and interaction with local government in Ireland (Meldon *et al.* 2002).

2.5.1 Internet

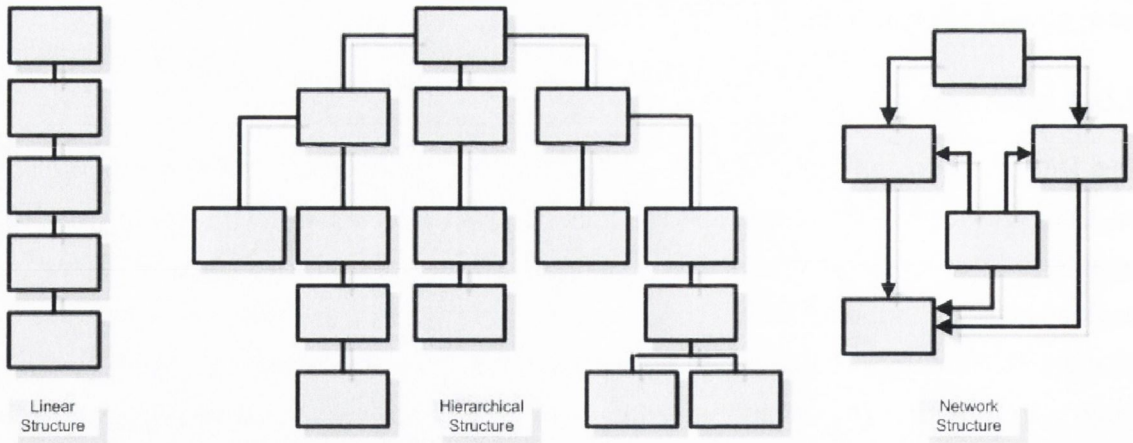
The Internet evolved from ARPANET, a distributed network of computers, developed by the American military to facilitate collaboration and information sharing between scientists at different academic institutions and to reduce the exposure of research to nuclear attack (Köbben 2001). The network became an important communication tool (Rogers & Malhotra 2000) and its use expanded from academic communities to the wider community. The original interface was command line driven but Graphical User Interfaces (GUIs) were introduced which decreased the level of expertise required to access the Internet. Drastic reductions in the costs of personal computers and the increasing rollout of Internet connections has encouraged the take up of this technological innovation by millions of users throughout the world (Köbben 2001).

The Internet is a network of computers using specified Transmission Control Protocol/Internet Protocol (TCP/IP) protocols which allow the computers to enable the exchange of data (WDVL 2006). It consists of a number of subcomponents; Simple Mail Transfer Protocol (SMTP), File Transfer Protocol (FTP) and HyperText Transfer Protocol (HTTP). SMTP permits the use of email and HTTP enables the World Wide Web (web or WWW). Some confusion exists about the common use of the terms Internet and web, and while the web is only a subcomponent, they are often interchanged.

As this thesis is concerned primarily with the provision of information on the web; it is on this subcomponent that this section focuses. The web consists of a number of interconnected documents. The documents are distributed across a number of host computers around the world (Pearsall 1998). Each page has a unique address known as an Uniform Resource Locator (URL) (Webopedia 2002), can be linked to other pages using a hypermedia model (Köbben 2001) and can offer multimedia content (WDVL 2006).

Hypermedia allows the non-sequential access of information. In this way information can be organised in hierarchical or network structures and not just in the linear format of the traditional printed book (Figure 2.5). The non-sequential accessing of information is more consistent with the ways humans normally process and access information (Ginige *et al.* 1995). Electronic pages contain links which connect specific information with other specified information. The arrangement of interconnections can facilitate easy and speedy access to relevant information.

Figure 2.5: Structures for the Organisation of Information on the Internet



(Ginige *et al.* 1995;27)

2.5.2 GIS

The prerequisite components of a GIS are debated with most authors understanding that GIS is a set of software tools that comprise some form of spatial data analysis as well as the storage, manipulation and presentation of that data (Maguire *et al.* 1991). GIS was originally marketed to local authorities as a data management software (Granleese 1994) but GIS packages can employ visualisation methods that make use of multimedia and hypermedia to examine and present spatial data (Bill *et al.* 1999). Spatial data can be enhanced by the addition of photographs, sound, video, animation and text (Jiang *et al.* 2002, Krygier 1994). The real benefit of the inclusion of imagery and other multimedia is that it can increase the information content (Frangeš *et al.* 2002) and reduce the amount of abstraction in the representation of geographic information. For example, poor map reading skills could alienate users from evaluating or using the development plan. Including images can overcome these problems by reducing the amount of abstraction and simultaneously increasing the realism of the plan (Bishop 1994)[5]. For cartographers and geographers, multimedia is not a new concept (Cartwright 1994). Previously both information storage or databases and information presentation were included within the traditional paper map (MacEachren & Kraak 2002). While multimedia is important, the use of GIS by people with visual disabilities must also be considered and alternative paths to information other than the strictly visual should be provided (Zubrow & Rioux 2003).

The development of GIS has been technology, rather than theory-led (Goodchild 2006), and has drawn on a number of disparate disciplines in its development (e.g. computer mapping, database design, geography and statistics) (Heywood *et al.* 2006). In the early stages of GIS development, the manual processes involved in map

[5] For example, Positionimages (2005) launched an online commercial application building on this idea, which displays numerous photographs of a journey along a sample route in addition to more traditional maps.

creation were automated. The automation of the processes significantly increased the speed with which map products could be created. However, the manual input of data proved problematic and prone to significant user error. The convenient storage and distribution of data, the increasing power and reducing costs of computers and the resulting demand from spatial information users in the late 1980s and early 1990s, saw a dramatic increase in the use of GIS. Applications of GIS were first developed in land management and have expanded to novel areas, such as marketing. For example, ESRI, one of the market leaders in GIS software development, was initially involved in applications which dealt with site selection and urban planning (Heywood *et al.* 2006).

Much of local authority information is geographic in nature (MacEachren & Kraak 2002). The need to manipulate and store this data in a meaningful way meant that the merits of GIS were recognised early by local authorities. Adoption of GIS techniques in the UK and Ireland was less rapid than in the United States (the birthplace of GIS) [6] (Heywood *et al.* 2006). GIS is now seen as a good decision making tool, especially for use in planning (Malczewski 1996). However, its use depends on several factors including power distribution, structure and organisation within the body, together with the decision making styles of the managers (Worrall 1994). Additionally, there are a number of logistical problems with GIS use and much of the spatial data used in GIS are subject to copyright. Beyond this, while largely ignored by both academia and industry, the wider social implications of the application of GIS have been debated by authors such as Pickles (1995) and Veregin (1995a). This debate was formulated in response to industrial and academic "boosterist" claims (Pickles 1995)., Veregin (1995a) argued that conceptualisation of GI technology, as with any other technology, as value neutral is misleading.

The planning section, with a large amount of inherently spatial information, was one of the first areas within local government to implement GIS (Mitchell 1989). Planning can benefit from many of the features of GIS, for example, Romão and Câmara (1999) recommend animated mapping, Asche and Hermann (1994) advocate interactive mapping and Jiang *et al.* (2002) propose geovisualisation. A report to the Minister for Science and Technology in 1988 recommended the adoption of GIS implementation as a national policy (IGIP 1988). This report drew heavily on the Chorley report (1987) in the UK. Both reports identified planning as "... most amenable to GIS treatment" (IGIP 1988;8). GIS was introduced into a number of Irish local authorities in the late 1980s and early 1990s (Curtis 1992, IGIP 1988) and has expanded into a core technology within Irish planning. Both planning processes, detailed in Section 2.3, are

[6] The availability of cheap data in the United States compared with the adoption of the user pays principle in the UK and Ireland may have also contributed to this situation.

spatially oriented. Planning applications are made regarding a specific site and the development plan sets out the local authority's policies and objectives for its area which will shape future development. Many of the development plan's policies and objectives are inherently spatial. In recent years, most Irish development plans have been created in a GIS.

Recently, GIS software has been adapted for the provision of geographic information over the Internet (Hudson-Smith & Evans 2001, Köbben 2001). Many Irish planning departments are embracing this technological advance. Certain developments, such as Mobhaile, allow the use of online GIS to display the location of the past and current planning applications. The Internet enables the publishing of up-to-date geographic information (van Elzakker 2001) and can reduce the time taken for lengthy planning processes (Jiang *et al.* 2002).

2.5.2i Public Participation GIS (PPGIS)

Public Participation GIS (PPGIS) is the use of GIS technology in citizen participation (Abbot *et al.* 1998). The sharing of spatial data and GIS through virtual reality and other methods is seen as a potential means to enhance and increase participation (Dangermond 1993, Hamilton *et al.* 2001, Smith & Craglia 2002).

GIS can be used in public participation to visualise and manipulate data to convey information to participants. PPGIS initiatives have been mainly concentrated within planning, environment and development projects (e.g. Chicago's Pilsen Neighbourhood Regeneration (Al-Kodmany 2003) and The Kiepersol Project (Abbot *et al.* 1998)). The term 'public participation GIS' originated from the planning profession in the United States (Obermeyer 2003). In November 1993, a workshop on "GIS and Society" raised the issue of public participation and GIS which was further explored in a special issue of "Cartography and GIS" two years later (Obermeyer 2003).

In most PPGIS initiatives, an expert is used to capture and combine local knowledge with more traditional information (Abbot *et al.* 1998) or to implement changes to the alternatives proposed. In this way, community views can be recorded through the creation of mental maps or other methods (Harris *et al.* 1995). This can influence the creation of boundaries and participants can direct the creation of alternative scenarios which can then be debated and shared. Innovative visualisation techniques may incorporate multimedia, such as virtual reality and artist's impressions, as well as cartographic design. The techniques can stimulate the interest of participants and aid quicker comprehension of spatial data. The use of a GIS allows for flexible interaction with information and allows the creation and inclusion of new information (Geertman 2002). A common visual language and the flexibility of the process can engender

trust (Al-Kodmany 2003). Furthermore, visualisation techniques can remove ambiguities and bridge the gaps in knowledge between technical experts and other participants (Jankowski & Stasik 1997) allowing each to participate fully in the process. The rapid updating of information under discussion can stimulate debate and shorten the process by reducing the amount of time taken to create new scenarios (Al-Kodmany 2003). GIS can also specifically include cultural values and history through use of images and visual scenarios can ground discussion in reality by using visual cues rather than simple reliance on memory (Al-Kodmany 2003) and possibly incomplete interpretations.

PPGIS use is not without limitations. It can be costly and time consuming and rely heavily on expert technical skills. PPGIS workshops require equipment which must be purchased and transported to and from the workshop venue. Heavy reliance on technology means that technical problems and slow processing times can disrupt the participation process. The use of imagery can convey both positive and negative issues which are difficult to separate and discuss individually (Al-Kodmany 2003). PPGIS initiatives can be a means of redistributing power (Carver 2001) and, in such cases, those with power may be unwilling to lessen their influence. This unwillingness will limit the effectiveness of any measure and may lessen the participants' trust in the process. The use of spatial data itself is problematic. A data sharing culture may not exist (Moore 2001) within the facilitating organisation (e.g. the local government) or public use of the requisite spatial data may be subject to legal constraints. The costs and issues surrounding the use and availability of data limits the opportunities for marginalised and community groups to develop their own PPGIS systems. In general, such groups are guided through the PPGIS process and not leading their development. Potential participants may find the participation process daunting. This problem may be exacerbated by the use of specialised technical skills and equipment (Carver 2001). ICT use can be exclusionary due to the use of language and practices that "many find inaccessible and objectionable" (Veregin 1995b;92). Therefore, use of the technology cannot be considered value neutral (Hill & Hughes 1998).

Map design may also subtly reflect the values of the map makers (MacEachren & Fraser-Taylor 1994). Decisions regarding the inclusion, exclusion and generalisation of map features can influence the participant's perception of the issues under discussion. The colour schemes adopted may also be value laden (the use of blue and red) or may unnecessarily exclude some participants from the participation process (e.g. colour vision impaired participants) (MacEachren & Fraser-Taylor 1994). If the visualisation techniques used appears too perfect or professional, participants may be dissuaded from suggesting changes to a plan they perceive as being finished.

Recently, PPGIS initiatives have also been provided on the Internet (e.g. Bosworth & Donovan 2003, Carver *et al.* 2001). This has lead to the adaptation of Arnstein's (1969) participation ladder for e-participation by Carver (2001). These initiatives are less flexible and are more reliant on the participant's level of technical skill. However, using the Internet overcomes many of the physical access issues associated with traditional participation (Carver *et al.* 1997). The increasing importance of the Internet as a method of public participation and its acceptance by GIS developers suggests that future development in developed countries will probably incorporate this dissemination method. GIS currently utilises linkages between the spatial data presented in map format and the underlying attribute database, based on a hypermedia data structure. This allows cross-referencing of information, which can be rapidly adapted for deployment on the Internet. The innovative features of GIS, such as augmented mapping, can be adapted to support online planning (Rinner 2001).

To date, PPGIS initiatives, while more established in the United States (Sawicki & Peterman 2002), are usually developed on an ad hoc basis in other countries. There is little documented evidence of its widespread use outside of the US and are not, as yet, recognised as a standard public participation method[7]. There is little evaluation of the initiatives available in the literature so the benefits or otherwise of this technique are open to question; among the exceptions to this is a model of evaluation proposed by Barndt (2002). In developed countries, it is likely that PPGIS use will be focused on local authority initiatives. There was early recognition by some local authorities outside of the US of the benefits of GIS use in collaborative decision making (Masser *et al.* 1996). Additionally, the skills required to use GIS are already available within the local authorities.

In Ireland, there has been some use of GIS in participation measures. For example, the development of a management strategy for Bantry Bay in Co. Cork led to the creation of a community based GIS. The focus was on the provision of geographic information to citizens and was used as an information dissemination tool made available in local libraries (Meldon *et al.* 2002).

2.5.3 The Internet as a Method of Public Information Provision

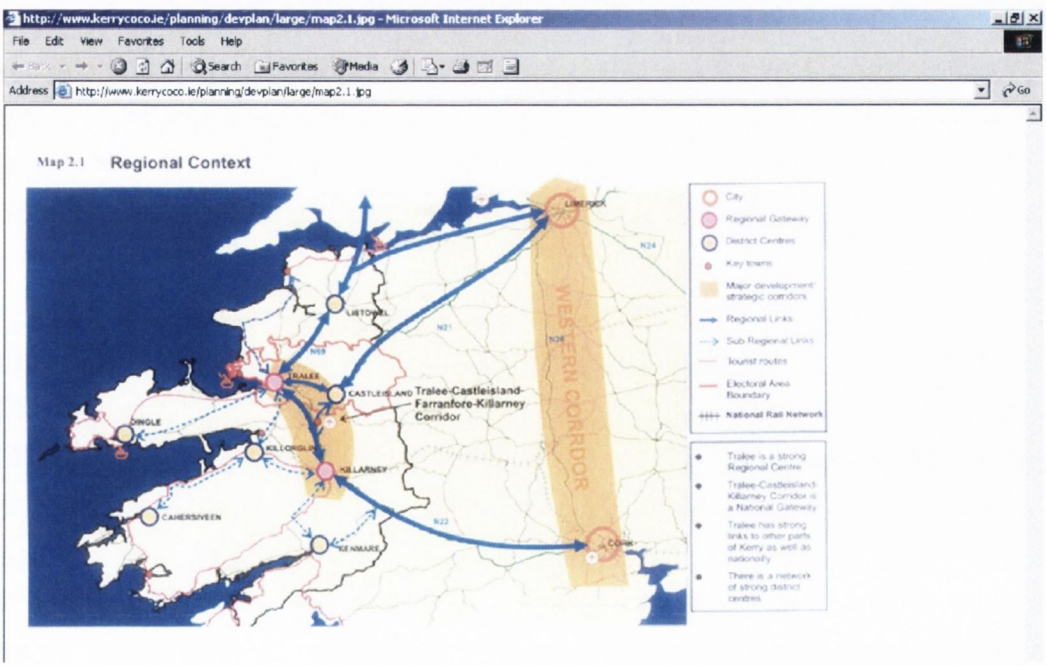
Historically, technological advancements have been met with rhetoric about great changes and enhancements to daily life (Hacker & van Dijk 2000). For example, the proliferation of the radio was hailed as granting access to the general public to a "university without walls" (Hacker & van Dijk 2000;2). Popular perception holds that the Internet is beneficial and inclusive. Ideas still permeate that the Internet "...

[7] A list of recognised public participation methods by the Office of the Deputy Prime Minister in the UK does not include PPGIS (Birch 2002).

cannot be used as an instrument of oppression" (Truss 2003) and "... the Internet has the capacity to make us all a lot happier: that it is the most amazing tool, in terms of human happiness, since the invention of writing" (Thomas 2006). The organic growth of the Internet, without central control, resulted in a wave of ideological literature which espouses radical changes in all aspects of human life, espouses the use of the Internet for democratic governance and furthering meaningful public participation in all areas of government (Bodum 1999, Shenk 1997). The belief that progress is linked to ICTs (Craglia & Blakemore 2004, Gackenbach & Ellerman 1998) requires acknowledgement of the positive and negative features and consequences of technology (van Dijk & Hacker 2000). Some authors believe that technology is not neutral, autonomous and freely selected nor benign (Barry 2001, Fountain 2001, Hagen 2000, Sassi 2000, van Dijk & Hacker 2000).

The Internet has emerged as an information provision space and most users use the Internet for research or finding information (EBCI 2002). The provision of public information on the Internet has substantially increased in recent years. With the high proportion of local authority information relating to particular spatial locations (Chapallaz 2001), some public Geographic Information (GI) is provided online. Many local authorities in Ireland have made their development plans and other spatial information available online. This spatial information ranges from quite a limited format (e.g. static image of a map as shown in Figure 2.6) to increased functionality (e.g. search functions and map interaction as shown in Figure 2.7).

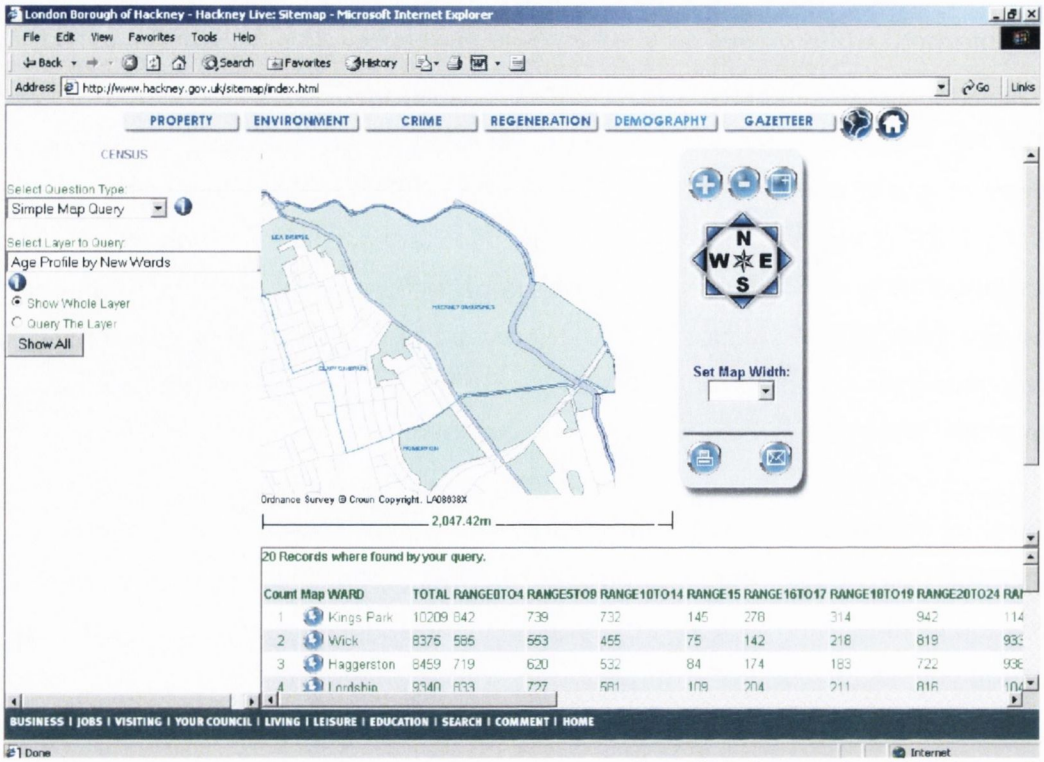
Figure 2.6: Limited Online Map Functionality
(Kerry County Council Development Plan as a Static Graphic)



(Kerry County Council 2004)

Figure 2.7: Increased Online Map Functionality

(London Hackney mapping site using Geomedia mapping with search and interactive map functions)



(London Borough of Hackney 2003)

The Internet provides both spatial and textual information and has a number of distinct advantages over the conventional printed format in the provision of government information. The Internet can greatly increase access to information. Access is available on a continuous basis, twenty-four hours a day and seven days a week, and from physically remote locations, such as rural areas or other countries. Users who are unable to view hard copies of the documents during normal office hours can access the information outside of these hours, overcoming distance as well as mobility difficulties. Access is also permitted across a range of technical platforms. Users with a computer operating on a Linux or Windows operating system can access the same information in a similar format.

The Internet also facilitates mass communication at a much reduced cost for both the producer and consumer than traditional printed processes (Hacker 2000). Communication is also open and two way interaction is possible (Jankowski & van Selm 2000). The Internet can provide a dynamic, interactive (Hague & Loader 1999) rapid and flexible information environment at a low cost for the consumer (Rogers & Malhotra 2000), thus permitting more in-depth exploration and interrogation of public textual and spatial information. Information is easy to update given access to resources and basic technological skills (Kraak 2001). Real time spatial and other information is possible, for example, allowing planning applications to be viewed

online as soon as they are received. For time-dependent information, the prompt provision of accurate and up-to-date information can aid public involvement. For example, the number of citizens accessing a draft development plan during the statutory public consultation phase can be easily increased and the amount of time taken to lodge a comment can be significantly reduced. Additional practical benefits of Internet dissemination are not limited to just the information consumer. The rapid deployment of information cuts down on the lag time between policy formation and dissemination, the ease of publishing is increased, the ease with which information may be cross-referenced can lead to significant time-savings[8] and the quick updating of information can avoid liability for errors and costly reprints for the information producer. The distinct benefits of the Internet in facilitating communication has led Castells (2000) to conclude that communication is fundamentally altered.

The transition from paper to Internet publishing, however, is not without its drawbacks. While the rate of diffusion of the Internet has been high, access to the Internet is not universal (Castells 2000). Users require a computer, browsing software, Internet connection and modem, in addition to the literacy and technical skills required to operate the computer and the browsing software. This technical barrier is completely absent for paper documents and mapping[9]. In Ireland, only 41% of all households own a computer and the number of households with Internet access is even lower at 32%[10]. The connection costs associated with online access can be high (Gibson & Ward 2000b) although this is reducing. In addition, access can be restrictively slow at certain times of the day due to increased network volumes, which greatly increase the time required to download files. Graphical files, such as maps, can be prohibitively large for the most common Internet connection speed[11]. Users of public information online have limited technical support for the use of Internet technology and any plugins that the spatial information might require[12].

The term 'the digital divide' has been coined to describe the situation where certain sections of the population are excluded from Internet use due to a number of factors (OECD 2004). The level of this exclusion is related to various different socio-economic factors, including employment, education (McCafferty 2003), language, gender,

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[8] For example, the cross referencing of objectors in County Kerry in January 2005 uncovered a number of "serial planning objectors" (Lucey 2005). It is claimed that the county council lost in excess of €1.5 million dealing with the objections (Lucey 2005).

[9] Reading maps requires a certain level of map literacy and skill especially in for technical or complicated maps such as the development plan.

[10] These figures are derived from the recent Census in 2002 (CSO 2002). However, they do not take account of access in libraries, Internet cafes, work, over wireless networks or other access points.

[11] 56kb modems are the most common hardware configurations, however, connection speeds can be significantly less. Data may travel over old sections of the telephony networks and the speed of the connection is only as fast as its slowest component.

[12] For example, Dublin City Council requires the use of an Active X CGM (Computer Graphics Metafile) plugin to view their development plan (Dublin City Council 2004).

connectivity and access to technology (OECD 2004). Hacker and van Dijk (2000) identified four barriers to information provided by ICTs; insufficient digital skills, inadequate access to technology and Internet connections, poor user-friendliness and a scarcity of opportunities to use the relevant medium. Bandwidth determines which online services users can access (US Department of Commerce 2001). In many cases, there is a distinctive spatial element to the divide. For example, the disparity in connectivity is particularly pronounced between rural and urban areas and schools in marginalised areas tend to have a higher number of pupils per computer. This spatial differentiation is likely to increase, as the current roll-out of faster connection speeds, such as broadband, is restricted to urban areas, newer telephone infrastructure and areas amenable to satellite broadband reception (Hoskins 2006).

An understanding of this division is important when dealing with digital public information, as this exclusion can further marginalize certain groups (Department of the Taoiseach 2002). To bridge the digital divide, McCafferty (2003) contended that government policy and public education has an important role to facilitate an inclusive information society. To achieve this goal, the Irish government has rolled out broadband and distributed computers to all schools. The barriers to true connectivity may be greater for spatial information as users of online spatial information may not be familiar with the domain knowledge necessary to accurately and speedily read a map. While access to ICTs is important, access to the latest ICTs is also a consideration (Hague & Loader 1999). Castells (2000) hypothesed that the benefit derived from Internet use will be affected by how much a user can interact with it which is determined by the factors creating the digital divide. As the technology advances, some users will be unable to take advantage of new developments.

While more people are using the Internet, statistics indicate that particular types of users are overrepresented[13]. English is the primary language of the Internet (Kitchin 1998) and an average Internet user is most likely to be highly educated and from a higher income bracket (West 2005)[14]. Thus, any publication of public information on the Internet only presents that information to a limited target audience leading to the creation of information 'haves' and 'have nots' (van Dijk 2000b). In addition, there are a number of issues concerning Internet use which can reduce the readiness to use the Internet by both users and public information providers; national security, child protection, economic security, racial discrimination, pornography, privacy, gambling, drug sales, libel, info security (DOJELR 1998, Moore 1999).

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[13] Profiles are changing and more senior users, for example, are availing of the technology (Jankowski & van Selm 2000).

[14] These figures related to US citizens but other reports (Hague & Loader 1999) on the wider Internet population substantiate the extrapolation of the findings.

The increasing ease of publishing information online has meant that mapmakers are able to publish data in unsuitable forms[15], without an understanding of the information and any inherent relationships, such as topology. The static nature of paper mapping may limit the exploration and interrogation of spatial information. In contrast, even limited data interactivity, such as changing scales and zooming, possibly with digital data, can dramatically alter the user's view of information. In addition, many Internet mapping facilities offer users the ability to add their own information by temporarily drawing over the map, thus personalising the content for the user. The portability of paper is not completely lost as the user may print the map once they have identified the scale, area of interest and made any other adjustments. However, this can only be carried out within the limitations of the user's printing facilities and restrictions on replicability due to copyright.

2.5.4 eGovernment

The rapid take up of the Internet and other ICTs has created a body of literature espousing the virtues of electronic government (Baxter 1995, Bodum 1999, Dangermond 1993). eGovernment is the provision of government or public services electronically (West 2005). ICTs have been employed by governments in efforts to increase the level of participation, transparency and accountability. Hypothetically, removing logistical barriers means that citizens could vote at home on day to day government issues (Shenk 1997).

Governments have embraced the provision of public services over the Internet as a means of better government and, in particular, better local government. Much government literature speaks of eGovernment's enabling of democracy and more active citizen participation. For example, Sassi (2000) believed that use of the Internet in government can dramatically change the arena of government and redefine the boundaries between public and private. Policy documents in Ireland cite the provision of online services as a means of increasing public engagement and reducing alienation (e.g. DOELG 2000).

The reality of electronic government or eGovernment is perhaps more mundane than these aspirations. Technological innovation in government has focused on increasing the efficiency of service delivery. Once established, the digital delivery of services can significantly reduce the costs of service provision and simultaneously increase the ease with which the citizen receives services from the government (Media 2006).

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[15] An example of this is the Eurostat Statistical Compendium which deleted Wales from the map of the constituent countries (BBC News 2004).

Additionally, eGovernment can facilitate a radical change in government structure and organisation (Nixon 2000).

In the UK, local government was charged with the provision of 100% of its services online (Chapallaz 2001) with a particular focus on reducing redundancy (Nixon 2000). The application of ICTs to local government has resulted from a increased customer focus and the a greater impetus towards citizen participation (Percy-Smith 2000). By 1998, the majority of local authorities in the UK had access to the Internet and many created their own website. User consultation in the development of these services was the exception rather than the rule and most websites did not make use of the interactive nature of the Internet. While the Internet had become an almost ubiquitous component of local government, ICT strategy was not generally integrated into local government strategic goals (Percy-Smith 2000). Percy-Smith (2000) argued that information provision systems, such as the use of the Internet, should be user friendly and a definitive source of information.

Issues, such as the dependence on signatures for legal processes and services undertaken by the local government, are being considered (Smith *et al.* 1999). Central government is also concerned with facilitating the development of the population's computer skills and for example, the British government has sponsored programmes to encourage computer use such as 'IT for All' and 'Computers Don't Bite' (Hague & Loader 1999).

eGovernment can be separated into four stages; billboards, partial service delivery, portals with fully integrated services and interactive democracy (West 2005). West (2005) asserted that most US government websites are located in either the second or third categories, while elsewhere in the world, public websites are generally in stages one and two.

The use of the Internet for community involvement began early in the expansion of this communication tool. In 1989, PEN (a Public Electronic Network was developed for the residents of Santa Monica, California. The network was an informational tool designed to inform citizens about local politics and public services, such as building permits, and to debate local issues, such as homelessness (Rogers & Malhotra 2000). eGovernment was driven by the Clinton campaign and government in the United States (Fountain 2001). A White House communication project evolved from the use of ICTs by the Clinton campaign. During the campaign, email was used extensively to distribute campaign literature (Hacker 2000). By 1999, most congress members had their own webpages (Davis 1999). The email director of the project argued that the effects of Internet and email use will only emerge in 20 years time and that the

emergence of large numbers of government sites is an indication of the greater involvement citizens have with the government (Hacker 2000). However, Hacker (2000) suggested that the effects will take longer to become known.

One of the original online methods of participation is electronic village halls (Kitchin 1998). Similar to the PEN and based on Scandinavian rural community teleservices centres (IBM 2001). The halls provide training, information and support as well as promoting social inclusion (IBM 2001). However, as Shenk (1997) notes, they can also enable speedy but poor decisions.

The initial emergence of eGovernment in Ireland is difficult to pinpoint. It is likely that the larger local authorities began developing websites in the late 1990s[16]. GIS and planning were identified early as particularly suited for eGovernment (Shepherd 1991). ePlanning in Ireland was proposed in 2000 when the current technologies were emerging (McCormack 2002). The importance of mapping and GIS as a key method of presenting information in the most usable fashion was also recognised at this time in Ireland (DOELG 2000) and there were calls for the recognition of the potential of GI internationally. Additionally, the development of internal websites or intranets by local authorities was supported and fully funded by the Irish central government (DOELG 2000). A number of online PPGIS projects have been documented, such as regional and local examples detailed by Carver *et al.* (Carver *et al.* 2001).

While governments are still espousing the virtues of eGovernment and the links with transparency, accountability and democracy (Ireland 2003), there has been a backlash in the literature (e.g. Flood 2004, Gualtieri 1998, Milner 1999, Moore 1999, Navarra & Cornford 2007, Richard 1999). Originally, eGovernment was viewed as neutral and independent of party or ideology. However spiralling costs associated with the implementation of eGovernment, overspending and scandals surrounding the awarding of contracts have altered this position (West 2005). West (2005) expects that the public will focus on the cost of provision in their assessment of eGovernment. Milner (1999) has criticised that the use of eGovernment has not involved an informed debate. The unquestioned assumption of the benefit of eGovernment means that it "... will become a term synonymous with waste: wasted resources and wasted opportunities." (Milner 1999;64). This issue is acknowledged as a particular problem by advocates of eGovernment initiatives (Ireland 2003). Moore (1999) identified a number of potentially contentious issues which can affect the trust placed in electronic voting. These include which questions are voted on, what viewpoints are presented,

[16] In 1995, 18 local authorities in the UK had limited websites and only some provided contact details (Baxter 1995).

who decides when the discussion is finished, who verifies the tally, what are the consequences of viruses and who supplies the software? (Moore 1999).

Richard (1999) observed that Canadian government consultation documents are rarely supplied with an electronic means of submitting feedback. For example, the Canadian system was designed for one way communication of information from government to citizen. He noted that a proper response mechanism within government is required in order to achieve the utopian view of greater democracy. The use of the results of participation measures may not fully represent the views of participants (Gualtieri 1998). The results are usually collated and filtered by an advisor to the decision maker and, for this reason, the presence of 'democratically enhancing' technologies will not always lead to a more democratic outcome. The use of eGovernment services may not support the ideals of inclusion and participation (Hacker 2000). While the types of Internet users are now more closely matching the general population, eGovernment users are more likely to have certain characteristics. The users of eGovernment are generally male, younger, have a higher level of education and wages than the general population (eUser 2005). The user data from the White House project in the US and other eGovernment initiatives worldwide indicate that the social groups most politically empowered are those who make use of the new technologies to be politically active. eGovernment may only empower groups with previous access to methods of political engagement rather than ameliorate the marginalisation of unempowered groups (Hacker 2000). West (2006) found that some non-democratic governments (e.g. Singapore and China) out ranked democratic governments (e.g. Germany and Spain) on eGovernment performance. Ireland in 2006, for example, ranked 4th below South Korea, Singapore and Canada in relation to eGovernment provision (West 2006).

Though there is an increasing recognition of problems concerning the democratic and inclusive nature of eGovernment, the potential of the Internet is immense and a multitude of solutions have been suggested to rectify the situation. Added to the issues of the digital divide (explored in Section 2.5.3) are the sections of society which already find it difficult to interact with Government. In Ireland, these can include the homeless and the travelling community (Madden 2003). Most solutions, while wide ranging and seldom overlapping, require a re-evaluation of the technologies used and a closer look at the actual systems and services provided rather than a simple application of the technology or provision of the services.

The potential of eGovernment to truly engage citizens and increase their trust in government to the levels experienced in the early decades of the last century is questioned by West (2005). West (2005) in analysing the results of a survey

undertaken in 2000 found no statistically significant difference in trust, confidence or a belief in the effectiveness of government between users and non-users of Federal government websites. After users were questioned on aspects of eGovernment, they were more likely to respond that eGovernment was effective. Giddens (1990) argued that trust is based on transparent processes, visible activities and an understanding of the working of the system. Giddens (Giddens 1990) connected trust with risk and proposed that trust minimised risk. Trust in eGovernment, for example, is related to Giddens' (1990) work on abstract systems, especially expert systems. eGovernment removes the 'facework' associated with human interaction with a human representative of the abstract system, such as the planning process. This increased level of abstraction at and other experiences at access points to the abstract system can affect the perceived reliability of and trust in the system (Giddens 1990). Giddens (1991) contended that trust "generates that 'leap into faith' which practical engagement demands" (Giddens 1991).

West (2005) believed that familiarity with eGovernment and public sector websites could alter people's perception of government. However, West (2005) contended that for eGovernment to be embraced by the public and make positive alterations in public perception, the provision needs to be non-threatening and offer advantages, such as efficiency and effectiveness. Fear of computers and security risks, viruses and hackers need be overcome. To this end, the education of citizens about eGovernment services is important. However, political and high level administrative support and resources are also necessary. Currently the US spends 1-2% of the total government budget on IT. Though, this amount may be insufficient to provide the necessary quality of service. The delivery of services is important for citizens and the convenience associated with online service delivery is probably its greatest advantage (IDABC 2005). However government websites are currently disjointed and require the advertisement of their presence to citizens (Timonen *et al.* 2003). The demand for eGovernment will increase as young Internet users get older and expect this form of service delivery (West 2005).

Milner (1999) argued that there is a need for informed and joined-up decision making and a citizen-centric evaluation of online services with a stakeholder driven focus for the provision of eGovernment. Milner (1999) proposed a three pronged approach to the creation of effective eGovernment; citizen involvement and satisfaction, financial performance and employee involvement and satisfaction. The 'citizen as partner' approach implied by eGovernment requires a review of the old decision making model of 'decide, announce, defend' (Richard 1999). Traditional eGovernment is focused on 'one to many' communication, e.g. surveys, Frequently Asked Questions (FAQs) and quizzes. The current technology allows a more flexible 'many to many' forms of

communication such as mailing lists, web-based conferences and live discussions (Richard 1999). Interactivity is needed to turn customers into citizens (Hacker 2000).

In Ireland, the role of ICT in government is likely to increase (Keogan & Callanan 2003). Local authorities are supported by the Local Government Computer Services Board (LGCSB). The LGCSB provides a level of ICT and eGovernment support to the local authorities (LGCSB 2004b). It is funded by the local authorities and for specific projects by the Department of the Environment, Heritage and Local Government, the Information Society Fund and sectoral organisations. It has supported the provision of Irish eGovernment at a local authority level since 2003 (LGCSB 2004b). The role of the LGSCB also includes the provision of local authority wide intranet services. Three projects, ePlan and Mobhaile projects, are most important in an public eGovernment context. Mobhaile assists the development and hosting of community based websites. The ePlan application is a simple online GIS application for the display of planning applications developed and rolled out to many of the local authorities by the LGCSB. Its role is limited to a support level and is driven by the concerns of the local authorities.

2.5.5 Digital Democracy

A wealth of terms describe the use of ICTs in the promotion of democracy; cyber democracy, digital democracy, electronic democracy, tele-democracy and virtual democracy (Hacker & van Dijk 2000). These terms concern the application of ICTs either in the broad encompassing nature of this term or in relation to specific technologies, such as the Internet or electronic voting. The application of ICTs to democratic processes has the potential to facilitate dramatic changes to the way democracies are organised and understood. ICT developments can facilitate a more direct democracy with less emphasis on representation and a greater emphasis on the involvement of the public in governmental decision making at every level (Hands 2005). For example, citizens would be able to vote daily on matters which affect the state and the local area (Hacker & van Dijk 2000). It is widely acknowledged that ICTs afford a number of opportunities to enhanced democracy (Gibson & Ward 2000b).

As with the development of many technological advances, the Internet is seen as a way of improving the governance of society and democracy through direct interaction with the public overcoming public apathy and promoting citizen participation (Hagen 2000, Jankowski & van Selm 2000). However, there are a number of disadvantages associated with direct democracy as listed in Section 2.4.1.

The main advantage of the application of ICTs to democracy is its ability to overcome barriers of time, distance and other space constraints. However, many authors recognise the limitations of ICTs. They realise that the new democratic measures supported by the technological advances should supplement, rather than replace, traditional services and methods of participation (Hacker & van Dijk 2000).

The inclusion of citizens is important and gaps in inclusion may be widened by the use of ICTs. Therefore, the user-friendliness of the process is vital (van Dijk 2000a). Citizens may become overwhelmed and disenchanted by the amount of information (Gibson & Ward 2000b). van Dijk (2000a) argued that the political system is dynamic and that ICTs affect the placement of the borders between citizens, civil society organisations, corporations, and other bodies. With the use of ICTs, the borders of the political system will include the different bodies and the decentralization of politics will occur. Locke (1999) pointed to the fact that, due to ICT use, government is not the only provider of information and alternative providers, such as community groups and community networks, are possible.

There are issues concerning the importance of digital democracy in changing the political landscape. Hill and Hughes (1998) proposed that some measure of the diffusion of power was intricately linked to whether ICTs were a positive effect on democracy. Hague and Loader (1999a) were sceptical as to whether politicians and advisors will redistribute their power to citizens because of the advancement of facilitating ICTs and Hacker (2000) questions the untested assumption that providing information will lead to greater participation. The use of ICTs may, in fact, lead to greater apathy as the psychological distance between the citizen and government may increase as computers become more commonplace as a form of communication (Veregin 1995b). Castells (2000) noted that communication based on technology "reinforces pre-existing social patterns" (Castells 2000;393). Hill and Hughes (1998), in a study on political posts on an online discussion forum, found that certain political ideologies (liberal versus conservative) were represented to a greater extent on the Internet and by contribution to online political discussion groups. Hill and Hughes (1998) also found that the political parties were not transformed online but that the medium of the Internet affords a number of positive opportunities which supplement traditional means of involvement. However, Gibson and Ward (2000b) suggested that while the Internet facilitates the greater involvement of politically active citizens but also provides opportunities for greater involvement among younger citizens traditionally disinterested in the political process. There is a danger that ICTs will facilitate the modernisation not democratisation (Gibson & Ward 2000a).

While the hopes of digital democracy may have been overstated, Malina (1999) suggested that ICTs can positively influence democratic procedures and Hacker and van Dijk (2000) postulated that an overly negative view of the potential of digital democracy may be overlooking the positive aspects. Some authors argue that constant participation is not necessary. Meijer (2005) argued that while most citizens will not make use of increased opportunities to participate, the openness associated with online provision has a direct effect on performance. Furthermore, Kann (2005) stated that the Internet may be an important medium for the dissemination of information about specific public issues and how members of the public can participate during times of great dissatisfaction (Kann 2005). Barry (2001) conceptualised this as periods of interpassivity interrupted by eruptions of interactivity.

Gibson and Ward (2000b) maintained that ICTs and the Internet in particular offers three possible outcomes for democracy; 'revolution, reform and no change' (Gibson & Ward 2000b;16). Of these the authors most identified with the reform of government, governance and democracy by the application of ICTs. Within this area, Gibson and Ward (2000b) suggested that increasing transparency and governmental accountability, the delivery of better services and greater citizen involvement were all possible. However at present, static dictatorial information provision was predominant (Gibson & Ward 2000b).

2.6 Importance of Online Public Information

The constitutional obligations placed on local authorities require them to produce, gather and maintain certain information (Burkert 2004). Three developments in the public sector have prompted a re-evaluation of public sector information. First, information can be separated from the process of its creation and seen as a commodity in its own right. Second, the commercialisation and privatisation of certain aspects of the public sector has lead to the commercialisation of certain public sector information. Third, public access to government information is gaining momentum with a number of legislative changes. Public information is created in a highly regulated environment and is affected by the Freedom of Information Act (2003), constitution, competition and intellectual property (copyright) laws and data protection or privacy legislation (Burkert 2004). The Freedom of Information Act (1997) as amended by the Freedom of Information (Amendment) Act (2003) changed the emphasis of local government service provision and enabled a more transparent undertaking of services by local authorities. The Act provides for the release of information on government activities and personal data to the relevant citizens (Burkert 2004). Data protection or privacy legislation also affects the use of public information and is protected by international instruments, such as the Convention for the Protection of Human Rights and Fundamental Freedoms (Council of Europe 1950).

Public sector information is important to private sector organisations wishing to use the information for monetary gain. To government and citizens, it is a means of promoting transparency and accountability of government, civic education and supporting democratic processes (Burkert 2004, Prins 2004, Schartum 2004) and an important tool of governing (Gamble 2000). In particular, many authors stress the educational benefits of providing public sector information online (Hale *et al.* 1999, Prins 2004, Schartum 2004). Hale *et al.* (1999) contended that democratic failure may result from the asymmetric distribution of information where experts and interest groups have more information than the general public. The online provision of public information differs from country to country. However, it has become widely accepted practice with many authors suggesting that the Internet is an important means of gaining an understanding of local government (Wilson & Game 2002) and information which can directly affect citizens (Volman 2004). In a study by Hale *et al.* (1999) looking at citizen CMC (Computer Mediated Communication) with government, significant variation was found between webpages provided by municipal authorities within countries. Additionally, West (2005) found an inconsistent pace and breadth of services and noticed the digital divide of users.

The literature concerning digital democracy, ICTs and eGovernment is moving from its initial stance of simply providing information online to citizens to a greater awareness of the presentation of that information (Catinat & Vedel 2000). Simply increasing the information available will not result in greater citizen impact (van Dijk & Hacker 2000) or an enhancement of democracy (Catinat & Vedel 2000). Citizens must be given reason to make use of the Internet (Hague & Loader 1999). The provision of relevant and reliable public information is seen as important in allowing citizens to make informed choices (Prins 2004, Worrall 1994) Other authors stress the importance of timely availability (Volman 2004) and currency (Coleman 1999) of information and highlight the importance of information presentation and whether it is presented in a raw or processed state (Bargmann *et al.* 2004). Many users of public sector information see the local authorities and other public information generators as neutral and benign and the information collected as reliable (Burkert 2004). However, Catinat and Vedel (2000) cautioned against this assumption as information is not neutral and can convey bias either explicitly or implicitly.

Certain computer skills are necessary to access online information. While the benefits can be great with even minimal skills (Volman 2004), difficulties in accessing information online can exclude or marginalise particular groups of citizens or businesses and affect their legal or social standing (Prins 2004). Internet discussions, in particular, are in danger of hijack by the more technically competent contributors.

This technological viewpoint places the emphasis on the technology and accessing the information rather than the quality of the service or information (Coleman 1999). For spatial information, the minimisation of abstraction, the maximisation of content and an easily understood and non-threatening transmission with concrete and real features such as photographs is important (Bishop 1994).

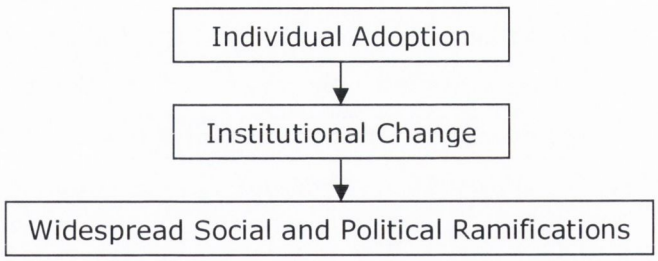
In providing online public information to citizens, Bargmann *et al.* (2004) identify three key factors to ensure that citizens are considered; openness, accessibility and privacy or data protection. First, Bargmann *et al.* (2004) propose that information is open by default, with exceptions made only in cases such as national security. Second, they refer to accessibility as the easy access and use of that information and the means in which it is presented. They put forward examples such as easy to use interfaces, suitable pricing, one stop solutions and stable references. The one stop solution does not depend on the citizen's knowledge of the inner workings of the public agency (Caldow 2002). It allows the completion of a service that may span different agencies and departments at a single portal (Kubicek & Hagen 2000). Stable references refer to the change of services from one department or agency to another, such as the recent amalgamation of the department independent agency, *Dúchas*, to the Department of Environment, Heritage and Local Government. Third, they highlight the necessity of citizen control over information pertaining to themselves; the right to know what is known and who knows it as well as the safeguarding of that data from the public.

The benefits, especially economic benefits, of providing public information online are hard to quantify but Burkert and Weiss (2004) conclude that open access policies for online information currently being pursued are beneficial in both the short and longer term. Many Western governments, including Ireland, follow a cost recovery method of providing public information to alleviate the costs of providing this service. However the access to Geographic Information (GI) is particularly problematic (Craglia & Blakemore 2004, van Dijk 2000a). Much of the public information created is directly linked to a spatial location and Craglia and Blakemore (2004) contended that GI is particularly relevant in governance at all spatial scales. GI requires additional expenditure to create, store and maintain and has particular issues regarding access (Craglia & Blakemore 2004).

2.7 General Model of Technological Change

The widespread adoption of eGovernment requires both individual use and institutional change for a successful outcome (West 2005). The form this adoption will take may possibly be inferred from West's (2005) General Model of Technological Change as depicted in Figure 2.8.

Figure 2.8: General Model of Technological Change



(West 2005;173)

The model was constructed with reference to previous technological advancements. In order for the social and political ramifications to take effect, both individuals and institutions need to move in the same direction. Individuals must recognise the benefits in the technology and institutions must have access to the necessary resources, leadership and incentives to adopt the technology. West (2005) states that the aligning outlooks for both citizens and organisations has affected the applicability of the Internet as a method for dramatic social change and citizen empowerment. West (2005) believed that most citizens are not interested in governmental processes and see the Internet only as a way of easing their day-to-day living. This focuses government attention towards the provision of services, interaction and accountability and away from the loftier goals of greater democracy and public involvement.

The diffusion of technology affects individual adoption. The cost, recognition of the benefits to individuals and in the case of communication systems, the number of other individuals making use of the system all affect the take up of the technology at an individual level. Institutional dynamics may affect the uptake of ICTs in a governmental body, among these are interpersonal relationships, political interplays, media coverage and budget constraints (West 2005).

The diffusion of a new technology is dependent on how open potential users are in integrating it into their daily lives. It took over 50 years for more than half the population in the United States to own a telephone. The time taken for the same infiltration rate for PCs and video games was less as it was less dependent on communication with other users to use the devices (West 2005). In the case of GIS diffusion, organisations rather than individuals were needed for its dissemination (Masser 2001). Rogers and Malhotra (2000) have identified six factors of importance in the development of computers as communication tools; visions, adequate resources, innovative champions, key institutions, timing, the role of communication scholars. West (2005) acknowledges the importance of the organisational setting, political dynamics, media coverage and budget realities.

2.8 Usability

Simply locating information resources or raw data on the Internet does not mean that they can be accessed or used effectively (Moss *et al.* 1998). The volume of information that needs to be sorted for the relevant information to be selected can make information difficult to use (Ginige *et al.* 1995). Catinat and Vedel (2000) stated that effective access to and use of relevant and understandable information by users is vital to achieving a goal of enhanced democracy. Usability is the quality of a system for specified users. It is concerned with ease of use, learn-ability and the overall effectiveness of the system for specific tasks (Davies & Medyckyj-Scott 1996). It is closely related to the concept of ergonomics where system elements should resemble their function (The Ergonomics Society 2002). Usability as a concept developed in the 1980s (Dumas & Redish 1999) from the streamlining of manufacturing process such as photocopying (Rheinfrank *et al.* 1992) and was incorporated into the development of computer software (Head 1999). The usability of the system or product should aid the undertaking of user tasks and is generally noticeable by its absence rather than presence (Kukla *et al.* 1992). Usability focuses on ease of use rather than attractive packaging or superfluous features (Boyle 2002) and it aims to reduce the time taken by users to learn the system and accomplish their tasks (Dumas & Redish 1999). Usability design incorporates principles from a number of diverse disciplines, such as psychology and cartography (Dumas & Redish 1999). Usability engineering is not a final touch to a system or website but something that should be incorporated into its development through the entire life cycle (Dumas & Redish 1999) and, as such, management support for such considerations is important (Nielsen 1993).

Usability in an online environment can be more difficult to design, as the level of control over the features of the user's system is reduced. In traditional Human Computer Interaction (HCI), designers can specify any technical equipment and input elements (Head 1999), whereas on the Internet, the different components influencing the user's experience of a particular website are generally outside of the control of a web designer. The user may access the web site from a range of connection devices from mobile phones to computers with high speed connections and high specification graphics cards. In usability design for the Internet, the developer tries to reach the widest audience without inconveniencing any of the users.

Usability engineering and design have been embraced by private industry to avoid overwhelming or irritating users on their websites. A product that is hard to learn and use will not sell well and Dumas and Redish (1999) contended that usability is of primary importance to users over price or performance. The costs of usability

engineering are more easily quantifiable than benefits (Dumas & Redish 1999, Nielsen 1993). The benefits to commercial companies include increased sales, improved company reputation and customer trust in the company, a reduction in the support required by users and a lowering of training costs and the costs associated with the creation of support documentation (Dumas & Redish 1999).

The motivation for the consideration of usability in public information provision is less clear. As the public agency is usually a monopoly in the provision of services, the increased sales will not be a factor. Nielsen (1993) gave an example of the possible time savings for the online submission of government documentation. Much of the savings are accrued by the citizens and not the government agency. However, the US Department of Labour acknowledges the absence of monetary considerations but highlights the possible savings in support costs such as pedestrian traffic to offices or replying to letters or emails (Levi & Conrad 2004).

Usability also has implications for mapping online. Spatial data requires the use of additional skills for users to be able to understand and use it (Moss *et al.* 1998). The design of traditional maps can be likened to the design of interfaces but the level of control a map maker have less control over the display of maps online. Maps are reduced to a few components in the wider online user experience. There are a number of design implications stemming from this. For example, users may be able to increase or decrease the size of the maps, but they may not be able to view the map in its entirety and the colours of the map components may differ depending on the display capabilities of the user's system. A number of authors have discussed the design implications for online mapping (including Hearnshaw 1994, MacEachren & Kraak 2002, Slocum *et al.* 2002). Research by Davies and Medyckyj-Scott specifically investigated the usability of GIS (Davies 2003, Davies & Medyckyj-Scott 1994, Davies & Medyckyj-Scott 1996, Medyckyj-Scott 1994). The European Commission developed a best practice guide for user interface design in GIS (European Commission 2003). Providing online public information and considering usability must take account of literature in a number of seemingly diverse areas, such as HCI, web mapping, GIS and usability engineering.

2.8.1 Common Usability Issues

Navigation and consistency are among the most common usability problems for websites discussed in the literature (e.g. Nielsen 1989, Rosenfeld & Morville 1998). This is also the case specifically for government websites and West (2005) concluded that government websites are currently disjointed and would be greatly improved by the use of consistent layouts and navigation.

Common problems experienced are; information is difficult to find, the design and layout are poor and internally focussed, there is a lack of attention to detail, inappropriate jargon is used, sections of the website or then entire site are still 'under construction' and superfluous gimmicky features are included. Features of sites that are praised include; being able to personalise the site, finding the relevant information, pleasing design and useful features. Through empirical observation, Rosenfeld and Morville (1998) have found that website users experience problems that can be categorised into three general areas; technical, "look and feel" and "something else" (Rosenfeld & Morville 1998;3). Generally the 'something else' category refers to the information architecture of the site. Information architecture is focussed on websites and not individual webpages. It encompasses the vision and mission of the site, focusing on what type of content rather than the actual content and the functionality of the site and the organisation of the site including future growth and changes (Rosenfeld & Morville 1998).

Consistency in user interfaces and websites is vital and improves productivity by reducing errors, increases satisfaction and reduces the users' frustrations with the site and their task (Nielsen 1989). Consistency in design requires pre-planning and as a result of the costs at this early stage needs management support (Koritzinsky 1989). Richard (1999) stressed the importance of the coordination of information across departments, homogeneity and a common look and feel for public services and points out that citizens expect this coordination even offline.

Navigation and site layout should be considered early, as any future changes or growth of the site can then be accommodated within the existing structure. A new user of a website should be able to effortlessly navigate their way around the site. Different users have different needs so several paths to finding information should be provided. Some users will be completely aware of information or service (known item searching) and wish to access the site and find the information as quickly and easily as possible while other users may only have a rough idea of what they are searching for, the terms used or even whether it exists or not (casual browsing). This second category of user may explore the site in order to find the relevant page and in the process learn about other services or information. Users may switch search categories in a single visit to a site. A number of different searching methods exist; 'known item' searching, existence searching, exploratory searching, comprehensive (users want everything on a particular topic). Searching can be iterative as the users learn about the information they are seeking. Different search options are, therefore, important. Both a search engine and being able to browse the site are valuable to users (Rosenfeld & Morville 1998). Many users also prefer textual navigation to the use of graphics as links (Head 1999). A large number of organisational (e.g. chronological,

topical, task oriented or geographical) and navigation (e.g. hierarchical, global, local or embedded links) schemes are available for information management and to allow users to browse the site (Rosenfeld & Morville 1998). The number of navigational links in a list should be suitable for storage in a user's short term memory (approximately six or seven items) (Bos 2003).

Other usability features span the entire user experience. Among these are the length of time a page should take to appear[17] (Bos 2003), the ability to use expert knowledge to use reasoning shortcuts (Woods & Roth 1988), users not willing to scroll for content (Black & Elder 1997), the chunking of information and the use of white space to allow the scanning of text (Head 1999) and the importance of providing a unique identity for the webpages (Richard 1999).

2.8.2 Users

The user[18] should be the prime consideration of software development (Dumas & Redish 1999) and knowing the user should be the first step in usability engineering (Nielsen 1993). User characteristics, such as domain knowledge, education, age, computer experience allow designers to pre-empt certain difficulties users may encounter with the system (Nielsen 1993). Commercial companies have recognised the importance of defining their user bases through questionnaires and other methods. The information is then used to identify and market specific profiles and groups. This approach has been followed by some federal departments in the US, where they use the information collected as a cost effective method of conducting focus groups (Richard 1999).

The characteristics of individual users and their current tasks as well as potential future tasks should be identified. This process should include at a minimum, observation of users at a site where they currently perform the tasks. There are however a number of barriers to the direct contact of users by the developers; users may bypass existing technical support channels to contact developers directly when problems are experienced, traditional front end personnel may be wary of developers offending potential customers and users may be difficult to contact due to their time pressures or a reluctance to be studied (Nielsen 1993).

Repeat users of online public information may perform tasks differently to novice users (Wharton & Lewis 1994) and, as the users make use of the system, their

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[17] The accepted wisdom here is less than ten seconds (Bos 2003) and the length of time is dependent on the file size of the page as well as the user's connection.

[18] This may or may not also include the potential user who may not make use of the system once it is operational.

behaviour changes which may require further flexibility in the design (Nielsen 1993). Domain specific knowledge, such as the user's understanding of planning, is only an indicator of task performance after they become familiar with the online system (Egan 1988). Therefore, expert users of the system need both computer and domain experience (Nielsen 1993). As a result, it is important to identify what the users know (Carroll & Reitman 1988).

2.8.3 Evaluation Methods

Evaluation is central to usability theory and practice (Davies & Medyckyj-Scott 1996, Head 1999) but is difficult to conclusively test and evaluate. Usability testing is only a subsection of usability engineering and is becoming more widely accepted (Dumas & Redish 1999). Testing evaluates the HCI characteristics of the website and identifies any weaknesses (Levi & Conrad 2004). It is mostly based on qualitative rather than quantitative data which identifies potential problems encountered by users but does not generally record the amount of time wasted or other justifications to fix the problem (Dumas & Redish 1999). Testing is an iterative process and can combine a number of different tests on a number of different versions of the site (Dumas & Redish 1999). However, evaluation methods for the usability of online GI are not widely employed, especially in the public sector (Davies & Medyckyj-Scott 1996).

Extensive user testing is the most effective, albeit costly, measure employed. User testing requires the use of real users of the website and cannot be completed by the developers or employees of the company (Dumas & Redish 1999). If real users are not involved and if the participants are familiar with the technology or tasks, problems may be missed (Dumas & Redish 1999). It is important to think like an outsider who may not be aware of internal divisions (Rosenfeld & Morville 1998). However, the number of users required to undertake a user evaluation of a website is small, as usability testing is not behavioural science research and focuses on the identification of the largest number of problems within financial and time constraints (Dumas & Redish 1999).

Task analysis is vital for system development (Nielsen 1993). The analysis should include the users' aspirations in addition to their current approach to the task, what information they require, what approach they take should exceptional circumstances occur and current weaknesses in the system (Nielsen 1993).

Nielsen (1993) recommends 4-5 users as the optimal number for user testing. The overlap of issues raised increases as the number of users increase and the real benefit in each extra user diminishes significantly. However, scientifically valid testing requires larger numbers. In a product, 80% of the usability problems are found by

testing by 4-5 participants (Dumas & Redish 1999). The development of user categories is important in determining who should be a participant. Ideally 3-5 people should be used from each sub-group (Dumas & Redish 1999).

Spool (2004) recommends the selection of participants with similar issues to those you wish to test. They will be more thorough in their examination of the site and likely to identify issues of relevance. However, finding representative participants for the evaluation of websites is difficult due to the diverse nature of web users (Levi & Conrad 2004). These tests usually comprise a combination of users completing specified tasks and more general questions on features they like and dislike on the website (Spool 2004). In many cases, vague answers may be given by participants but the observer can get the participant to expand and give particular examples (e.g. 'What do you think makes the page easy to find?') (Spool 2004). It must be noted that it is usually easier to comment negatively rather than positively (Rosenfeld & Morville 1998).

The preparation for user testing usually includes the selection of which tasks to test, an estimation of how long the task should take and the development of appropriate scenarios for the tasks (Dumas & Redish 1999). During the test, measurement can be taken in terms of time, learn-ability, user satisfaction (Levi & Conrad 2004), the number of errors encountered and how often the same error is repeated. User testing can be recorded on video, through the logging of the key strokes used (Dumas & Redish 1999).

The most accepted method is the use of "think aloud" cognitive user testing, where users are encouraged to speak their thoughts and voice any problems they encounter. There are a number of problems with the use of real users, such as frustration or anxiety about test or qualification to be included. Some users have problems employing this method while alone and some testers evaluate usability using co-discovery tests[19], where two users are asked to work together (Dumas & Redish 1999). Other options within user testing include getting users to sort cards with menu items to identify the best arrangement for menus and intuitive labelling (Levi & Conrad 2004).

Nielsen & Tahir (2002) propose 114 guidelines to assess the homepage of a website. Questionnaires are useful in collating opinions, attitudes, preferences and users' perceived use of the system. Such questionnaires usually include variables on the users' demographic background, overall reactions and ease of learning and their

[19] Also known as constructive interaction (Axup 2004a).

opinions on features of individual screens, terminology and system information and system capabilities (Levi & Conrad 2004).

Involving users in all usability tests is not always possible or suitable. There are a number of other techniques developers can employ and among these are;

- *heuristic* evaluation (testing against core values or guidelines such as consistency) (Nielsen & Tahir 2002),
- *expert* evaluation (Axup 2004b),
- the production and run-through of *mock-ups* of the web facility (Nielsen 1993),
- *walk-throughs* of design or cognitive walkthroughs (Axup 2004b),
- *prototypes* on either paper or static pages (Nielsen 1993),
- *scenario based* evaluations (Levi & Conrad 2004),
- assessing *user logs* (Levi & Conrad 2004),
- *focus groups* (Dumas & Redish 1999),
- *surveys* (Dumas & Redish 1999),
- *beta testing* (the early release of a product to a limited number of users) (Dumas & Redish 1999), and
- qualitative summary of *public enquires* (Richard 1999).

2.8.3i Location Schema

Screen design is important in software development (Tullis 1988). The location of certain information on a webpage has been the subject of a number of studies. Bernard (2000) recommended that the layout of webpages should be based on where users expect certain objects to be located. Nielsen and Tahir (2002) and Nielsen (2003) argued that users develop their sense of where items should appear on a website by their use of other websites. Therefore, companies wishing to develop a website should evaluate the placement of web items on the most visited sites on the Internet as a *de facto* standard. Bernard (2001) and Markum and Hall (2003) have undertaken empirical testing to establish the location schemas for certain web elements. Bernard (2001) tested the placement of cards representing web objects by 346 participants using an eight by seven grid and compared placement between novice and expert Internet users. Users expected the 'back to homepage' link to be placed in the top left corner, the internal links on the left side of the page, external links on the right and bottom left of the page and the internal search engine in the centre top and centre bottom of the page. Markum and Hall (2003) tested the expected location of ten web features by 202 participants using a three by three grid. The expectations were largely consistent with Bernard's (2001) study. The placement of search engine features differed and most users in this study selected the top right corner. A help link was expected in the top right, bottom right and bottom left cells.

However, these studies are limited due to the selection of study respondents and the type of information tested. The tests were based on commercial websites and focussed mainly on commercial web elements, such as the location of advertisements and the shopping basket. The use of eye tracking equipment has been used to track the eye movements of website users (Schroeder 1998) but the interpretation of this data is flawed as users may not actually process all the information they 'see' and some users use features of a webpage that they do not focus on directly (Schroeder 1998). Schroeder (1998) found that users typically look at the centre of the webpages first, then to the left and finally to the right and the patterns of viewing the page was similar for all users tested.

2.8.4 Web Accessibility

Web accessibility is fundamentally related to usability. Designing for web accessibility reduces the barriers to accessing information on the Internet. Accessibility standards were developed to measure how easy it is for people with disabilities[20] to access information on webpages (W3C 2006) but it also measures the ease with which other users can access information (Bos 2003). Accessibility evaluation methods measure the resistance to short term disturbances, such as background noise, poor lighting or accessing information via a text browser on a Personal Digital Assistant (PDA) or mobile phone. All individuals using the web "... have a range of capabilities that fluctuates due to age, task, environment, or injury, which may cause them to be less abled at different times in their lives." (Head 1999;115). Therefore, accessibility methods can be used effectively in evaluating usability. Accessibility measures the ease of access to the information contained in the webpages and not the navigational path to that information.

Although the Internet overcomes many of the physical access barriers to information, poorly designed and structured web sites can unintentionally block users from accessing its content. Accessibility strives to reduce the effects of these issues and is particularly cogent for public bodies with a duty of care to all citizens.

The World Wide Web Consortium (W3C) sets the world standard, Web Content Accessibility Guidelines (WCAG), for accessible design. W3C is an international organisation established in 1994 by Tim Berners-Lee (one of the founders of the Internet) (W3C 2004a). One of the organisation's three long-term goals is "To make the Web accessible to all by promoting technologies that take into account the vast differences in culture, languages, education, ability, material resources, access

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[20] According to statistics released by the (United Nations 1990), as many as one in five people has a disability of some sort depending on the definition of disability used. For example, roughly 10% of men have some form of colour blindness (Tognazzini 2004).

devices, and physical limitations of users on all continents" (W3C 2004b). For example, one of the guidelines deals with image accessibility: "Provide equivalent alternatives to auditory and visual content" (W3C 1999). This guideline will affect users with visual impairments and those without the correct technology to allow them to view pictures. Providing an alternative textual explanation of the image allows developers to convey the same information as the image to these users.

The guidelines are divided into priority 1, 2 and 3. If priority 1 checkpoints are not satisfied by the developer, at least one group of users will be unable to access the information contained in the webpage. "Satisfying this checkpoint is a basic requirement for some groups to be able to use Web documents." (W3C 1999). Priority 2 checkpoints deal with considerable obstacles to the information in the web pages. Finally, compliance with priority 3 checkpoints improves access to the webpages. Compliance with priority 1 guidelines earns the page the accolade of Conformance Level "A" status. Compliance with priority 1 and 2 guidelines elevates the page to Conformance Level "Double-A" status and Conformance Level "Triple-A" status is obtained when all three sets of guidelines are applied (W3C 1999).

In the United States, government websites are obliged to be compliant with a variation of the W3C accessibility guidelines (Section 508 2004). In the UK, the Royal National Institute of the Blind (RNIB) promotes the use of the W3C standards and provides a 'see it right' logo for websites fulfilling priority one and selected priority two and three guidelines within the UK (RNIB 2003). In Ireland, accessibility guidelines are issued by the Irish National Disability Authority and comprise of W3C guidelines with a greater level of explanation and a numeric priority system (INDA 2003). However, Irish government websites are not legally required to comply with accessibility guidelines.

Head (1999) asserted that the web tends to ignore special needs. A recent commercial study of forty public sector websites in the UK and Ireland evaluated the websites against a significantly reduced selection of the guidelines and found that 90% of the Irish central government websites are inaccessible (IQ Content 2004). In a study of 159 Irish organisations' websites in 2002, none of the sites achieved AA standard and 94% of the sites failed the minimum accessibility level. On all of the government departments included in the sample accessibility errors were present (McMullin 2003). As part of the eEurope Action Plan, all Irish government department websites were to be priority 2 accessible by the end of 2001. However the results of McMullin's (2003) study showed that this has not been achieved.

GI, due to its complex and visual nature, is difficult to use for users with disabilities. Different techniques can be used depending on the map complexity. For example, simple maps can be easily provided with an alt tag giving alternative textual descriptions. The real value of geographic information is the attribute data that is spatially located and allowing users to gain access to this data without use of mapping is important in terms of "good governance" and accessibility (Doyle & Schmid 2003).

2.9 Summary and Conclusions

A number of seemingly disparate areas of literature were covered in this chapter. An examination of publishing public information on the Internet from user perspective, however, requires consideration of each of these areas. The public information investigated in this study is planning information provided by the local authorities in Ireland. The local government context and the Irish planning system were therefore explored to provide the context for this information online.

Local government are municipal service providers and civic leaders responsible for a demarcated geographic area. Recently, their service provision role has changed and there is a greater emphasis on efficient and effective service provision and a customer oriented outlook. The methods of local government are interconnected with a range of diverse bodies such as other local authorities, government agencies and local interest groups. Public consultation is also legally required but the extent of that consultation beyond public information dissemination is left to the discretion of the local authority. Central government plays pivotal role in the provision of local government. However, the local government has a level of autonomy and that allows it to set its own priorities for the local community.

Within Irish local government, there are a large number of planning authorities. Planning can have real effects on the day-to-day life of the people living and working in the local authority area. Both of the two main planning functions require information dissemination and public involvement at some level. There is a range of different types of planning information and much of this information is spatial in nature. Planning as an activity affects large numbers of people and now requires greater public involvement.

Government literature on the provision of eGovernment has linked website provision with democracy, governance and participation. Each of these areas was explained and relevant issues were presented. Ideas of government, governance, democracy and participation are closely linked. All of these ideas have undergone a re-evaluation in recent decades and the development of ICTs and their application to these areas is further changing these concepts. Initial aspirations regarding the Internet achieving a

greater level of democracy have given way to more realistic goals for the technology among writers in these fields. However, unrealistic expectations of the Internet still persist in government and more general literature. Authors in more recent years are focussing on how to deliver positive benefits to citizens through the use of ICTs. Local government in Ireland is a democratic institution and both planning and local government are affected by new methods of governance and a greater role for the public.

Democracy is not an exact concept. Improving democracy will therefore be difficult to accomplish without a clear understanding of what is actually required. In many cases, there is a push for a more direct democracy. Failures of democracy, characterised by low voter turnouts, for example, have increased calls for greater participation and flexible forms of governance. There is an increasing realisation that government alone cannot govern. Governance relies on collaboration and not one-way traffic from government to citizen. ICTs can be used to implement innovative governance measures. Planning, in particular, is a governance activity which relies on the interaction between many players and consensus building and the resolution of conflict.

Participation is generally seen as a means of overcoming democratic failure and a method of governance. There are hopes that the Internet will involve and educate people about government processes and reduce apathy. Meaningful participation, however, is based on the redistribution of power, the provision of information and the balancing of the asymmetric distribution of information from experts to all parties. Public participation in planning is strong and planning is one of the strongest areas of local government. However, it does not follow that the most inclusive dissemination of information will allow a more inclusive governance of the community. The other participation procedures may not be in place or they may not actually share power. However, participation is dependent on information and it is an important first step. Participation and the provision of information are intrinsically linked. Meaningful participation is not possible without the dissemination of information to and from all participants.

Meaningful participation is rare in practice. The current power holders may be hesitant to share their influence for a number of different reasons. Even when there is a redistribution of power, planning is adversarial and contentious, thus, not all participants will be satisfied at the end of the process. Additionally, while participation is a key concept in modern government, many people will be unwilling to participate and do not wish to be connected with governmental decision making processes and community governance.

Certain ICTs (Internet and GIS) are required to provide online planning information. These ICTs were examined and their particular characteristics which affect online provision were considered. The Internet can decrease the resources necessary to participate provided that the participants already have access and the skills to the use the Internet. Both the Internet and GIS have features that are conducive to public information dissemination. These two technological developments have been used in public participation. GIS can be used as a decision making tool but its use depends on a number of factors such as the power distribution, structure and management style of the organisation in which it is used. There are also a number of restrictions placed on the use of spatial data. The local authorities may be unable to provide as much spatial data as they would like online due to copyright restrictions and associated costs. Planning historically has been a first mover in the application of GIS to its information and processes and the use of GIS online with planning information is possible.

As with many technological advances, the Internet was expected by many to have a democratising effect. The public belief in the benefits of the Internet still exists but these are tempered with a greater awareness in research that the effects of the application of the Internet to government is not a simple and wholly positive process. There are a number of negative consequences as well, chief among these from a participation point of view is the lack of inclusion. The Internet is seen as an information provision space and public information online has increased. There are benefits to the use of the Internet in the provision of public information and these are realised by both the information provider and information user. The very advantages that the Internet offers can also be problematic, the rapidity and ease of information publishing can mean that important elements are ignored, such as completeness of information.

Applying ICTs to government has been termed eGovernment. There are a number of different types of eGovernment. There have been a number of community involvement initiatives in the development of current concepts of eGovernment. However, eGovernment is not without its drawbacks. Its actual benefit beyond the provision of information needs to be questioned and according to West (2005) trust in government has not increased as the result of its provision. Additionally, the Internet allows community or local interests groups to disseminate information online as effectively as local government. The political landscape may be changed as a result of increasing sources of information on contentious issues. The application of ICTs to government is a new method of governance and can change the democratic organisation of a community or country.

Many of the local authorities have adopted other ICTs and West's (2005) model for technological change can be used to estimate similar adoptions of the Internet and online provision. The models of power distribution identified by Wilson and Game (2002) may be useful here in determining the location of the champions necessary to instigate the provision of online information and services and its development.

Usability engineering is a set of general principles which focus on the user, in this case the citizen, and supplies a set of evaluation tools which allow better assessment of the provision of public information in terms of the ideals espoused in theoretical literature. As such, usability is a core approach of this study and the area, methods and issues were addressed in Section 2.8. A consideration of the usability of the online provision of local authorities allows a more user and citizen centric view of that provision. Usability engineering of online provision can focus on the provision of what is needed and help fulfil those needs. Usability has been adopted in the commercial sphere and is centred on the design for users. There is a motivation for its use with public online provision as it can increase the trust in services by users. Whether this trust in services can be converted into a greater engagement or trust in government generally remains to be seen. It has been contended that usability is the most important feature in product design. A usable service will mean that it is used and will therefore reduce the resources needed in other channels and achieve greater efficiency. However as a monopolistic provider of this information and services the incentive is not so great. This situation may change with the enabling influence of the Internet on the dissemination of other local community information from other sources such as community or local interest groups.

Both spatial and public information require special consideration. There are a number of common usability problems which can be easily remedied and a number of different evaluation tools exist. These evaluation tools are centred on the user experience but do not necessarily include the user. Identifying the user characteristics is important and certain methods are useful for different usability goals. Much of the research undertaken in this area however focuses on the application to commercial information and does not currently take account of public or spatial information.

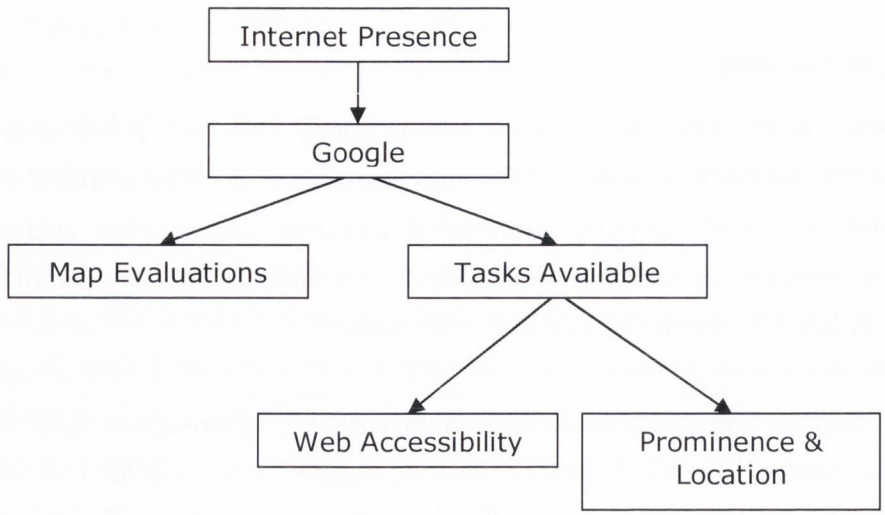
Chapter 3: Methodology I: Usability Evaluation

3.1 Introduction

This chapter is the first of the three methodology chapters within this thesis. The results of the methods, introduced and described here, provide a snapshot of the type, extent and quality of planning information available on planning authority websites within the Republic of Ireland. It is within this context that the results of the user survey (Chapter 7) are presented and discussed.

The first two sections of this chapter deal with the approaches used to define and refine the context of the research methodologies contained in this chapter. The definition of whether or not a local authority has an Internet presence and the derivation of that definition is dealt with in Section 3.2. The selection of an appropriate study area is then outlined and justified. Having devised working definitions, the next six sections of the chapter outline the development and use of appropriate evaluation methods. The first method records the presence or absence of an Internet site and the ranking of the webpage within search results using the first five pages of a Google search. As the definition of planning information and planning related information is not exact, a sample of standard planning tasks was chosen which should be available across the local authorities. The distance each of these sample planning tasks were located from the local authority homepage was recorded and the process used is described in Section 3.6. Accessibility evaluation, normally associated with users with disabilities, is used here as a means of comparing usability across the local authorities. The prominence and location of relevant information on the homepage and the main planning page is evaluated using two separate methods derived from literature. The final method employed for the evaluation of planning information provision classifies map applications on the local authority site, focusing particularly on planning map applications. A diagram of the progression for each of the methods is given in Figure 3.1. The penultimate section of this chapter looks at the methodological issues encountered in undertaking these methods.

Figure 3.1: Outline of Usability Methods



3.2 Planning Authority Internet Presence

The presence or otherwise of a planning authority website was determined from the 5th to the 15th of February 2005. The planning authority name was entered into the search function on the Google search engine site (http://www.google.ie) and the first ten pages of results were examined. In the absence of results pertaining to the planning authority, the relevant authority was then contacted by telephone and asked the address of their website. Planning authorities without a website were recorded as such. In cases where the identity of a site was not clear (e.g. sites run by the local authority in conjunction with the local chamber of commerce), a web presence was recorded if the site consisted of at least a homepage. However, if a site was dedicated solely to tourism or promotion of the town they were not judged to be a web presence for the local authority. The formal definition of homepage formulated for use in this thesis is given in Table 3.1.

Table 3.1: Definition of Homepage

• The homepage is the main page of the site and must state the purpose of the site. • Users must be able to navigate to the rest of the site from the homepage. • The name of the entity must be mentioned at least once on the page. • In addition a good homepage should also establish the site identity and have a clear naming structure, that is it should not be present under another identity or direct users away from the core address (e.g. www.sitename.ie not www.someothername.ie/anotherpage/).

This definition is specific to the current method for Irish planning authorities and was informed by a number of authoritative web sources, such as webcontent.gov (2006) and Pearsall (1998), however it differs from the webcontent.gov (Table 3.2) in that it allows for multiple websites under one naming structure. A clear and distinct naming

structure indicates whether a collection of pages can be seen as a website; however this is inappropriate for Irish planning authorities due to the hierarchical nature of the planning system in Ireland. Many of the planning authorities appear as subsection on larger local authority sites (e.g. Trim town council's web address (http://www.meath.ie/TrimUDC/index.html) has the Meath county council address as its root).

Table 3.2: Webcontent.gov Definition of a Homepage

The page that serves as the front door of a website. Every website has a homepage. No website has more than one homepage. (webcontent.gov 2006)

3.3 Choice of Case Study Areas

Due to the large number of planning authorities (88 authorities) in the country and the detail and time scale under which this study was conducted, a smaller sample of authorities were selected. The study area was chosen to give a comprehensive cross section of Irish planning authorities and range in type, geographical area, national planning importance and population. Regional authorities were formed as physical planning regions and, thus, were deemed by the government to share many regional characteristics. They coordinate and monitor some of the county and sub-county activities (e.g. regional plans) (Grist 2003a). The local authorities selected for the study are those counties, cities, borough corporations and urban district councils contained within four of the country's eight regional authorities. Table 3.3 contains a list of the planning authorities selected for the study and Figure 3.2 shows the location of these authorities. The four authorities are the Dublin, Mid-East, South-East and West regions.

The larger county planning authorities have a supervisory role to play in the preparation of borough and urban district development plans and planning enforcement. Within the four regions all the cities, boroughs and urban districts contained within each county in the study area were surveyed to ensure a comprehensive cross section of the types of planning authorities and that appropriate comparisons between county planning authorities and the smaller borough corporations and urban district could be made.

Two of the four regions included in the study area are the Dublin and Mid-East regions. This area is collectively known as the Greater Dublin Area since the publication in 1999 of strategic planning guidelines (Brady Shipman Martin *et al.* 1999). The expansion of the capital city has had a profound impact on the planning needs of the surrounding counties; Meath, Kildare and Wicklow. The commuter belt around Dublin has expanded dramatically and the three counties of the Mid-East region have seen a corresponding increase in population. The 1999 report on

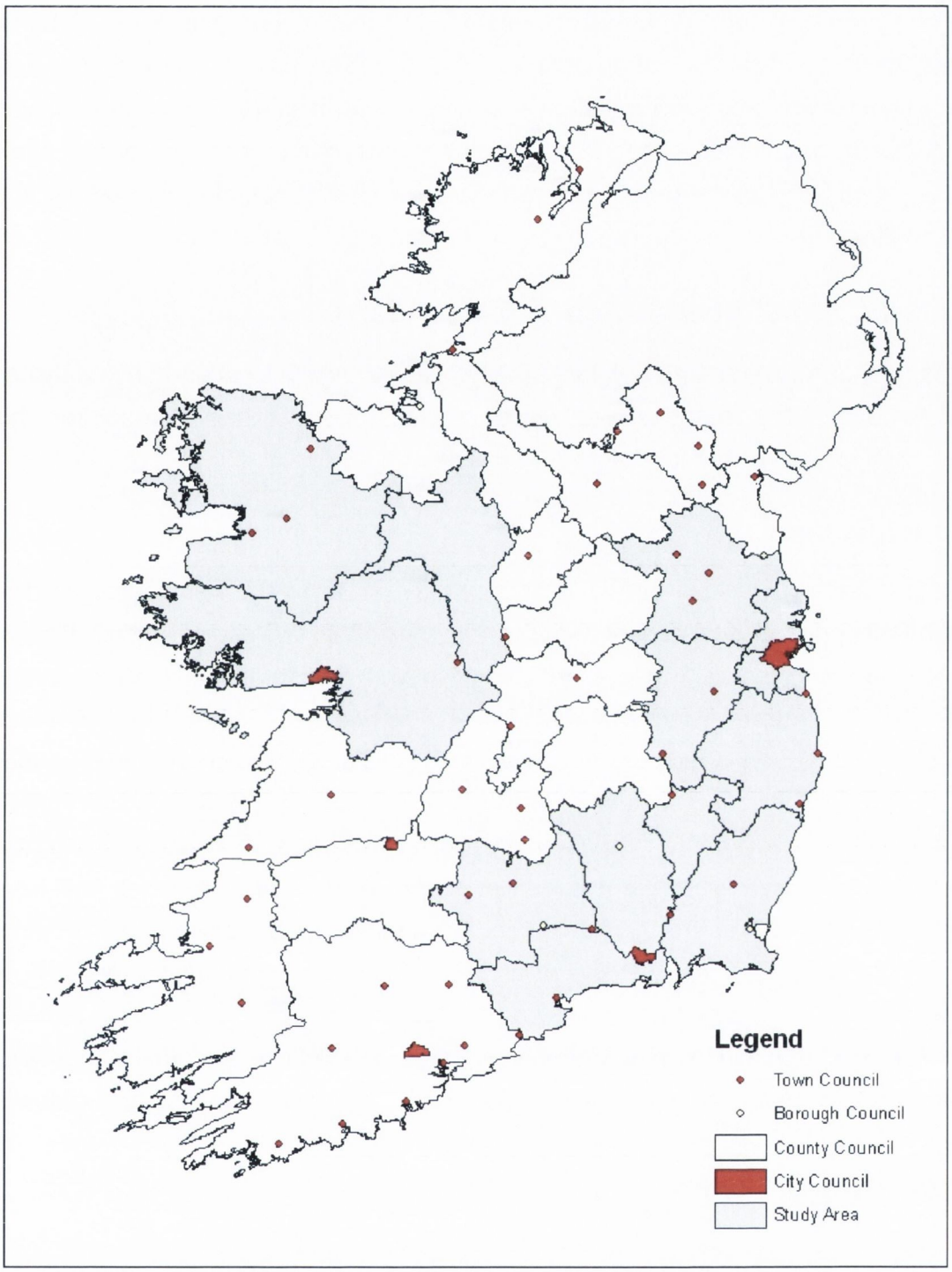
planning guidelines was not statutorily binding, however, the every relevant local authority is encouraged to ensure that their development plans complied with the contents of the report. A total of 15 planning authorities coexist in these two regions.

Table 3.3: Local Authorities Evaluated

County Councils	**City Councils**	**Town Councils**
Carlow	Dublin	Arklow, Co Wicklow
Dun Laoghaire/Rathdown	Galway	Athy, Co. Kildare
Fingal	Waterford	Ballina, Co. Mayo
Galway		Ballinasloe, Co. Galway
Kildare	**Borough Councils**	Bray, Co. Wicklow
Kilkenny	Clonmel, Co. Tipperary	Carlow, Co. Carlow
Mayo	Kilkenny, Co. Kilkenny	Carrick-on-Suir, Co. Tipperary
Meath	Wexford, Co. Wexford	Cashel, Co. Tipperary
Roscommon		Castlebar, Co. Mayo
South Dublin		Ceannanas Mor, Kells, Co Meath
South Tipperary		Dungarvan, Co Waterford
Waterford		Enniscorthy, Co. Wexford
Wexford		Naas, Co. Kildare
Wicklow		Navan, Co. Meath
		New Ross, Co. Wexford
		Tipperary, Co. Tipperary
		Trim, Co. Meath
		Westport, Co. Mayo
		Wicklow, Co. Wicklow

The remaining planning regions are not as integrated as the Greater Dublin Area, however, they are geographically contiguous and share many regional characteristics. The remaining two regions selected (West and South-East regions) belong to each of the two supraregional assemblies (Border, Midland and Western (BMW) and Southern and Eastern Regional Assemblies). The regional assemblies which were originally created to ensure the continuation of EU funding for poorer counties (Stationery Office 2000). The assemblies have a coordination role across the relevant regional authorities and for the local government services within the appropriate boundaries (Grist 2003a). A number of factors were relevant in selecting the regions within the supraregional areas. Both regions contain one of the country's five city planning authorities and house the assemblies of the larger supraregional structures and thus have an importance on a national scale. The West and South East regions contain seven and 13 planning authorities respectively. The West Region has a low population density and large areas of each of the three counties have suffered a population reduction in the period between the censuses of 1996 and 2002. Both Galway and Mayo are geographically large counties and may have particular information provision needs associated with this. The South East region contains three of the country's five borough councils (Clonmel, Wexford and Kilkenny) and the country's smallest city (Waterford).

Figure 3.2: Irish Planning Authorities in the Study Area



Additionally, during the study area selection process, three county councils (Meath, Mayo and South Dublin) were selected to pilot the Mobhaile project (LGCSB 2004a). This project provides hosting of community group websites, such as local sport clubs. The counties chosen for the pilot of the project are in the selected study area for this thesis and, due to their first mover status, were deemed to be more likely to be aware of the benefits of Internet information provision.

In representing different types of population change, geographic size, national planning importance and planning authority type, the four regions selected are likely to be an appropriate cross section of the planning concerns and information provision in the Republic of Ireland. The selection of local authorities in the study will allow comparisons to be made both across the different types of planning authorities and within the different classes of authorities.

3.4 Locating the Local Authority Websites

This section describes a method to assess the ease with which local authority websites can be located. The method used search engine placement as a proxy for this characteristic of each of the local authority websites.

3.4.1 Justification

Many of the users of local authority information may not know the web address for the local authority site in advance of their need to use that website. 42 to 86% of Internet users will generally use search engines and directories to locate websites (Thurow 2003). Internet users are able to search in two ways; search engines (such as Google (2006)) and directories (such as Yahoo! (2006)). A search engine uses automated programs called spiders or crawlers to discover information on webpages while a directory uses human input to categorise websites or webpages (Thurow 2003). Other services are a combination or hybrid of the two categories and base search results on both methods. Most users are unaware of the distinctions between the different type of searches. However as Thurow (2003) points out the differences between the two information retrieval methods are important when website developers wish to ensure a high placement in search results as placement strategies for both differ. These distinctions are important in terms of metadata and content, the design of which optimizes the search results for the site. These issues are discussed further in Chapter 9.

Much of the research undertaken on search engine listings has focused on commercial aspects of making the information or site available to users (Langville & Meyer 2006, Thurow 2003). There is little research into the listing of public or non commercial websites on search engines and this project assumes that the research used is also appropriate for the local authority website users.

Using a search engine to locate the site, or indeed, the information that users seek within that site is an important step in the conceptualisation of the users' path to information. There are a number of other ways a user can locate the webpages or information of relevance; addresses provided on television or radio and in local and

national print media, via a link provided within an email or a link on another site or page, by clicking on a banner advertisement and by word of mouth. The current method provides a means of assessing the ease with which users can locate the relevant website without assuming a prior knowledge of the web address. This conceptualisation of the user as one actively seeking information rather than chancing across it or being influenced by online or media campaigns, may not fully encapsulate the user's information seeking characteristics. This issue will be further addressed by the questionnaire survey as described in Chapter 5. Other methods of accessing relevant information were not assessed as they could not be controlled over the sample population of local authorities (e.g. newspaper coverage) and could not be simultaneously assessed in cases of development plan creation (due to the time staggered nature of its creation) and large or contentious planning applications.

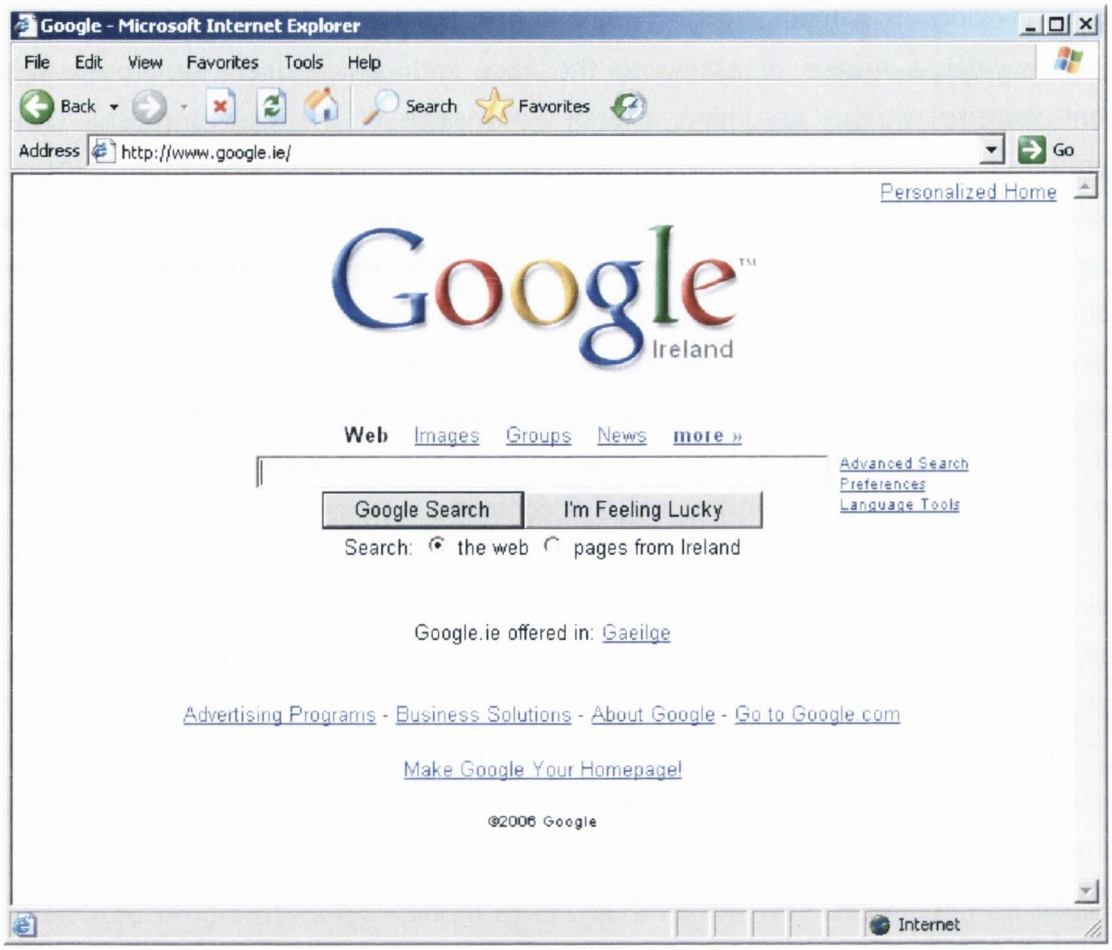
The placement of the local authority website on the results page of the Google search engine is taken here as a proxy for the ease with which the user finds that website. Google is one of the most popular search engines available today. Google accounted 52% of all Internet searches carried out in the US in 2005 (Elgin 2005). Using Google to assess the ease of access to the local authority websites yields the most information. Further replicating the method using other search engines or a search directory would not yield any significant increase in information as the results will be analysed comparatively.

Search engines have a number of criteria to establish the order of results from an Internet search (Langville & Meyer 2006). Many of the rules which govern the placement of a site within the search engine results are available in the public domain. Search engine algorithms usually comprise of three key components; text (generally based on keyword and metadata more than content), links and popularity (Thurow 2003).

3.4.2 Method

This current method uses a localised version of the Google search engine configured for Irish webpages (http://www.google.ie) (Figure 3.3). This is the page presented to most users of Google within Ireland as Google redirects users to a localised version based on their IP address. The use of Google will be assessed in the results of the questionnaire survey (Chapter 7).

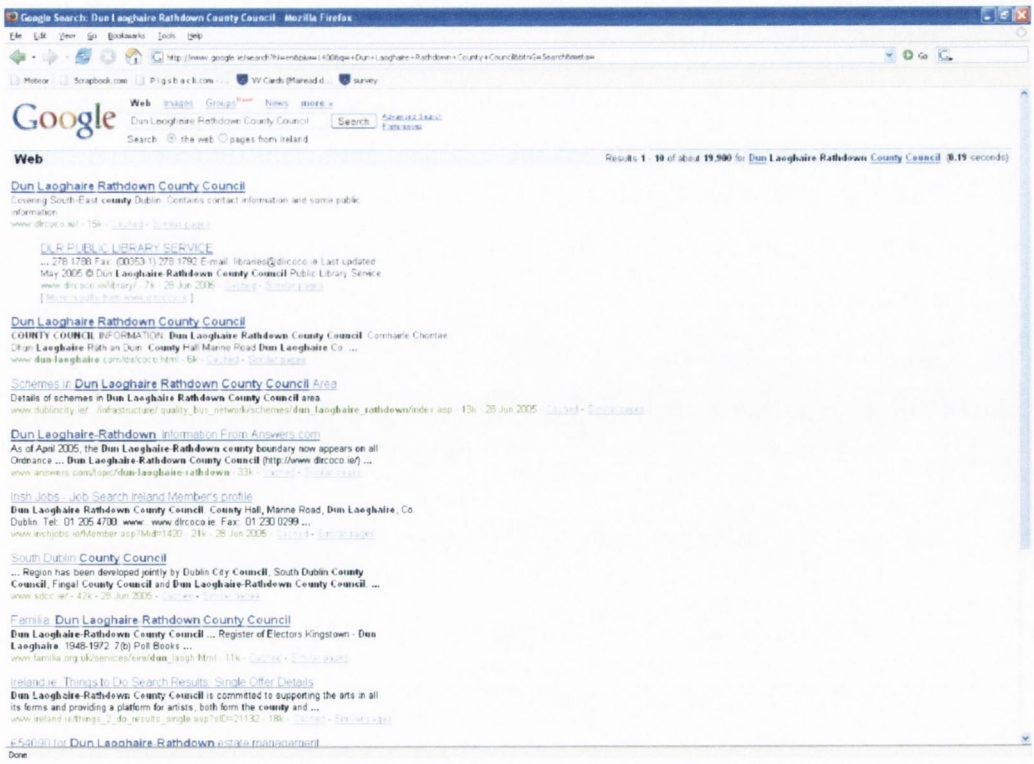
Figure 3.3: Google's Irish Search Engine



A study undertaken by Jansen and Spink (2003) in 2001 analysed the search results for queries submitted to AlltheWeb.com and recorded the number of pages viewed by the user per query. Jansen and Spink's results revealed that 91.8% of users viewed five or less pages of results and 97.6% of users viewed ten pages or less. Assuming that a similar proportion of results viewed by users availing of the Google search engine is appropriate, analysing the first ten pages of results should reveal a valid indication of the ease of locating the local authority website for users.

The full name of each local authority (e.g. 'Dublin City Council', 'Clonmel Borough Council' and 'Mayo County Council') was entered into the Google Internet search engine on the 7th of July 2005. Figure 3.4 displays a sample results page for a search query string. Each page of results contains ten webpages corresponding to the query string used. Where a website existed, the position of the local authority website within the first ten pages of the search results was noted.

Figure 3.4: Sample Search Results Displaying Results for "Dun Laoghaire Rathdown County Council"



3.5 Choice of Study Tasks

To allow for comparable results across the local authorities, a number of sample tasks were chosen for the evaluation methods used in the next three sections (Sections 6, 7 and 8). This further allows the study to be replicated across local authorities outside of the study area and in the future. A list of these sample tasks are given in Table 3.4. The tasks cover a range of common planning activities from both planning enforcement and control. The tasks were developed firstly in informal consultation with a number of practising planners and through a review of the planning literature and secondly, from a study of the planning pages of the local authorities to determine that the tasks could be completed on at least one planning authority site. The tasks comprise the main activities recorded on the planning authority pages and should be supplied by each planning authority, if not in an online environment, at least in the physical offices of all the local authorities. In this way, a picture of what each local authority provides the user of planning information can be constructed and compared across all local authorities.

The first task was viewing the local authority homepage. From a user's point of view, the homepage of the planning authority is critical. The local authority homepage is the first online point of contact for users with the planning body and acts as a navigation tool to the information of value. The homepage can encourage or discourage information exploration and therefore needs be well designed (Nielsen &

Tahir 2002). The homepage can establish the user's expectation of the remainder of site and is usually the area of the site into which most design work was concentrated as such it may be interpreted as a measure of the best the site can offer. Poorly designed homepages can deter a greater number of users than other badly designed pages elsewhere on the site (Nielsen & Tahir 2002). The importance of the homepage in forming the users opinion of the site and acting as a navigation tool to other information within the site highlights the need to include this task in any evaluation of website information provision.

Table 3.4: Sample Planning Tasks

1. View the local authority homepage
2. Find the main planning or the planning department page of the local authority
3. View development plan
A. Find the chapter or section on transport
B. Find the local authority boundary map
4. View an individual planning application
A. Individual planning application details (details contained in a printed notice on a site or better)
B. Individual planning application map
5. Find a planning application form
6. Find planning application fees
7. Locate a guide on commenting on a planning application
8. Locate a guide to appeal a planning decision
9. Find contact details for the planning authority

Task 2 was an evaluation of the planning homepage. The planning homepage should provide navigation to planning activities and details about the planning activities of the local authority. Ideally it should also inform the user about the planning activities and services available and link to other relevant services (such as the fire department). Planning permission requires contact by the permission seeker to a number of different areas within the planning authority; a well designed site can allow the user to seamlessly access all the relevant information and make all the relevant submissions. Thus, the planning homepage is a vital step in acquiring planning information.

Task 3 related to elements of the development plan. Assessing a specific element of the development plan in spatial and textual format allows a greater level of comparability between the local authorities than simply assessing the front page of the plan or the first map. In addition, it more closely resembles an actually user query or task. The specific information specified in task 3A relates to the transportation element of the development plan for the local authority. This element should be present in all development plans and is likely to follow a similar presentation format for all the authorities. The map requested for task 3B should display the spatial extent of the local authority's remit. This could be important for the user in determining in which local authority area they are interested. The map does not need

to be particularly detailed and should be present in all local authority development plans. Other maps are unlikely to be comparable as each map will reflect the different planning issues for the authority and could vary between rural and urban administrative areas or according to alternative factors.

The planning application process was dealt with by tasks 4 to 8 (viewing the details and maps of individual planning applications, submitting and objecting to a planning application as well as appealing the decision of the planning authority). A complete online automated process for the planning enforcement tenet of planning activities of the local authorities is in the pipeline (O'Brien 2004), however not all elements of the process are available online as yet. Many of the different stages require a visit to the local authority offices to submit information and receive a dated receipt. Other developments require a site visit by a local authority planner and a detailed meeting between the applicant and the local authority. The tasks represented here are all achievable on a number of local authority sites and there are no legal constraints restricting their use on all local authority sites. Viewing the details and map for an individual planning application can form part of a number different user queries; the user may want to view the planning permission application for a nearby site, view applications by competing construction companies and view a contentious application, among other possibilities. For task 4A, the details of an individual planning application were taken as the details present on the site notice for a particular planning application. In task 4B, the map related to the map supplied with the planning application or any position map supplied by the local authority in an online GIS. The map application with the lowest number of pages from the local authority homepage was used in the evaluations.

Downloading an online form from the local authority site (task 5) can reduce the number of visits the user must make to the local authority offices, as can the provision of important information such as the planning application fees which are fixed for all local authorities (task 6). Information on commenting on a planning application and appealing a planning decision are available as PDF files on the Department of Environment and Local Government (DELG) website (DELG 2006) and the links to this information from the local planning authority site or alternative information concerning the two processes comprise tasks 7 and 8 respectively.

The final task relates to the locating of the contact details of the planning authority. This can range from information on the location of the local authority offices to the specific details about particular services provided within the planning department of the local authority. As not every planning task can be achieved effortlessly online, the

contact details of the local authority should remain as high priority information on the local authority website.

Over the next number of sections, these tasks are evaluated using a number of different methods. These methods were developed from usability evaluation literature and were specifically adapted to the current case study of planning information available on local authority websites in Ireland.

3.6 Clickpath

3.6.1 Justification

The clickpath is the author's term for the number of clicks it takes to navigate from the first page of the local authority website to the last page of the task. A similar concept is that of page clickdepth which records the number of pages a particular page is from the website's homepage (Watchfire 2005). The clickdepth, however, does not take into account the use of elements within a web page and the method developed in this study was adapted for this reason.

In selecting a link or element the user must interact with a webpage and assimilate information contained in it. The more webpages presented to the user means there are the more decisions the user must make about the navigation path. An increase in the pages, therefore, may decreases the ease with which a user can locate that information. However, it must be noted that the clickpath is only one such proxy for the ease with which a user can locate the relevant information. It does not take into account instances where a long webpage providing a large amount of information would be better broken into a number of pages containing grouped information. In such cases this would improve clarity and the ease with which the user can access that information.

3.6.2 Method

The number of clicks to complete each planning task was recorded for each of the local authorities. Each click resulting in a change of either a webpage in the main window, a single frame or a number of frames were recorded. The clicks could be required to select a particular link or to change an element of the webpage, such as selecting an option in a drop down list.

The method of clickpath allowed the ranking of the local authority websites according to the number of clicks required by each local authority to complete each of the eleven tasks. The ranking was taken as a proxy for ease of access to the task information and is comparable across the local authorities.

3.7 Accessibility

This section details the methodology employed to evaluate the accessibility of each of the local authority webpages necessary to undertake each of the sample planning tasks. Accessibility while developed for users with disabilities is used here as a usability method and evaluates barriers to information contained in the local authority webpages.

3.7.1 Justification

A number of accessibility options are available to developers who wish to evaluate their webpages for accessibility compliance. The tools can range from generic automated software available free over the Internet (such as WebXact from Watchfire (2005)[21]) to more detailed accessibility audits carried out by accessibility evaluation companies (such as Open Interface (2006)). A number of different tools should be used to carry out an accessibility study of a website and certain tools can be used to evaluate only specific accessibility guidelines, such as the Colour Contrast Analyser 1.0 which "is a tool for checking foreground & background colour combinations to determine if they provide good colour visibility" (WAT-C 2006).

For this study, an automated evaluation tool which tests against WCAG (Web Content Accessibility Guidelines) was chosen. Such a tool would allow comparison of the evaluation results across the local authorities to be replicable and as free from evaluator bias as possible. However, it must be noted that only certain accessibility guidelines can be automatically tested; the remainder of the guidelines require a judgement call to be made as to whether the page is compliant or not.

It was decided to use an evaluation tool that was well known to the Irish local authorities. Also it was important to choose a tool that is easily understood and does not require much developer training or experience. In this way, the results of the evaluation would be similar to the results obtained by an accessibility evaluation of the pages by the local authority themselves. In addition, the tool could be promoted to the local authorities following the results of the thesis. The evaluation tool used in the pilot study was Bobby™ supplied by Watchfire (2005). Bobby was an online free service which allowed web developers to test one webpage per minute against the W3C's WCAG standards. It supplied the developer with a graphical and textual report on priority 1, 2 and 3 errors as well as a number of user checks. Webpages satisfying the different levels of guidelines could display the appropriate logo (Figure 3.5). The output of the evaluation was clearly presented and the results were easy to interpret. Bobby did not require any installation of software, particular hardware specifications

[21] Formerly Bobby, an online accessibility evaluation tool.

or training to operate. In addition, a number of local authorities within the study area, prominently displayed the Bobby logo on their website.

Figure 3.5: Bobby Logo for Pages with AA Accessibility Levels



Between the pilot and evaluation stages, Bobby was replaced by WebXact. WebXact is a similar tool to Bobby, but does not provide a graphical breakdown of the page and the limit on evaluations per minute was removed. The textual report offered by WebXact is a significant improvement on Bobby due to the logical ordering of its contents and the functionality of collapsing and expanding the relevant code lines in the source document. However, the absence of the graphical report which highlights individual errors as they appear on the page may make it less accessible to inexperienced web developers. As WebXact is provided by the same company as Bobby and Internet searches for Bobby directed the user to the new evaluation tool, WebXact remains the most widely known accessibility evaluation tool.

3.7.2 Method

This technique was piloted in May 2004 with Bobby, the original evaluation tool, on a number of the larger planning authority homepages and March 2005 for each of the sample tasks in the larger planning authority sites. Each of the pages required to complete the seven tasks presented in Table 3.4 were evaluated using WebXact between the 23rd of August 2005 and the 28th of November 2005. Where a website was unavailable, the pages were revisited at a later date within the evaluation period. The use of this evaluation tool is dependent on access to the Internet and the provision of the free service by the Watchfire company, thus problems with the Internet connection or technical problems on the Watchfire website meant that the tool was unavailable at certain times.

The address of each page was entered into the WebXact evaluation tool and results were recorded in an Excel database. The pages required to complete a particular task were evaluated for each site and then the next task was assessed. In this way, comparisons are strongest across all the local authorities rather than between the different tasks. The web sites for the county council containing smaller town and borough councils were also assessed for accessibility where the larger county site provided distinct information for the smaller local authority. Clonmel borough council, for example, does not have its own website but its development plan is available to web users on the South Tipperary county council website.

Not all of the guidelines can be automatically checked and WebXact will present the number of user checks that the developer must undertake to assess whether the site complies with the appropriate guidelines. For example, the present of alt tags (alternative text) for images is easily validated; however, the developer must decide if the meaning of the graphic can be provided succinctly in an alt tag or whether a longer description (longdesc tag) should be used. The user checks are either triggered by an element on the webpage or should be considered for every page. The developer must review each of the user checks and decide on their compliance with the guideline.

When a page passed the automatic evaluation of an accessibility level, the user checks were manually assessed using a variety of methods and tools. Not all of the manual user checks could be objectively evaluated and a list of checks which were excluded from the process for this reason are marked with an asterisk and listed in Table 3.5. Checks which could be partially evaluated are marked with a double asterisk in Table 3.5 and their compliance with the guideline was assessed where possible, e.g. a consistent navigation structure could be assessed but a clear navigation structure could not (guideline AA 13.4).

Table 3.5: Accessibility User Checks

Level A
1.1a Alt text > 150 characters, consider providing a separate description
* 1.1b If an image conveys important information beyond what is in its alternative text, provide an extended description
1.4 Synchronize equivalent alternatives with multimedia presentations
2.1 If you use color to convey information, make sure that the information is also represented another way
4.1 Identify any changes in the document's language
5.1 If this is a data table (not used for layout only), identify headers for the table rows and columns
5.2 If a table has two or more rows or columns that serve as headers, use structural markup to identify their hierarchy and relationship
6.1 If style sheets are ignored or unsupported, ensure that pages are still readable and usable
** 6.3a Provide alternative content for each SCRIPT that conveys information or functionality
** 6.3b Make sure pages are still usable if programmatic objects do not function
7.1 Make sure that the page does not cause the screen to flicker rapidly
** 8.1 Provide accessible alternatives to the information in scripts, applets, or objects
11.4 If you can't make a page accessible, construct an alternative accessible version
* 14.1 Use the simplest and most straightforward language that is possible
Level AA
2.2 Check that the foreground and background colors contrast sufficiently with each other

3.1 Where it's possible to mark up content instead of using images, use a markup language
3.2 Make sure your document validates to formal published grammars
3.3 Use style sheets to control layout and presentation wherever possible
3.5 Make sure header elements are not used only for bold text
3.6 Only use list elements for actual lists, not formatting
3.7a Make sure BLOCKQUOTE is used only for quotations, not indentation
3.7b Mark up any quotations with the Q and BLOCKQUOTE elements
5.3 Avoid using tables to format text documents in columns unless the table can be linearized
5.4 If this table is used for layout only, do not use structural markup to achieve formatting effects
5.5 If this is a data table (not used for layout only), provide a caption
6.4 If objects use event handlers, make sure they do not require the use of a mouse
7.2 If this .gif is animated, make sure it does not contain fast or distracting motion
9.2 Make sure that all elements that have their own interface are operable without a mouse
10.1a Inform the user that clicking on certain links or areas of a window will open pop-up windows or change the active window
10.1b If scripts create pop-up windows or change the active window, make sure that the user is aware this is happening
10.2 Make sure that labels of all form controls are properly placed
* 11.1 Use the latest technology specification available whenever possible
* 11.2 Avoid use of obsolete language features if possible
* 12.2 Add a description to a frame if the TITLE does not describe its contents
* 12.3a If there are logical groupings of form controls, use FIELDSET with LEGEND on each group
* 12.3b Consider grouping long lists of selections into a hierarchy
* 12.3c Group related elements when possible
13.1a Make sure that all link phrases make sense when read out of context
* 13.1b Add a descriptive title to links when needed
* 13.2 As appropriate, use metadata to add computer-understandable information about the page
** 13.3 Provide the user with a site map or table of contents, a description of the general layout of the site, the access features used, and instructions on how to use them
** 13.4 Provide a clear, consistent navigation structure

Level AAA
4.2 Use the ABBR and ACRONYM elements to denote and expand any abbreviations and acronyms that are present
* 5.6 If row or column labels are long, provide abbreviations
* 9.4 Consider specifying a logical tab order among form controls, links and objects
* 9.5a Consider adding keyboard shortcuts to frequently used links
* 9.5b Consider furnishing keyboard shortcuts for form elements
10.3 If this is a layout table used for formatting text in columns, provide a linear text alternative
11.3 Allow users to customize their experience of the web page
13.5 Provide navigation bars for easy access to the navigation structure
** 13.6a If there are logical groups of links, make sure they are clearly identified
13.6b If you have grouped links, make sure there is a link at the beginning that allows the user to bypass the group
13.7 If there is a search feature, provide different types of searches for different skill levels and preferences
* 13.8 Provide distinguishing information at the beginning of headings, paragraphs, lists, etc.

13.9 If this document is part of a collection, provide metadata that identifies this document's location in the collection
* 14.2 Where appropriate, use icons or graphics (with accessible alternatives) to facilitate comprehension of the page
** 14.3 Use a consistent style of presentation between pages

* denotes exclusion from evaluation process
** denotes partial evaluation

(Adapted from W3C 1999)

Each page was viewed in Mozilla Firefox 1.0.7 and Microsoft Internet Explorer version 6. The source code for each page was also viewed where required. For guideline A 6.3a in particular, the source code of the relevant page was checked to ensure that a NOSCRIPT alternative was given or, in the case of a search feature, alternative navigation from the page to other areas in the site was available. Guidelines A 6.1 and A 6.3b were assessed by removing the support for style sheets and programmatic objects on the browser and viewing the webpage.

Where an alternative software tool was available and recommended by the W3C (W3C 1999), it was used. For guideline AA 2.2, the Colour Contrast Analyser 1.0 was used to check that the colour contrast between the foreground and background colours was sufficient (a failed colour contrast check is given in Figure 3.6), the W3C Markup Validation Service (http://validator.w3.org/) was used to evaluate pages for guideline AA 3.2 and Tablin, an HTML Table linearizer, (http://www.w3.org/WAI/References/Tablin/) was used to assess guideline AA 5.3 (an example of the output of this process is given in Figure 3.7).

Figure 3.6: Failed Colour Contrast Check for Text on the Mayo County Council Homepage

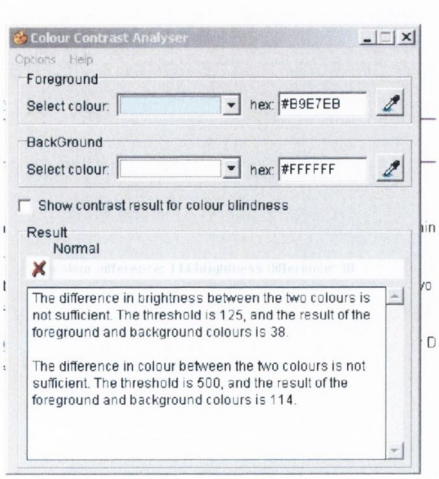
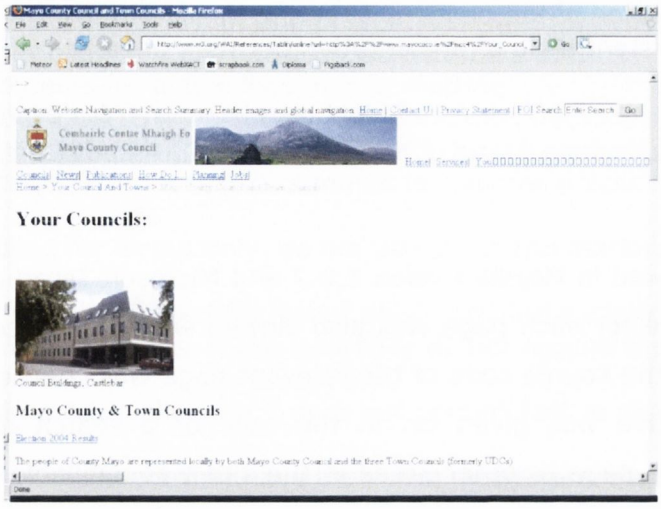


Figure 3.7: Output from Table Linearization of a Mayo County Council Webpage



The guidelines were followed to current specifications where possible, however guidelines relating to future developments of HTML specifications were ignored. Guideline AA 3.3, for example, refers to the use of style sheets to control layout and presentation. Pages affected by this guideline were assessed as to whether font colour, size and positioning were included as style sheet items but where the page required the use of a table to control layout, the page was deemed to be compliant with the guideline.

For a number of guidelines it was necessary to identify what was included or excluded in the manual assessment, to specify the techniques used in the evaluation of the guidelines and to make note of issues encountered. These specifications are unique to this study and are given below in order or appearance in Table 3.6

Where web content was presented in frames, each frame displayed in the browser window was evaluated separately including the webpage describing the layout of the frames (the frameset document). Thus, the number of pages evaluated for accessibility is not equivalent to the number of pages in the clickpath. Internet sites can be constantly and rapidly updated and as a result, pages evaluated at the start of the current process were not available at the end and changes ranged from minor daily updates to a complete redesign of an entire website (such as Mayo county Council). The comparison between local authorities for particular tasks is unaffected, however the changes should be borne in mind when analysing across the different tasks.

Table 3.6: Standardised Accessibility Evaluation Issues

- For instances with alt texts longer than 150 characters (guideline A 1.1a), the page was passed for that check provided the alt text was under 300 characters.
- For guideline A 4.1, changes in the language of a page within an image and the names of official organisation names (e.g. *An Bord Pleanála*) or official positions (e.g. *Ceann Comhairle*) within the councils were excluded.
- Not all scripts contained in a webpage can be viewed so in some cases it is impossible to evaluate whether an alternative to the script is supplied (guidelines A 6.3a, 6.3b and 8.1).
- For guideline A 6.3a, scripts containing information or functionality related to the maintenance and operation of the website are exempt from the provision of alternative information (e.g. the local authority does not need to provide an alternative for web counter scripts). In addition, the option of emailing a friend on the Mayo County Council website and the date display generated by the local computer settings on the Meath County Council website were exempted as the functionality provided is available to the user by alternative means within a standard computer session.
- Pages incorporating text as images were deemed to not be in compliance with guideline AA 3.1.
- Guideline AA 9.2 was assessed by using the keyboard to interact with the elements on the page.
- Only giving place names as links to town council sites (e.g. Ballina instead of Ballina Town Council) was deemed to fail guideline AA 13.1.
- For guideline AA 13.3, the page was deemed to be compliant with the guideline if a sitemap or table of contents were available.
- The navigation structure was assessed for consistency but clarity is too dependent on individual preferences so was excluded (guideline AA 13.4).
- For guideline AAA 4.2, the use of km and ft were exempted.
- Where groups were obviously linked (under a common heading and relating to a similar theme), the guideline was applied, otherwise the page was exempted from guideline AAA 13.6a.
- For a page to be deemed compliant with guideline AAA 14.3, the core elements of a page (headings, placement of content, navigation and font characteristics) must be presented in a consistent manner with three other pages on the site chosen at random excluding the homepage where different design rules apply.

3.7.3 Evaluation Issues

The use of this evaluation technique is not without its drawbacks. The guidelines are not standards and in the interests of accessibility, developers may choose to ignore certain aspects of the guidelines. One such example is the inclusion of default text in edit boxes and text areas (WebAIM 2005). One of the problems with this guideline is that "people who don't use a screen reader tend to skip these fields...[possibly] because they see a non-empty field, they tend to ignore it, assuming it doesn't need their [input]" (WebAIM 2005). Indiscriminately applying the guidelines will not serve the interests of the users of the site and an understanding of user needs is important. Additionally, accessibility guidelines have not yet been adapted to deal with spatial information and dynamic maps have been granted an exemption from the guidelines by the W3C (W3C 1999).

The evaluation tool used also raises a number of issues. Not every user check appropriate for a particular page was displayed in the evaluation report. WebXact does not accurately follow the WCAG at all times, for example using the code Alt=" " passed the appropriate guideline in WebXact, however this causes problems with some screen readers (INDA 2003;6). Additionally the WCAG suggest using alt="" for spacer images (images used for positioning) (INDA 2003;6), but this will not pass the WebXact evaluation and an accessibility error will be given in the report. The guidelines (A 1.1b) do not check whether the description given in the alt tag is appropriate for the image, it only draws the developers attention to instances where the alt tag is not suitable for a full description. It must be noted that a comparison across different pages of the number of or instances of user checks is not strictly accurate, as the evaluation tool did not offer the same standard user checks for each page even though they were relevant.

3.8 Prominence and Location of Planning Information

This section details two methods used to evaluate the percentage of the user's screen given to planning information and the location of that information on the homepages and the main pages of the planning section of the planning authority website. The methods were used to establish whether any similarities exist in the provision of such information by the planning authorities and what the norms are for the presentation of planning information within the planning authorities in Ireland. The results are then compared with industry norms detailed in the literature and available studies of where users are most likely to expect to see of certain types of information.

3.8.1 Justification

The results of the two methods discussed in this section were developed as a measure of the ease of finding of planning information on the local authority website. The methods were based on the assumption that the more prominent the information of relevance is for the user, the easier it is to see, and for the user to make use of it. Planning is a core function of local authorities and as such planning information should be clearly presented in order for users to best interact with the local authority site. The expectation that planning information is clearly presented is justified due to the importance of this function of the local authority.

3.8.2 Planning Information Pixels (Prominence) Method

The first of the two methods, Planning Information Pixels, measures the prominence of planning information on the webpages of interest by recording the number of pixels devoted to the information. The method is based on the usage mapping undertaken by Nielsen and Tahir (2001) of 50 corporate websites. That study categorised screen content on 50 commercial homepages into eight categories; Unused, Operating

system and browser controls, Welcome and site identity, Navigation, Content of interest, Advertising and sponsorship, Self promotional and Filler. The results were then compared across the range of homepages analysed and industry averages were calculated.

On the 1st of December 2005, a screen capture at a screen resolution of 1024X768 DPI (Dots Per Inch) was taken of the homepage and the main planning page for each planning authority within the study area. The page contents of planning relevance were classified into seven categories based on the presence of key words. The seven categories are given in Table 3.7.

Table 3.7: Planning Information Categories

Category 1: Content directly related to planning tasks (excluding general contact details)
Category 2: Content leading to planning tasks, but not mentioning the task (e.g, application forms not planning permission application form)
Category 3: Areas related to planning (e.g. Housing, Roads, Water, Heritage)
Category 4: Other planning areas not covered by Category 1 (e.g. draft waste management plans)
Category 5: Contact details or links to contact information
Category 6: Search boxes or links to search features
Category 7: Misleading links
Category 8: Local authority homepage links*
* Only recorded on main planning page

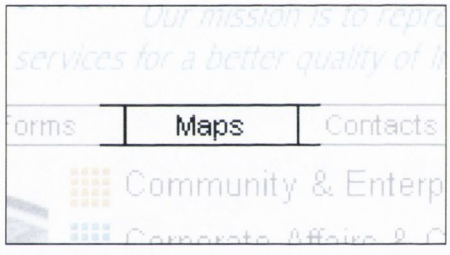
The first category contains links and text which are immediately identifiable as relating to the first eight planning tasks. The second category includes links and content that contained obvious links to planning task information (application forms, publications and maps). The third category contains words which may or may not relate to planning information but could be associated as such by the user. For example if a user wishes to build a house they may be inclined to select the 'housing' link. This category contains the words 'housing', 'roads', 'application forms', 'maps', 'water', 'environment', 'waste' and 'property' where the context may be associated with planning activities. For example while Figure 3.8 refers to waste, it is obviously not planning related.

Figure 3.8: Graphical Non-Planning Related Link referring to Waste



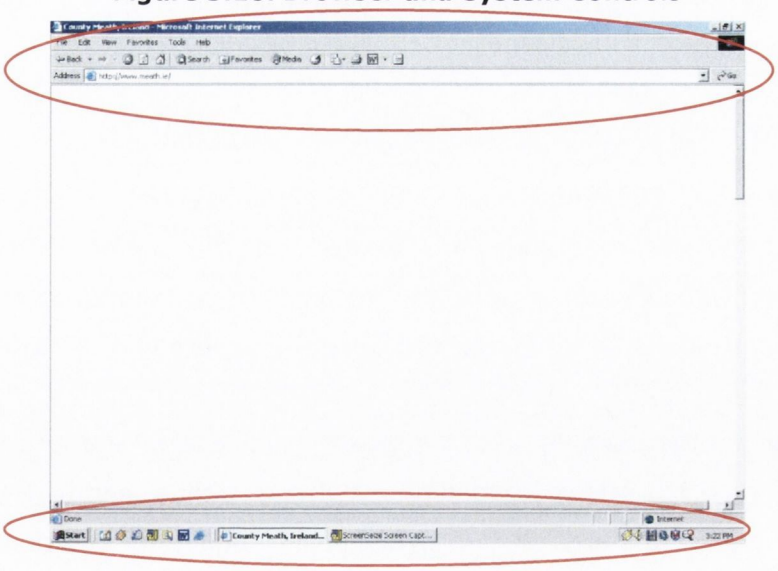
Category 4 contains planning information content not covered by the planning tasks such as a draft waste management plan or information about possible road constructions. Category 5 includes contact details and links to contact information such as 'contact us', 'contacting us' and 'our location'. Category 6 contains search boxes and links to search features and must contain the word 'search'. The final category relates to content on the webpage presented in ambiguous terms or with terms users may normally use to find planning information. For example, on the South Tipperary local authority homepage, one link uses the word 'Maps' (Figure 3.9) to link to a very basic map of the South Tipperary region not, as users may expect, to all the maps the local authority provides or to planning application maps. The use of misleading terminology as well as 'clever' marketing phrases may only serve to mystify the user and cause confusion (Nielsen & Tahir 2002). Content in this category is represented in the other categories where it applies to planning information. The method when applied to the main planning page of the local authority was slightly altered. References to planning which refreshed the page were not included in category 4. Category 8 recorded links to the local authority homepage where the word home was used.

Figure 3.9: Link on South Tipperary Homepage to a General Map of the County



The number of pixels on the screen devoted to each category were counted and given as a percentage of the total screen. The number of pixels contributing to the total screen includes the browser and system controls (Figure 3.10) as these are present on the user's screen and can detract from the information presented. However, it is noted that the developer has little or no control over the presence or design of these items. The use of the total screen adopted for the quantification of the prominence of planning information follows that of Nielsen and Tahir (2002).

Figure 3.10: Browser and System Controls



In order to quantify the prominence of planning information, each page was scanned for relevant information pertaining to each category. The full informational element was highlighted. Fifteen pixels around the edge of the informational element (e.g. text, link or graphic) were included in the space assigned to that element. In cases where another element was within the 15 pixels the difference between the two was divided. Where the element was contained within a boundary or table, the pixels were included with the boundary edge, unless it was shared. In the cases of shared boundaries, the pixels were divided among the competing elements. Where the number of shared pixels was not divisible by two, the higher category gained the extra pixels. Well-defined boundaries as in the case of graphics were counted as the boundary for that item and the pixel count did not extend beyond this. Where a bullet point or a small graphical bullet point was present beside the item, it was included in the pixel count. Where an element was surrounded on three sides by a boundary and the enclosed area only contained that category of information, the full boundary and enclosed space was included.

As screen captures were used all information presented is 'above the fold' (contained within the first screen without scrolling). The screen resolution is an important determinant in the amount of information displayed and also impacts on the percentage of screen given to the relevant categories. At present web statistics indicate that the majority of user screens are set at 1024x768 DPI (W3 Schools 2004) and it is likely that as more computers are upgraded that the prevalence of this resolution setting will increase even further.

The screen capture for each local authority within the study area was converted into Adobe Photoshop and each of the categories were saved as layers. The number of

pixels in each of the categories was then expressed as a percentage of the total number of screen pixels.

3.8.3 Planning Information Schema (Location) Method

The second method, Planning Information Schema, records the location of the different categories of information are located on the screen. The location of navigation elements and other page features can then be compared across the local authorities and with any standards that are currently adopted on the Internet.

The method divides the useable screen space (including side and end scrolling bars) into 56 squares (8 x 7). The methodology used follows that used by Bernard (2001). Within each of the 56 squares presence of each Planning Information element was recorded. In this way, the results of the method can be compared to most studies in the literature which focus on larger areas; such as Markum & Hall's study (2003) which used nine squares.

The default location of each type of planning information was recorded and local authority averages were calculated and examined. Deviations from the average, are important, as they increase the amount of time a user needs to find the information of interest, assuming that they are familiar with the layout of other local authority sites and base their expectations on that experience.

3.9 Map Evaluations

3.9.1 Justification

The websites of the 29 planning authorities in the study area were visited between the 1st and the 6th of December, and all instances of PAGIweb (Public Administration Geographic Information web based applications) applications were noted and classified. The classification procedure used here is taken from Campagna and Deplano's (2004) research. Campagna and Deplano adapted an earlier WPPS taxonomy created by Peng (2001) to categorise the geographic information offerings on public authority websites according to two criteria (content and technology) into 20 different categories. These categories are represented by a cell in a matrix of possible classifications; the Content Technology Matrix (CTM) given as Table 3.8.

Table 3.8: Content Technology Matrix

Content\ Technology	T1: Web browsing and static maps (HTML, PDF, JPG)	T2: Interactive map images (hypermaps)	T3: Highly interactive, dynamic maps, multimedia, 3D representation (Flash, VRML...)	T4: Interactive map-based search; query, and analysis – basic web GIS functions (IMS, Java)	T5: Web-GIS advanced functions-Planning & Support Systems
C1: General information	C1T1	C1T2	C1T3	C1T4	C1T5
C2: Environment, Planning	C2T1	C2T2	C2T3	C2T4	C2T5
C3: Raw data	C3T1	C3T2	C3T3	C3T4	C3T5
C4: Analysis tools, focused bidirectional information flows	C4T1	C4T2	C4T3	C4T4	C4T5

(Arleth 2005, Campagna & Deplano 2004)

Columns T1 to T5 deal with the technology element of the PAGIWEB applications. Applications classified as T1 use basic web browsing and static maps such as embedded images in HTML (HyperText Markup Language) and PDF (Adobe's Portable Document Format) or image files displayed independently, such as images with JPG and GIF filenames. T2 applications are interactive map images; such as hypermaps. Hypermaps are clickable maps which allow the user to drill down through layers of spatial information and allow the linking of textual or multimedia to individual elements on the map or to the entire map (Laurini & Thompson 1999). T3 applications are highly interactive dynamic maps and may include multimedia and three dimensional visualisations. T3 applications can be provided in Flash or VRML (Virtual Reality Modelling Language) programming among others. Applications with an interactive map-based search and query and analysis functions as well as other basic web-GIS functions are classified as T4 and may be provided using IMS (Internet Map Server) or Java. The final category for Technology classification is T5 which covers advanced Web GIS functions and includes Planning Support Systems.

The content was classified according to four different categories; C1 to C4. Maps containing general information about the PA or local area such as tourist maps or the location of the PA were classified as C1. C2 applications deal "with planning and the progress of plan development" (Campagna & Deplano 2004;29) and includes planning application locations and submitted map documents. The third category of content, C3, permits users to download raw data which may then be analysed by an individual or group on their own software. The final content category (C4) includes applications with provide the user with analysis tools and focused bidirectional information flows. C4 is "the highest level of information" (Campagna & Deplano 2004;30) and

applications in this category allow users to provide their own information in the form of comments and data.

The content and technological classifications are hierarchical and allow the user greater access to information the closer to the bottom right cell the application's placement is in the matrix. It must be noted however, that the cell C4T5 is not an ideal position for the provision all types of information within the planning system and for example, certain types of information may be best provided as static images. The model is easily criticised in this regard as techno-centric as it does not take account of the ideal methods of information provision from a user viewpoint. However, as some level of generalisation is required to compare the availability of information across the local authorities, the focus on technical provision is justified.

While all squares in the PAGIweb evaluation matrix are technically possible, some are more likely to occur than others. For example, the cell C4T1 is unlikely as an interactive site is also likely to have a greater application of technology. However, the interaction may occur elsewhere and be connected with the mapping but not necessarily interlinked. The results of each of these matrices were then mapped using simple kriging as an interpolation method in ArcGIS and visually compared using the newly created interpolated surfaces across the national categories and with published international examples from Italy and Denmark (Arleth 2005, Campagna & Deplano 2004).

3.10 Problems and Reliability

The methods introduced in this chapter assume that a single evaluator is responsible for their implementation. This reliance should adequately reflect the work practices within the local authorities but this assumption will be tested in the local authority interviews discussed in chapters 5 and 8. This reliance on a single tester, can heavily bias the results and any usability evaluation of sites should contain as much user input as possible, however, where possible the evaluations were undertaken using standardised methods.

Due to the wide-ranging nature of planning information, the selection of certain sample tasks was necessary. Therefore, not all tasks are accounted for and some local authorities will be ranked lower than would be expected for the level of information provision on their site. In addition, the choice of tasks were not empirically tested and may not be the most important or most frequent planning tasks the user undertakes on the local authority website, however the tasks should be provided by all local authorities and in this way, the selection made facilitates comparisons.

The methods were kept to as low a cost as possible whilst conforming to any obligations placed on the local authority. However, this approach introduces a heavy reliance on a third party website in the case of accessibility evaluations. Should the Watchfire website choose to charge for the service, cease operation or experience any technical difficulties, an alternative method should be sourced. The accessibility evaluation also relies on the ability of the evaluator, their understanding of the guidelines will influence the level of compliance with the guidelines in the less automated areas. Also, some of the results from the Watchfire site are not complying with the spirit of accessibility; for example, the use of null alt tags will fail the accessibility evaluation but is preferable to the passable use of quotation marks surrounding a space (" ") which causes problems with some screen readers (WebAIM 2005). Also, in using a third party method to evaluate the site, the source code for the program is not available and any discrepancies across sites can not be assumed to be a full and rigorous testing and must be considered to have certain unknown flaws. However if the outcome of the method is comparison, using the same possibly flawed method for each site can allow a meaningful comparison.

The methods employed for evaluating the prominence and location of planning information on the homepage and main planning page of the local authority are basic usability methods and as a result some of the nuances of the content may be lost through the imposition of broad classifications. Some local authorities will realise the connections between the different sections required by the planning information user and make clear links. Similarly, the local authority may not make the linkages as apparent as necessary and the user may be disoriented. Both of these situations are not taken into account by the current methods. The methods are however easily reproducible and provide an accurate snapshot of the navigation structure required by the planning information user. The methods can also be easily employed by a number of different evaluators as the decision rules are relatively standardised.

3.11 Conclusions

This chapter described the development of evaluation methods suitable for outlining the extent and scope of public planning information available over the Internet in Irish planning authorities. This chapter focused on the development of suitable, simple, single evaluator methods that did not require a high level of technical knowledge to best match resources within all local authorities. The presence of all planning authorities within Ireland was established and from this a study area was selected for the current research. A number of standardised study tasks were identified to allow for across authority comparisons. Methods within four areas were developed:

- how far into the site is the information?

- is the information technically accessible?
- how obvious is the planning information?
- and what type of mapping applications are available to users?

Finally the methodological issues surrounding the implementation of these methods were discussed.

Chapter 4: Results I: Usability Evaluation

4.1 Introduction

This chapter presents the results from the usability evaluation methods described in Chapter 3. This chapter builds a picture, through the application of a number of evaluation methods, of the type, quantity and quality of information available on the local authority sites. The results of the methods presented here have a dual purpose; first, they evaluate the information available on the sites and second, the methods themselves can be evaluated for their applicability to planning authority information in particular and public information in general. The remainder of the thesis uses the results from this chapter to place into context the responses from the questionnaire developed in Chapter 4 and to situate any discussion of an appropriate online environment for planning.

This chapter first details the number planning authorities online in Section 4.2. How easily a user can find the local authority site recorded using the result placement of the local authority site in Google search results is presented in Section 4.4. The presence of the standard planning tasks within the local authority sites is determined in Section 4.5. Section 4.7 identifies sites with splash pages and frames within the study area. The accessibility levels of each of the tasks for each of the local authorities is presented in Section 4.8. The prominence and location of information on the homepage and main planning pages are dealt with in Section 4.9. The different maps on the local authority sites are evaluated in Section 4.10.

4.2 Planning Authority Internet Presence

Of the 88 planning authorities in Ireland, 74 authorities have an Internet presence[22]. All county and city councils have an Internet presence, whereas only 36 of the 49 town councils (73%) and four of the five borough councils have a website. An Internet presence has been defined as the presence of a homepage and does not relate to the depth of the site or the amount of information available to users.

The presence or absence of planning pages within these sites is a better indication of the depth of information contained within the sites. All city councils and the majority of county councils supply users with main planning page and all councils in this category supply planning information pages. Fourteen or 29% of all town councils and

[22] A full listing of all planning authorities with and without an Internet presence is given in Table A.1 in Appendix A.

80% (4 out of 5) of all borough councils have an Internet site which contains planning pages.

The statistics for town councils and borough councils for both an Internet presence and provision of a main planning page when compared with the county and city councils reveal a disparity in online service provision to local authority users depending on the type of local authority the user wishes to access.

Table 4.1: Summary Statistics for Website, Planning Main Page and Planning Pages

Authority		Website	Website (%)	Planning Homepage	Planning Homepage (%)	Planning Pages	Planning Pages (%)
All Authority Types	Study Area (39)	29	74%	21	54%	24	62%
	Country (88)	74	84%	47	53%	52	59%
County Councils	Study Area (14)	14	100%	13	93%	14	100%
	Country (29)	29	100%	27	93%	29	100%
City Councils	Study Area (3)	3	100%	3	100%	3	100%
	Country (5)	5	100%	5	100%	5	100%
Borough Councils	Study Area (3)	2	67%	2	67%	2	67%
	Country (5)	4	80%	3	60%	4	80%
Town Councils	Study Area (19)	10	53%	3,	16%	5	26%
	Country (49)	36	73%	12	24%	14	29%

The study area contains 39 planning authorities in 12 Irish counties[23]. Within the study area, 74% of the planning authorities within this area have an online presence (29 of 39 authorities), while 53% of town councils (10 of 19) and 67% of borough councils (2 of 3) are represented on the Internet (individual indicators are available in Table A.2 in Appendix A). In Table 4.1 the proportion or percentage of each local authority with websites, a planning homepage and planning web pages is given. These results may be compared across the study area and the entire country as well as the breakdown for county, city, borough and town divisions. All proportions fall within ±20% of each other, with 12 of the 15 categories falling within ±10%. Due to the small numbers of local authorities involved (large changes in proportions can be attributed to slight increases or decreases in the number of local authorities under consideration), there is no reason to suggest that the parameters recorded for the study area differ in any fundamental way from the population parameters. There is no

[23] Excluding North Tipperary which is in a different regional authority to the remainder of the county.

evidence to suggest that the smaller study area cannot be taken as an appropriate sample of the total population.

4.3 Locating the Local Authority Websites

Of the 31 planning authorities with websites in the study area, 29 achieved the first result position on the Google search results pages and the remaining two were listed second. Assuming that the method (Section 3.4) used was appropriate, users will find the local authority websites with ease. The results of this method are discussed in Section 9.3.1.

4.4 Availability of Study Tasks

Table A.3 in Appendix A details the presence and number of tasks on the local authority's own site for each local authority in the study area. The table details the proportion of all local authorities and only those local authorities with websites for each sample task.

The number of planning tasks provided by each local authority ranged from 0 (no web presence) to 12 (full provision of all the sample planning tasks). A large variation in the number of planning tasks provided exists between the local authorities. As could be expected from the presence of a website and planning pages, the larger local authorities (county and city councils) provide a higher number of planning tasks than the smaller town councils. The number of sample tasks (out of a possible 12) provided by the county councils range from 7 to 12, the range for city councils is 8 to 11, the borough council range is 0 to 10, while the tasks provided by the town councils range from 0 to 7.

Certain tasks are more likely to be provided by the local authorities; 74% of all local authorities fulfil the first sample task (provision of a homepage) while only 18% of all local authorities fulfil the requirements of task 4B (provision of a planning application map). Care must be taken here to examine the most relevant figures, for example, when discussing the provision of tasks beyond comparisons with task 1, it makes most sense to examine those figures that relate to the proportion of task provision by local authorities with a web presence.

The majority of local authorities with websites provide contact details for the local authority online (97%), while the percentage of authorities providing contact details for the planning section is 59%. The contact details are provided by 11% more authorities than any of the other sample tasks. The next most available task is the provision of planning application information online, provided by 86% of local

authorities with websites within the study area. The proportional provision of planning application forms and fees is also quite low with only 66% and 59% (respectively) of authorities providing this information on their websites. Where the local authority provides the development plan or planning application information online, it does not automatically follow relevant associated map information will be provided. The mapping component of the development plan is more likely to be provided online (66%) than the mapping component of the planning application (24%).

4.4.1 County and City Councils

As mentioned in Section 4.2 previously, all of the county councils have an Internet presence. The provision of tasks across the county council sites is also very high; ranging from 42.9% in the case of planning application mapping to 100% for four different tasks (homepage, development plan document, planning applications and contact details). The provision of mapping with the development plan document is high with only one local authority not providing this information. The majority of the county councils have also provided the planning application form (71.4%) and details of their planning fees (85.7%) online. More of the local authorities have provided details of their fee structures as opposed to the application form itself. A high number of authorities (13) also provide direct contact details for the planning department.

The county councils accounting for administrative regions with 2,861,294 inhabitants in 1996 (DOEHLG 2006) have the highest levels of task provision among the four categories of local authorities[24]. The provision of some of the tasks for the town and borough councils on the relevant county council site will be presented later in Section 4.4.3.

There appears to be consensus between the county councils over the provision of certain tasks. All county councils have a web presence and provide the majority of the tasks within the study; the lowest provision of tasks was by Fingal county council (7 tasks). Three of the county councils provided all 12 tasks and a further four provided eleven tasks. Of the four local authorities with the provision of 11 tasks, Carlow did not provide a planning homepage; Dun Laoghaire/Rathdown and Meath did not provide a planning application map; and Wexford did not provide a guide to commenting on planning information.

The city councils have a similarly high level of task provision on their websites (ranging from eight to 11). The absence of planning application mapping by all three

[24] The average task provision of the city councils is 9.3 and a ranking of types of local authorities which places this after the county councils may be over influenced by the small number of city councils in the country and in the study area.

city councils is of particular note. The provision of information on the appeals process was also absent in two of the three councils.

4.4.2 Borough and Town Councils

Of the three borough councils, two had websites and a relatively high level of task provision on their sites (Kilkenny had ten and Wexford provided seven). Kilkenny did not provide information on the appeal and commenting processes and Wexford did not provide the development plan in either document or map format.

Of the ten town councils with websites, the task provision ranged from two to seven. On average the town councils provided 36% of the tasks. None of the town councils provided contact details for the planning section of the authority or maps for the planning applications. Of the eleven tasks (excluding homepage provision) only contact details were provided in over three quarters of the sites (90%). 50% of the authorities in this category provided tasks 3a and 4a, the standard planning tasks. Carlow town council and Athy town council, whose sites are provided as a subsection of the county council site provided the highest number of tasks. The planning guides (tasks 6, 7 and 8) were only provided by one town council.

4.4.3 Borough and Town Councils on County Council Websites

Planning information within the task categories are not solely provided on the individual town and borough council pages; they may also be provided on the relevant county council website. Table A.4 in Appendix A details the provision of tasks for the town and borough councils on the relevant county council websites. This is especially important where the town or borough council does not have an online presence. Not all tasks are given in Table A.4. The fees for planning applications (task 6) are set nationally and, as a result, the provision or non provision is the same as on the county council site. Tasks 7 and 8 (guides to the commenting and appeal processes) should also be the same or very similar to the county council provision of this information. This is recorded in Table A.5. Table 4.2 shows the number and percentage of borough and town councils that provide each task on their own site and on the county council site. The table also shows the increase in task provision when the county council site is included and the total task provision across both the individual borough and town council sites and the county council sites.

Table 4.2: Task Availability on County Council Site for Town or Borough Councils

	Task 1	Task 2	Task 3A	Task 3B	Task 4A	Task 4B	Task 5	Task 9A	Task 9B	**Average**
Own Site (%)	12 (56%)	5 (23%)	6 (27%)	4 (18%)	7 (32%)	1 (5%)	6 (27%)	11 (50%)	2 (9%)	4.5 (21%)
County Council Site (%)	6 (27%)	0 (0%)	16 (73%)	13 (59%)	17 (77%)	4 (18%)	8 (36%)	13 (59%)	0 (0%)	6.4 (29%)
Increase in task provision (%)	-	0 (0%)	11 (50%)	9 (41%)	12 (55%)	4 (18%)	4 (18%)	4 (18%)	0 (0%)	3.7 (17%)
Total task provision	12 (55%)	5 (23%)	17 (77%)	13 (59%)	19 (86%)	5 (23%)	10 (45%)	15 (68%)	2 (9%)	8.2 (37%)

The task provision of the borough and town councils is low when compared with the provision of tasks for the county and city councils. While the majority of councils in these categories have a website, the level of information provided on the sites are low and only half of the authorities provide contact details for the authority itself. It is interesting to note that five authorities have provided planning pages and a similar number have also provided development plans and planning application information (six and seven respectively). The level of mapping provision for the two core planning tasks (development plan and planning applications) is low (18% and 5% respectively). Contact details for the planning section are only provided by the two borough councils with websites. The use of percentages for such small numbers may be misleading. It is used here to aid interpretation of the figures but should not be used to estimate the population proportions.

Six websites of the 12 borough and town councils with Internet presences were provided as a subsection of the relevant county council website. None of these six local authorities provide planning pages. The borough councils were less likely to be represented on the county council site.

The provision of information to facilitate the completion of the sample tasks for the borough and town councils is significantly higher when the county council sites are also considered; specifically the provision of the development plan and planning applications rise from 27% to 77% and 32% to 86% respectively. The provision of information is not as low as an evaluation of only the borough and town council sites would indicate. However, the provision of mapping is still low for planning applications, with less than one in four local authorities (23%) providing this option. The town and borough council sites have a smaller display of information than the county council sites. Some of the sites in particular of the 12 separate tasks show only contact details for the authority. One site, Ballinasloe, does not provide any of the tasks beyond the provision of a homepage.

4.5 Clickpath

In general, Clickpath will be in excess of one click from the homepage for tasks. The provision of contact details on the homepage of the local authority is the exception to this. Most local authorities provide contact details for the local authority on the authority's homepage (68%). Planning contact details, where provided, are within two clicks of the homepage.

When considering the average clickpath for each local authority, it must be noted that the figure is calculated based on an average across tasks provided and the number may mask a lack of provision. Ceannanas Mór (Kells), for example, has a clickpath of 0, indicating that all the tasks are provided on the local authority homepage, however only two tasks (a homepage and local authority contact details) are supplied by the authority.

As could be expected, the planning homepage is located within two clicks from the homepage by all the authorities supplying this page. The majority of the planning homepages (16 sites: 76%) is within one click from the main page of the local authority site.

The depth of Tasks 3A and 3B from the homepage are similar and the standard deviation for both is also close. This reflects the situation that the development plans and the associated maps are commonly provided in the same format and follow similar paths through the website to the information. Divergence occurs towards the end of the path. In cases where the local authority has provided the development plan as a single PDF, the maps are provided as part of the same document.

The situation concerning planning applications and application maps is different. Both location and individual maps submitted with the development plans were accepted as fulfilling this task as the same information was provided about the location of the application. However, accessing the gPlan and the submitted, usually scanned, documents generally follow different paths through the website. The gPlan was seen as a significant application by the local authorities and in many cases was provided on the local authority homepage or on the main planning page. Task 4A was provided on average 3.7 clicks from the local authority homepage and the associated maps were provided on average 5.3 clicks away. Users are encouraged to locate the individual application first then link to the associated map. Geographic searching was not encouraged and not supported in many cases.

Of the figures given in Table A.6 in Appendix A, the range of values for each task and the mean for that task are the most meaningful. Dun Laoghaire/Rathdown (3B), Kildare (5), Kilkenny (3A and 3B) and Mayo (4B) county councils, Dublin city council (4A, 5, 6 and 7), Kilkenny borough council (3B) and Dungarvan town council (3A and 3B) have tasks over two clicks from the average number of clicks for that task. The over representation of county councils compared to town councils in this list is explained by the poorer provision of information by the town councils.

Kilkenny county council (4B) and New Ross town council (4A) have tasks in excess of two clicks under the average for that task for all the local authorities. The low number of authorities with tasks in this region can be accounted for by the grouping of local authorities around the average and the low numbers of clicks under consideration. Both of these local authorities should be commended, especially Kilkenny county council as the provision of mapping information for the planning applications has a relatively high average clickpath.

Only three local authorities have an average clickpath of over three (Dublin city council, Kilkenny borough council and Dungarvan town council). This is however an arbitrary cut off point and can be considered for illustrative purposes only and in selecting the local authorities for interview.

Considering the same mean values for each task in Table A.6, Kilkenny borough council (3A and 3B), Ballina (4B), Castlebar (4B), Dungarvan (3A and 3B), Tipperary (3A) and Westport town councils (4B) all provide tasks at a clickpath in excess of two clicks over the average given in Table A.6. No tasks were provided less than two clicks below the average for that task.

A meaningful comparison can be made with the average figures for the borough and town councils (BC and TC) when compared to the relevant county council. A number of smaller local authorities have a smaller average click depth than their relevant county council (Wexford BC, Athy TC, Ballinasloe TC, Naas TC and Wicklow TC) and one local authority (Trim TC) has the same average clickpath as its county council. This can in part be explained by a lesser availability of tasks on the smaller BC and TC sites. These sites have focused on the more obvious tasks, such as contact details, which are provided at a shorter clickpath from the local authority homepage. Wicklow TC is a particular example of this as the site only provides contact details for the local authority out of all the sample tasks. These figures also penalise county councils with a very low average, for example, TCs in Mayo are compared with an average of 1.6 for Mayo county council giving differences of +1.9 for both TCs in this county. TCs in

South Tipperary perform poorly when compared with their county council, (+1.3, +1.3, +0.8 and +1.3).

4.6 Site Structure

The homepage may comprise of a number of frames or may be prefaced first by a splash page. Frames were provided on eight local authority sites (Table 4.3). Frames require the browser software to access a number of different HTML documents and thus add to the number of files that must be evaluated.

Table 4.3: Frames and Splash Pages by Local Authority

Local Authority	Frames/Splash
Carlow	
Dun Laoghaire/Rathdown	frames
Fingal	
Galway	splash
Kildare	
Kilkenny	frames
Mayo	
Meath	
Roscommon	splash
South Dublin	
South Tipperary	
Waterford	frames
Wexford	
Wicklow	frames
City Councils	
Dublin	
Galway	splash
Waterford	
Borough Councils	
Kilkenny	frames
Wexford	frames
Town Councils	
Athy, Co. Kildare	
Ballinasloe, Co. Galway	
Bray, Co. Wicklow	
Carlow	
Ceannanas Mor, Kells, Co. Meath	
Dungarvan, Co. Waterford	
Naas, Co. Kildare	
Navan, Co. Meath	frames
New Ross, Co. Wexford	
Trim, Co. Meath	frames
Authorities with Frames	8
Authorities with Splash Pages	3

Splash pages are provided on three of the local authority sites within the study area (Galway city and county and Roscommon county). Of these three cases, Roscommon county council does not use the page to direct users to the different language versions of its site; the site is only available through English[25]. In the case of Galway city council, the page is used solely as a feeder to the English and *Gaeilge* versions of the site (Figure 4.1). Galway county uses the splash page to direct users to particular

[25] Subsequent to this research being undertaken however, Roscommon County Council has removed its splash page and users are now directed to the main page or homepage of the site immediately.

sections of the site and allows users to choose between the English and *Gaeilge* versions of the site, however planning is not mentioned as an area (Figure 4.2).

Figure 4.1: Galway City Council Splash Page

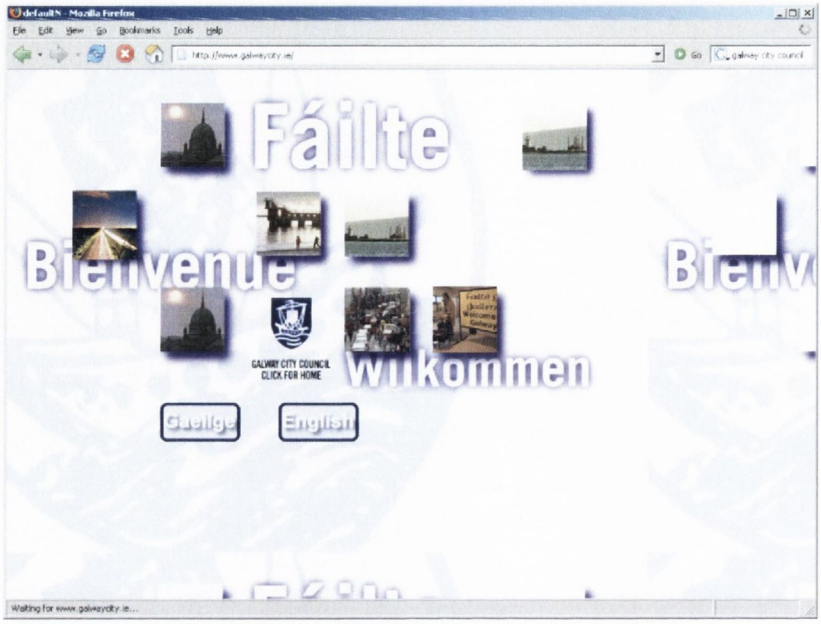
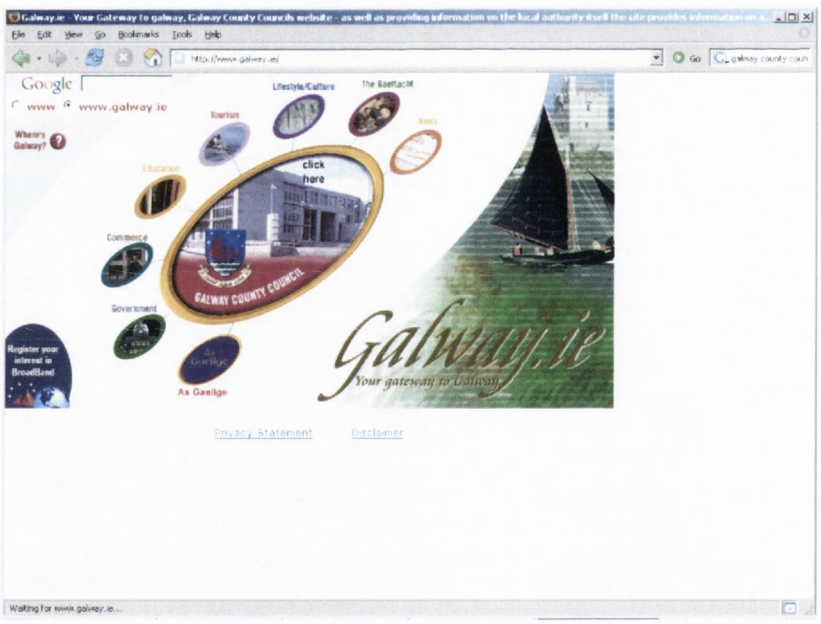


Figure 4.2: Galway County Council Splash Page



4.7 Accessibility

Accessibility evaluation results record the number of barriers present on a webpage. Each instance recorded corresponds to a particular section of code the web designer needs to update. Not all errors can be recorded on the one page more than once so it is not appropriate to detail the highest occurrence of particular errors.

Table 4.4 is a summary of the accessibility evaluations for the sample tasks on the local authority sites. It details the number of local authorities supplying the information, the number of local authorities without priority 1, 2 and 3 level of accessibility and the proportion of errors recorded and the number of instances. The errors are only counted once but the instances are summed across the number of pages needed to complete the task. Pages on the local authority sites that do not trigger an automatic error are not necessarily accessible for that level. The WebXact online evaluation tool highlights a number of user checks, some of which can be evaluated on an objective level manually, while others are subjective (Table 4.5 and Table 4.6). Very few local authorities did not trigger an automatic accessibility error. The number of authorities complying with the relevant guidelines varied across the different planning tasks. The number of authorities without priority 1, 2 and 3 errors was lowest for the homepage and authority contact tasks (seven, two and one authorities respectively). None of the authorities reached the AAA level of accessibility for the remaining ten tasks. Only one local authority achieved AA status for the Planning Homepage and Planning Application tasks. The remaining eight tasks were not AA accessible for any local authority. Small numbers of local authorities achieve A level accessibility for the remaining tasks and none of the authorities provided level A accessibility to the development plan map.

Table 4.5 and Table 4.6 give the average number of instances of automatically detected errors per page and for each authority not achieving that level of accessibility. The highest number of priority 1 errors encountered when accessing a task was recorded for the Information on Appeals task. The priority 1 errors per authority range from 29.2 to 75.9. For priority 2 this range is 79.3 to 271.5 and for priority 3 the range is 36.5 to 86.6. The numbers of error instances recorded are high for both the local authority and per page. The number of errors and instances fluctuate between tasks; as a result, there are different levels of access to different types of information on the local authority sites. The presence of different types of errors changes based on the local authorities.

Table 4.4: Summary of Accessibility Results for Local Authorities

Task	Number of Authorities	Priority 1	Errors	Instances	Priority 2	Errors	Instances	Priority 3	Errors	Instances	Pages
Homepage	29	22 (7)	5/6	642	27 (2)	10/11	1745	28 (1)	5/5	803	55
Planning Homepage	21	16 (5)	2/6	863	20 (1)	8/11	2511	21 (0)	5/5	1066	66
Development Plan Chapter	23	20 (3)	5/6	1181	23 (0)	10/11	4262	23 (0)	5/5	1731	104
Development Plan Map	11	11 (0)	5/6	644	11 (0)	9/11	1812	11 (0)	5/5	1020	70
Planning Application	25	21 (4)	5/6	857	24 (1)	10/11	5702	25 (0)	5/5	1559	121
Planning Application Map	5	4 (1)	4/6	220	5 (0)	8/11	544	5 (0)	5/5	244	27
Planning Application Form	19	16 (3)	5/6	1030	19 (0)	9/11	2969	19 (0)	5/5	1255	64
Planning Application Fees	17	13 (4)	5/6	832	17 (0)	8/11	3573	17 (0)	5/5	1058	59
Information on Objecting	11	9 (2)	4/6	582	11 (0)	7/11	1947	11 (0)	5/5	668	45
Information on Appeals	11	10 (1)	5/6	759	11 (0)	8/11	2167	11 (0)	5/5	727	44
Planning Contact	16	14 (2)	5/6	759	16 (0)	9/11	3093	16 (0)	5/5	941	51
Authority Contact	28	21 (7)	5/6	710	26 (2)	10/11	2286	27 (1)	5/5	935	64

Table 4.5: Priority 1 and 2 Summary Statistics for Accessibility Results

Level	**Priority 1**					**Priority 2**				
Task	instances	per page	per authority with errors	per authority	standard deviation	instances	per page	per authority with errors	per authority	standard deviation
Homepage	642	11.7	29.2	22.1	30.8	1745	31.7	79.3	60.2	57.1
Planning Homepage	863	13.1	53.9	41.1	42.8	2511	38.0	156.9	119.6	107.8
Development Plan Chapter	1181	11.4	59.1	51.3	56.4	4262	41.0	213.1	185.3	186.9
Development Plan Map	644	9.2	58.5	58.5	49.6	1812	25.9	164.7	164.7	125.2
Planning Application	857	7.1	40.8	34.3	39.0	5702	47.1	271.5	228.1	292.8
Planning Application Map	220	8.1	55.0	44.0	36.7	544	20.1	136.0	108.8	76.8
Planning Application Form	1030	16.1	64.4	54.2	51.8	2969	46.4	185.6	156.3	145.4
Planning Application Fees	832	14.1	64.0	48.9	55.0	3573	60.6	274.8	210.2	216.0
Information on Objecting	582	12.9	64.7	52.9	53.2	1947	43.3	216.3	177.0	147.0
Information on Appeals	759	17.3	75.9	69.0	56.0	2167	49.3	216.7	197.0	181.3
Planning Contact	759	14.9	54.2	47.4	42.9	3093	60.6	220.9	193.3	192.1
Authority Contact	710	11.1	33.8	25.4	33.5	2286	35.7	108.9	81.6	85.2
Average	756.6	12.2	54.5	45.8	13.5 (of averages)	2717.6	41.6	187.1	156.8	53.0 (of averages)

Table 4.6: Priority 3 Summary Statistics for Accessibility Results

Level	**Priority 3**				
Task	instances	per page	per authority with errors	per authority	standard deviation
Homepage	803	14.6	36.5	27.7	22.6
Planning Homepage	1066	16.2	66.6	50.8	39.0
Development Plan Chapter	1731	16.6	86.6	75.3	81.5
Development Plan Map	1020	14.6	92.7	92.7	62.2
Planning Application	1559	12.9	74.2	62.4	46.5
Planning Application Map	244	9.0	61.0	48.8	28.0
Planning Application Form	1255	19.6	78.4	66.1	47.3
Planning Application Fees	1058	17.9	81.4	62.2	50.1
Information on Objecting	668	14.8	74.2	60.7	52.5
Information on Appeals	727	16.5	72.7	66.1	39.6
Planning Contact	941	18.5	67.2	58.8	34.8
Authority Contact	935	14.6	44.5	33.4	27.7
Average	1000.6	15.5	69.7	58.8	17.4 (of averages)

Table A.9 to Table A.20 in Appendix A give the accessibility status, the number of errors recorded and the number instances for each of the accessibility levels for each of the local authorities. Generally tasks which satisfy the first level of accessibility also have lower instances of errors in level AA and AAA. A notable exception to this however is Fingal's planning application pages which have five priority 2 errors and 958 instances even though the page is level A compliant. It must be noted that some of the errors may not be because the issue was not considered by the local authority, rather it was felt that the guideline was not appropriate in that case.

The accessibility results for the development plan chapter and map are given in Table A.11 and Table A.12 respectively. These tasks have a high average and the information is, therefore, harder to access on the website. When the local authorities are within two standard deviations of either other for the task, there is greater conformity (e.g. Table A.15). Certain tasks are more accessible than others. Finding planning applications fees (Table A.16) and finding information on appeals (Table A.18) have comparatively low numbers of accessibility errors. Table A.19 gives the accessibility results for planning authority contact details. No authorities recorded comparatively high levels of priority 1 errors. However the average number of errors for this accessibility level was 47.4, a considerably high number of barriers to information for users with technical, situational or physical disabilities. Table A.19 gives the accessibility results for the local authority contact details. This task is provided on many of the local authority websites. It permits one of the greatest cross local authority comparisons. The smaller local authorities are underrepresented in the higher numbers of instances of accessibility errors.

4.8 Prominence and Location of Planning Information

4.8.1 Planning Information Pixels (Prominence)

Table 4.7 gives the percentage of screen devoted to each of the seven categories (categories 1 to 7) for the homepages of each of the local authorities with websites. This method was derived in Section 3.8. The mean figures for each tasks are more meaningful and allow an interpretation of the average percentage of pixels on the screen given to each of the seven categories. When ranked the seven tasks are contact details, planning tasks, non-task related planning, content or links related to tasks but not mentioning the tasks, search features and links and misleading links.

The provision of high levels of contact information and links on the homepage is consistent with the small clickpath needed to accomplish this task across the local authorities and the provision of full contact information on the local authority

homepage by many of the local authorities. Additionally, the average percentage of pixels is calculated across the majority of local authorities. The range of values for this category is 0.2 to 7.3. With four local authorities having high values (Mayo (7.3%), South Dublin (6.3%), Wexford BC (5.9%) and Trim TC (5.8%)).

The second highest category (planning) reflects the number of local authorities providing links to the planning department on the homepage, showcasing new planning applications (such as gPlan), and providing frequently updated material (weekly planning lists) as well as pointing to the relevance of planning within the workings of the local authority. The high proportion of this type of information shows the influence of planning information compared with similar figures for the contact details of the local authority. Three local authorities have a very high proportion of their homepage devoted to the sample planning tasks (Roscommon (6.6%), Kilkenny BC (7.6%) and Dungarvan TC (11.7%)). However, nine local authorities devote less than 1% of their homepage to the sample planning tasks (Dun Laoghaire/Rathdown (0.4%), Fingal (0.6%), Mayo (0.7%), Wicklow (0.1%), Galway city (0.9%), Athy TC (0.7%), Bray TC (0.3%), New Ross TC (0.7%) and Trim TC (0.3%)). The range of values are 0.1 to 11.7%. Only four of the sites do not refer to the sample planning tasks on their homepage.

Table 4.7: Percentage of Screen Devoted to Planning Information by Category

Planning Authority	Planning	Task Related	Other Planning	Planning Related	Contact	Search	Misleading
	%	%	%	%	%	%	%
County Councils							
Carlow	2.0	0.5		2.0	0.3		
Dun Laoghaire / Rathdown	0.4				3.9	0.3	
Fingal	0.6	0.4		0.6	2.9	1.1	
Galway	1.2			0.8	0.2	1.8	
Kildare	1.1	0.7	0.7	1.1	0.3	1.5	
Kilkenny	2.4	0.3	6.8		1.4		
Mayo	0.7	1.1	2.3	5.0	7.3	0.8	
Meath				4.7	0.3	1.6	
Roscommon	6.6	0.8	1.1	0.5	0.5	0.4	
South Dublin	1.4	0.5	3.8		6.3	0.9	
South Tipperary	2.9	1.2	2.5	1.2	2.5		0.1
Waterford	2.0	0.2	0.6	0.7	4.2	1.8	
Wexford	2.8	0.4	1.2	1.3		0.7	
Wicklow	0.1	0.2		0.5	4.6		
City Councils							
Dublin City	3.1	2.4			0.3	1.2	
Galway City	0.9			0.4	0.3	0.2	0.4
Waterford City	1.0		4.0	0.2	0.2		
Borough Councils							
Kilkenny	7.6	0.3	7.4		1.3		
Wexford	2.7	0.4		0.2	5.9		
Town Councils (Urban District Councils (UDCs))							
Athy, Co. Kildare	0.7	4.5	2.7	0.9	3.5		
Ballinasloe, Co.					0.7		

Galway							
Bray, Co. Wicklow	0.3			0.5	0.3	2.2	
Carlow	1.6		1.2	0.6	0.8		
Ceannanas Mor, Kells, Co Meath					4.0		
Dungarvan, Co Waterford	11.7			0.7	2.5	1.8	
Naas, Co. Kildare	3.3	3.4	1.6	0.9	2.3		
Navan, Co. Meath					0.2		
New Ross, Co. Wexford	0.7	0.5		0.6	2.0		
Trim, Co. Meath	0.3		0.5		5.8		
Total	58.1	17.8	36.4	23.4	64.8	16.3	0.5
Mean	**2.00**	**0.61**	**1.26**	**0.81**	**2.23**	**0.56**	**0.02**

A further 1.26% of the local authority screen is devoted to planning information and links not considered under the sample planning tasks taken in this thesis. The range of values within this category is 0.5 to 7.4% and the information is provided by 14 of the local authorities with websites. Both Kilkenny county council and Kilkenny borough council provide high levels of this category of information (6.8% and 7.4% respectively).

An average of 0.61% of the screen has been devoted to information relating to the sample planning tasks but not mentioning the tasks. The range of values in this category is 0.2 to 4.5% and 17 of the local authority sites provide this type of content. Added to the average of the sample task category, the average amount of the screen devoted to sample task completion is 2.61%. Four of the nine local authorities previously devoting less than 1% of their homepage to the sample tasks are now devote over 1% (in one case this figure is now as high as 5.2%).

Planning related information contains related departments and information that may or may not be planning related but does not specifically refer to the sample planning tasks such as housing and environment. The average for this category is 0.81%, its range is from 0.2 to 5.0% and this type of content is provided on 20 of the homepages. The average value is significantly lower than the value for the sample tasks. It is also provided on less of the authority homepages.

On average 0.56% of the local authority homepage is devoted to search functions and links. This function is provided by 14 of the local authorities with websites and the proportions devoted to this content ranges from 0.2 to 1.8%. The final category in the table relates to misleading links presented on the homepages of the local authorities. This category of information is only provided on two of the sites and accounts for an average of 0.02% over all the homepages. The two values are 0.1% (South Tipperary) and 0.4% (Galway city). In South Tipperary, the value relates to a

link to "maps" on the website which only contains a PAGIWeb for locational information for the county and the local authorities in the administrative area.

4.8.2 Planning Page

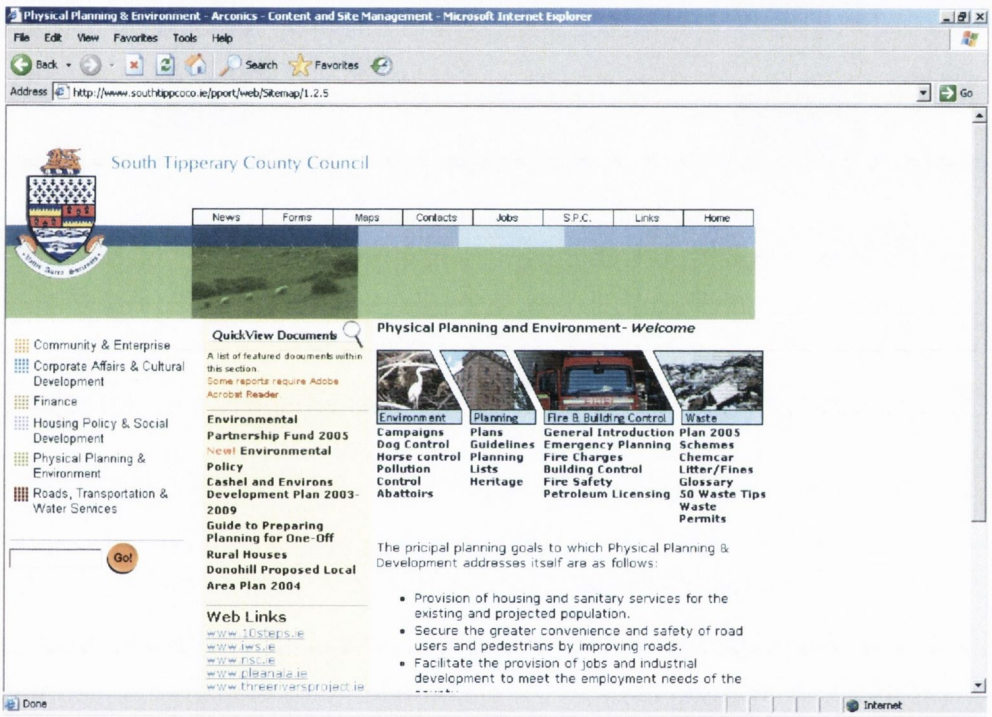
Table 4.8 displays the percentages of the screen capture of the main planning page on the local authority site in nine categories. In the eight numerical columns, the percentages for sample planning tasks content, task related content, planning related areas, contact information and links, search functions and links, misleading information or links, homepage links and general planning content are given. The General Planning category comprises of all planning content on the page, including the sample task information and the task related content. Comparatively, the general planning category minus the sample task information and task related information would give the appropriate figure for Other Planning in Table 4.7.

Of the 21 planning authorities with a main planning page only one did not include any content relating to the sample tasks. The average percentage of screen devoted to this information was 3.90% and the values ranged from 0.2 to 18.0%. The proportion of the screen devoted to task related information was on average 0.43% and ranged from 0.2 to 1.8%. This information was included on 17 of the main planning pages in the study area. The information was provided as a standard navigation tool throughout the sites and was not provided specifically for a planning visitor. The provision of Planning related content was similar to that of Task related content, in that its provision was normally repeated as navigational links on a number of pages throughout the site and not focused for planning visitors. The average value for this category is 0.39% and the values range from 0.2 to 1.1% and is provided by 13 of the authorities with a main planning page.

General Planning percentages ranged from 15.0% to 55.6% and the average value for this category of information was 35.98%. Considering that the pages under evaluation are the main planning pages of the respective websites, this figure is quite low. The remainder of the screen is taken up with white space, navigation links to other areas in the site (including planning related areas and the homepage), contact and search content and site identification content such as logos, areas of colour or images, and other local authority information. Of particular note, is the Dun Laoghaire/Rathdown county council planning page; the page does not contain any information or links which mentions or relates to the sample tasks or related areas within the local authority. It does, however, provide a high proportion of general planning information (40.9%) relating to contact details and an overview of what the planning department within the local authority is responsible for; other planning information is presented below the fold of the page. South Tipperary provides little

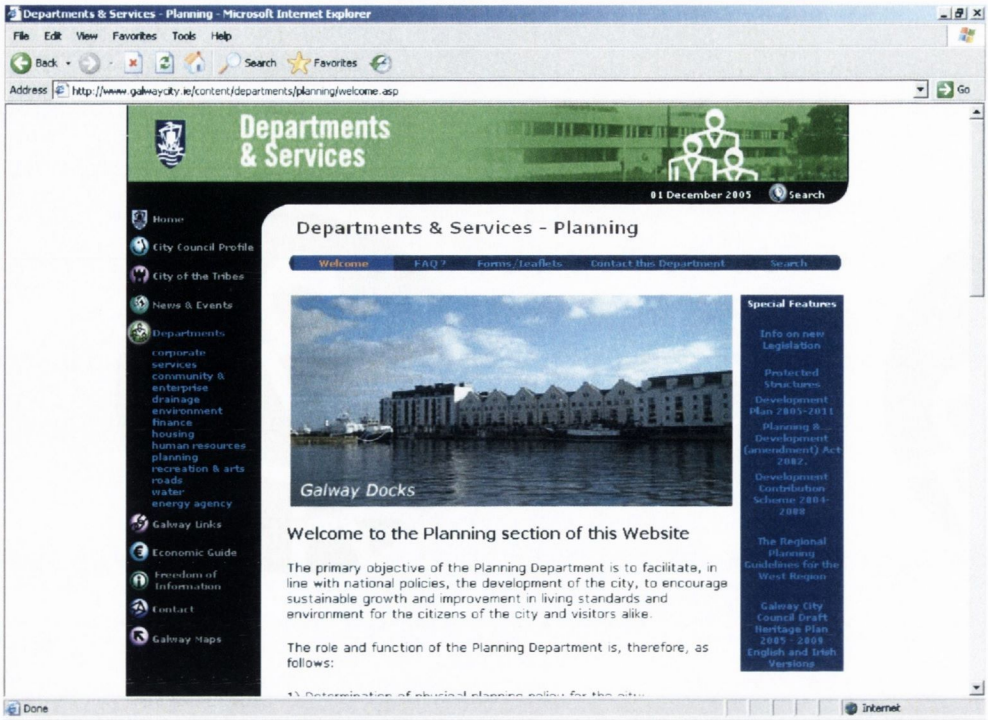
planning information on its planning page. The page is combined with environmental, fire and building controls and waste links and information, however the included information is detailed and is unlikely to be mistaken for planning related information. The use of the page in this manner may aid users in deciding which section of the site they need to visit in order to accomplish their goal and the low figures should not be looked upon too harshly (Figure 4.3 shows a screen capture of this page). Galway city council's main planning page however, has a similarly low figure for general planning information (17.9%). In this case, however, the focus of the page is a filler image of the Galway Docks which adds no addition information to the page or aid interpretation (Figure 4.4).

Figure 4.3: South Tipperary Main Planning Page



Links to the site's homepage was provided on 20 of the sites, the average percentage for this category was 0.27% and the values ranged from 0.1 to 0.9%. The amount of pixels devoted to this category is low as this information does not require a large amount of space to illustrate its purpose to the site visitor. The local authority which does not provide this information explicitly is Dublin city council. Dublin city council uses the council logo to return visitors to the council homepage and states this information in the alternative text associated with the image.

Figure 4.4: Galway City Council Main Planning Page



Search functions or links to search features are provided on 13 of the pages, the average percentage of pixels devoted to this content is 0.56% and the values range from 0.1 to 2.2%. The range in values reflects whether the authorities have decided to display the entire search box on the page or whether to provide a link to the function.

Contact information, whether for the planning section of the authority, the authority in its entirety or links, is provided on 18 of the sites. Meath, South Dublin, South Tipperary and Wicklow county councils, Dublin city council, Kilkenny borough council, and Athy and Naas town councils do not provide the information on the planning page. From a user perspective this information may be important, as after a search of the planning section of the site, the user may be unable to find the information of relevance and be required to find contact details for the authority. The average proportion of the page devoted to this category is 3.30% and the values range from 0.2 to 26.2%. The large amount of space apportioned to contact information by Dun Laoghaire/Rathdown may reflect the emphasis the authority places on that information for users. The first item of information under the departmental heading is the departmental contact details.

Misleading information is presented on three local authority main planning pages, 0.11% of the screen on average is devoted to this information and the values range from 0.2 to 1.5%. This is significantly higher than the proportion for the local authority homepage. South Tipperary is again featured and is joined by Kildare and

Mayo county councils. In the case of South Tipperary, the information is repeated from the homepage.

When comparing the two tables, planning information pertaining to the sample tasks has increased but the increase is quite small on average (an increase of 1.9%), task related information has decreased by 0.18%, planning related local authority areas has decreased by 0.42%, contact information has increased by 1.07%, and search has remained constant at 0.56%. Planning information has increased from 3.87% to 35.98% reflecting the organisation of the planning page towards the information of relevance.

Table 4.8: Planning Main Page

Planning Authority	Planning	Task Related	General Planning *	Planning Related	Contact	Search	Misleading	Homepage
	%	%	%	%	%	%	%	%
County Councils								
Dun Laoghaire / Rathdown			40.9		26.2	0.3		0.3
Fingal	2.6	0.3	33.3		2.7	1.1		0.2
Galway	2.4	1.2	49.7		5.9	1.8		0.2
Kildare	2.3	0.3	22.5	1.1	0.3	1.5	0.6	0.3
Kilkenny	8.9	0.3	38.8	0.9	0.9	1.4		0.3
Mayo	2.7	1.8	38.1		7.9	0.8	1.5	0.3
Meath	0.7		55.6					0.3
Roscommon	6.5	0.8	37.5		5.3	0.3		0.2
South Dublin	2.4	0.3	43.0					0.3
South Tipperary	0.2	0.2	15.0	0.2	0.2		0.2	0.2
Waterford	6.0	0.2	30.2	0.7	9.5	2.2		0.1
Wexford	3.3	0.4	43.6	0.7		0.7		0.7
Wicklow	1.4	0.7	41.2	0.5	1.9			0.2
City Councils								
Dublin City	4.7	0.5	30.9		0.3	1.2		
Galway City	0.4	0.2	17.9	0.4	0.7	0.1		0.4
Waterford City			36.2	0.2	5.3			0.1
Borough Councils								
Kilkenny	7.3	0.3	37.1	1.0	0.3			0.3
Wexford	0.5	0.5	36.7	0.2	0.4	0.2		0.9
Town Councils (Urban District Councils (UDCs))								
Athy, Co. Kildare	1.5	0.5	29.6	0.9	0.2			0.2
Bray, Co. Wicklow	18.0		47.7	0.4	0.3	0.2		0.9
Naas, Co. Kildare	10.2	0.5	30.1	0.9	0.9			0.2
Total	82.0	9.0	755.6	8.1	69.2	11.8	2.3	6.6
Mean	**3.90**	**0.43**	**35.98**	**0.39**	**3.30**	**0.56**	**0.11**	**0.31**

*includes other planning, task related and planning

4.8.3 Planning Information Schema (Location)

The placement of each planning related element on the homepage was recorded in a matrix of 56 cells. A matrix was then constructed for the planning elements within each of the categories. Figure 4.5 and Table 4.9 display the matrix constructed for

category 1 elements on the homepages of the planning authorities within the study area and its graphical representation. The homepage is the main entrance point to the local authority website and one of the main focuses is on navigation. The distribution of the task related planning elements is spread across the page but certain cells are more favoured by the local authorities for this type of information (e.g. F3, F4 and F6). The average value for a cell is 3.6 and the standard deviation is 3.26. Also of interest is the lack of any category 1 elements from certain areas of the webpage. Row A, representing the top row of the webpage is lacking any category 1 elements and Column 8 is also element poor. These areas are traditionally spacer areas within a webpage and in general are clear of all types of elements. The top right corner of a homepage is normally associated with the identification of the site and the top half of the centre of the page may contain text reflecting this information to a lesser extent.

The placement of category 2 elements on the planning authority homepages are given in Table 4.10 and graphically in Figure 4.6. The average number of elements is 1.4 and the standard deviation is 1.56. Again, elements are largely absent from Column 8, however some elements are present in Row A. The presence of this type of element in the top row reflects the type of content; category 2 elements are generally standard links within the local authority giving access to large documents and forms produced by the local authority. Elements are also largely absent from the top centre cells of the homepage; an area devoted generally to the establishment of a site identity. The heaviest areas of element concentration are in cells E2 and E3. Slightly higher than the equivalent for category 1 information, possibly pointing to the greater emphasis within the local authority for generic rather than planning related links as these links may lead to the most used pages on the local authority site and do not require the user to understand the hierarchy of departments within the local authority to complete their task. It may not be immediately obvious, for example, to some users that the development plan is a planning document.

The average cell value for category 2 elements is two and the standard deviation is 2.83 elements. The concentration of elements to the left side of the homepage is evident in both the matrix (Table 4.11) and its graphical representation (Figure 4.7). Cells C1, C2 and D1 in particular account for 34 of the total 112 elements in this category present on the planning authority homepages. A second and less populated cluster of elements occurs in Row G around cells G4 and G5. The dominance of the left side of the pages reflects the trend across many homepages to present key navigation links on the left hand side of the page and only those elements which are generic departmental names and do not relate to specific content within those areas that do not immediately relate to planning. The absence of features from the top row,

the centre of the page and the right of the page (especially the complete absence of elements in Column 8) correspond to similar patterns within the layout of category 1 elements.

Table 4.9: The Placement of Category 1 Elements

A	0	0	0	0	0	0	0	0
B	3	2	2	1	4	5	5	0
C	5	1	0	0	1	6	7	1
D	6	6	4	3	2	7	8	1
E	4	5	7	8	4	6	3	0
F	2	8	11	10	7	12	8	0
G	0	4	6	2	1	6	5	0
	1	2	3	4	5	6	7	8

Figure 4.5: Graphical Representation of Category 1 Elements

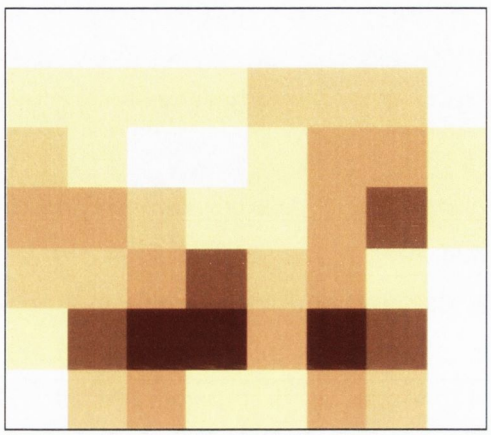


Table 4.10: The Placement of Category 2 Elements

A	0	0	2	3	1	0	0	0
B	2	2	3	4	2	0	0	0
C	3	1	0	0	0	0	0	0
D	1	2	0	0	0	0	0	0
E	4	5	5	4	1	2	1	0
F	0	1	3	4	1	4	2	0
G	3	2	3	1	0	3	3	0
	1	2	3	4	5	6	7	8

Figure 4.6: Graphical Representation of Category 2 Elements

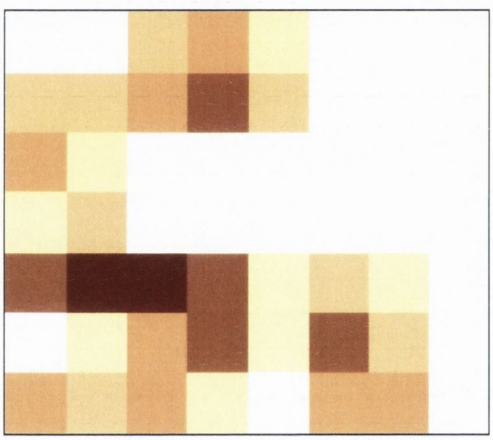
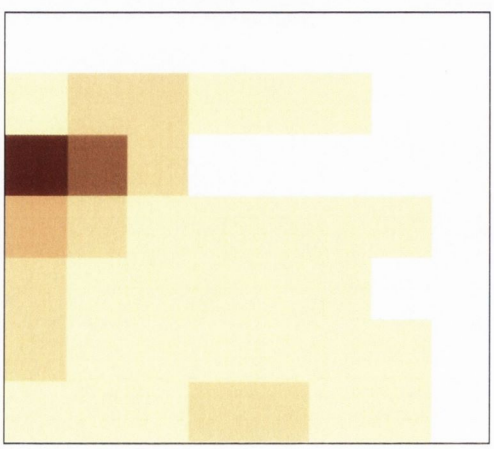


Table 4.11: The Placement of Category 3 Elements

A	0	0	0	0	0	0	0	0
B	1	5	5	1	2	1	0	0
C	15	10	5	0	0	0	0	0
D	9	5	2	1	1	1	1	0
E	4	3	1	1	1	1	0	0
F	4	3	3	3	2	3	1	0
G	1	1	2	5	4	3	1	0
	1	2	3	4	5	6	7	8

Figure 4.7: Graphical Representation of Category 3 Elements



The placement of contact elements on the planning authority homepages follows the traditional placement of these elements in areas of prominence on the homepage. The matrix and graphic representation are given in Table 4.12 and Figure 4.8 respectively. The centre of the homepage is traditionally used to establish the site identity and for local authorities, this identity is heavily influenced by the location of the local authority and the provision of contact details for the physical embodiment of the authority. The contacts are also widely spread throughout the page and only six of the 56 cells are without an element; these cells are concentrated in Column 8. The average value for the cells is 3.1 and the standard deviation is 2.19.

The placement of search elements on the local authority homepages is represented in a matrix, given in Table 4.13, and graphically in Figure 4.9. The average value for a cell is 0.9 and the standard deviation is 1.49. There is a marked concentration of search elements within the planning authority homepages within cells A5, A6 and A7. This is similar to the placement of such elements in many webpages and can be considered a standard (Nielsen & Tahir 2002).

Table 4.12: The Placement of Contact Elements

A	0	3	6	6	5	4	2	1
B	1	3	5	9	8	6	4	2
C	3	2	4	6	5	5	2	0
D	1	7	5	5	4	5	3	0
E	1	4	4	5	4	5	4	0
F	1	2	3	1	1	1	1	0
G	0	3	4	2	3	3	2	0
	1	2	3	4	5	6	7	8

Figure 4.8: Graphical Representation of Contact Elements

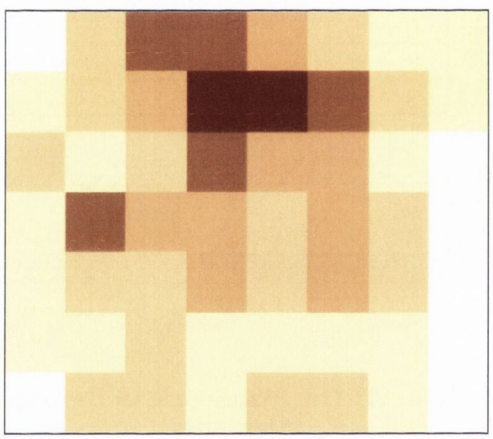
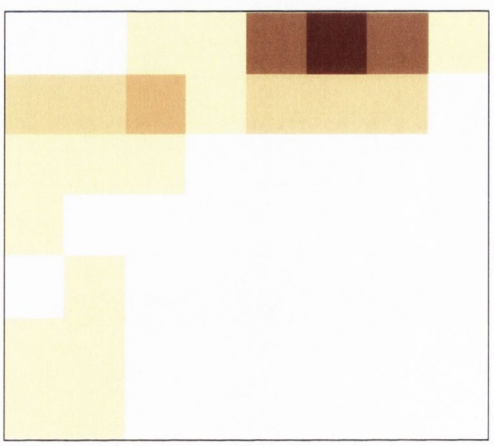


Table 4.13: The Placement of Search Elements

A	0	0	1	1	5	6	5	1
B	3	3	4	1	3	3	3	0
C	2	1	1	0	0	0	0	0
D	1	0	0	0	0	0	0	0
E	0	1	0	0	0	0	0	0
F	1	2	0	0	0	0	0	0
G	1	1	0	0	0	0	0	0
	1	2	3	4	5	6	7	8

Figure 4.9: Graphical Representation of Search Elements



The placement of other planning elements are recorded in Table 4.14 and graphically in Figure 4.10. The Other Planning elements are concentrated in the main body of the local authority homepages, with Row A and Column 8 being completely devoid of all elements. The average value for a cell is 1.9 and the standard deviation is 1.71. This profile is similar to content focussed webpages, with less emphasis on the traditional navigation areas but is unusual for the main page of the planning authorities.

The main planning page on the local authority websites should be designed differently from the homepage and as a result we would expect a different distribution of elements. The main planning page has different aims with regard to the type and placement of information in comparison with the homepage. It is usually similar to other pages within the site and this characteristic is espoused by usability experts, to reassure users that they remain on the same website when they are visiting different areas of that website (Nielsen & Tahir 2002).

Table 4.15 and Figure 4.11 give the placement of general planning elements on the main planning page of the planning authorities. The average number of elements in each cell of the matrix is 13.0 and the standard deviation is 8.47. The left hand side of pages within a website is usually reserved for intra-site navigation. The centre of the page is generally dedicated to relevant content and the right hand side of the page may contain links referring to the section under scrutiny. The ideal layout is reflected in the concentration of values in the centre of the page where content is normally located and also in the heavier cluster of values in cells C5 to E6 to the right of the page where the relevant navigation links are located. Row A and Column 8 contains low values.

The placement of contact elements on the main planning page is given as a matrix in Table 4.16 and graphically in Figure 4.12. The distribution of this category of elements of the page is relatively even with only one clear cluster emerging (cells D2 and D3). This cluster is placed within the area normally occupied by the general navigational links within a website. Also of note is the presence of elements in the top row of the matrix (Row A). This conforms with the placement of this type of information on websites in other industries on the Internet. The average cell value is 2.9 and the standard deviation is 1.98.

As can be seen from Table 4.17 and Figure 4.13, the search functions within the main planning pages are concentrated in the upper right hand corner of the pages, with two additional and smaller concentrations in cells B1-B3 and E2. This pattern reflects that displayed in Table 4.13 and Figure 4.9 of the homepage Search Function element distribution. The average value for the cells is 0.6 and the standard deviation is 1.00.

Table 4.14: The Placement of Other Planning Elements

A	0	0	0	0	0	0	0	0
B	0	1	2	2	1	2	1	0
C	1	3	3	3	1	4	4	0
D	1	4	3	5	3	4	3	0
E	1	3	3	3	4	6	5	0
F	0	1	3	5	4	4	2	0
G	1	1	3	3	2	2	0	0
	1	2	3	4	5	6	7	8

Figure 4.10: Graphical Representation of Other Planning Elements

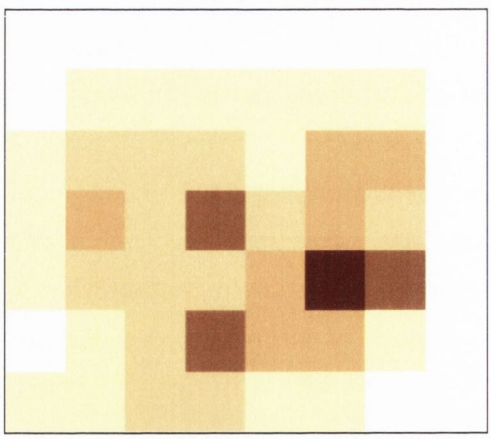


Table 4.15: The Placement of General Planning Elements (Main Planning Page)

A	1	2	3	2	2	3	2	0
B	3	12	20	18	19	20	12	1
C	6	16	22	19	21	22	13	1
D	5	17	24	21	25	26	18	3
E	4	15	22	20	22	22	14	3
F	4	14	21	20	20	20	11	1
G	5	14	21	21	21	20	11	1
	1	2	3	4	5	6	7	8

Figure 4.11: Graphical Representation of General Planning Elements (Main Planning Page)

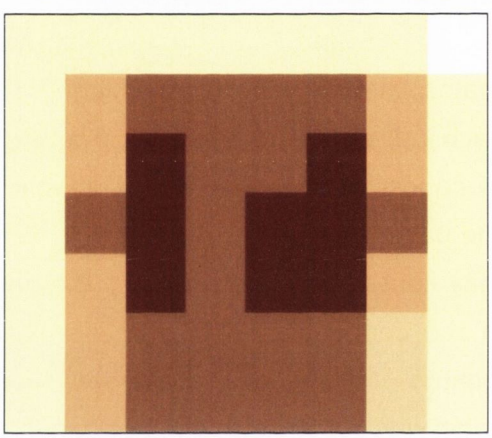
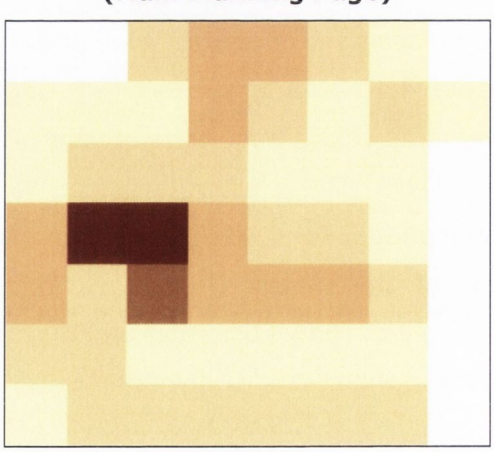


Table 4.16: The Placement of Contact Elements (Main Planning Page)

A	0	0	3	5	5	3	1	0
B	1	1	2	5	4	2	3	2
C	2	4	4	4	2	2	2	0
D	5	8	9	5	3	4	2	0
E	5	4	6	5	5	5	3	0
F	3	3	2	2	2	2	2	0
G	1	3	3	3	4	4	3	0
	1	2	3	4	5	6	7	8

Figure 4.12: Graphical Representation of Contact Elements (Main Planning Page)



The placement of the homepage links on the main planning page displays a marked preference for cells B1 and B2 as can be seen in Table 4.18 and graphically in Figure 4.14. The average value for a cell in this matrix is 0.6 and the standard deviation is 1.3. This distribution follows the prevalence of homepage links in the top left corner

of a webpage and usually incorporates a logo to underline the site identity within the individual pages within the website. The element is entirely absent from 37 of the 56 cells in the matrix. The low concentrations of values in the top of the screen must also be considered; these values represent the presence of the homepage link within navigational bars across the top of the pages.

The placement of category 1 elements on the main planning page of the local authorities is given in Table 4.19 and Figure 4.15. The average value for each cell in the matrix is 4.7 and the standard deviation is 4.54. Particularly high values (in excess of two standard deviations from the mean) are recorded in cells D6 and D7, corresponding to the standard location of section relevant links. The remainder of the distribution is relatively widely spread throughout the whole page, with the absence of links in Row A and few links in Column 8.

Table 4.20 and Figure 4.16 display the placement of category 2 elements on the main planning page. The average cell value is 0.9 and the standard deviation is 1.20. The placement of this element within the local authority main planning page is consistent with the use of navigational elements within pages other than the homepage. The elements appear in top navigation bars, side section navigation areas and the main navigational area of the webpage. However, this does not mean that the local authorities are all following a standard or consistent model. Also of note is the presence of these elements in Row A.

The placement of category 3 elements across the planning authority main planning pages is recorded in Table 4.21 and graphically in Figure 4.17. The elements are strongly concentrated in the left side of the page with almost a complete absence from row 4 to 8. This corresponds with the presence of side navigational areas which allow users to navigate to other sections of the website. The average value for a cell in this matrix is 1.0 and the standard deviation is 2.41.

The information in this category is only possibly related to planning information in the mind of the user and in practise they operate as separate sections within the planning pages. The local authorities' websites are all based on the internal structures of the local authorities and do not necessarily reflect the needs of the users who access the site in order to complete certain tasks.

Table 4.17: The Placement of Search Elements (Main Planning Page)

A	0	1	1	1	4	4	3	1
B	2	2	2	1	2	1	2	0
C	1	0	0	0	0	0	0	0
D	1	0	0	0	0	0	0	0
E	1	2	0	0	0	0	0	0
F	1	0	0	0	0	0	0	0
G	1	0	0	0	0	0	0	0
	1	2	3	4	5	6	7	8

Figure 4.13: Graphical Representation of Search Elements (Main Planning Page)

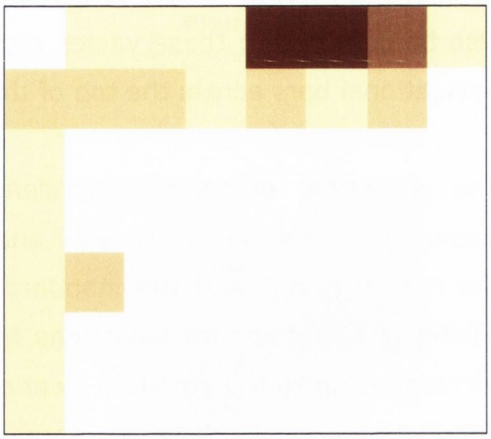


Table 4.18: The Placement of Home Elements (Main Planning Page)

A	1	2	2	1	1	1	1	0
B	7	6	2	0	1	1	1	0
C	1	2	0	0	1	1	0	0
D	0	0	0	0	0	0	0	0
E	0	1	1	0	0	0	0	0
F	0	0	0	0	0	0	0	0
G	0	0	0	0	0	0	0	0
	1	2	3	4	5	6	7	8

Figure 4.14: Graphical Representation of Home Elements (Main Planning Page)

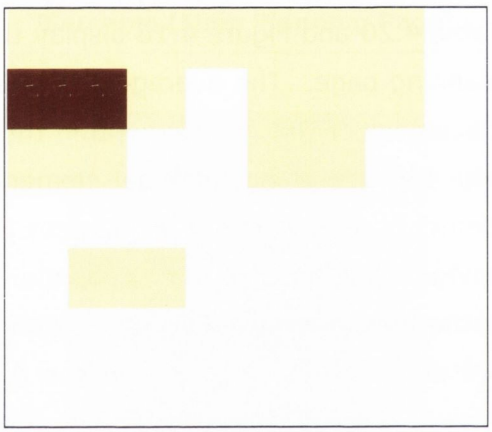


Table 4.19: The Placement of Category 1 Elements (Main Planning Page)

A	0	0	0	0	0	0	0	0
B	0	0	1	1	2	4	4	0
C	5	7	5	3	8	11	8	0
D	2	11	13	6	10	17	14	1
E	1	11	12	5	6	12	11	1
F	0	5	9	7	7	8	6	0
G	0	5	8	5	4	5	2	0
	1	2	3	4	5	6	7	8

Figure 4.15: Graphical Representation of Category 1 Elements (Main Planning Page)

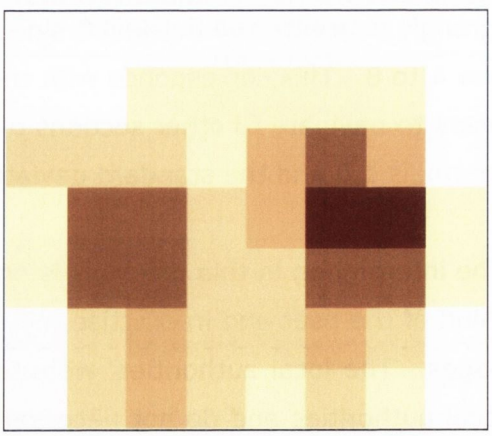


Table 4.20: The Placement of Category 2 Elements (Main Planning Page)

A	0	0	2	3	1	0	0	0
B	0	1	3	4	4	2	1	0
C	1	1	1	0	0	2	2	0
D	3	2	1	1	1	2	2	0
E	3	3	3	0	0	1	1	0
F	0	0	0	0	0	0	0	0
G	2	0	0	0	0	0	0	0
	1	2	3	4	5	6	7	8

Figure 4.16: Graphical Representation of Category 2 Elements (Main Planning Page)

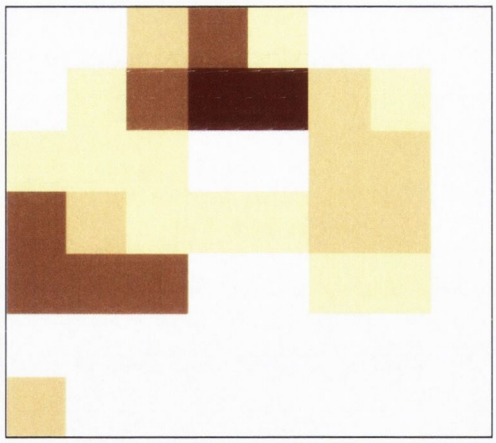
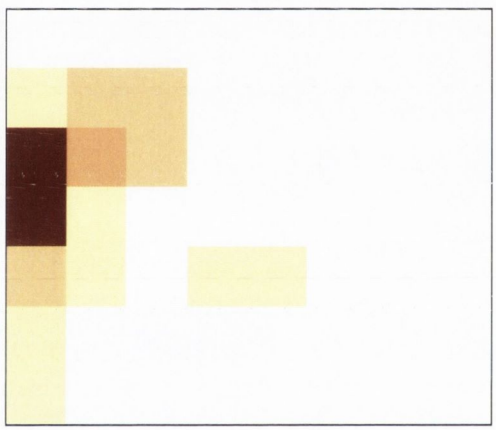


Table 4.21: The Placement of Category 3 Elements (Main Planning Page)

A	0	0	0	0	0	0	0	0
B	1	4	4	0	0	0	0	0
C	12	6	5	0	0	0	0	0
D	10	2	0	0	0	0	0	0
E	4	2	0	1	1	0	0	0
F	3	0	0	0	0	0	0	0
G	2	0	0	0	0	0	0	0
	1	2	3	4	5	6	7	8

Figure 4.17: Graphical Representation of Category 3 Elements (Main Planning Page)



4.9 Map Evaluations

The number of Irish planning authorities in each of the twenty map evaluation categories is given in Table 4.22. The results are visualised in Figure 4.18 as an interpolated surface with each cell of the CTM given as a point in the figure. This allows the visual interpretation of the study's results and aids cross country comparisons.

As is apparent in Figure 4.18, there is an emphasis on the provision of static images (T1) across the Irish local authorities. These images are provided as PDF documents, images embedded in HTML and as standalone GIFs and JPGs. They provide limited opportunities for citizens to explore the GI; citizens are limited by the resolution and must navigate to the relevant policy or supporting documents themselves to gain a greater understanding of the information presented. ePlan or gPlan for the geographic visualisation of planning applications, a basic web GIS application, is provided on a number of local authority websites; it offers users basic image exploration functions

such as pan, zoom and re-centring on a different spatial element and in some cases also provides a search feature by planning application file number or townland. An example of a C2T4 application is given in Figure 4.19. It must be noted that ePlan/gPlan does not allow users to perform any type of analysis.

Table 4.22: CTM Classification for Irish Planning Authority Websites

	T1	T2	T3	T4	T5
C1	1	0	0	0	0
C2	12	3	3	5	0
C3	0	0	0	0	0
C4	0	0	0	0	0

Figure 4.18: CTM Surface for Irish Planning Authority Websites

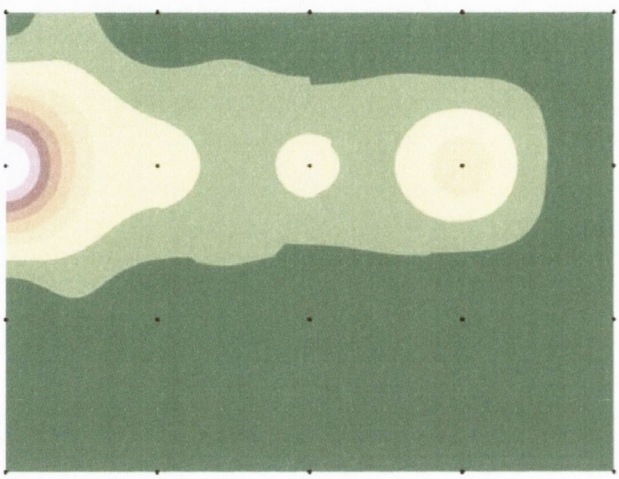
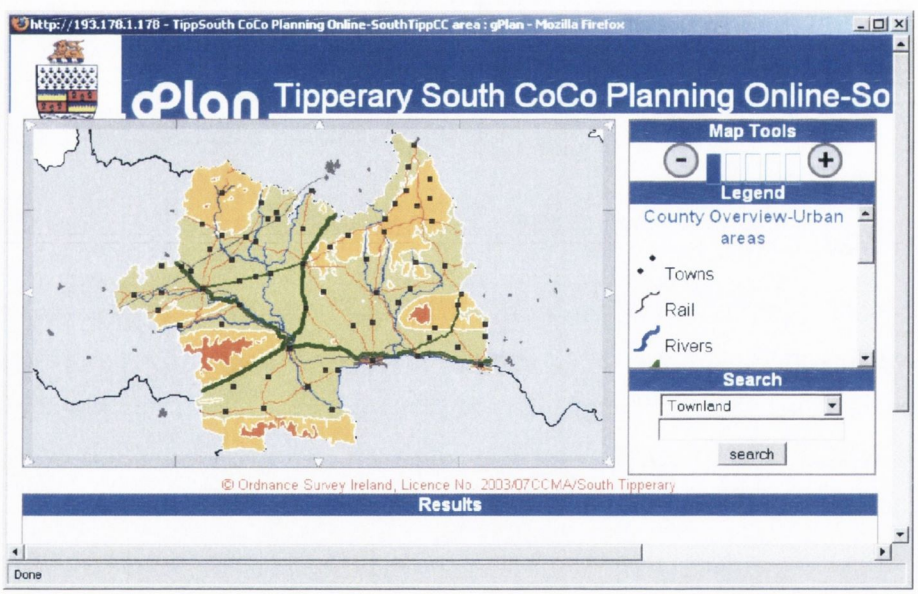


Figure 4.19: An Example of a C2T4 PAGIweb



(South Tipperary County Council gPlan application)

The Irish PAGIweb content is concentrated in the second category and may reflect a view of the Internet, in Irish local authorities, as simply an information dissemination tool and an adjunct to the PP methods required by legislation for any local authority plan as opposed to a more interactive method of itself. It should also be remembered that only 29 of the local authorities have websites and a further four do not provide

any type of PAGIweb on their sites. This can lead to citizens on two sides of an administrative boundary receiving very different levels of GI over the Internet.

The results from similar studies in Italy and Denmark[26] are given in Table 4.23, Table 4.24, Figure 4.20 and Figure 4.21. Conclusions can be drawn from a comparison of the images, but it must be borne in mind that any comparison should be given in general terms as the methodologies across the three studies may have varied slightly and the studies were not undertaken simultaneously. The Irish provision of PAGIweb applications compares favourably to the applications provided on both the Danish and Italian websites with provision in all three countries concentrated in C1 and C2 categories.

Table 4.23: CTM Classification for Italian Public Administration Websites

	T1	T2	T3	T4	T5
C1	26	12	12	11	0
C2	5	3	7	10	0
C3	0	1	0	6	0
C4	0	0	0	0	0

Figure 4.20: CTM surface for Italian Public Administration Websites

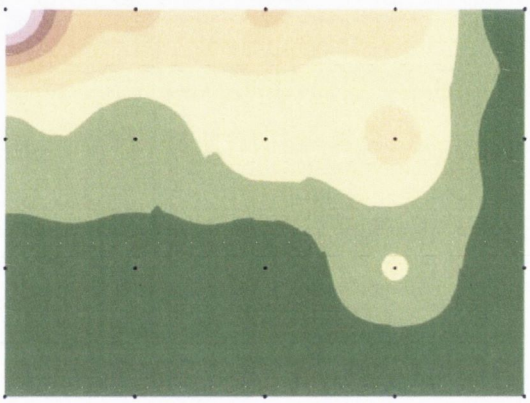
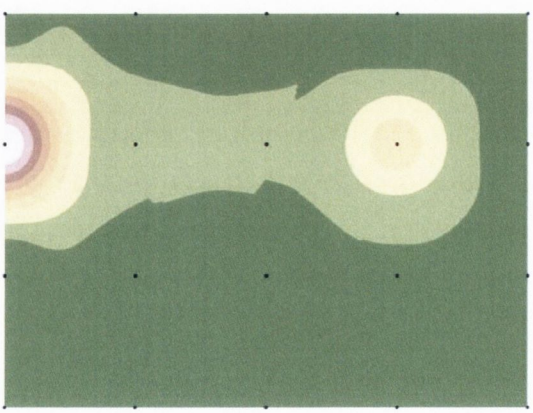


Table 4.24: CTM Classification for Danish Municipal & County Public Administration Websites

	T1	T2	T3	T4	T5
C1	2	0	1	0	0
C2	94	11	12	39	5
C3	0	0	0	10	4
C4	0	0	0	0	0

Figure 4.21: CTM Surface for Danish Municipal and County Public Administration Websites



[26] The figures are an amalgamation of the municipal and county authorities.

4.10 Conclusions

This chapter evaluated the usability of planning information on local government websites in Ireland. The methods used traced the user's journey from finding the local authority site and the ease with which they could use the information presented. All sites were easily located using a common web search engine, however, the delivery and availability of information varied dramatically based on the local authority. Some local authorities did not have a website while others provide little information online. This identifies differences in the way the Internet for the delivery of public information and services is viewed by the local authorities. To a large extent, the type of local authority differentiated between how much information was provided. The county and city councils were more likely to provide a sample task and were more likely to have an online presence than the town and borough councils. The tasks also supplied varied within the different administrative types of local authorities. Certain tasks were more likely to be provided than others (for example, planning pages are more common than development plan maps). Contact details were commonly supplied. This highlights the use of the web as a feeder mechanism to the rest of the local authority services rather than a standalone interface with the local authority. The spatial display of planning information was important to most of the local authorities. However, the geographic nature of certain aspects of the planning system was more readily identified and exploited than other areas. The development plan, for example, rarely was presented without an associated map. Planning applications, on the other hand, were available on a majority of the local authority sites and, thus identified as important, were not presented geographically in the same proportion of authorities.

A number of usability problems were encountered on all websites. Some local authorities had better usability results than others. However, over all the local authorities the usability was not good. Many of the authorities did not consider the needs of the users in the design of the websites. Splash pages, frames, large clickpaths and inaccessible webpages were common. Additionally, the prominence and location of planning information on the homepages and main planning pages varied widely. There were however a number of consistencies in the provision of planning information on these pages.

The differences in priorities of the local authorities identified through the evaluation of the presence of information and the ease of access and navigation was borne out in other evaluation methods. The evaluation of the location of links to different planning tasks showed that the local authorities did comply with some Internet conventions and with each other but generally the information was not consistently located.

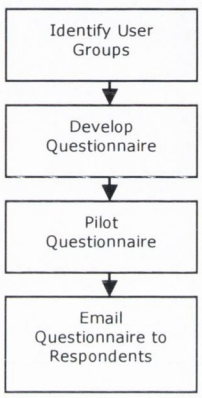
Users can have widely varying experiences depending on the local authority sites they visit. Some local authorities had better results than others and were therefore more aware of their users and the potential of their website to provide information and services in a usable format. The local authority online services are disjointed. Users faced with disjointed and inconsistent services, cannot make use of their knowledge of other local authority websites to fulfil the purpose behind their visit to the local authority website. Many local authorities with shared administrative boundaries are not making the most of the shared geographic characteristics in the provision of services. A considered provision of services and information by the local authorities was lacking and none of the local authorities focused on the users' possible paths to important information within their sites. Consideration of the user and the user's behaviour could quickly facilitate a redesign of the local authority sites to better serve the diverse public users.

Chapter 5: Methodology II: Questionnaire Creation

5.1 Introduction

Planning information on the Internet can be accessed from diverse physical locations by a number of different users. This chapter details the development of an appropriate questionnaire to elicit the reasons behind the use of planning information on the Internet and the user's views of that information as well as to gain an understanding of the users themselves. Figure 5.1 outlines the progression of the methods used in the development and implementation of the questionnaire.

Figure 5.1: Methodological Approach for Questionnaire Development



Section 5.2 introduces the aim of the questionnaire and Section 5.3 identifies the target audience for online planning information and thus the target sample for the questionnaire. The design of the questionnaire and choice of medium is discussed in Section 5.4 and the piloting of the questionnaire and lessons learnt from the methods employed are specified in Section 5.5. The delivery of the questionnaire (Section 5.6) and any unique features are outlined (Section 5.7). Problems and issues of reliability are then discussed in the penultimate section.

5.2 Aim of Questionnaire

The questionnaire was designed to elicit users' needs of local authority planning information. An understanding of the more important tasks can help local authorities divide development time more appropriately. The questionnaire also elicits a number of user behaviour patterns in relation to the search for online information and in this respect can be used to verify the weight of certain usability evaluation methods used in the thesis.

The results of the questionnaire were used to create a profile of the target audience of local authority planning information. Generic characteristics, such as age and education, have a profound impact on users' level of access to online information.

More web focussed characteristics and opinions should also be taken into account in the development of online resources. For example, a more experienced user, such as one with a high level of computer and Internet expertise, may expect different facilities and can accommodate more advanced technological requirements for these facilities to be provided. At a more fundamental level, a less experienced user will need more support in the form of instructions to undertake even basic tasks.

5.3 Target Audience

Two types of planning user exist; groups or individuals with an interest, whether voluntary or commercial, in the planning process and individual users who do not interact on a regular basis with the planning system (e.g. making a once off planning application or objection to a planning application or the development plan). Due to the limited interaction of individuals within the Irish population with the planning system, it was decided to focus on more intensive users, those with a repeated need to interact with the planning system. These are therefore more likely to require information or interaction on a more frequent basis.

Six planning authorities were contacted in September 2004 for a list of contributors to draft development plans and their affiliations (Galway county council, Galway city council, Dublin city council[27], Fingal county council, Wexford borough council and Bray Urban District or town council). The submissions were divided into appropriate categories excluding those received from concerned individuals. The choice of categories was informed by categories of planning users identified by de Róiste (2003) in work on the development of Leicester city's development plan and by the definition of local interest groups as outlined by Moran (1989). The categories identified in this study were compared with the submissions for development plans from each of the contacted local authorities.

Five categories of planning users were identified; Builders, Architects, Community Groups, Environmental Groups and Chambers of Commerce. The focus on more intensive users is ameliorated by the inclusion of community and environmental groups who do not interact with the planning system on a professional basis and therefore may be more representative of the infrequent user. Glicken (2000;307) notes that "individuals generally participate in public processes ... through groups of individuals with a common interest." This however does not account for individual planning application submissions but effectively includes many other possible interactions with the planning process. The sources used to contact users within each of the identified categories is given in Table 5.1 and were accessed over a period of six

[27] Submissions to the Dublin city development plan were available on CD at a cost of €20.

weeks in February and March 2005. Both building contractors and architects were contacted via contact lists on the website of the respective professional organisations. The chambers of commerce were contacted via details supplied on the website of national organisation for chambers of commerce in Ireland.

Table 5.1: Survey Participants Sources for Survey Participants

Survey Group	**Source**	**Email Addresses**
Architects	RIAI (Royal Institute of the Architects of Ireland) (http://www.riai.ie/?id=5761)	462
Building Contractors	Construction Industry Federation (CIF) (http://www.cif.ie/asp/locate_a_member.asp)	313
Chambers of Commerce	Chambers Ireland (http://www.chambers.ie/chambers.php)	59
Community Groups	Irish Links (http://www.activelink.ie/irish/index.php)	501
Environmental Groups	Enfo (http://www.enfo.ie/ngo_list.htm)	152
State Environmental Groups	Enfo (http://www.enfo.ie/leaflets/fs9.1.htm)	29
Total		1516
Final Total Minus undeliverable emails, out of office replies and not suitable responses.		**988**

Contact details for environmental groups were gathered from lists compiled by Enfo. Enfo, the Irish "public information service on environmental matters" (ENFO 2006), supplies a list of environmental organisations, both non-governmental and state. Groups included in the non-governmental environmental group list have specifically approached Enfo to add their details to this list. They are self-selected and view themselves as appropriately placed in the environmental arena. The state environmental survey group comprises of a complete list on the date the list was compiled by Enfo. Some state agencies also have legal responsibilities within the environmental arena and are, therefore, likely to be intensive users of planning information. The community group contact details were collected from the Active Links community website. This site is one of the primary online resources for Irish community groups.

The lists used are not conclusive but they are the authoritative sources for the respective categories. Additionally, due to the effort required on the part of the organisation to register, these are the organisations that may be more likely to be active. It is important to note that some of the groups are not operating at present so the number of emails sent containing the link to the questionnaire does not adequately represent the full population size of the different categories. Furthermore, not all organisations emailed will have an interest in planning. Many community groups and some environmental groups will not have dealings with the planning

system and therefore response rates, assuming that a full population was contacted, are likely to be higher than a simple percentage of responses to emails sent.

The database created from the relevant websites was manually validated and the data were cleaned. The steps in this process are given in Table 5.2. Only groups with an email address and a Republic of Ireland postal address were contacted.

Table 5.2: Manual Validation Criteria

1. Correct Counties given
2. Insertion of remainder of address e.g. if only town given
3. Correct grammar (e.g. capitals and commas)
4. Addresses make sense
5. Dublin post code where appropriate are correct and present
6. Duplicate repetitions of addresses deleted (e.g. ORahilly building, ORahilly building)
7. All addresses are within one cell on a single line (when copying from the Internet, it pastes to a separate line and needs to be edited)

5.4 Questionnaire Design

Questionnaire design has two important aims. First, the questions used must best gain the appropriate answers from respondents. For example, the questions must clearly refer to the issue of interest and the answer categories, if used, should include all possible answers. Second, the questionnaire, by its design, should minimise non responses through the use of reminder contacts or other appropriate techniques (Dillman 2000).

The questionnaire developed, as part of this thesis, followed the Tailored Design Method based on research into social exchange theory (Dillman 2000). This method is a set of steps which maximise the response rates of the questionnaire. When applied to traditional paper questionnaires, the respondents are contacted three times. The first contact introduces the questionnaire, the second contact is the questionnaire and supporting documentation such as cover letters and the third contact is a reminder. Consideration of the wording of the questions in a questionnaire is important to minimise measurement error. The creation of this questionnaire was informed by Biemer *et al.* (1991) and Dillman (2000) in this regard.

The use of online questionnaires and email surveys is increasing rapidly (Dillman 2000). This medium requires some reworking of the traditional format for questionnaires. The layout of the questionnaire was kept as simple as possible in accordance with research on the response rates for plain or more ornate web questionnaires undertaken by (Dillman *et al.* 2004). Scrolling, multiple questions per page and progress indicators were developed according to the considerations expressed by (Dowling 2003) based on a collection of statistical studies.

The questionnaire designed for this thesis was divided into four general sections; Planning Experience, Level of Local Authority Webpage Use, Pattern and Level of Internet and Computer Use and Demographic Characteristics.

The first section on Planning Experience, investigated the respondents' previous experience with the Planning System in Ireland. It explores their perceptions of the process and applicability of each of the planning related tasks to Internet dissemination. The second section (Level of Local Authority Webpage Use) queried respondents on their use of local authority webpages at present. As this thesis is focussed on planning information in particular, this section provided a context for any findings and, through an analysis of the data, assessed the appropriateness of extending conclusions made in the planning arena to other areas of local authority information. The third section (Pattern and Level of Internet and Computer Use) asked respondents about the frequency of computer use; the frequency, duration and location of Internet use; common online activities; search patterns and general perceptions (e.g. trust) of online information. The fourth and final section of the questionnaire related to general demographic characteristics of the respondents; such as gender, age, education and local authority area. This section also records the nature of the respondent's interaction with the planning system, whether it is personal, work or community related.

A number of steps were undertaken to increase the likelihood of correct responses by all respondents. Dillman (2000) underlines the significance of an easy and interesting first question; one which all respondents are able to answer. The first question was straightforward, did not require respondents to think deeply about the answer and immediately addressed an issue of direct relevance to the survey ("Do you know what an application for planning permission is?"). However, the second question required a higher level of thought on the part of the respondent. The sections were ordered with the important questions presented to the respondent first. While the questions in the Internet section may have been easier for the respondents to answer, during piloting it was found that respondents wished to see the most relevant questions first to understand the nature of the questionnaire. This also had the advantage of recording answers for this section whether or not the respondent completed the questionnaire in total.

In order to reduce response errors and abandonment of the questionnaire, great care was undertaken to ensure respondents could answer all relevant questions. Dillman (2000) recommends that instructions are given where needed rather than at the start of the questionnaire or in an attached document (in this case, another browser

window). The instructions required to fill out the questionnaire are given with every question and the differences are given in underlined and bolded text (e.g. '**all** appropriate boxes'). Additionally, where common Web terms were included in the questionnaire, an option was given to respondents to click on a link and view an appropriate definition for the word or phrase in an always-on-top, popup, browser window. In this way, the definitions were available to users unfamiliar with the terms, while not overly cluttering the questionnaire for other respondents. During the pilot stage, it was discovered that some respondents, while aware of how hyperlinks worked, did not immediately associate a hyperlinked term with the facility to click on a term and get a definition of that term even though instructions were provided at the start of the questionnaire. The instructions were moved and provided before each term (e.g. "Click Here for an explanation of Homepage").

All the questions were carefully worded to eliminate any leading expressions, to this end both positive and negative phrases are included in the questions (e.g. 'How satisfied or dissatisfied were you with your use of the local authority's online service for planning permission?'). Where answers were restricted the respondent was allowed to comment on their response. The answers were clearly demarked from the question through the use of formatting. The questions were bold and larger font while the answers were normal font and indented. In addition the answer categories are repeated where appropriate to decrease the response time. For example, all scales were given in one direction from the positive extreme (Extremely Satisfied) to the negative extreme (Extremely Dissatisfied). However, this may have made the questionnaire less interesting. In cases where questions do not apply to all respondents, the option of recording an answer was given where possible. This increases the validity of analysis of the resulting data and negative answers are not confused with non-responses.

Thought was given to the use of response categories to minimise the impact of respondent's bias. Respondents answer the questions with certain preconceptions. For example a respondent believes they have high Internet use, they are more predisposed to choose an answer among the higher options scale regardless of the response categories (Dillman 2000). In Section C Question 3 the categories reflect observed patterns of behaviour among the author's acquaintances and family and offering different categories could entice respondents to over- or under-estimate the amount of time they spend on the Internet.

The flow of questions can also be important in the design of a questionnaire. Certain questions presented in a particular order can elicit different responses. For example, Section C Question 5 was deliberately presented to respondents before discussing the

different Internet use characteristics. This question was used to test certain usability assumptions made during usability testing and, as such, it was important to record the respondents' initial thoughts and reduce any possible contamination that could result from a greater recall prompted by a discussion of search engines and online practices.

Questions dealing with averages can give very misleading results. Asking a respondent to give an average figure for the amount of time they spent on the Internet every day, without providing a recent time-frame, can lead to highly erroneous responses. Human memory generally decreases in accuracy as time from the event progresses especially as that event may not be that memorable in itself (Dillman 2000). Average behavioural responses are therefore more likely to be accurate when based on respondents' recent experience and behaviour rather than an accurate recollection of events over a longer period of time. For this question, the respondent must add the total amount of time they have spent on the Internet over the past week and divide the total by seven or provide an informed estimate.

Demographic information and questions relating to the respondents' work were recorded in the final section. This allowed for the submission of the first three sections should the questionnaire be abandoned. The questionnaire may be abandoned if respondents cannot see the relevance to the questionnaire content or feel the questions are too intrusive. Some users are unwilling to enter this type of personal information. Furthermore, respondents are less likely to abandon the questionnaire at this stage and even if this should happen the much of the remainder of the questionnaire will already be recorded. The results will be of reduced value should the questionnaire be abandoned but less information is lost in this way.

Where questions overlapped, the response categories and questions were kept as similar as the aims of the project and questionnaire would permit; in particular, certain response categories were amalgamated (e.g. age) to reduce the length of the question and the level of intrusiveness of the responses sought however these responses can still be compared with the census variables.

An offer of further information on the project or the results of the questionnaire was offered on the final page. This was used to engender good will in the respondents and also provide an avenue for future results dissemination.

5.5 Pilot Questionnaire

The survey was first tested in both paper and electronic form by a number of professionals within usability, computer science, planning, geography and statistics

(14 participants) as well as friends and family (16 participants). Any issues raised were corrected and retested before the survey was piloted.

Initially, categorised random selection of participants for the cognitive testing pilot study was chosen. Ten random numbers were selected from a list of randomly generated numbers to the total number of entries in each of the separate tables of the participant database. The first ten potential respondents were chosen if their unique identification number corresponded to the random number generated. Potential participants were then contacted by phone. This method was not effective. Potential participants within the voluntary section were difficult to contact, while potential participants in the commercial categories were unwilling to participate due to the time commitment required especially as the interviewer was unknown to them.

As the random identification of pilot participants was unsuccessful, the pilot participants were then chosen via personal contacts which ensured that the participants were willing to undertake the survey. Where possible, the pilot was undertaken in the participant's own home or business. Where this was not possible, the pilot was undertaken in the observer's home or the home of a friend of the participant. This created realistic conditions for the survey's completion. Table 5.3 details the profession of each of the pilot participants, the location of the pilot and the date the pilot was undertaken.

Table 5.3: Pilot Participants

Category	Location	Date
Architect	Participant's Office	25th July 2005
Building Contractor	Observer's Home	21st July 2005
Chamber of Commerce	Participant's Office	2nd August 2005
Community Group	Participant's Office	22nd July 2005
Environmental Group	Observer's Home	27th July 2005
Environmental Group	Friend's Home	21st July 2005
Local Development Group	Participant's Office	26th July 2005

The pilot stage of the questionnaire development was based on cognitive think-aloud testing of the online questionnaire (this area was explored in Section 2.8.3). This method is based on computer usability testing practices[28] but has been applied to questionnaire development (e.g. Geyer 2003a, Geyer 2003b, Willis 1999). Participants were asked to 'think-aloud'; to vocalise their thinking processes throughout the questionnaire completion. This has the particular benefit of checking whether the question being asked and answered corresponded. Some respondents were more at ease voicing their thought processes while others were clearly uncomfortable. Where the respondent was reminded twice to think-aloud and lapsed

[28] For a more detailed discussion of this process in terms of website evaluation refer to Section 2.8.3.

into silence again, they were not reminded further. It was felt that reminding respondents in excess of this was overly distracting and as the observer was present to note the answers and whether any unnecessary hesitation was exhibited. In such cases, these areas of the questionnaire were revisited and discussed at the end of the session. Where respondents continued to think-aloud throughout the session, more valuable insights were gained into how they were interacting with questionnaire. They were more likely to draw attention to minor difficulties they were having and any sentences they could not understand from one read-through.

Participants were observed while filling in the questionnaire online in as realistic an environment as possible. The observer sat behind and slightly to one side of the participant out of the participant's range of sight where possible. The screen of the computer was visible to the participant and the observer at all times. At the beginning of the session, the participant was told that the questionnaire was being tested and should they not understand a question make the source of confusion clear and continue completing the questionnaire as though the observer was not present. When responses did not cover expected areas, a note of the question was taken and the participant was questioned about potential wording improvements at the end of the session. General impressions about the questionnaire were also collected at this stage of the pilot and possible improvements as well as areas participants found particularly easy to understand and identified as particularly relevant were ascertained.

The presence of the observer had an impact on the way the questionnaire was completed, as the participants were aware of the observer, they sought guidance about their understanding of the questions and whether particular answers were valid (e.g. "how many answers do I fill in? Can I fill in more than one section?"). As much as possible, the observer was noncommittal and repeated the instruction that there were no right or wrong answers and the goal of the exercise was to assess the questionnaire; in other cases, a non committal "aha" was given. When questions were directly asked about the questionnaire, the participant was told to answer as normal and an explanation would be given at the end of the session. Observations were made by the observer on a printed copy of the questionnaire. Where problems had been experienced by participants or where they showed significant hesitation were especially noted and were returned to at the end of the session.

As a result of the pilot testing the survey was significantly altered and the last section on questionnaire design specified these changes where appropriate. Pilot testing can also identify the positive features of the questionnaire design and a number of features were found to be particularly helpful. These positive features included bolded text for skimming the important points in the opening page of the questionnaire.

Additionally, many respondents commented that the layout was clear and uncluttered. Respondents appreciated the ability to skip using hyperlinks to the relevant sections.

5.6 Questionnaire Delivery

This section details the method of questionnaire delivery followed and identifies any decisions made throughout the process. The questionnaire was hosted on a geography departmental address in Trinity College, Dublin. It was hoped that this address would add weight to the survey. The address was made as clear as possible to aid users wishing to enter it manually into the browser and further encourage responses.

The tailored design method proposed by Dillman (2000) of multiple contacts was followed. Potential respondents received three emails. Little research has been undertaken as to the best psychological approach for web surveys and when the reasons behind the use of traditional methods did not apply to the online environment, a different approach was undertaken. For example, unlike standard postal questionnaires, the link to the survey was included in each of the three contacts as there was no increase in costs.

The emails were compiled using the mail merge function in Microsoft Word (word processing) and Outlook (email) programs. Where available, the contact details included a first and surname for a contact person within the organisation. The email was tailored to the contact details and mentioned how the contact information was collected. The contact emails for a specified and unspecified contact person are given as Table B.1, Table B.2 and Table B.3 in Appendix B.

If respondents felt that the questionnaire was not applicable to them and contacted the author to this effect, they were removed from the database and not included in future mailings. Respondents replying that they were interested in receiving further information or that they had completed the survey were also removed from future mailings so as to send as few unsolicited emails as possible. Some respondents replied to the second contact stating that they had completed the questionnaire and were concerned that I did not receive their response. An email explaining the anonymity of the questionnaire was sent to each of these respondents in addition to removing their contact details from the database.

Twenty-one paper copies of the questionnaire with enclosed, stamped, self-addressed envelopes were posted to respondents where they experience access problems or were unwilling to complete the questionnaire online. The questionnaire responses were then entered manually into the database.

5.7 Questionnaire Design Elements

The questionnaire was coded using HTML (Hyper Text Markup Language), PHP (Hypertext Pre-processor), CSS (Cascading Style Sheets) and Javascript. The HTML code was used to present the questions, possible responses and other text and control the response options. PHP was used to collect the responses to the different questions and write them to the database. CSS controlled the formatting of different sections of the questionnaire, such as the difference between a question, a subquestion and a response. Javascript was used in the last section of the survey to generate appropriate planning authorities for the county chosen by the user. The questionnaire was created in Macromedia's Dreamweaver MX, a web authoring program. The pages were then tested in both Microsoft's Internet Explorer and Mozilla Firefox.

Making sure error quotes were not recorded and the right variable names were entered in the HTML and PHP code is a time consuming task. Additionally, errors such as those caused by the use of apostrophes needed to be considered and coded. In the online questionnaire, this was accomplished by replacing the apostrophes in any entered text with a star symbol (*).

In an online questionnaire certain technical information can be obtained from the Internet session. In this questionnaire, the users' IP addresses, browser and the date and time of submission was recorded. The variables are quick and easy to capture and do not require user input. The IP address was used for validation of responses only.

A greeting was given on the first page reiterating the type of information sought from the respondent, the date the survey closes, the anonymity of the survey responses, the rationale behind the survey, contact details and a button to access the survey.

The usability of the questionnaire was considered where possible. The font chosen for the survey was Verdana[29] as this font was designed specifically to be read on screen and is regarded as one of the most legible font available (Will-Harris 2006). The section progression was displayed at the top right hand corner of the webpage (Figure 5.2). The progress towards the end of the questionnaire was graphically displayed by coloured cells in a four cell table and the appropriate text. An indication of this progression allows Internet respondents to gauge how much of the questionnaire remains; the closest offline equivalent is the respondent's awareness of the number of pages left to complete.

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[29] The actual font family used was 'Verdana, Arial, Helvetica, sans-serif'.

Figure 5.2: Survey Progression Indicator



The questions were numbered sequentially per section. Where questions were not appropriate for all respondents, there were indented and numbered alphabetically. Questions were displayed in bold font and followed by the appropriate response instructions (e.g. [Please select **one** answer by clicking the appropriate circle]). Where the user was asked to skip questions, a hyperlink was given to an anchor in the HTML code beside the relevant question (e.g. 'Click Here to go to question 4'). Radio boxes were used for single response answers, checkboxes were used for multiple response answers and textboxes were used for open-ended responses.

Where Internet or Planning terms were used for the first time, an explanation was given via a hyperlink to a popup window (Figure 5.3 and Figure 5.4).

Figure 5.3: Hyperlink to Explanation of Term

(Click Here for an explanation of **online**)

Figure 5.5, Figure 5.6 and Figure 5.7 show the use of the county and planning authority drop down menus. Respondents are asked to select a relevant county from the list supplied (Question 6 in Figure 5.5 and Figure 5.6). The relevant planning authorities for that county are then displayed in the second drop down list generated from javascript. This ensures that users are aware of what local authorities are planning authorities in their area and also decreases the amount of post processing required to analyse the information entered by respondents.

Figure 5.4: Explanation Popup Window for Hyperlinked Terms

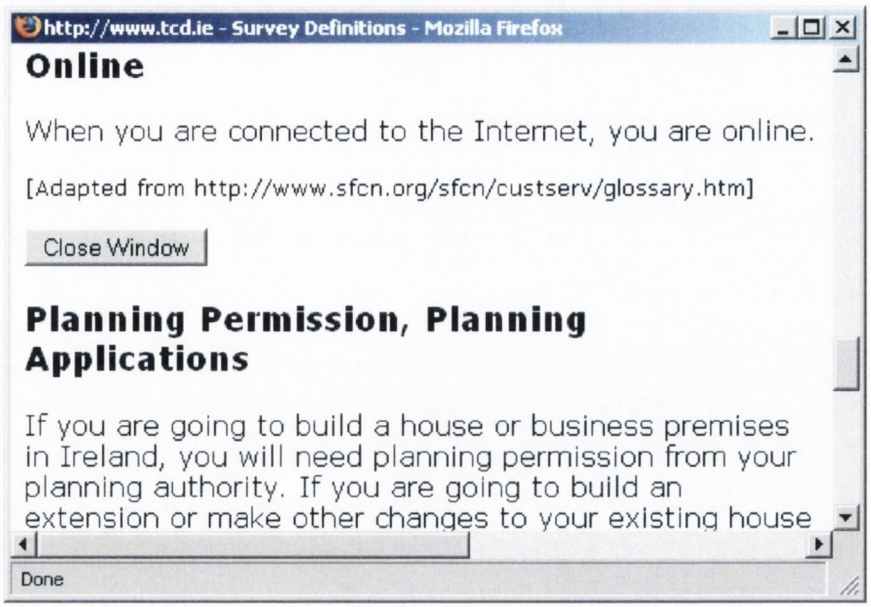


Figure 5.5: County and Planning Authority Questions

6. What administrative county do you live in? [Please select one answer by clicking on the drop-down menu]

Select a county

7. What planning authority area do you live in?
(County Councils, City Councils, Borough Councils and Urban District Councils (UDCs) but not Town Commissions.)

Planning Authorities will appear here after you select a county

Figure 5.6: County Menu Options

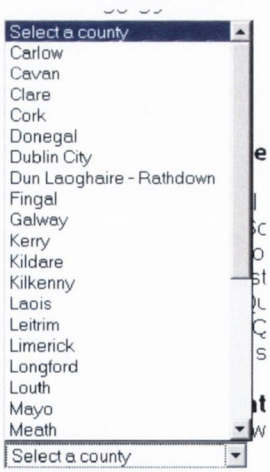
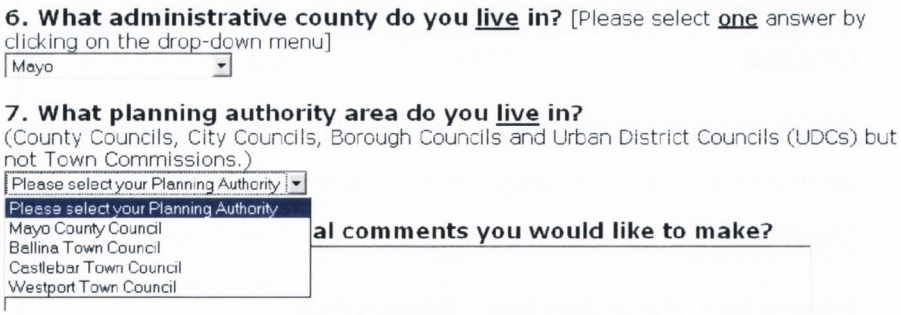


Figure 5.7: Relevant Planning Authority Options for the Selected County



A distinct advantage to the use of web surveys over traditional postal or telephone surveys is that changes can be made should problems be encountered. For example, one respondent mentioned that they were unhappy filling in a questionnaire that did not provide respondents with a means of receiving the final report. This issue was then addressed in the third contact email (Table B.3).

5.8 Post-Processing and Analysis

The responses were written to a MySQL database. The database was created using MySQL front end. The code for the database is given in Appendix C. The data were then exported as a comma delimited file to Microsoft Excel. The data were then cleaned manually (extra tabs and commas deleted) and exported as a tab delimited file into SPSS for analysis.

Two post processing features are worthy of note. First, Likert scales were used to assess the level of satisfaction or agreement. While there is some concern over their use, other qualitative alternatives do not allow for comparisons (Altman 1991). However, care must be taken when statistically analysing the results as the categories can be extremely subjective. One particular way of dealing with this is to use medium and not average values. Second, educational attainment (Section B Question 5) was recoded after the questionnaire closed by ordering each level of education selected by the respondent and only retaining the highest level.

5.9 Problems and Reliability

An online survey can be quickly and effectively administered but surveying any population on the Internet is problematic. While Internet users are becoming more representative of the total population in Western countries, the Internet still has a number of barriers to use which exclude certain members of the community. These barriers have implications for random sampling for questionnaires. As this survey was targeted specifically at Internet users, using an online questionnaire was appropriate. All members of the target population have already overcome these barriers; however, conclusions cannot be made about a broader population which includes non Internet-

using members. Nevertheless, creating a random sample of potential respondents to an online questionnaire is difficult as Internet users as a subsection of the total population are difficult to identify. There is no central repository of possible respondents such as the electoral register or telephone book. This may introduce sampling bias and have implications for drawing wider conclusions about the results of the questionnaire.

Controlling the number in the sample with an online questionnaire is difficult. Some respondents forwarded the introductory email to others "to help [me] out" (Respondent 76). The response rate for the online questionnaire is therefore impossible to estimate with any level of precision. Additionally, email addresses can be quickly and easily changed, meaning that respondents' address may be out of date. Respondents also may not check their email during the time the questionnaire is running. This is likely to be a larger problem than is the case with postal questionnaires.

Paper copies were sent out when respondents were unable to access the online questionnaire for whatever reason and contacted the author for a paper questionnaire. Some of the respondent's information could have been already entered into the online questionnaire and submitted thus increasing the chance of repetitive responses.

Undertaking an online questionnaire requires reliance on a number of technical products. The webpages are hosted on a site, the database is accessed usually on another site, the user's computer and Internet connection must be operational. In order to increase response rates, filling the questionnaire must be as easy as possible and any technical difficulties, not experienced by other forms of data survey, will reduce the responses.

In hindsight, the questionnaire was too long and the number of variables included should have been reduced. As there was little research was available in this area, the questionnaire's length was deemed necessary but there was a trade off in its wider applicability. The length may have reduced the number of fully competed questionnaires returned. However, due to the nature of the questionnaire and the ability to skip questions, this was only a minor limitation.

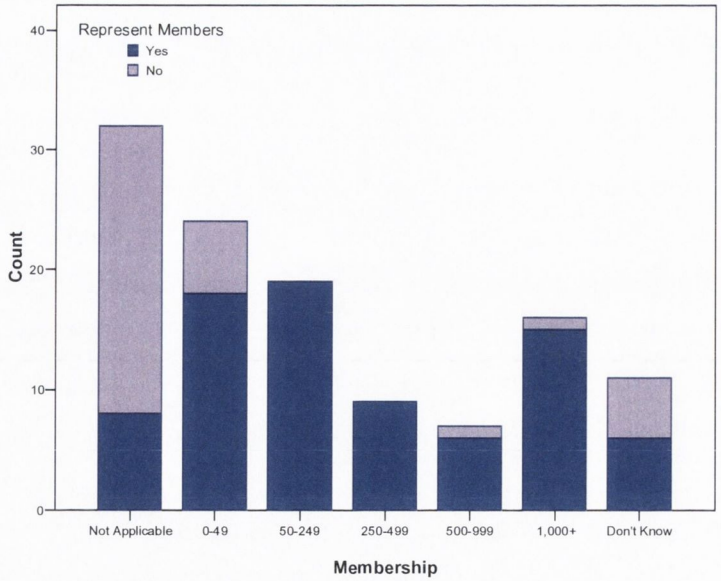
A further issue encountered concerned the high number of 'not answered' responses. When a respondent clicked the "Go to next page" button at the end of Section A more than once, a new line was created in the database for each time the respondent clicked. The database then contained copies of the responses for Section A and blank entries for the remaining variables for the other sections. The respondent then filled

in Section B once and this was recorded only once in the database. The other extra lines in the database only contained the first page responses and blanks for the remaining variables. This issue causes an over-estimation of response rates and falsely increases the number of respondents in the database.

As respondents were contacted at the same time by email, they were likely to undertake the survey at the same time. This may have caused a slow down in response time from the server, causing users to click the button if there was no visible sign of activity from the server. To cut down on these unintentional non-responses to questions, further thought needs to be given to this issue in future versions of the questionnaire.

Figure 5.8 shows the number of respondents who work in organisations who represent members further classified by whether or not the respondent identified their organisation as one which represents members. The data needed to be further cleaned based on this information and all responses for the number of members were set to not answered and removed from the resulting graphs where the respondent did not specify that their organisation represented members. This is likely to give a more accurate representation of the number of organisations with a membership as users may have inadvertently filled in the number of members by misunderstanding the question. During pilot testing, this section of the questionnaire was particularly assessed and the wording was deemed to be the most appropriate.

Figure 5.8: Raw Data for Membership of Firms by Staff Members



5.10 Comments on Future Questionnaire Design

Updating a paper version of the questionnaire would have been significantly quicker than the online version as changing variables entered in HTML and PHP documents require changing the actual variables and the code required to edit the database. However, when the survey was undertaken, data entry and manipulation time was significantly reduced and any errors caused by manual input of responses were eliminated.

The need to create a database, in advance of testing the online questionnaire, helped the design process considerably. Each variable needed to be coded and the number of variables created by a particular question needed to be teased out in advance of any testing. It was easier to be strict about how the responses would be coded and have a clear idea of what format the responses would take. The author found this helped to visualise what outcome for each of the variables was appropriate and could refer back to the question to see if this was what was asked.

There is benefit however in undertaking a more traditional, non-cognitive think-aloud pilot study in addition to this method, as respondents, when observed, are likely to answer every question, spend more time and submit the questionnaire. The think-aloud method alone would not help gauge response rates and, thus, give an idea of how well the questionnaire encourages potential respondents to submit or post back the questionnaire.

The online medium encourages the use of closed questions rather than open ended questions and therefore may be more suited to particular types of surveys as respondents may need to type in their answers which could take significantly longer than a postal questionnaire where responses are hand written.

5.11 Conclusions

This chapter detailed the selection of the potential respondents, development, piloting, design and delivery of an online questionnaire. The questionnaire focused on gaining an understanding of the users of online planning information in terms of their needs, expectations and characteristics. Designing an online questionnaire requires a rethinking of the traditional development processes of a paper questionnaire and certain aspects of its design can be greatly improved, however there are a number of compromises the use of this medium requires the questionnaire developer to make and take into account.

Chapter 6: Results II: Questionnaire Findings

6.1 Introduction

This chapter presents the results of the questionnaire sent to different users of planning information and reports the characteristics of the users and their experience and expectations of planning and the local authority. The users of online information can be difficult to contact in a statistically valid way. Their interaction with the relevant website can be tracked from their exploration of that site but this information does not reveal the characteristics of the users and their views of the site and the importance of the service they are using. This questionnaire fulfilled two functions; the first was to gain a better understanding of who the target audience for the local authority service was and second, to gain an understanding of user needs and demands of the local authority online facilities.

The response rate is important in determining the validity of the questionnaire. This varied over the life of the survey and is dealt with in Section 6.2. The demographic characteristics of the respondents are presented in Section 6.3. The level of computer and Internet experience are examined in Section 6.4. The use of the local authority websites by the respondents is explored in Section 6.5. Sections 6.6 and 6.7 present the results of the questionnaire for planning information and mapping awareness and use respectively. A large number of percentage values are given in this chapter, where possible these values are given as a percentage of the valid total to facilitate easier comparison between variables.

6.2 Questionnaire Completion

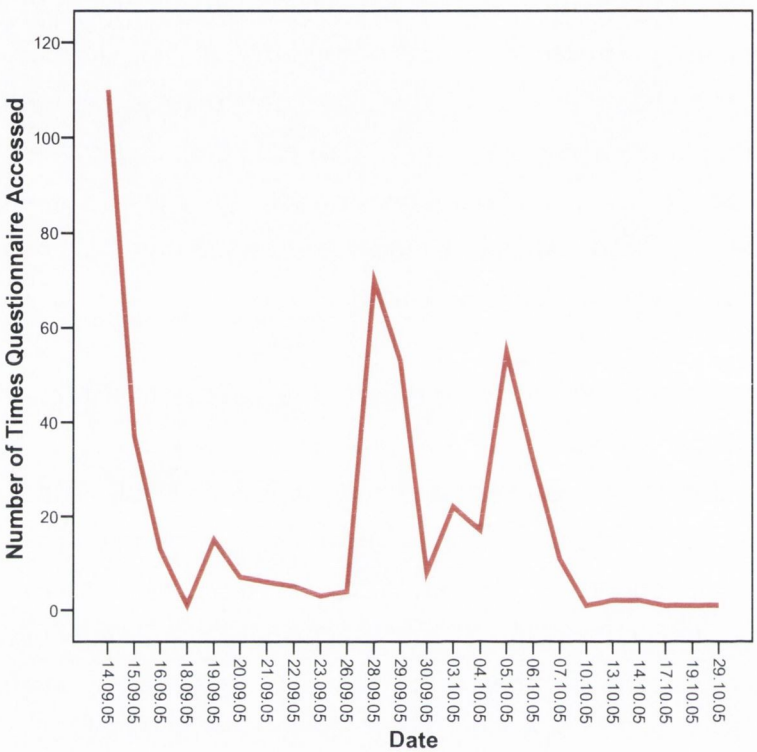
The questionnaire closed on the 30th of October 2005 and was accessed 477 times; of these only 25 people accessing the pages did not fill in any responses. An online questionnaire response was submitted if the user pressed the "next page" button at the end of the first page. There were an additional 13 paper questionnaires returned of the 20 sent (65%[30]). The valid response total for the questionnaire was 465.

The online questionnaire was most frequently accessed on the 14th of September (110 of 477 hits); the date the first email was sent to potential participants. The second email was sent on the 28th of September and there was a corresponding peak in the number of times the questionnaire was accessed on that date (70 hits on that date) and the next day (53 hits). The third and final email was sent on the 5th of October

[30] This figure is likely to be higher than expressed here as users were reminded with a link to the questionnaire in the second email and may have filled the questionnaire out online rather than filling in the paper copy.

and the website was accessed 55 times on that date. Figure 6.1 displays the number of times the online questionnaire was accessed over the period of time the questionnaire was open. The three main peaks within the graph correspond to the three dates emails were sent to respondents to introduce the questionnaire and to remind them to fill out the questionnaire. On some dates within the period, no responses were received.

Figure 6.1: Number of Times Questionnaire Accessed by Date

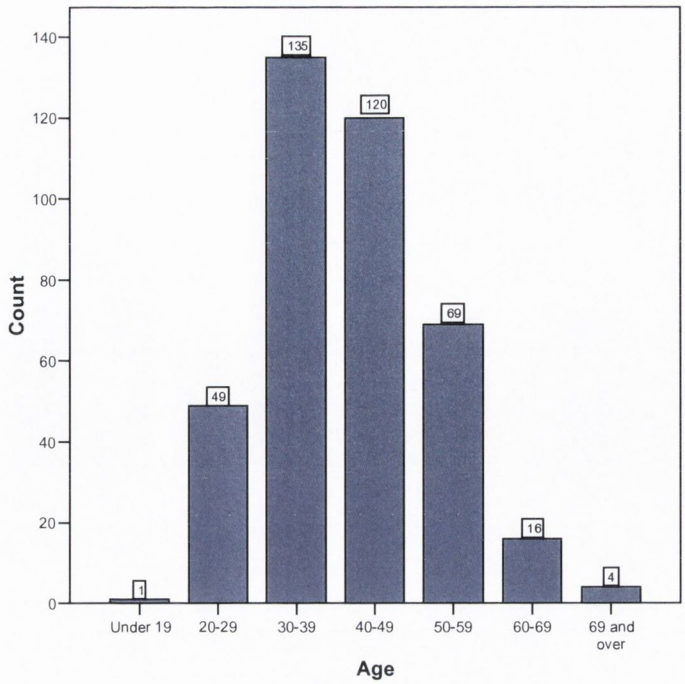


6.3 Demographics

The demographic section of the questionnaire allows us to build a mental picture of the respondents. It is important in terms of assessing who is represented by the results of the questionnaire and this information can be used to design different aspects of user testing and site evaluation. The typical respondent was male, aged between 30 and 39, had a postgraduate qualification, used planning information as part of their job and worked in architecture firms of between one and ten staff members and their company did not have a membership base.

Of the 465 respondents, 254 were male (63.8%) and 144 were female (36.2%); the question was not answered by 67 respondents. Figure 6.2 shows the age distribution of respondents. The majority of respondents were concentrated in the 30-39 and 40-49 age groups. This higher age group coupled with the type of company is likely to signify that respondents are more established within their companies.

Figure 6.2: Age Distribution of Respondents



The level of education of the respondents was high with the most common levels of education being a postgraduate, third level or professional qualification. Figure 6.3 shows the number of respondents in each educational category. The level of education of the respondents is high. While these qualifications are becoming more common place, the high level of education combined with the older age profile of respondents is potentially important.

Figure 6.4 displays the distribution of the respondents' level of education further classified by whether they use the planning system as part of their work. The high level of education is also a characteristic of respondents who used the planning system in a voluntary or personal rather than a professional capacity.

304 respondents (75.8%) used the planning system as part of their work, 97 (24.2%) did not and 64 did not answer. Figure 6.5 shows the distribution across the specified target occupation categories of the respondents. The majority of respondents worked in architecture. This reflects the number of architects contacted as part of the questionnaire and also their professional interest in the planning process. Archaeology was not specifically targeted but emerged from the responses to the questionnaire.

Figure 6.3: Respondents' Highest Level of Education

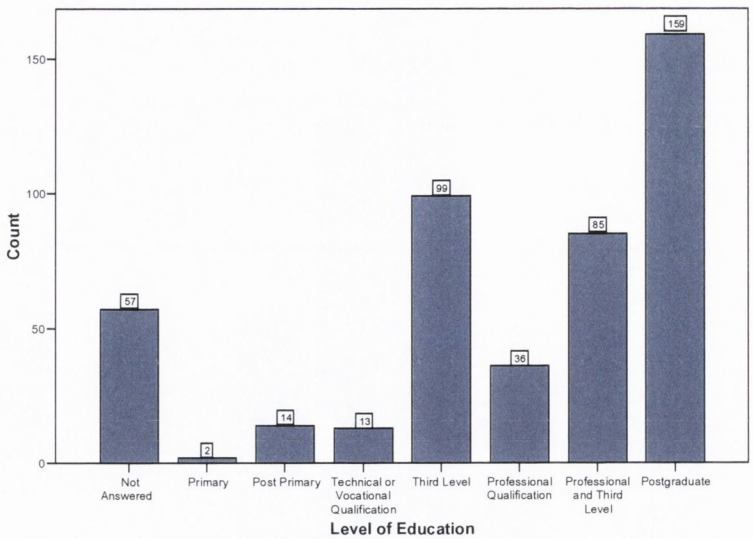


Figure 6.4: Respondents' Highest Level of Education and their Use of the Planning System as part of their Work

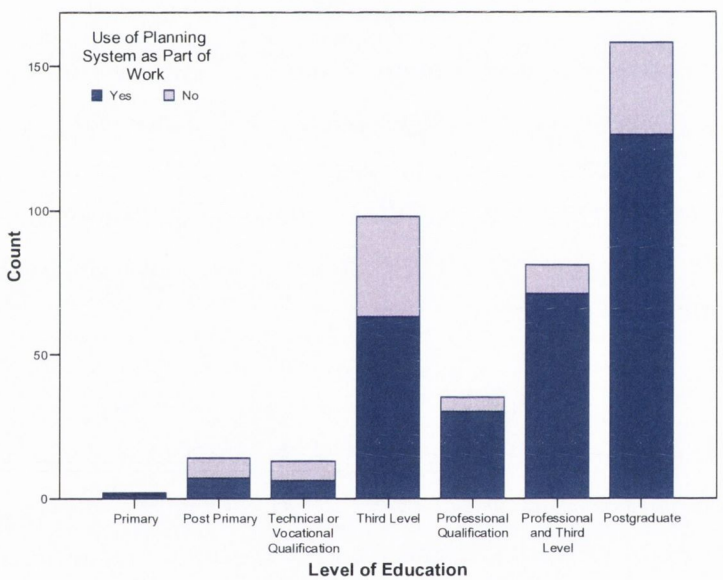


Figure 6.5: Occupation of Respondents who Used the Planning System as part of their Work

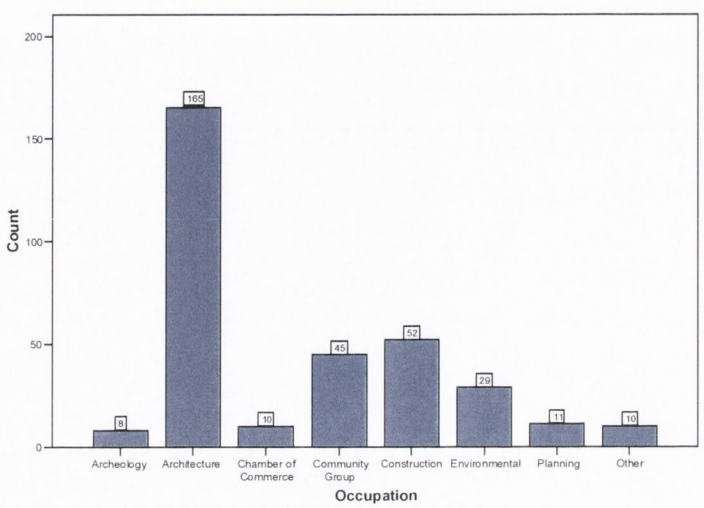
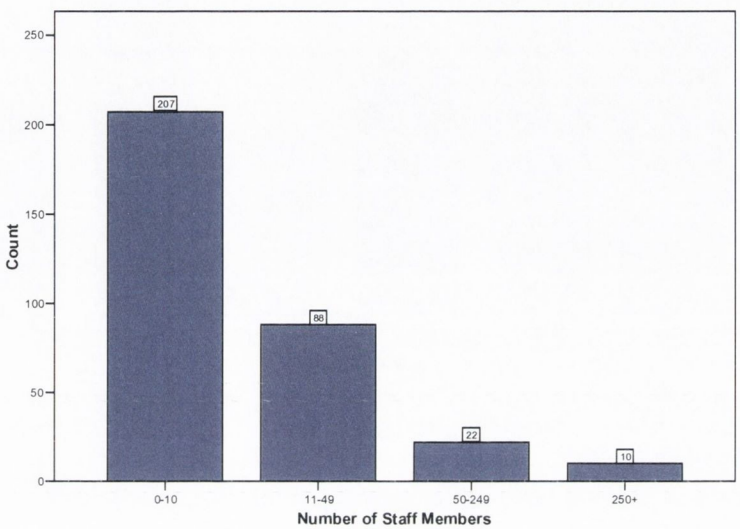


Figure 6.6 shows the size of the respondent's firms; the categories reflect those used in national economic surveys (ESRI 2006). The majority of respondents work in small firms of one to ten staff members. This may reflect the method by which the questionnaire was undertaken; one email was sent to each firm regardless of the size of firms and only one response was sought from these firms.

Figure 6.6: Size of Respondents' Firms



The size of an organisation is generally represented by the number of staff members. However this situation is different for voluntary organisations. The membership of voluntary organisations can determine the strength of its representation and any views expressed by this organisation. 83 respondents (27.2%) said they were working for an organisation who represented members and used planning as part of their work. As can be seen from Figure 6.7, this membership is most likely to have between one and 249 members (the lowest two categories). There was also a high number of organisations with over 1,000 members. While the numbers are low for the amount of staff members in organisations who represent members, their impact on the planning system and use of any online processes may be significantly higher if the organisation's remit is directly related to planning, e.g. Greenpeace and *An Taisce*.

Of the 465 respondents, 105 (27.1% of those answering the question) used the planning system as part of their volunteer work. Most respondents (12.3%) were involved in community groups as part of their volunteer work that involved the planning system. This reflects the higher number of community groups contacted as part of the questionnaire.

Figure 6.7: Membership of Firms by Staff Members

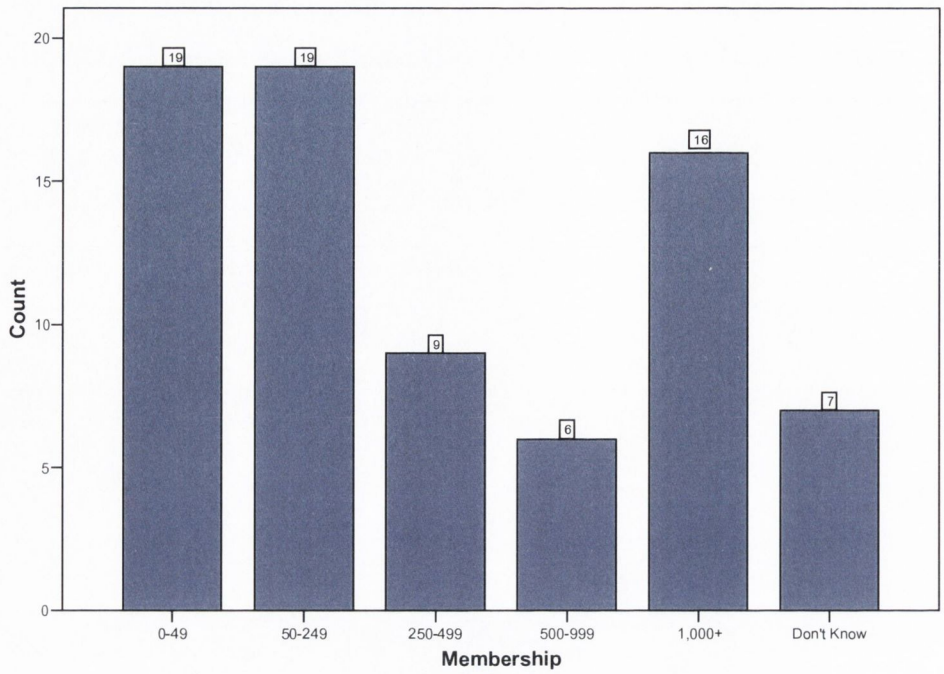
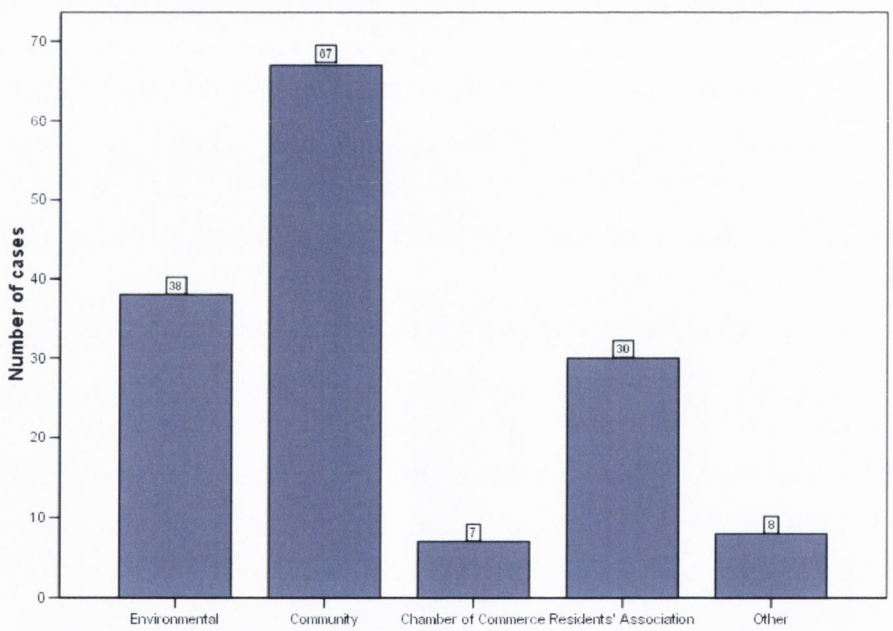


Figure 6.8: Number of Respondents who Used Planning as Part of their Volunteer Work by Volunteer Category



6.4 Computer and Internet Experience

The type of Internet use exhibited by the respondents of the questionnaire is important in determining the technical level that different online features can be targeted towards. If users repeatedly use the site, an expert section could be developed to streamline the experience and if users are familiar with Internet and computer technology, innovative methods can be employed to best serve these users. The characteristics are therefore important in designing the online system for their use.

Most of the respondents (394) access the Internet from work, but a substantial number of respondents (303) also accessed the Internet from home. Few accessed from other locations (64 over the five remaining categories). The number of respondents who accessed the Internet in each of the seven categories is given in Figure 6.9. A further seven respondents used mobile devices and three used Internet connections in hotels.

Figure 6.10 shows the distribution of users across the different connection types. The majority of respondents (281) to the questionnaire used a broadband connection to access the Internet. Additionally, 62 respondents had an ISDN connection. This means that the users of planning information are most likely to access the Internet on high speed connections. Therefore, downloading large documents, such as development plans, and filling in online forms will not be limited by poor Internet connection speeds. Only 59 of the respondents accessed the Internet using a dialup modem.

Figure 6.9: Internet Access Locations

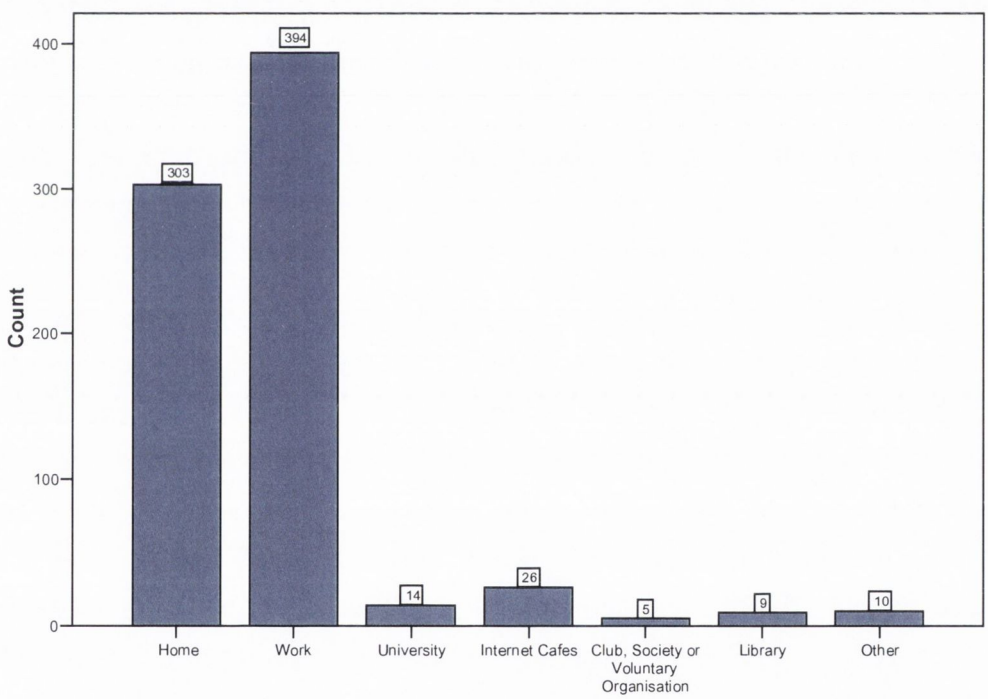
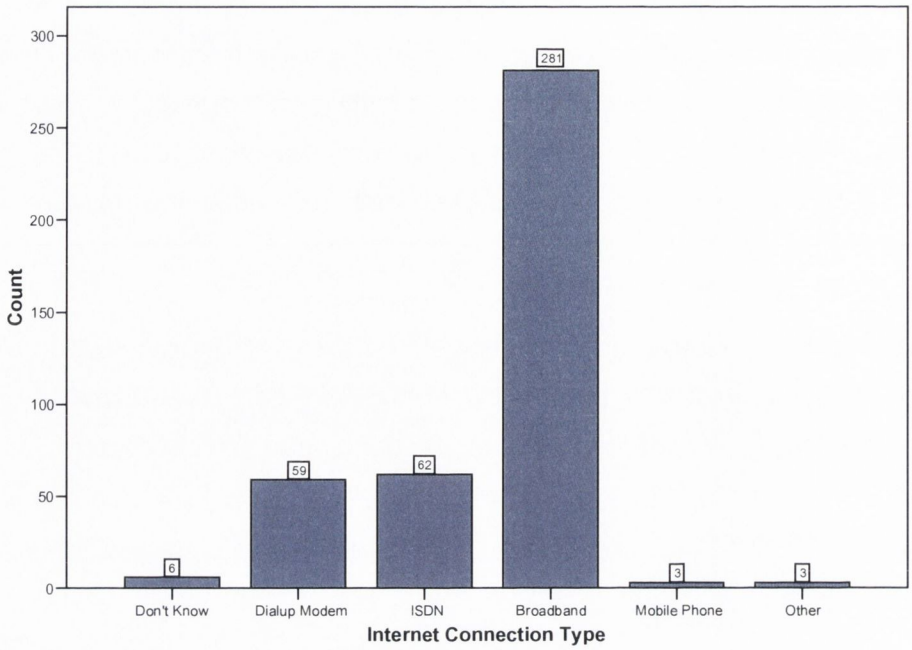


Figure 6.10: Internet Connection Type



Most of the respondents (366) used the Internet daily. Few respondents (3) used the Internet less than once a week. Figure 6.11 shows the distribution of respondents across the different frequency categories for Internet use. Figure 6.12 shows the amount of time the respondents spend on the Internet on average every day. Most respondents spent 10 to 30 minutes online per day. 27 respondents spent over four hours per day online in the week before they replied to the questionnaire. Taking the results shown in Figure 6.11 and Figure 6.12 together, the respondents use the Internet frequently and for long periods of time and can therefore be considered more experienced or expert users.

Figure 6.15 shows the number of respondents who have completed common Internet tasks. The results show that users are comfortable with using the Internet to undertake financial tasks (384 respondents made an online purchase and 299 have used online banking or another financial service). They also recognise that the Internet can be a valuable work and research resource (397 users have used the Internet for work and 372 have conducted research online). Of the nine tasks, only 64 respondents have ever used a chatroom. The impression of the identified planning users targeted by the questionnaire as one of experience with the Internet and computers is supported by these results.

Figure 6.11: Frequency of Internet Use

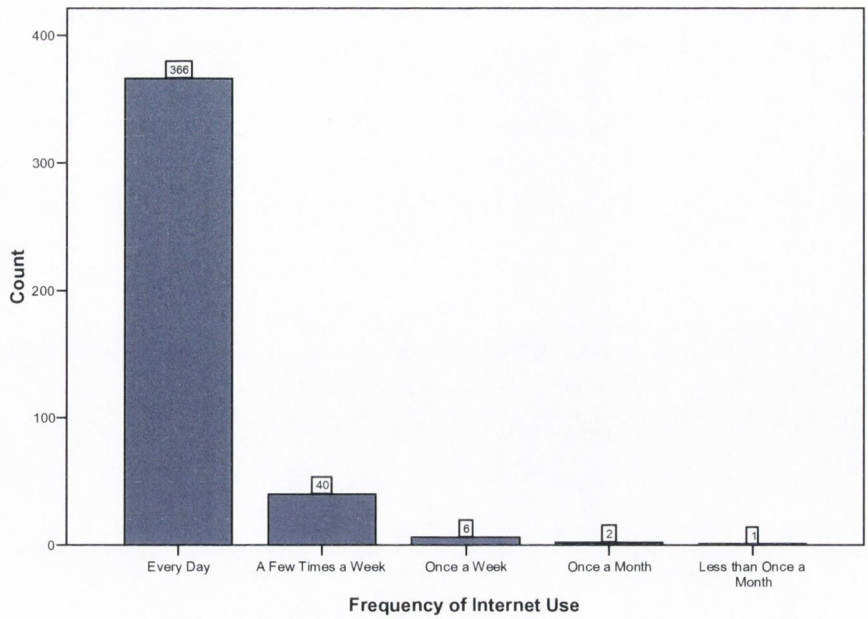
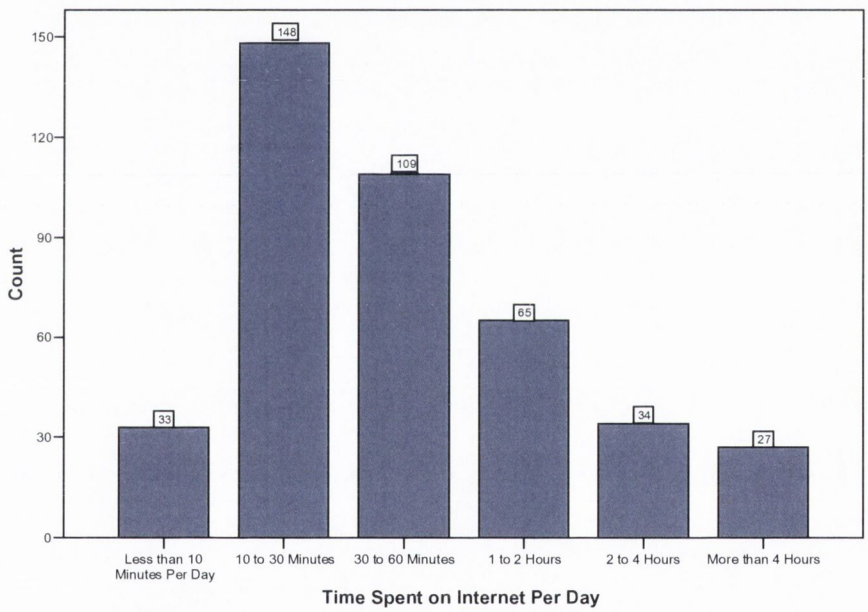


Figure 6.12: Time Spent on Internet per Day



In an information-seeking context, more users have used a search engine (391) than followed a recommended link (339). The majority of users (277) have bookmarked a page, however this figure is quite low. Other activities mentioned were betting, stock trading, music, VOIP (Voice Over IP), radio, online news, mailing lists and educational purposes. These are mostly communication related or involve some financial activity.

The vast majority of respondents find information of interest on the Internet via a search engine (Figure 6.13) and Google is the search engine most frequently used by respondents (88.2% of total respondents) (Figure 6.14). The next most common search engine is Yahoo!.

Figure 6.13: How Respondents Normally Find Information on the Internet

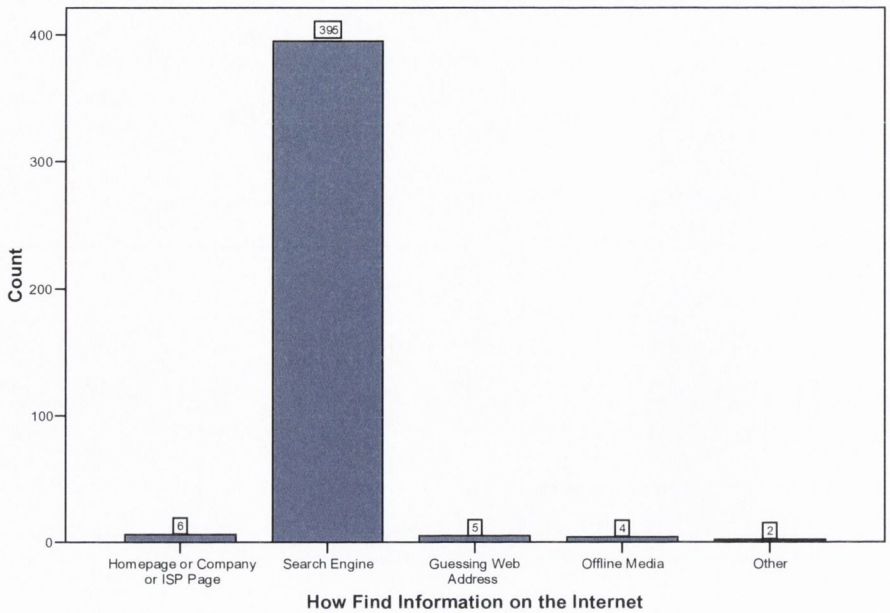


Figure 6.14: Most Frequently Used Search Engines

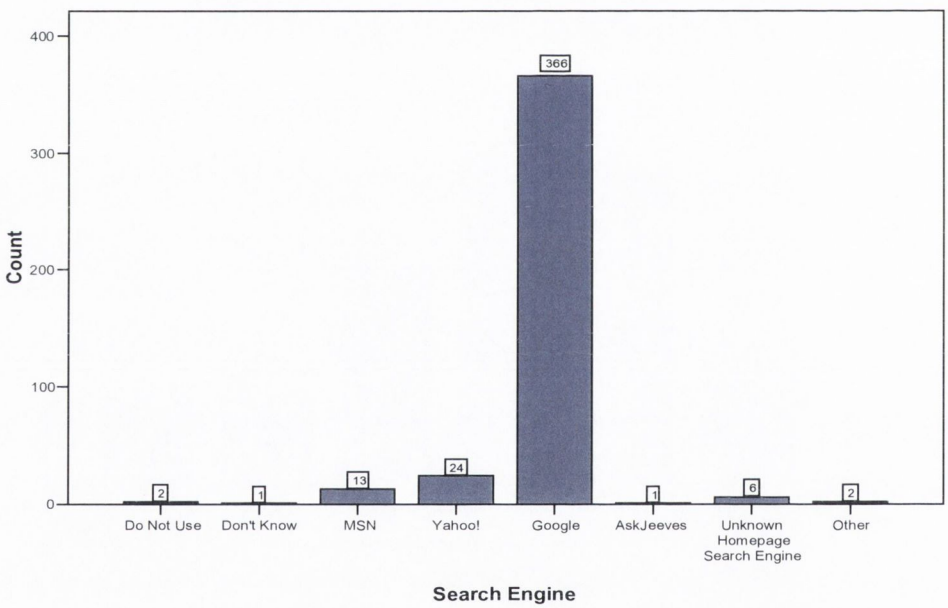
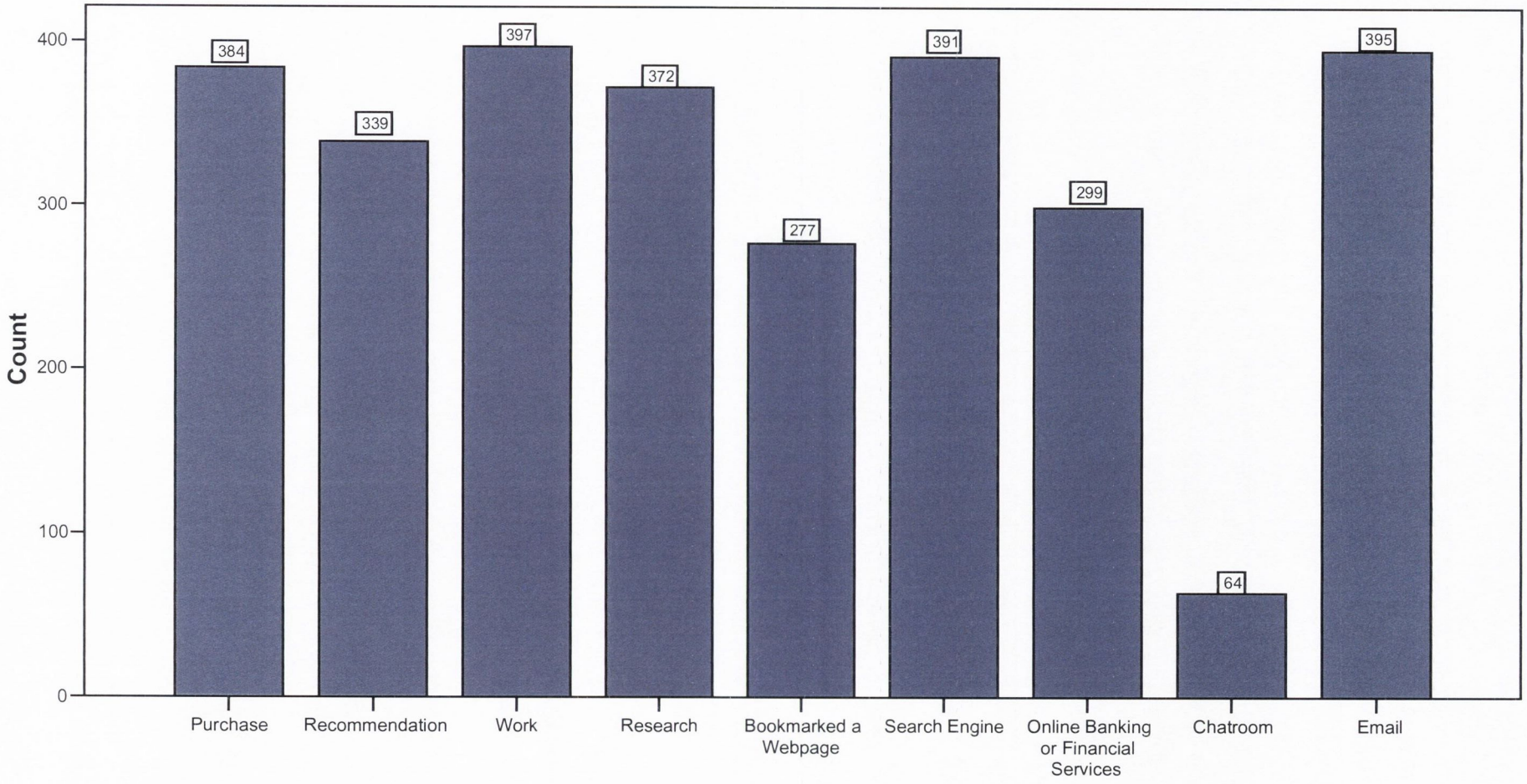


Figure 6.15: Tasks Completed by Respondents on the Internet



6.5 Experience of the Local Authority Website

The respondents' view of the local authority website in general is important in comparing the view held of the local authority planning services on the same site. Both experiences, although interrelated, are not suitable for direct comparison. The questionnaire respondents were asked whether they had ever used or looked for information on a local authority webpage. 369 of the respondents said they had, 46 did not and 50 respondents did not answer the question. Most of the respondents (196) visited the local authority webpages for planning related information. The other reasons given were local authority services (including waste disposal, litter, recycling, parking permits, bin waivers, motor tax, dog licences) (55), council publications (e.g. minutes, development plan, legislation) (50), contact details for council representatives and local authority officers (45), community resources (e.g. parks, playing pitches, water quality at bathing areas, library services, swimming pools) (21), general information (17), forms (14), funding applications (4), unspecified work related (4), job vacancies (4) and tender information (1).

The most common reason for the respondents to visit the local authority site was for planning information. While this questionnaire specifically targeted the potential users of planning information, users in environmental and community sectors are less likely to have day to day use of the planning system. Therefore the high number of users accessing the site for planning rather than other services is significant.

Figure 6.16 shows the frequency of use of the local authority website by the questionnaire respondents. The majority of respondents use the site on a regular basis over the last year, accessing the site a few times a month (140 respondents or 36.7% of valid).

Question three in the local authority use section of the questionnaire asked respondents how they found the local authority website (the responses are given in Figure 6.17). Most respondents used a search engine (231). A large number of the respondents also guessed the address (48 respondents or 13.2% of valid). Other methods used to find the local authority site were the telephone book, local authority stationery, a combination of methods, bookmarked, own records, colleagues and local authority employee email address.

Figure 6.16: Frequency of Local Authority Website Use

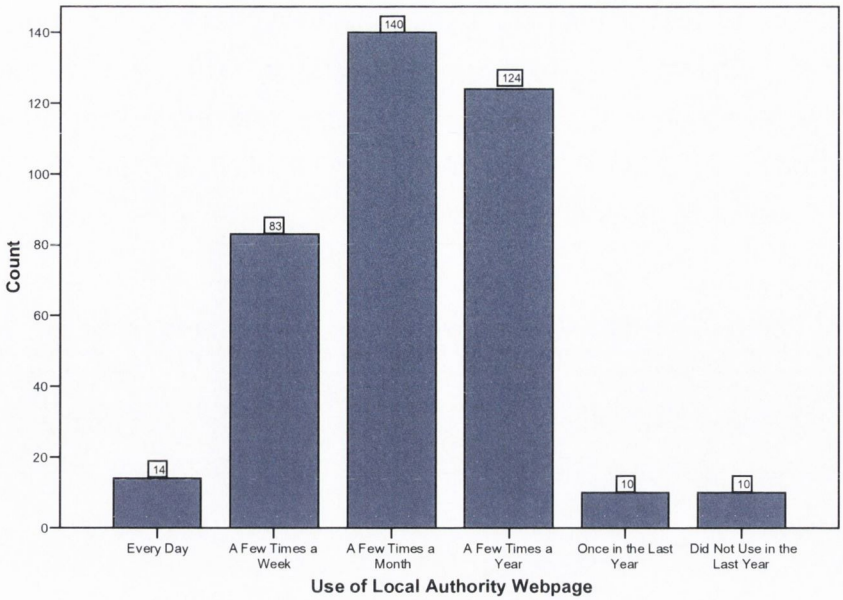
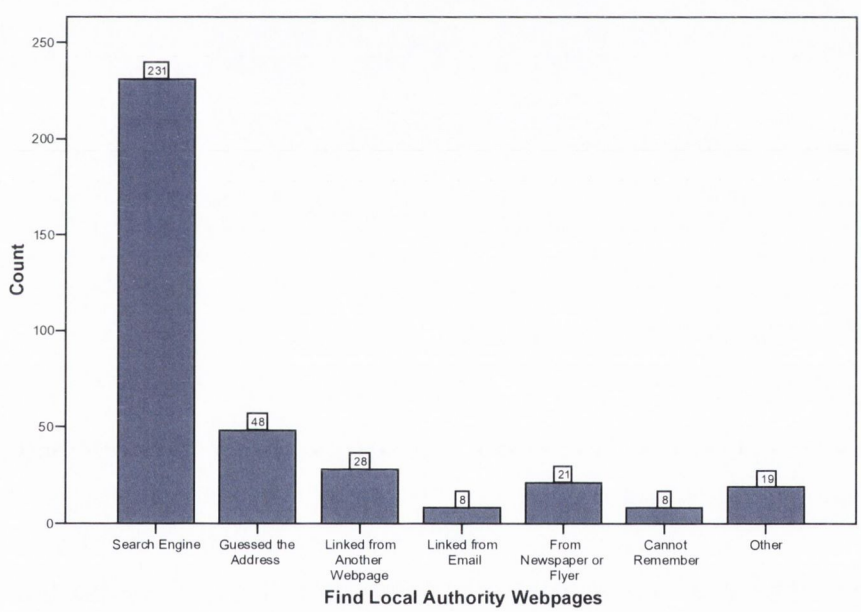


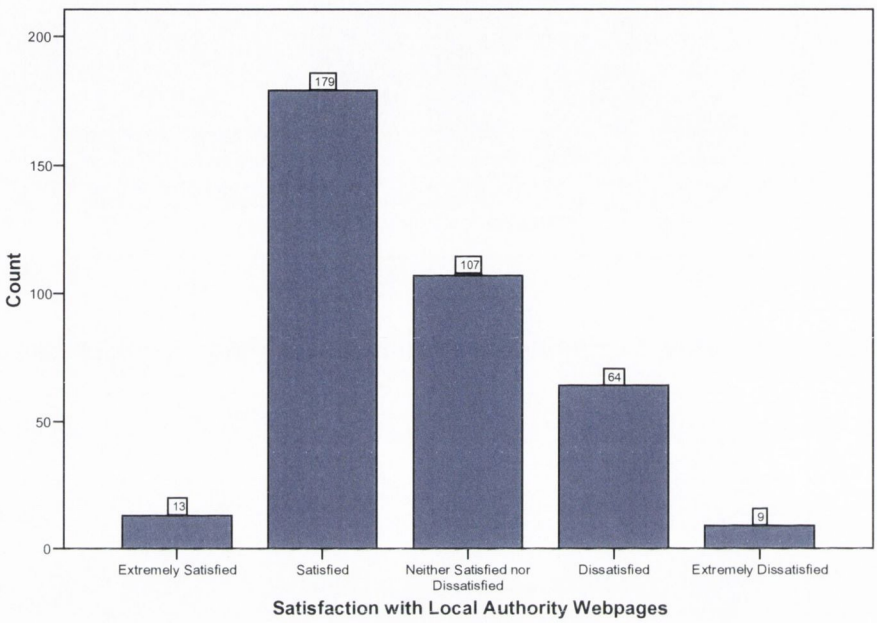
Figure 6.17: How Respondents Found the Local Authority Website



The majority of users were satisfied with their use of the local authority webpages. However, a large number of users were neither satisfied or dissatisfied. This answer was given in the pilot survey where users had a mixed reaction to an individual site or to different local authority sites. The number of users dissatisfied with the local authority pages is also quite high (17.2%). Users giving either extremely satisfied and dissatisfied responses was quite low (3.5% and 2.4% respectively). When respondents were satisfied with their use of the local authority webpages they were less likely to comment. Positive comments in the main did not mention specifics of the local authority site, instead they focused on the completion of their task and the ease with which it was undertaken. When respondents were not satisfied with their

use of the local authority webpages they provided comments on the usability (navigation, general user friendliness, layout, inoperational link, too complicated, lack of professional appearance), technical aspects of the site (wrong formats, incompatible systems, unreliable, slow, poor search engine, lack of printing ability), and the information itself (lack of information or services, inaccuracies, out of date, need for other sites or traditional contact).

Figure 6.18: Satisfaction with Local Authority Webpages



6.6 Planning Awareness and Use

The core of the questionnaire addressed the respondents use, views and expectations of planning information. Of the 465 respondents to the questionnaire, 456 were aware of planning applications, and 398 respondents were aware of development plans. More users are, therefore, aware of planning applications than development plans but the difference between the two is slight (58 respondents) but statistically significant ($p>0.0001$)[31]. The breakdown of the responses when both questions were answered[32] is given in Table 6.1.

[31] Non parametric Chi-squared test employed.

[32] 24 respondents did not answer at least one of the two questions and are not represented in the table.

Table 6.1: Users Aware of Planning Applications and Development Plan (Number of Respondents)

		Aware of Development Plan			Total
		Yes	No	Unsure	
Aware of Planning Applications	Yes	397	13	25	435
	No	1	2	1	4
	Unsure	0	1	1	2
Total		398	16	27	441

Table 6.2 gives the number and percentages of respondents for each of the sample planning tasks dealt with in the online questionnaire. The majority of respondents either viewed planning permission (73.3%) or a development plan (72.7%). The respondents were asked whether they had sought planning permission, commented on a planning application, viewed plans submitted for planning permission, made a submission to a draft development plan or viewed or consulted a development plan in the last five years. The figures do not represent the numbers of users accessing online information. 407 respondents (87.5% of total) undertook at least one planning task in the last five years, while 41 respondents (8.8%) did not.

Table 6.2: Planning Tasks Undertaken by Respondents

Task	Yes	No	Not Answered
Sought Planning Permission	296 (64.3%)	164 (35.7%)	5
Objected to Planning Permission	243 (54.4%)	204 (45.6%)	18
Viewed Planning Permission	341 (76.5%)	105 (23.5%)	19
Made Submission to Development Plan	181 (40.8%)	263 (59.2%)	21
Viewed Development Plan	338 (77.0%)	101 (23.0%)	26
Other Planning Activity	123 (27.5%)	324 (72.5%)	18

Table 6.3 shows the number and percentage of respondents who visited the local authority website while undertaking planning tasks. Respondents were most likely to visit the local authority website to seek planning permission (76.6%) and to view the development plan (65.9%). Respondents were least likely to visit the local authority site to view planning permission (43.7%), to object to planning permission (49.6%) and for other planning tasks (30.8%).

Respondents were asked to specify any planning tasks they have undertaken that were not mentioned in the questionnaire. The planning tasks specified by respondents were in the areas of consultancy for the local authority on plan preparation or other

issues, unauthorised development or planning infringements (either reporting or in reply to), tree preservation, protected structures, transport issues or plans, waste issues or plans, environment issues or plans, community issues and local area and other special area plans.

Table 6.3: Number and Valid Percentage of Respondents who used the Local Authority Site while Undertaking Planning Task

Task	Yes	No	Not Answered
Sought Planning Permission	226 (76.6%)	69 (23.4%)	1
Objected to Planning Permission	120 (49.6%)	122 (50.4%)	1
Viewed Planning Permission	148 (43.7%)	191 (56.3%)	2
Made Submission to Development Plan	91 (51.1%)	87 (48.9%)	3
Viewed Development Plan	222 (65.9%)	115 (34.1%)	1
Other Planning Activity	37 (30.8%)	83 (69.2%)	3

Respondents were asked to detail the reasons why they did not use the Internet in carrying out each of the planning tasks. Many respondents either stated that they made contact with the local authority by telephone, letter, visiting the planning office or in a meeting with a planner (113) or that they used an intermediary such as an architect, consultant planner, builders' solicitor or their design team (19). Intermediaries were mentioned most when respondents referred to submitting planning applications (16) rather than the other planning tasks. Of the respondents dealing directly with the local authority nine mentioned that they preferred the traditional methods of contacting the local authority rather than using the Internet, for example, Respondent 800 commented that the "website [is] no substitute for seeing real planning application on site in the real office". Other respondents were aware that the facility was not available on the Internet in all or some of the local authorities they wished to contact. Some respondents did not use or try to use the Internet for the planning task if they did not think the task was available online or if they did not think of it.

Respondents dismissed using the Internet for some or part of the planning tasks they undertook when they were familiar with the procedure, did not perceive a need, the local authority procedures could not accommodate it or had the paper documentation (such as the development plan or when an intermediary supplied the plans to them) already. Only one respondent did not use the Internet as they did not have access to the Internet at the time of undertaking their planning task.

Some respondents gave negative reasons concerning the Internet as a reason for not using the website for their planning task. Of the negative reasons concerning Internet use, the most cited reason was the incomplete nature of the information or files provided on the Internet. Other reasons given were a lack of accuracy, lack of up to date information, possible copyright issues, poor usability, the information was hard to find, presented in incompatible formats, not interactive or flexible and other non-specific reasons. Others, who did not use the Internet, mentioned that they would be inclined to do so in future and gave positive expectations of Internet use for planning tasks.

Some respondents referred to a difference in service provision depending on local authority, for example, Respondent 141 wrote "Not many local authorities have the facility of allowing plans to be viewed on the website". One respondent did not feel they would get the information or feedback necessary from the local authority website as they were not receiving this service from the local authority despite repeated contacts. Respondents when submitting a planning application were most likely to visit the local authority site to download the appropriate planning application form (76.1%) (Figure 6.19). Seeking information about the process and finding the local authority contact details were also undertaken by a large number of the respondents who visited the website as part of the process. Few respondents expected to be able to submit the application online as few respondents visited for that purpose (11.9%). Of the 'other' reasons given to visit the local authority website, respondents viewed the development plan, the planning history of the site, tracked the status of planning applications, looked up planning regulations, downloaded planning documentation (such as site notices) looked at other planning applications, sought information on or to arrange preplanning meetings and looked for a list of townlands in Irish.

Most respondents when visiting the local authority website while commenting on planning applications were looking for information on the commenting process (58.3%) (Figure 6.20). Other reasons given were viewing a particular application, looking at the development plan, the status of the application, look at other submissions, reference numbers of the planning application, contacts for local councillors, and whether an application had been lodged.

Of the 148 respondents who visited the local authority website to view or to find information about viewing planning applications, most respondents visited the website to view a particular planning application (87.8%), with viewing decisions or the status for a particular application a close second (81.8%) (Figure 6.21). Contact details were proportionally less important for this task (16.2%). The other reasons given by

respondents were to get details of the planning application (e.g. reference number and date submitted), to view development plan and view other submissions.

Figure 6.19: Reasons Respondents Visited a Local Authority Website while Submitting Planning Applications

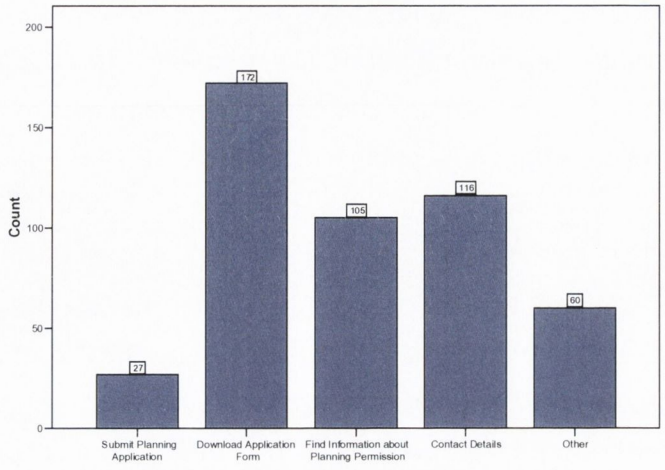


Figure 6.20: Reasons Respondents Visited a Local Authority Website while Commenting on Planning Applications

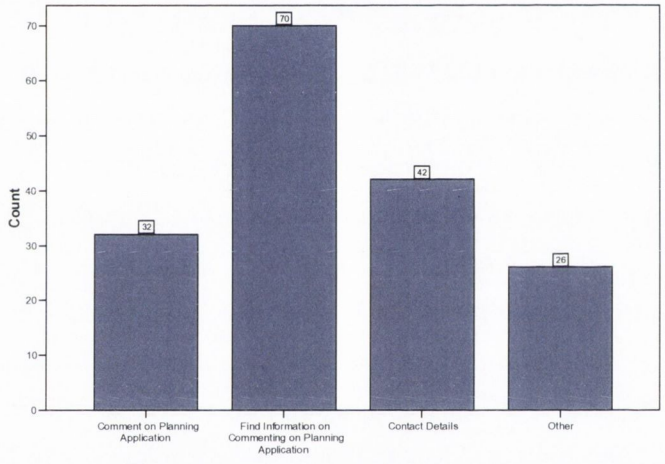
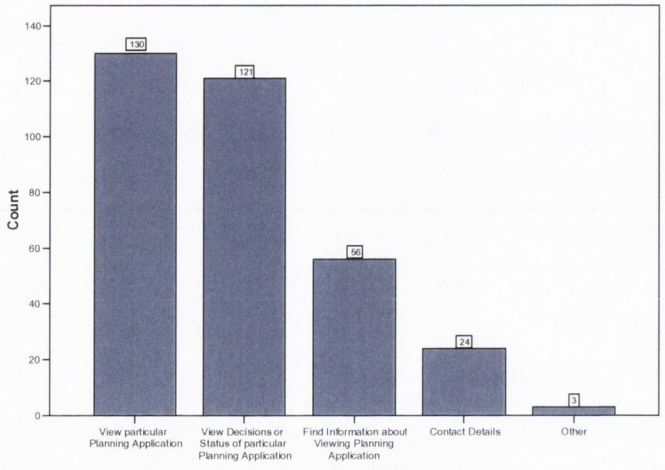


Figure 6.21: Reasons Respondents Visited a Local Authority Website while Viewing Planning Applications



Respondents when using the local authority website while making a submission to a development plan (Figure 6.22) were most likely to access the site to find information on making a submission (75.8%). Some respondents accessed the site for contact details (31.9%) and to make a submission (38.5%). Other reasons were to view the draft development plan, particularly the zoning maps, to order a paper copy of the draft plan, view previous development plan, get timetable of process and download the draft plan.

Figure 6.23 shows the reasons respondents visited the local authority website if they wished to view a development plan. In some cases the respondent may have been aware the plan was available online and wished to see it. In other cases, however, the respondent may just have looked at the information online to see where and how they could view the development plan. Of the 222 respondents who said they used the local authority site in the process of viewing the development plan, 95.9% of respondents accessed the local authority site to view the development plan. 31.1% of respondents used the site to find information on viewing the plan and 14.4% of the respondents used the site to find contact details for the local authority site. Other reasons cited for the use of the Internet to view the development plan were to see submission on the draft development plan, to download the development plan, to find cost of the plan and to view other relevant documents (e.g. Action Area Plans (AAPs) and Regional Planning Guidelines (RPGs)).

When respondents accessed the local authority site for a planning task other than the five specified they were most likely to seek information on the task (83.8%) (Figure 6.24). 37.8% of the respondents who accessed the site did so to get the local authority contact details. Of the other reasons cited by respondents, all three respondents were concerned with planning application details (view planning applications, view decisions on their application or adjacent sites, view planning history of sites) and one was interested in viewing the development plan. Respondents, therefore, did not think they could undertake this task online. For example, respondents who wished to report an infringement would expect to find the relevant planning legislation and policies online but would contact the local authority by other means to actually report an infringement.

Table 6.4 details the number and valid percentage of respondents who visited the local authority website to complete a planning task. These results should be considered with the reason the respondents visited the website. In some situations the respondent did not wish to complete the whole task online but wished to find relevant information, such as guides to the process, or to find contact details for the planning authority. In all cases, the majority of planning information users were able to

complete the task they visited the local authority site to do. However, the percentage of successful completions range across the different tasks. Additionally, only 63.6% of users were able to view planning permission for a particular planning application online. This means that almost four in every ten users were unable to complete this simple task. Even in the case of users seeking planning permission, the result of 81.0% successful completion masks the figure of almost two users in ten unable to complete the task. It is obvious that, from the number of respondents going online to complete the individual tasks, respondents are aware that certain tasks are not provided on the websites. In these cases the users are less likely to go online and seek planning permission. However, other tasks are provided in some local authorities and not others, in these situation users with experience or knowledge of the task availability elsewhere are likely to visit another local authority site to find this information or to complete this task.

Figure 6.22: Reasons Respondents Visited a Local Authority Website while Making a Submission to a Development Plan

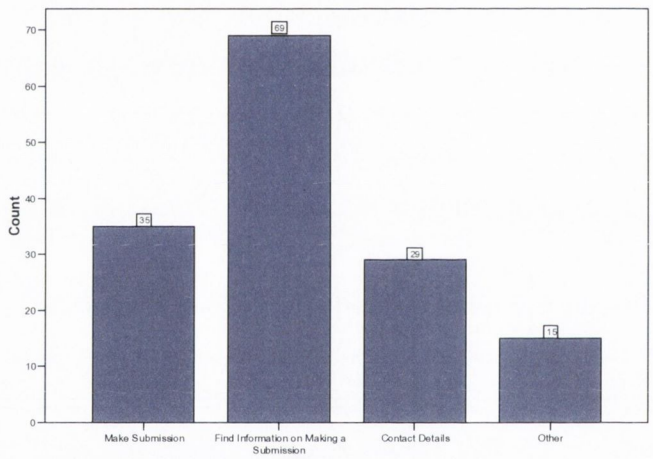


Figure 6.23: Reasons Respondents Visited a Local Authority Website while Viewing a Development Plan

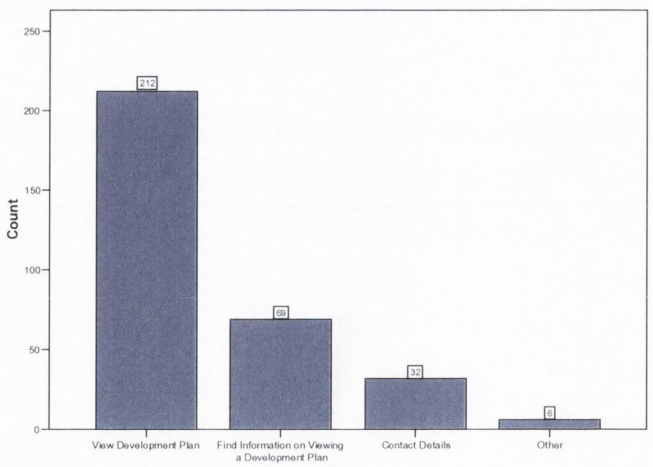


Figure 6.24: Reasons Respondents Visited a Local Authority Website while Undertaking Other Planning Task

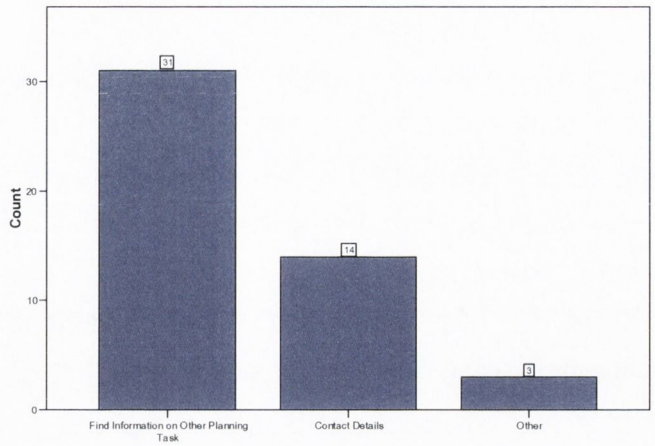


Table 6.4: Completion of Purpose of Visit to Local Authority Site

Task	Yes	No	Not Answered
Sought Planning Permission	179 (81.0%)	42 (19.0%)	5
Objected to Planning Permission	66 (58.4%)	47 (41.6%)	7
Viewed Planning Permission	91 (63.6%)	52 (36.4%)	5
Submission to a Development Plan	67 (76.1%)	21 (23.9%)	3
Viewed Development Plan	161 (74.9%)	54 (25.1%)	7
Other Planning Activity	23 (62.2%)	14 (37.8%)	10

When the respondents stated that they were unable to complete the purpose of their visit to the local authority site, they were asked to comment. There was a mixed response from many of the respondents. They were able to complete the purpose of their visit in some cases and not in others. Whether or not they could compete the purpose of their visit depended on the services available on the particular local authority they accessed. In many cases, the information or service sought was not present on the local authority site. In other cases, technical difficulties were cited; time taken to download, incompatible with their operating system (e.g. Apple Macintosh), unable to download and site not always working. Usability difficulties were also experienced; complexity, navigation and ease of access and finding, readability/understandability, uneditable file format (e.g. cannot edit the PDF form) and design/layout. Many respondents mentioned incomplete information or information that is not accurate or up to date. A number of respondents noted that other offline services were necessary to complete the purpose of their visit and one

respondent preferred face to face contact after their experience with the local authority's website.

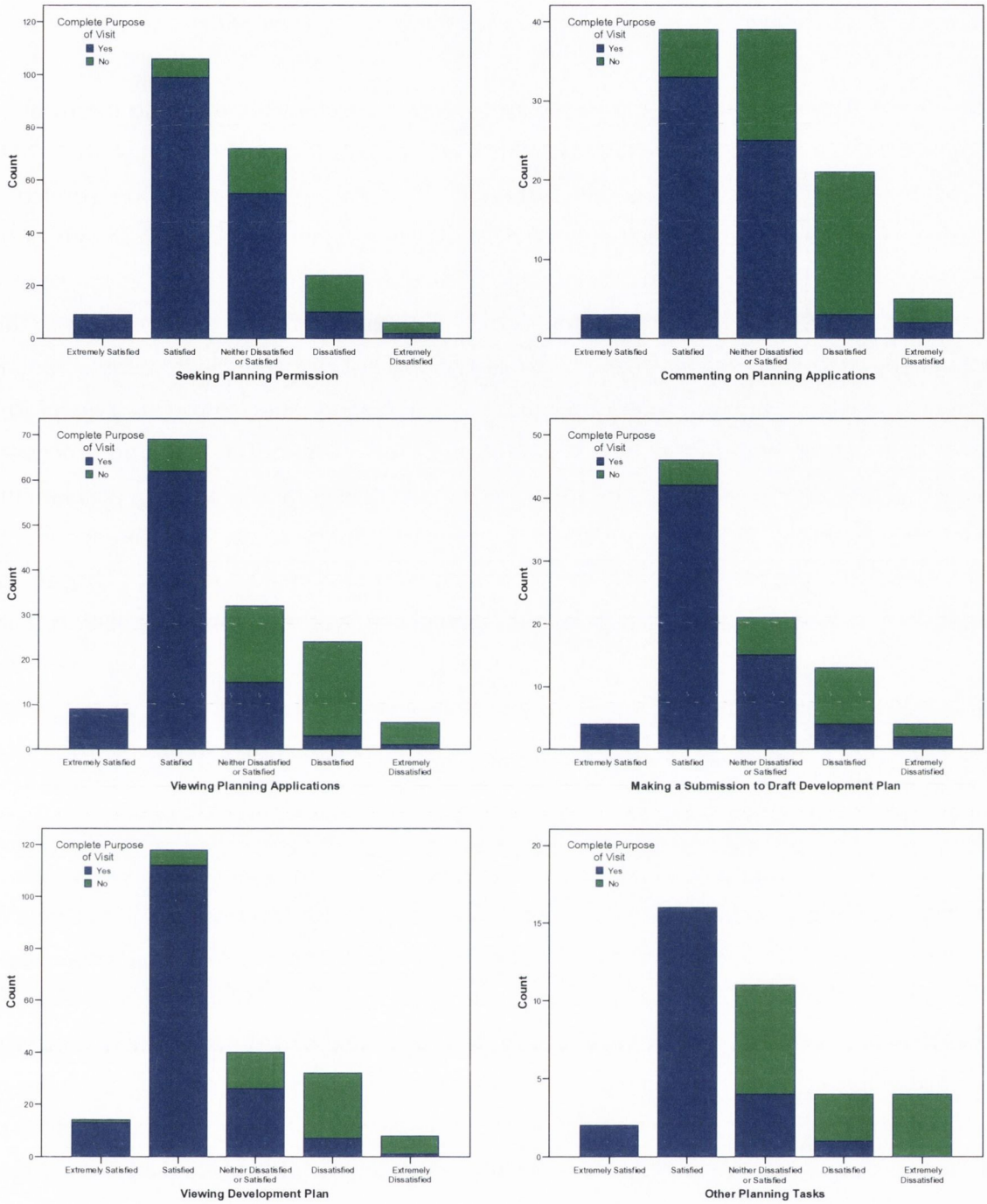
Figure 6.25 shows the respective levels of user satisfaction with the online service provision for the different planning tasks classified by whether the respondent was able to complete the purpose of their visit. The majority of users are satisfied with the online service provision, particularly where users viewed a planning application online. Users could give a rating of neither dissatisfied or satisfied where they had no opinion or conflicting opinions from the site. For example, Respondent 469 had a mixed experience of the planning application process and said that

> *"Not all of the local authorities have adopted the ePlan system – those that haven't merit a 'Dissatisfied' rating. Amongst those that have adopted the system, only a minority publish the conditions attached to the planning permission – those that do merit and that have a GIS component (e.g. Donegal Co. Co.) merit an 'extremely satisfied' rating."*

It would be expected that a positive result is what is required by the local authorities and an ambiguous result such as the middle category would not be sought. In interpreting the graphs, the modal value or the category with the highest number of respondents should be considered rather than the average value as each category in a ordinal ranking cannot be summed (Altman 1991). Users unable to complete the purpose of their visit to the local authority website are more dissatisfied and extremely dissatisfied with the relevant online service.

Respondents generally were positive about the role of the Internet in easing the planning process (cutting down on travel times, increasing access among other reasons) while fewer respondents (3) were negative about the effect of the Internet on service provision. The negative features of the current websites mentioned can be divided into a number of general categories; technical (too slow, system incompatible, crashed browser), usability (layout, navigation, general user-friendliness, legibility, accessibility, ease of use, ease of understanding, file formats for documentation), systemic (lack of information, lack of services, paper based system).

Figure 6.25: Satisfaction with Planning Tasks



Respondents were generally aware that the amount of information and services offered by each of the local authorities differed (mentioned by 67 respondents). For example, Respondent 191 says "totally depends on the local authority in question - some sites are significantly better than others". Some respondents called for a national service or a national standard of service provision where the examples of best practise were taken from the local authorities and then used nationwide. When respondents mentioned the lack of specific services or information, they generally mentioned services already available in some local authorities or referred specifically

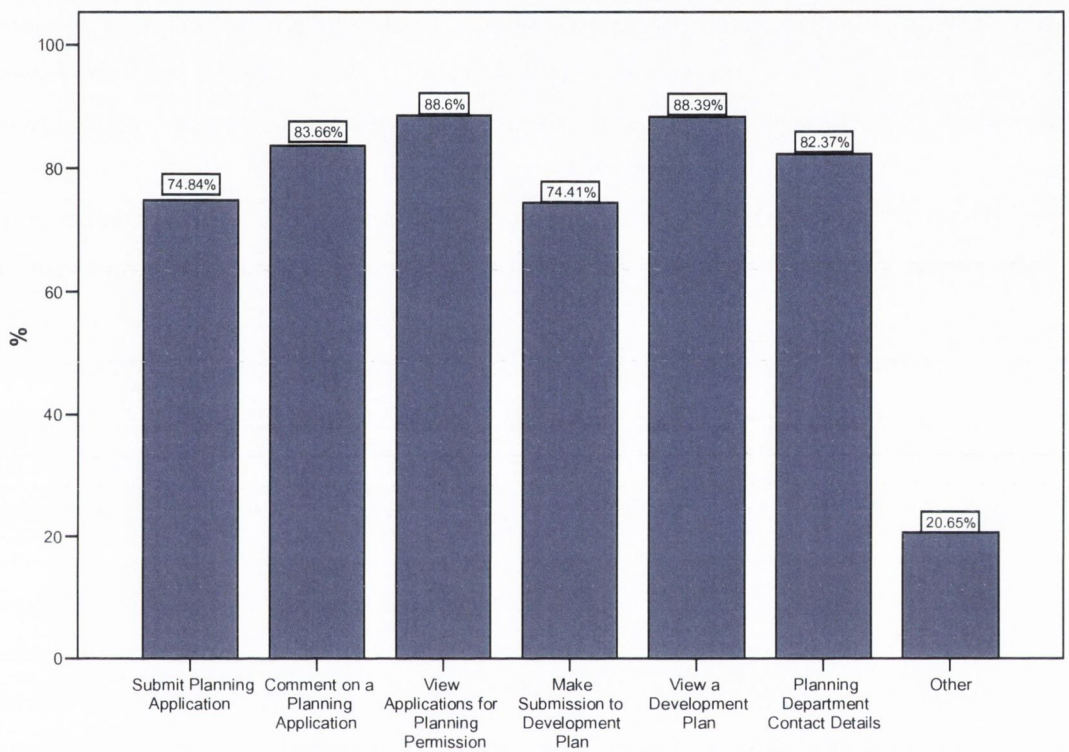
to other local authorities where this information was available or to other public service. Other calls were for "the more online the better" (Respondent 385).

Most of the 465 respondents are in favour of online services for planning information (Figure 6.1). Of the six planning tasks specified in the questionnaire, more than 74% of respondents for each of the tasks thought the provision of an online service is positive. For the unspecific task only 20.65% of the respondents were in favour of an online service provision. Considering the particularly positive responses for such a service where the task is specified, this could be attributed to the variety of tasks this categorisation covers and its irrelevance to the majority of the respondents. Online service provision was welcomed by most of the respondents, however two of the respondents commented that they would not undertake any of the planning processes online. The other utilities mentioned were tree preservation orders, preplanning enquiries, reporting infringements and Environment Impact Statements. Respondents also selected specific areas of the different sample planning tasks chosen as particularly suited to online provision; preplanning information, making appointments for meeting with the planner and providing documentation, mapping, building regulations, and planning histories (e.g. number of one off housing in an area). All of these services are technically possible and are available in some of the local authorities.

As a means of providing services, the Internet is seen as efficient, cost effective, time saving, simpler and environmentally friendly compared with the traditional methods of interacting with the local authority. One respondent commented that this would alleviate overcrowding in the planning office or help in cases of understaffing. Nevertheless concerns about an online service were also expressed. These concerns included whether or not the online service would be a reliable and error free source of information, the importance of transparency, the need for validation and receipts of submissions, consistency across local authorities, userfriendliness/usability, copyright issues and safety from viruses. Furthermore, the Internet delivery of local authority services was seen as problematic by some respondents; the impersonal nature of the Internet in providing services meant that some respondents felt that it would be easier for the local authority to ignore their submissions or inquiries. Some respondents preferred the face to face contact with planners and the other more traditional forms of communication. Other respondents thought of the Internet as an addition to and not a replacement for the traditional services, which they could avail of if more suited to the task. For example, one respondent commented that people are more helpful than the Internet. Some respondents stated that they would employ a wait and see approach depending on the service provided.

Providing online information was linked with easing access to the planning process to both advantageous and disadvantageous ends. One respondent felt that online service provision would increase participation as the time and resources (e.g. car) needed would be reduced. Another respondent felt that an online system if correctly implemented would cut down on objections. While in direct contrast, one respondent feared that an online system would make it too easy for spurious objections to be made and thus slowing down the planning process.

Figure 6.26: Number of Respondents who Think Providing an Online Utility would be of Benefit



The respondents were asked the extent to which they agreed or disagreed with a number of statements concerning planning information. Figure 6.27 gives the distribution of responses for each of the statements. The different statements were not explained and any interpretation was left to the respondent (e.g. how frequently does information have to be updated to qualify as regularly updated?) Another potential difficulty is that respondents may be hesitant to give a strong answer where they may feel they are not qualified.

The overall impression of respondents as to the availability of planning information was positive and only 12.8% of those who answered this question disagree with this statement. The ease of finding the planning information is less favourably viewed and 37.7% of respondents responded positively to this statement and 31.0% responded negatively with the remainder not expressing their agreement or disagreement. While

most user responses were positive the result is not overwhelmingly in favour of the local authority.

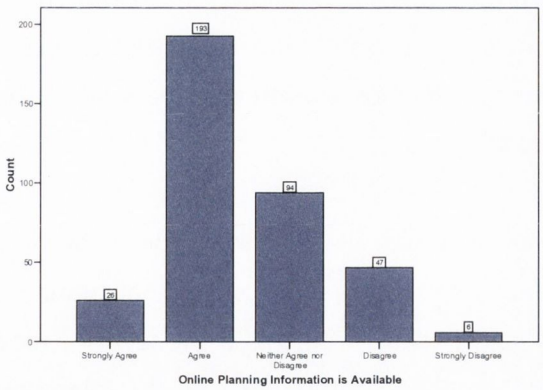
The users surveyed are split in opinion with regard to whether planning information is regularly updated and whether is it up to date. The majority of respondents do not hold a strong opinion. This response can be the result of no opinion or as the result of conflicting opinions. The remainder of the respondents are relatively evenly split amongst the two agree and the two disagree categories.

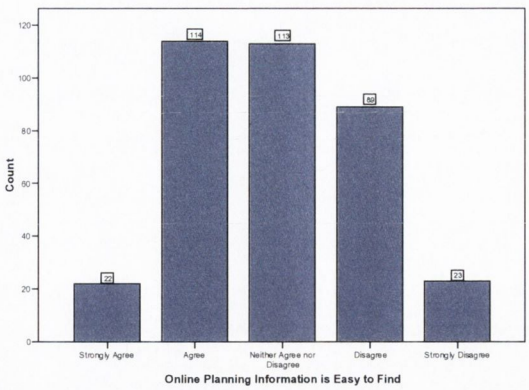
The last three statements reflect the quality of the data supplied. The majority of respondents do not hold an opinion on whether planning information online is reliable. However the remainder of the respondents are more likely to be in agreement (38.7%) with the statement than in disagreement (21.0%). As Figure 6.27 shows, most users believe that online planning information is incomplete. What is especially interesting about the responses to whether online planning information is useful is its marked difference with the distribution of the other responses to the statements about online planning information. A large majority of users agree that online planning information is useful and the highest number of users in the strongly agree category was recorded for this statement. Only 14 respondents felt online planning information was not useful. Correspondingly the number of users in the middle category of neither agree nor disagree was the lowest for this category across the statements about online planning information.

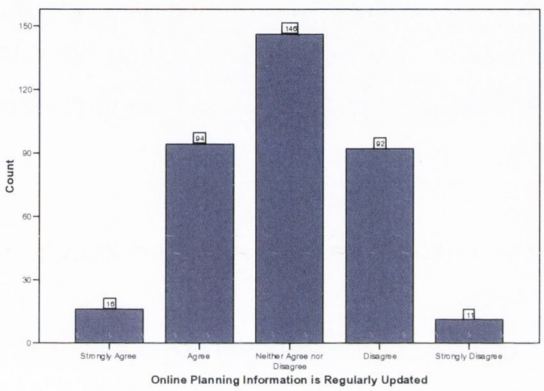
Respondents were then asked to comment on the statements. Respondents observed that the planning information provided on the different local authority sites varies significantly between the different local authorities and many proposed a national standardised system to deal with this issue, including the standardisation of application forms. One respondent commented that use of an online system would be promoted through the provision of clear and up to date information and regular updating.

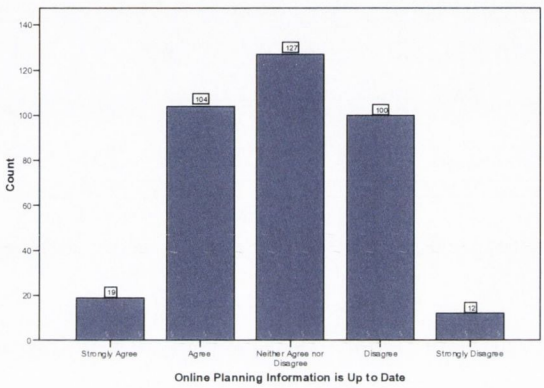
Some respondents were sympathetic to the difficulties the local authority may experience in providing an online service. One respondent was aware of the difficulties of getting planning information from hard copy onto the website and others were aware of copyright issues both of the online mapping and the individual planning application documents which includes plans which are under the copyright of their creators.

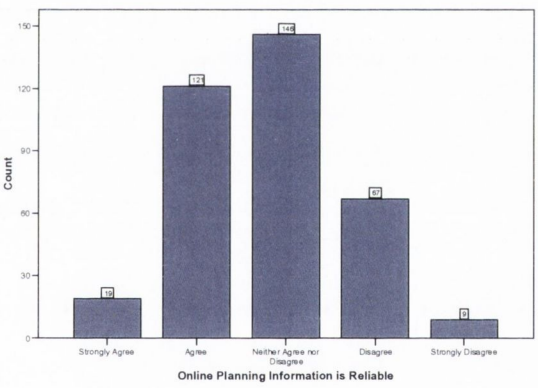
Figure 6.27: Perceptions of Online Planning Information

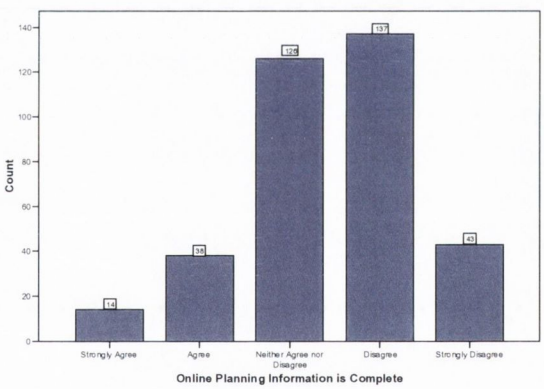


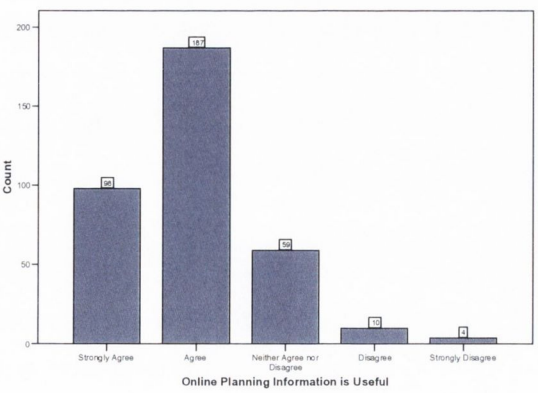












Negative statements about online information concerned negative views of the local authority, the planning process and the paucity of information online. One respondent

for example, believed that the planning process itself is fundamentally flawed. Respondent 386 felt that an online service may only favour objectors ("Making these online might make it too easy for people to throw in spurious objections just because it is easy to do!"). The provision of online information is an abbreviated version of the full information available, according to one respondent.

In the final section of the questionnaire respondents were asked for additional comments. Seventeen respondents mentioned negative aspects of the planning system, many citing particular planning cases and policies. In this final section, nine respondents were positive about the role the Internet could play in the planning system. One respondent called for an applicant friendly system. Of the specific recommendations made regarding Internet provision, one respondent called for GIS services, another for greater capabilities of the local authority search engines and another asked for an accessible, proactive, sensitive and transparent system.

Participation and democracy was specifically mentioned by six respondents throughout the questionnaire. However other respondents also mentioned that providing information online would make the planning process easier and participation in the form of commenting on the development was included in this. Respondent 334 said that "On line availability meets the need of full time workers and enables greater democratic participation in local and national development". However some of the comments were negative such as the comment by Respondent 377 ("I cannot honestly say that I have encountered an online system that is user friendly. A cynic might suspect that the systems are almost designed to discourage third party objection or comment.").

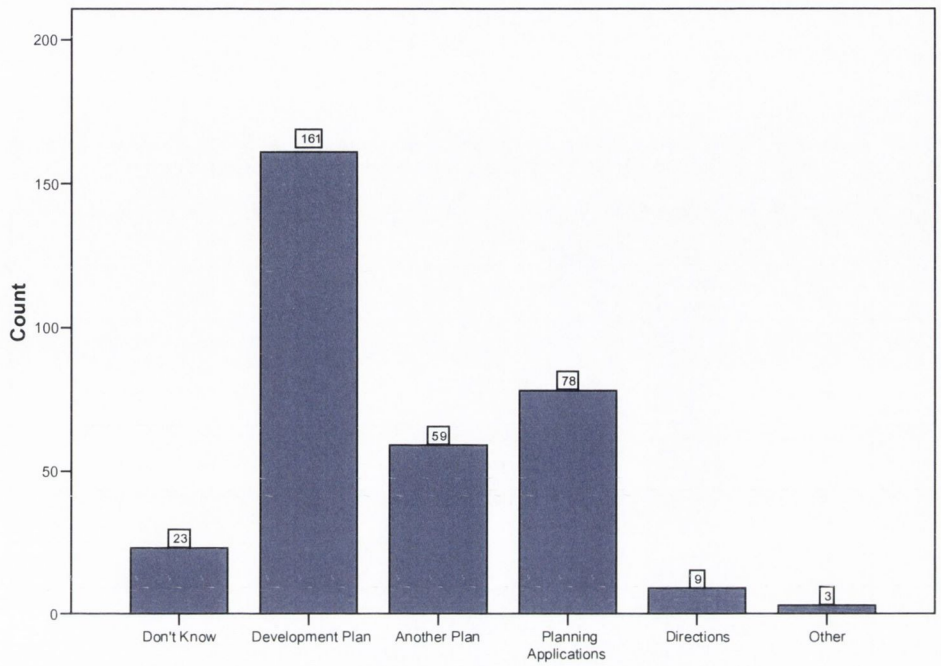
6.7 Map Use

Planning information is essentially geographic in nature and planning lends itself to map representation. At the end of the first section of the questionnaire, respondents were asked about their use of online mapping on local authority sites. A large proportion of users did not remember seeing any online maps (46.4% of the valid response and 179 respondents). 207 respondents remembered seeing online maps (53.6%) and 79 did not answer the question.

Figure 6.28 details the information contained in maps seen by the respondents. Most respondents (161) recalled that local authorities provided maps with the development plan online and 59 respondents recalled seeing maps provided with another plan, such as a specific local plan or proposed road construction work. Maps with planning applications were recalled by 78 respondents. 23 respondents were unsure where they saw maps in the planning process but did recall seeing some maps. Only nine

respondents recalled maps giving directions to the local authority on the local authority sites. One respondent remembered seeing a map showing flood relief works.

Figure 6.28: Where Respondents Recalled Maps Used on Local Authority Site

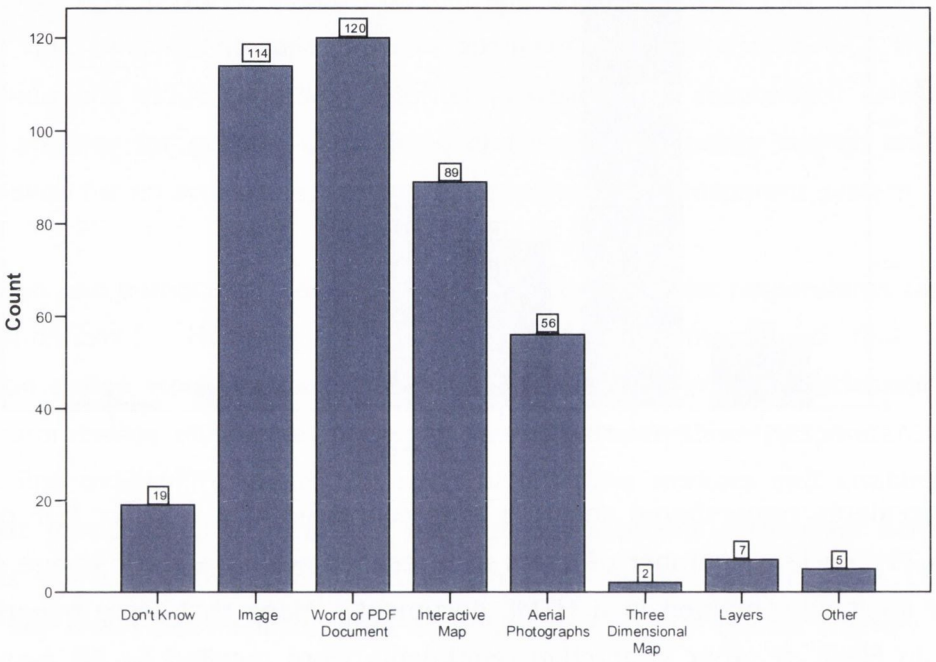


Most respondents remembered seeing a map contained in a word or PDF document (Figure 6.29). A large number of users also recalled seeing a static image of a map either by itself or contained in a HTML document. Maps that were hyperlinked or provided in Flash or other interactive multimedia were recalled by 89 respondents. Aerial photography was recalled by only 56 of the respondents and three dimensional maps or maps with layers such as Internet GIS applications were recalled by only two and seven respondents respectively.

Most of the respondents to this question (84) were satisfied with their use of the maps provided on the local authority sites. However, a high number of users were dissatisfied (59) and 13 users were extremely dissatisfied (Figure 6.30). Mapping is a visible feature of the planning information available on most local authority sites. Difficulties experienced by users in their use can be valuable in providing an appropriate service to users. A number of problems were encountered in map use. These problems ranged were technical (slow to download, format incompatibilities with different operating systems and need for a plugin to view) or referred to the quality of the mapping either generally or for a particular purpose (inappropriate scale or resolution, lack of interaction, illegible text and lacking in detail). The currency of the information supplied as well as the presence of all information within a particular category in addition to categories of information that would add value to the

information on display (e.g. secondary schools or culturally significant features). Using a map online may be difficult as the user may be unable to see all relevant features at once due to the small size of the users screen. The inability to print mapping was also raised as an issue by some respondents. Some problems were noted by respondents concerning the availability of mapping. Some respondents feel the Ordnance Survey has restrictive copyright practices which limit the type and availability of mapping.

Figure 6.29: Type of Maps Recalled by Respondents



The majority of respondents believed that there was benefit in providing online mapping for all the specified planning tasks (development plans (85.6%[33]), development plan submissions (76.6%), displaying planning applications (88.0%), submitting planning applications (74.8%) and commenting on planning applications (72.0%)) (Figure 6.31). Other services that would be benefited with the addition of mapping are general area maps, planning history, land use details of buildings, scaled site location maps, finding grid references for infringements, specialist maps (e.g. heritage), utilities, local authority services (e.g. drainage), habitat types, environmental areas (e.g. SAC, NHA, SPA), landscape/geological information, land registry and for Environmental Impact Statements (EIS).

[33] Percentage given of total responses which includes the number of respondents that did not answer the question, rather than valid percentages which are used for the other percentages given in the chapter.

Figure 6.30: Satisfaction with Local Authority Maps

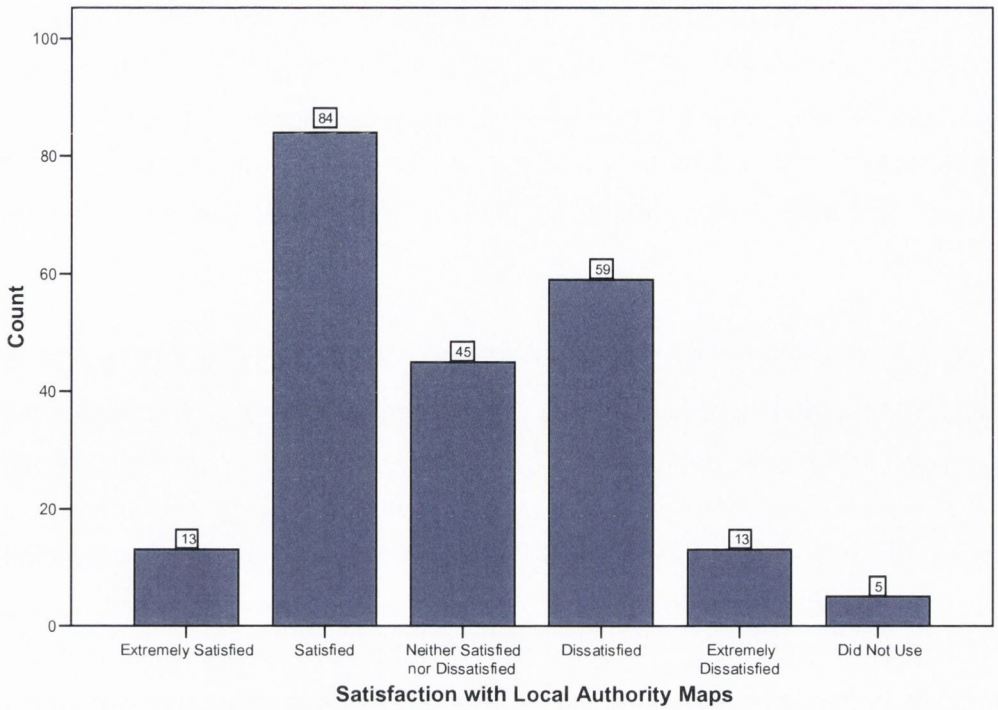
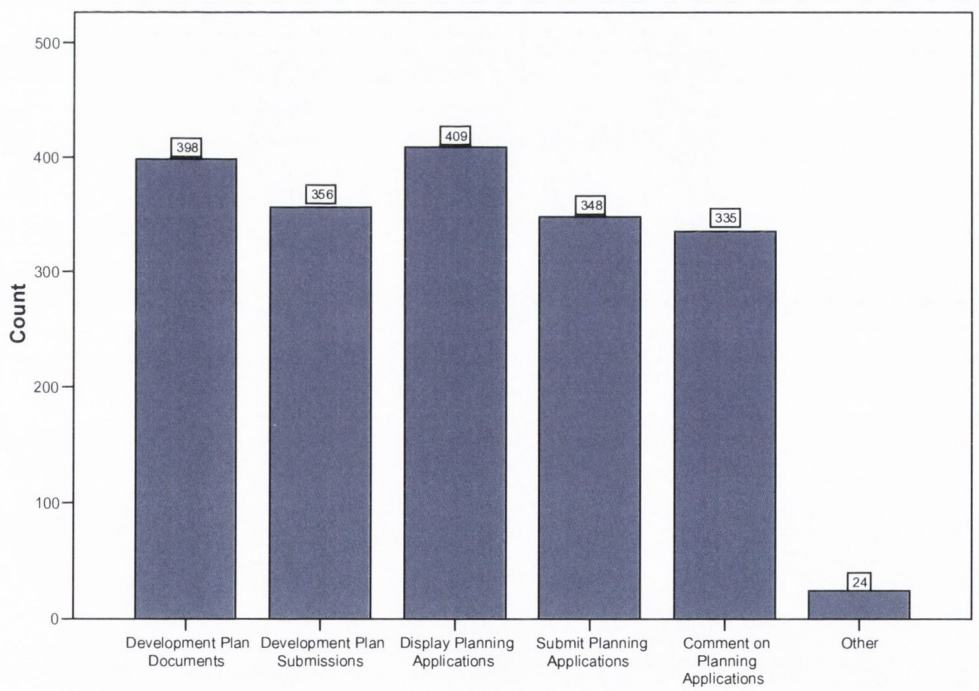


Figure 6.31: Number of Respondents who Recognised Benefit in Providing Mapping Applications with Local Authority Services

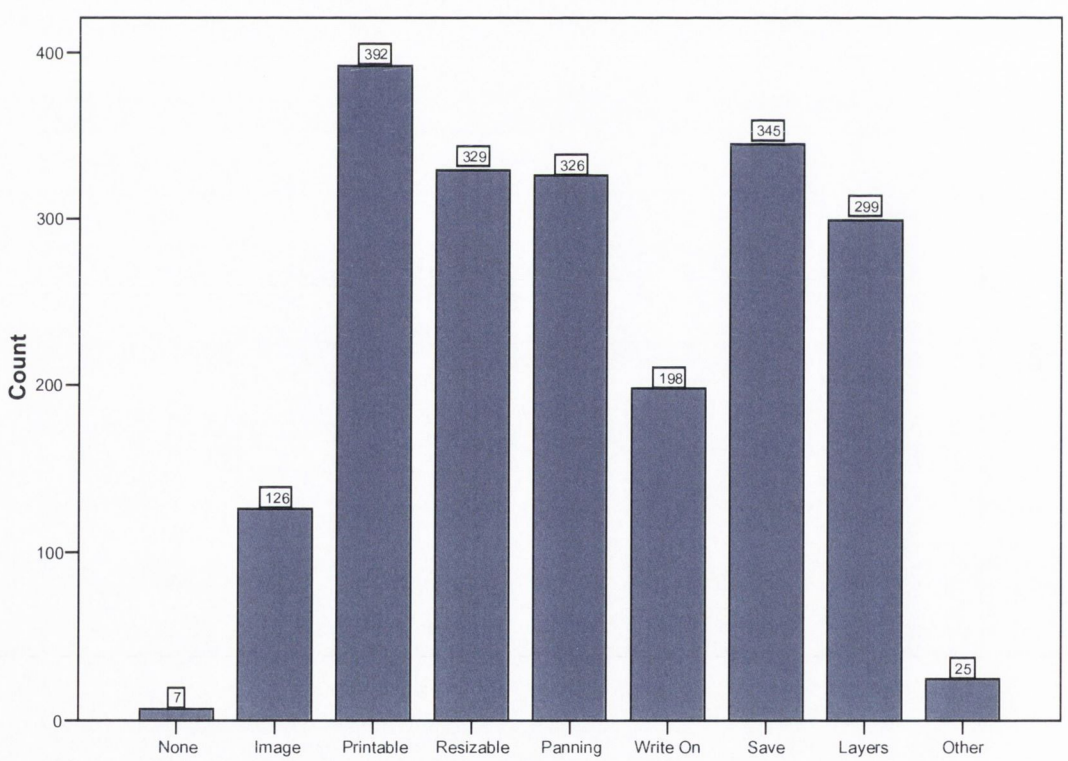


The map feature most respondents felt was of most benefit was a printable map (392 respondents, see Figure 6.32). Respondents were most attracted to basic functionality such as printing, resizing, panning and saving. The ability to write on the

map, such as redlining[34], was only thought to be useful by 42.6% of the total respondents. A more interactive GIS type application with layers was thought to be of benefit by 299 respondents. Maps presented as static images were only thought to be of benefit by 126 respondents (27.1%). Seven respondents believed that no map applications would be of use in an online planning environment and one of these commented that map reading online is difficult and it may not be suited to online provision.

Appropriate scale and resolution is important to some of the respondents (3) and was mentioned repeatedly in response to many other questions. One respondent was willing to view the maps online and pay for their download or printing. Google and GIS systems were both mentioned as means of service delivery and analysis, such as buffering and proximity analysis. Some respondents, therefore, are willing to undertake traditional desktop analysis online. Readability of mapping was also mentioned and the use of an appropriate legend is important. Copyright is an important issue to many respondents. Either in terms of OS copyright on mapping and the associated costs or in terms of copyright on the plans submitted by architects

Figure 6.32: Map Features of Most Benefit



[34] Available with the use of an Active X CGM plugin.

6.8 Conclusions

The results of the questionnaire can be used for two purposes. First, the characteristics, use and expectations of the system are a valuable resource for local authority website developers to identify the needs of more frequent users of the planning system. Second, the insight into the users of planning information online can be viewed in terms of the other work undertaken for this project.

Typical users of online planning information have been identified and their use of the current planning system both online and offline has been recorded. The purpose of their visits to the local authority site has been recorded even when they were unable to complete it. Thus recording the respondents' demographic, work, computer and Internet characteristics as presented in Sections 6.3 and 6.4 with the results in the final three sections where the respondents' use of and views concerning the local authority websites, planning information and mapping were presented allows a proper conceptualisation of the process of information seeking on the local authority site.

There was a positive view of the role of the Internet in the provision of at least part of the planning process. The respondents were frequent Internet users with an awareness of the planning system. They found the site most frequently by search engine and sought information on specific tasks. They viewed the local authority pages as a source of information and not as a means to undertake the actual planning tasks. This view was supported both in the respondents' actual use of the local authority sites as well as their view that the Internet was suitable as both an information provision mechanism (especially for contact details) and an environment for financial undertakings. The Internet was seen as a component of the planning process but respondents expected to use alternative methods to actually interact with the local authority. In particular, the Internet was seen as an important part of the process for contact details and information such as the development plan and current planning applications. The view of the Internet as part of the process, rather than a mechanism to undertake the complete process, underlines the need to retain counter services and other forms of interaction with the local authority. Additionally, some respondents expressed concern about a complete automation of the service and trust in such procedures is vitally important. However, the benefit of such an online system, once proven rather than forced upon users, may overcome any distrust.

The respondents to the survey did not chance across the local authority site. In general, it can be assumed that most of the visitors to the local authority site are visiting to look for information on a specific topic or specific information. The information about the planning process can be divided into two rough categories;

information on the process itself, e.g. the guidelines on how to make submissions, and information necessary to the undertaking of the process, e.g. the development plan. Mapping is viewed as an essential part of the planning process and there is general agreement that mapping adds benefit to the different planning tasks. Additionally, the provision of online mapping raises important issues about copyright and the user need to print the local authority maps.

The focus of website users on specific tasks or information differs from the design of many non-public authority websites which have a greater emphasis on attracting and retaining browsing users. This idea is supported by the low number of the respondents accessing the local authority sites for other types of information. The local authority sites as a result need to reflect their unique position and design the sites to be more task specific and offer comprehensive searching options to allow users unfamiliar with the correct terminology to locate the information of interest quickly.

The low expectation of what is actually provided on the local authority site affects satisfaction. If little is expected and accomplished then satisfaction may be high. High rates of non-completion taken together with the respondents' low expectations of the type and amount of information provided on the site is worth noting.

This conceptualisation can then be presented in the wider context of local authority service provision and within theoretical framework. The results of the questionnaire presented in this chapter are amalgamated with the information collected concerning the provision of the local authority information online and the local authority views of online information and service provision in the discussion chapter.

Respondents had a mixed view of the Internet. At one end of the spectrum, the negative associations can be used to identify key strategic goals of local authority websites, e.g. transparency. At the other end of the spectrum, overly positive associations may mean that the service may be initially well received but suffer because of unavoidable implementation problems. The negative beliefs about Internet use for local authority service provision highlights the importance of user centred design. The readiness of most respondents to undertaking online financial activities may mean that as full service provision is made available by local authorities, the users of planning information will change their view of the local authority sites and accept this extension of their current practise. Additionally, the view of the Internet as a two way communication medium facilities the easier acceptance of this medium for the provision of interactive services.

The implications for the local authority are wide ranging. The focus should be on the provision of information before full service provision. Additionally, expert users exist who do not need to learn about the processes themselves and expert paths to information would greatly ease the use of the site by these users. Some tasks fulfil a broad role in the planning process and this needs to be reflected in the design of the website. The development plan, for example, is viewed by people seeking planning permission, people making a submission to a new development plan and by people interested in the plan itself.

Chapter 7: Methodology III: Local Authority Interviews

7.1 Introduction

This thesis has so far evaluated the current provision of planning information and its geographic representations on the local authority websites within the study area and surveyed the identified users of planning information on their use and then expectations of the planning system online. This chapter outlines the methodology used to contact a number of selected local authorities and the OSi to gain an insight into the development of the current service provision. It also explores the local authorities views of that provision, their involvement with users and their future expectations.

Section 7.2 outlines the rationale behind the choice of semi structured interviews. The next section summarises the criteria used to select the seven local authorities for interview. A range of local authorities with differing service provision were selected. Section 7.4 presents the details of the interviews, the questions asked and their justification. Section 7.5 gives the same information for the interview with the Irish Ordnance Survey. Section 7.6 explores the problems encountered when undertaking the interviews. The penultimate section details the methods used to analyse the interviews.

7.2 Choice of Methodology

The third methodological strand of this thesis was included to contextualise the results of both the usability evaluations of the local authority websites (Chapter 4) and the user questionnaire (Chapter 6). A qualitative semi-structured research interview was the format chosen. Semi-structured interviews facilitate the prior identification of topics of interest and certain fixed questions while also allowing the exploration of previously unidentified topics and the complexity of the issues covered. This approach is based on an understanding that all relevant topics were not known prior to undertaking the research (Liamputtong & Ezzy 2005). In this way, it had a distinct advantage over a more structured approach. In the semi-structured interviews undertaken in this study, the questions were open-ended, thus allowing for the interviewees to expand upon their answers and any views held. With this approach however, there is a danger of minimal responses by the interviewee which is less commonly experienced in structured interviews (Wengraf 2001).

7.3 Selection of Local Authorities for Interview

Seven local authorities within the study area were selected for interview. The selection was based on three criteria from the results of the evaluation of provision of planning tasks online presented in Chapter 6. The local authorities selected are presented in Table 7.1. The selection was constrained so that at least one local authority from each of the different planning authority classes was chosen, some authorities did not have a website and there was a range provision of sample tasks. From the results of Chapter 6, it was found that the type of local authority had a significant impact on the provision of samples on the local authority website or whether the authority provided a website at all.

The first three local authorities selected did not have an online presence. Wicklow town council did not provide any of the sample tasks online while Clonmel Borough council only provided its development plan without mapping documents. Interviewing these two local authorities are important in elucidating the reasons behind the non-provision of online planning and a web presence by the local authority. The third local authority selected without an Internet presence was Castlebar town council. The town council had the highest provision of sample tasks (6) for an authority without its own online presence. The town council held this position with two other town councils from the same county (Ballina and Westport). The interviewee within the town council chosen was easier to contact and was the deciding factors between the three councils.

Table 7.1: Selection Criteria for Local Authorities for Interview

Local Authority	**Selection Criteria**		
	Website	Sample Tasks	Type of Local Authority
Wicklow Town Council (WTC)	No	None	TC
Clonmel Borough Council (CBC)	No	Poor	BC
Castlebar Town Council (CTC)	No	Good	TC
Ballinasloe Town Council (BTC)	Yes	Poor	TC
Kilkenny Borough Council (KBC)	Yes	Good	BC
Dublin City Council (DCC)	Yes	Good	City
Mayo County Council (MCC)	Yes	Good	County

The remaining four local authorities have an online presence and are distributed over the four different types of local authorities. Ballinasloe town council has a limited web presence. Of the sample tasks, the website provides only a homepage and contact details for the local authority. Kilkenny borough council has an online presence with a

good provision of the sample tasks (10). Dublin city council provides nine of the sample tasks, has a high clickpath average (3.9) and of the three city councils has the lowest number of accessibility errors and instances. Mayo county council with Galway and South Dublin county councils has the highest provision of sample tasks. Mayo has the lowest clickpath (1.6) and the lowest number of accessibility errors and instances of these three councils. Additionally, Mayo is the county council for Castlebar town council and can detail the interactions between the local authorities in this area in terms of combined provision of planning services online.

The seven local authorities come from the four classes of planning authority and should provide important case studies in identifying core issues affecting the provision of online planning services for the different types of councils.

7.4 Local Authority Interviews

The seven local authorities were interviewed between July and October 2006 (Table 7.2). The choice of interviewee was dependent on a number of factors. First, the smaller local authorities have different personnel to the larger county and city councils. In many cases the technical support for the local authority was provided by the county council so even where the authority had a website contacting the relevant web designer was impossible. Second, where possible personal introductions were used, for example, in one interview the interviewee offered to contact the relevant person in another selected local authority.

Table 7.2: Local Authorities Interviewed

Local Authority	Website	Position	Date
Ballinasloe Town Council	Yes	Assistant Staff Officer	9th August 2006
Castlebar Town Council	No	IS services	27th July 2006
Clonmel Borough Council	No	Planner	24th July 2006
Dublin City Council	Yes	Internet Officer	29th August 2006
Kilkenny Borough Council	Yes	Planner	21st August 2006
Mayo County Council	Yes	IS services	27th July 2006
Wicklow Town Council	No	Planner	6th October 2006

The interviewee was given a copy of the questionnaire in advance of the interview as it was unlikely that one person would be able to answer all of the questions asked. The questions asked of the local authorities with websites are given in Table 7.3. The questions covered the general background to the introduction and maintenance of the website, the importance of planning, motivation behind the development of the site,

the role of the Internet in public participation, evaluation of provision, user involvement and mapping as well as the future plans for the site.

The background section of the interview is important to establish the history of the website and its current implementation. This allows the placement of the evaluation results into its current and historical context. The responsibility of maintaining the website and any shifts in this responsibility over time are important in determining the input the different departments have in updating the content and their ownership of the information supplied. The relationships between the different local authorities can differ and the links between the smaller local authorities and the county councils are important in determining the priority differences between the varying levels of service revealed by the evaluation results. The status with which planning is held in the local authority, in comparison with its status online, can give an indication of how the online facility reflects the local authority's offline service. The advertisement of the website can indicate how the local authority views its online provision (Is it fully incorporated into the local authority identity and an extension of the local authority or is it purely an added extra which the local authority deems necessary for whatever reason?).

Table 7.3: Local Authority Questions

Background

- What is the history of the website development?
- Who has the responsibility for maintenance and updating the website? Has this changed over the development of the site?
- What are the organisational relationships with other local authorities?
- How is the website advertised?
- Is planning a core local authority function? In terms of other local authority functions?
- How important is planning online in comparison with other facilities offered online?

Motivation

- Why did the local authority developed a website? What was the main motivating factor?
- Do you think the website fulfils a need? Either for the local authority or a user need?
- What are the main things providing a website accomplishes?
- What do you think are the advantages and disadvantages to providing a website?

Participation

- What types of participation events are currently undertaken by the local authorities and in what areas?
- Do you think the Internet is an appropriate medium for public participation and involvement?
- Do you think that having a website encourages participation and improves democracy?
- Were participation and shared governance considered in deciding to create

a website and in the design process?

Evaluations

- Could you comment on the local authority's evaluation performance?
- Are you aware of accessibility and usability?
- What evaluation methods are used to evaluate the website?

User involvement

- Do the local authorities feel they are familiar with the needs and characteristics of users of the planning services?
- Were users involved in the development of the site?

Mapping

- What priority is assigned to providing mapping on the website?
- Is mapping important in presenting planning information?
- What mapping is appropriate for different planning functions?

Future

- What future developments in terms of planning information and website provision are planned?

The motivating factors behind the local authorities developing a website, the needs fulfilled by and advantages and disadvantages created by the website can shed light on the local authority's views of information and service provision. The answers to these questions can establish the importance of the different factors mentioned, the perceived benefits, whether a need was perceived and what drivers have caused the development of a site by some local authorities and not by others.

The section on participation questions the local authority on the participation events the local authority currently undertakes. This was used to compare with the current provision on the local authority sites and whether a link may be present. Wider questions concerning perceived links that providing information both on the local authority site and more generally has with participation, democracy and shared governance were then asked. The responses in this section can establish whether the local authority is pursuing participation through its current actions and the extent to which participation and linked ideologies were a factor in website development or non-development.

In the evaluations section, the interviewee was asked to comment on the general evaluation results presented in Table 7.1. They were also asked if they were aware of accessibility and usability and what methods did they use in evaluating their website. In the user involvement section, the familiarity the local authority has with the users of the planning system was established. Details of any user involvement, not restricted to planning users, in the development of the website was sought.

The penultimate section dealt with mapping and its suitability for planning information and its priority on the local authority website. Why mapping is suitable in some cases and not in other and whether the addition of mapping to planning information or information in general adds anything to that information. The final question asked local authorities about their future plans for the website and planning in particular.

Changes to these questions were required when local authorities without websites were interviewed. The questions are given in Table 7.4. The emphasis for local authorities without websites is on their planned online provision of services and their reasons for not developing a website. For example, Castlebar town council whose provision of sample tasks is high without their own site, the local authorities were asked to elucidate on the relationship with Mayo county council. The other difference in the questions asked was the presence of other ICTs within the local authority such as an Intranet and email addresses which establishes the technological level of the authority.

Table 7.4: Questions for Local Authorities without Websites

Background

- What are the links with other local authorities?
- Can you give examples of the use of ICTs elsewhere in the local authority?
- Is planning a core local authority function? In terms of other local authority functions?

Motivation

- Why was a website not developed?
- Do you think the website fulfils a need? Either for the local authority or a user need?
- What do you think are the advantages and disadvantages to providing a website?

Participation

- What types of participation events are currently undertaken by the local authorities and in what areas?
- Do you think the Internet is an appropriate medium for public participation and involvement?
- Do you think that having a website encourages participation and improves democracy?

Evaluations

- Could you comment on the local authority's evaluation performance?
- Are you aware of accessibility and usability?

User involvement

- Do the local authorities feel they are familiar with the needs and characteristics of users of the planning services?
- How important would user involvement be in the development of any

website?

Mapping

- How important should mapping be on a local authority website?
- Is mapping important in presenting planning information?
- What mapping is appropriate for the different planning functions?

Future

- Do they have plans for a website in the future?
- Why would the local authority develop a website?
- Where on the local authority's agenda is developing a website?

7.5 Other Interviews

One of the key restrictions on publishing digital geographic information online is copyright. Irish local authorities use the national mapping agency (Ordnance Survey Ireland (OSi)) to supply their base maps. The restrictions that the Ordnance Survey place on the geographic information they supply to the local authorities influences the ease and methods with which geographic information is provided online. To gain a better understanding of how this relationship affects the local authorities and public information provision, the head of the Ordnance Survey was interviewed on the 23rd of June 2006. Additional information was provided by the Head of Data Strategy.

The questions asked of the OSi (Table 7.5) cover three main areas; the relationships with the local authorities and relevant public agencies, pricing and copyright structures and the online mapping provision. The first area explored the relationships between the local authorities and the OSi and between the LGCSB and the OSi. The timescale for online mapping and the channels for innovative map use were established. In the second area, the pricing and copyright structures and their mechanisms were dealt with. Additionally, the local authority understanding of the current copyright restrictions was explored. In the final area, the direction the pushes for online mapping were probed as well as the core uses for the geographic information used in the local authorities and the possibility of providing an online service for planning permission and the implications for copyright and OSi mapping provision.

Table 7.5: Interview Questions for Ordnance Survey Ireland

Relationships

- How does the OSi interact with local authorities? Who do the local authorities approach in the OSi?
- When did local authorities begin to contact the OSi about online mapping applications (such as the development plan)?
- Who do they approach if they wish to provide mapping in a different format?

Pricing and Copyright

- Is the pricing structure transparent or is it negotiated on an individual basis with a particular local authority?
- What is the current copyright situation for online mapping and how does it differ from traditional in-house use by the local authorities?
- How clear is the copyright situation? Is it negotiated on an individual level?
- How aware are the local authorities of what can be done within the current copyright provisions?

Online Mapping Provision

- What is the driving force behind the provision of mapping online? Was it a recognition of an emerging mapping area by the OSi or is the drive coming from the local authorities?
- What local authority area (e.g. water, roads or planning) has the greatest use for OSi mapping?
- Have the OSi considered the implications of submitting planning applications in their entirety online? (Electronic maps supplied to individuals seeking planning applications?)

7.6 Problems and Reliability

A main difficulty in undertaking the interviews was the selection of the appropriate interviewee as the structure of the local authorities differed. The difference was most pronounced between the larger and smaller local authorities. The larger county council shared a number of employees with the smaller town and borough councils. Additionally, in the local authorities without websites contact with a web designer who was familiar with the workings of the local authority was impossible. However, in the larger organisations the responsibilities assigned to different positions varied as did the title of the position. As this study spans both online service provision and the planning system, there is input from planners, administrative staff and Information Technology (IT) support and development officers. Their location within the local authority differed depending on internal structures and links with other local authorities. For example, a planner could be assigned to solely to a town council to more than one town council or to a town and county council. Some participants were difficult to contact. The breadth of questions was an off putting factor as some of the potential interviewees did not feel qualified to comment. In gaining an understanding of the local authority position, it is important to note that these were individuals working in the local authority and therefore may not reflect the position that local authority holds. In cases where local authority policy does not exist the opinions expressed are those of the individuals informed by their understanding of the operation of the local authority and other policies.

The breadth of the questions, as mentioned earlier, meant that a single interviewee is unable to give a full account of all answers. The aim of the interviews with the local authorities was to place the findings of both the evaluation of current provision and the survey of planning users into context. It was further recognised that some information would not be present or possible to obtain, therefore, the full disclosure of

information from each of the interview participants was judged not to be vitally important. The historical overview of the website depended on the interviewee's knowledge of the local authority history. If an interviewee was not present at the time an event took place, such as the launching of the website, they were unlikely to be able to furnish details of the event. However, interviewees were especially helpful and in most cases were willing to seek this information, where possible, from elsewhere in the organisation.

The importance placed on planning within each local authority cannot be ranked or compared metrically as the importance has not been ranked by the interviewees. Such a measure of importance would be misleading.

7.7 Analysis of Interviews

Five of the interviews were recorded on tape and notes were also taken during the interview. Full transcripts of the interviews were produced after each interview. In the remaining cases, the interviewee stated they were uncomfortable with the recording and notes were taken during the interview and later transcribed.

The transcripts and notes from the interviews were collated into a single document and colour coded. The responses were then arranged into themes. Any responses that did not fit under the predefined question topic headings were assigned into a new topic. At the end of this process, all topics were assessed for suitability and some were amalgamated. The responses in each topic were assessed for fit with the topic and where any were found unsuitable they were moved to a more suitable topic or a new topic was created. Each topic was then summarised and are presented in Chapter 8.

7.8 Conclusions

The current provision of planning information on the Internet in Ireland has evolved from a number of decisions taken by different local authorities. Unveiling these decisions and the motivations can help to gain an understanding of why the current services are provided. In addition, the motivations can be used to elucidate the connections between the provision of planning information online and the wider community in terms of shared governance and the inclusion of the public the decision making process. The implications of the current provision can be placed in context.

Seven local authorities were interviewed for this section of the project. The interviews dealt with the background to the current provision, the motivation behind providing the current level of information, participation, evaluation of the online facilities, user

involvement and the importance of mapping. The OSi was also interviewed due to the effect that copyright restrictions have on the geographic representation of planning information. This methodology was used to provide a context for the results of the two other sections of this project and despite the problems with the interviews as discussed in Section 7.6, much information was gained. In the next chapter, the information obtained from these interviews will be presented.

Chapter 8: Results III: Local Authority Interviews

8.1 Introduction

This chapter presents the results of the interviews conducted with a sample of seven Irish local authorities. The authorities were taken from each of the local authority types, spanned a range of evaluation results as recorded in Chapter 4 and were further divided by the provision or absence of a website. The results presented in this chapter, allow the evaluation of the provision of planning information and the views of planning users to be examined within a local authority context.

The context for website provision is first presented in Section 8.2. The organisation and technological links with the different types of local authorities and the LGCSB are detailed. The importance of planning is recorded both in terms of total local authority services and in an online environment. Section 8.3 explores the issues surrounding the provision of a website by the local authorities. When and why the websites were developed is explored and the responsibility for the information provided on the sites is noted. The benefits and disadvantages of website provision are, then, investigated. The future plans for the development of websites by the local authorities without sites are detailed. Website design issues are dealt with in Section 8.4. Evaluation methods used by the local authorities for their content and the involvement of the users in the development of the site are documented. The developments currently planned for the sites are also detailed in this section. Mapping is an important method of presenting planning information and the local authority attitudes to the use of this method is explored in Section 8.5. Additionally the relationship with OSi, the national mapping agency is reported. The traditional and online participation practices undertaken by the local authorities are described in Section 8.6. The relationship perceived by the local authorities between website and online information provision is explored and the role of advertising in promoting the website is also examined.

8.2 Context

The individuals interviewed in each of the authorities interviewed did not hold the same position. The structure of the local authorities differs depending on the policies and priorities identified by the individual authorities (MCC). The responsibilities of the employees also differed due to the size of the local authority. The smaller local authorities can have a low number of employees, e.g. Kilkenny borough council has approximately 25 staff (KBC) compared with 6,200 employees in Dublin city council (Dublin City Council 2006). As some of the local authorities interviewed did not have

a website, the focus in these cases was towards the planning department where possible. Therefore, the opinions represented must be considered within this context.

8.2.1 Relationships with Other Local Authorities

While unique legal entities, the county councils and smaller town and borough councils have a number of organisational relationships with each other. As mentioned in Chapter 2, the county manager is the manager for the town and borough councils. In addition to this, certain functions are provided by the county council for the town and borough councils. In Ballinasloe town council, the county council provide engineers, planners and other areas of expertise and in Kilkenny borough council, the planning department rely on reports from parks or road design provided by the county council. In town, borough and county councils, the planning departments are interlinked. A planner may be shared between a borough and county council, as is the case in Clonmel borough council where the executive planner sits in the county council, or between town councils, as is the case with Wicklow town council. In addition, it was found that IT support is provided in the county council for all the town and borough councils surveyed. In local authorities without a website, the links between the local authorities and the IT departments mean that intranet facilities and email addresses are usually shared. In Wicklow town council, however, a separate email address for the town council is used but it is supported by the county council and is provided on the same domain.

For some local authority functions, such as planning, the town council may be thought of as an area office (CBC). In all the local authorities surveyed, the forward planning or development plan creation is a joint operation between the councils or is supervised by the county council. Other functions, such as housing in Clonmel borough council, are "totally separate" (CBC).

The Better Local Government (BLG) initiative prompted a number of changes in the structure of the local authorities. An aim of the initiative was to combine the town and borough councils with the county councils. However, according to Mayo county council, this has not occurred. The reason for this is attributed partly to the strengthening of the councils' identities by that legislation even though the functions and powers have been reduced (MCC).

In addition to formally sharing IT support, informal links between many local authorities also exist. There is an informal sharing of knowledge, experiences and applications aided via work based networks in part by the LGCSB (see below).

8.2.2 Relationships with Support Services

The Local Government Computer Services Board (LGCSB)[35] is an IT support organisation for local government. Its mandate includes the support and promotion of eGovernment (LGCSB 2006). The LGCSB are involved in developing certain eGovernment projects, such as a pre-planning system[36] developed by Mayo and Donegal county councils. The role of this agency has been reduced due to the expansion of the IT departments of most county councils to include programmers and developers (MCC). The LGCSB play a role in disseminating applications developed by individual or groups of local authorities. The LGCSB is the primary dissemination mechanism for eGovernment, however, they provide a reactionary service.

8.2.3 Importance of Planning

Planning is recognised as a core function by all the local authorities. In the offices of the local authority, it is responsible for a large proportion of the pedestrian traffic and contacts with the local authority (MCC, CTC, KBC).

> *"Fire would be life and death ... but in terms of media coverage and volume of people contacting us planning is by far the highest"*
>
> *(MCC)*

In the online environment, planning accounts for most of the traffic to the local authority websites. In Dublin city council, planning is the "most highly ranked section of the site in terms of the number of visitors [and] the number of hits" (DCC) and an estimated 80% of traffic to Mayo county council is planning related. Other online services mentioned as core functions were libraries (DCC), visitors maps (DCC) and housing (MCC, CTC).

8.2.4 Users

All the local authorities surveyed felt that they were familiar with different users of planning information and their needs. The majority of the users of the Kilkenny borough website were from Dublin and the second highest number of hits came from Kilkenny. Clonmel borough council emphasised the different levels of local area and planning knowledge of the different users of the planning system.

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[35] The LGCSB were not included in the interview process as their work is directed by the needs identified by the local authorities.

[36] The preplanning system is a mapping interface which allows users to outline a potential development in Mayo and assess it against the development plan guidelines. For example, if a site was 100m away from a primary road, the likelihood of planning permission being obtained is low. The system is unable to give a definite answer but is helpful in providing an indication for the developer.

8.3 Website Provision

8.3.1 History of the Websites

The history of local authority websites is comparatively recent. Of those surveyed, Dublin city council was the first local authority to publish a website on the Internet sometime prior to 2000. Mayo county council went live with their first site in 2001 and Kilkenny borough council developed their site in 2002. The sites have undergone a number of iterations since then and Mayo is currently on the fourth incarnation of its site with the fifth under development. Ballinasloe town council were unable to give the date of creation for their joint site with the Ballinasloe chamber of commerce.

8.3.2 Drivers for Creation

The motivations for the website creation are unclear. Many of the websites were developed a number of years previously and the staff interviewed working in the three relevant authorities were not employed at that time. Thus, any opinions expressed in this section are opinions based on the experience of the staff members interviewed and cannot be taken as a complete record of the motivations or drivers.

Government initiatives such as the communications and eGovernment strategies were an important consideration for Dublin city council, with an emphasis on the provision of services.

> *"It is part of the communications strategy and also eGovernment in terms of offering services vie the Internet as a channel. I can't say there's a document stating all that but I'm sure that was the background to it."*
>
> *(DCC)*

The BLG initiative and encouragement from central government were the driving factors in the creation of the Mayo county council website as the focus of this initiative was on the creation of "multi channel approach to service delivery" (MCC). It was a departure from a monopolistic position of service delivery where citizens were not "seen as a customer at all" (MCC). Interacting with the council was at the council's rather than the customer's convenience ("you had to queue for whatever time you had to queue and that was it" (MCC)). The website was an aspect of better service delivery which also included the setting up of area offices. While these pushes are nationwide, the changes in the wake of BLG meant that the Internet was identified as a priority. Additionally, Mayo county council had the resources necessary to develop this service. Their funding was "perhaps more ... than it should have been in terms of its weighting" (MCC) and they made use of European funding to buy in IT skills, such as programming. Benefits, such as reducing the demand on planning support services, were also cited.

In Kilkenny borough council, while the drivers of website creation are unknown but were likely to be "developed from a directive of some sort" (KBC), the customer charter advocates the provision of information to citizens in as many forms as possible (KBC).

8.3.3 Responsibility for Content

Only one of the three local authorities with functional websites (DCC) operates a content management system. In this case, individual departments are responsible for uploading and maintaining the content on the website. In the other two cases (MCC and KBC), content is forwarded to the IT department and then uploaded. MCC are currently looking into the development of a content management system but are considering the implications of ensuring content is WAI compliant for accessibility. This is necessary as the council signed the Barcelona Declaration and are now legally obliged to publish accessible content.

8.3.4 Benefits of Website Provision

All local authorities with websites perceived a need for its provision. In Clonmel borough council, a need for a website was perceived and currently five planning packs are emailed to potential applicants every week. Wicklow town council did not perceive a need for the creation of their own website. The planning department felt that this was a decision for the IT department in the county council and the IT department did not perceive a need to create a separate identity for the town council.

From the local authority's point of view, having a website relieves pressure on the local authority's human resources ("Saves me time" (KBC)). The numbers of queries to the local authority over the phone, post or to the public counter are reduced. The website "prevents some of the calls that are made on fairly minor issues" (KBC). Mayo county council report that the planning department has found that the calls to the department have reduced by 80% since the planning engine was provided on the website. Additionally, the time taken to provide planning documents, such as supply planning packs or the development plans, is reduced. This reason was specified by six of the local authorities interviewed, excepting Wicklow town council.

> *"All our documents are different from South Tipperary; our development plan, our local plan and other schemes. This means if someone rings in, it involves us copying it and faxing it. Or even if a large developer in town wanted to know policies for advertising or something like that, they end up having to buy the hard copy of the plan because it is not online. So if things like that were provided, [people] may not call in at all."*
>
> *(CBC)*

Benefits accruing to the public were also noted by the local authorities. Time savings (travel and waiting time) or increased availability were mentioned by three of the local authorities with websites (KBC, MCC and DCC) and two without (CBC and CTC).

8.3.5 Disadvantages of Website Provision

Five of the local authorities did not mention any disadvantages to website provision. Only Kilkenny borough council and Dublin city council gave disadvantages to the provision of a website. Dublin city council mentioned the requirement of current information, availability and ease of use. The timely provision of information was cited by Kilkenny borough council. Missing information or incomplete information could cause problems in terms of the tight time frame associated with planning.

8.3.6 Future Website Provision

All four councils without a website were unable to specify the reasons for not providing a website. It was not however, thought to be a particular policy decision. Of these local authorities, only Castlebar town council had concrete plans for its creation. The website was created by the IT department in Mayo county council and was ready to go 'live'. However, the town council had yet to give the go ahead for its use. A possible reason supplied was the need to maintain a separate identity from the county council and its support services.

> *"There are massive fights between Castlebar and Mayo councillors. For one thing, we put up speed signs in Westport town council. If you look at the minutes most of the town councillors are saying, what are we here for, we can't do anything. We have no rights. We don't even know when our speed signs are changing."*
>
> *(CTC)*

Of the three remaining local authorities, Clonmel borough council was not aware of any plans for the future provision of a website. However, should a website be developed the IT department within the county council would be responsible for its implementation. Providing the borough council planning information under the county council site was seen as a solution due to the overlap between the two councils.

> *"I don't know if there was a decision to say 'well we don't need it' or maybe it has just been overlooked"*
>
> *(CBC)*

A website for Ballinasloe town council was planned for the future but it was not a particular priority. Wicklow town council had no plans but the IT section may develop a site for them in the future. At present, the IT department promoted the use of Wicklow.ie for the provision of all Wicklow town council information.

8.4 Website Design

There is recognition that the website provision is not a replacement for face to face services ("It's not a question of replacing one channel delivery with another. It's a question of in addition to" (MCC)). Support for the website is also necessary. Clonmel borough council observed that some support for the online service for users unfamiliar with Internet use would be required if a website was provided.

8.4.1 Evaluation Methods

None of the local authorities were surprised about the evaluation results for their website or information provided on the relevant county council website. Dublin city council is aware of accessibility and usability principles and incorporates the principles into the design of the website. The webpages are evaluated against the W3C guidelines and the content in the pages are also evaluated. The development of different scenarios is used to test the applicability of the webpages. However, these processes do not make use of real users of the information. The large clickpath on the Dublin city council website was already identified as a problem and is currently being assessed by the IT department.

Mayo county council and the Castlebar town council information on their site are tested against the W3C guidelines. These are legally required to be accessible because of Barcelona Declaration. "We have been leading in accessibility for at least two or three years. Everybody else is coming on board now" (MCC). They are required to achieve at least AA compliance[37] and employ innovative technical solutions such as videos on planning with subtitles. In recent months, the council have contacted all the planning agents in Mayo and conducted a user meeting to establish the needs of the users in submitting a digital planning application. The agents were asked "What do you want? What are your problems? What can we do to make the job better?" (MCC). Prior to that they were dependent on feedback they received from users through informal channels such as direct contact with the IT department by a particular user of the system or by phoning a number of agents. According to the planning department within the county council, approximately 98% of the planning applications to the county council are submitted by an agent rather than individuals. This figure is similar for Castlebar town council. Focusing on these agents was therefore a consideration in identifying the needs of the users. Additional testing of the site was conducted by the county secretary who is visually impaired.

Kilkenny borough council is developing a new website which is due to be launched shortly. The site will comply with WAI standards and the Irish national disability

[37] With the exception of mapping elements.

guidelines. In addition, the site has an online evaluation facility to rate and comment on the content of the individual webpages. The site is being tested by a visually impaired councillor which will be supervised by the IT department. Additionally, a test link was emailed to staff within the council and they were asked to identify any problems or issues they encountered. In this way, the knowledge of users' needs understood by the planning staff was gained.

While Wicklow town council currently do not have a website, they recognise a need for user involvement in its creation. Its development would be undertaken by the IT department within the county council.

8.4.2 Future Developments

The local authorities have a number of projects they are undertaking to improve the provision of their websites. As mentioned previously, Dublin city council are reducing the number of clicks needed to access the content of relevance and are improving the search facility on the site. They also are looking at the provision of a facility to make an objection online.

Mayo county council are developing a content management system which will allow "40 or 50 content providers" (MCC) in individual departments to create and alter their own content. The council are also investigating the possibility of providing an online planning application submission service. Additionally, they are keen to provide all the services supplied by the local authority online.

Mayo county council are investigating the viability of an online validation and submission system for planning applications. The online validation system could significantly cut down on the rejection of incomplete applications. This system available only to planning agents would also allow the submission of more than one application at a time, thus benefiting the user in terms of reduction of duplication of effort, time savings and printing costs. Currently, it can take "a week or two weeks before it even gets to a planner." (MCC). By cutting down the administrative work, this system would allow more time for planning decisions to be taken.

Mayo is keen to follow a 'one-stop-shop' model of online service delivery based on the Canadian system. In this system, a single point of contact, either online or in physical offices, should be able to fulfil all local or central government services. Support for the system is also provided at the government offices, where public counter employees answer public queries through their use of the system and then show the member of the public how to use the system for the query themselves.

"Most of the interaction with the public is through forms" (MCC) and by providing the 127 or 128 forms online, Mayo hoped to ease this interaction.

> *"The dream [was] where you would have one central location and you can go to the website and which local authority you are in, like Mayo County Council, or which service you want to apply for, which forms, this is it and you could apply for it online. But it didn't come completely together because a central vault of signatures ... never got off the ground."*
>
> *(MCC)*

Planning is contentious. Therefore, measuring satisfaction with the service can be difficult as some stakeholders may be unhappy with decisions taken. As a result, Mayo county council want to make the process "as efficient and as transparent as possible" (MCC).

Kilkenny are developing a new website. The main advantages of which are the increases in user friendliness. The search facility is also being upgraded. Search facilities are an integral part of the user experience of a website. Search functionality can dramatically cut down on the amount of time taken to access information. Users may search for phrases such as "planning application form" and based on this phrase expect the application form to be the first result. Unless search engines are optimized for user experience, they will return the webpage with the search phrase contained in it rather than the webpage the phrase refers to but may not actually contain. Kilkenny are seeking to advance their search functionality to more closely match the results with the information actually sought by "actually looking at the big issues as opposed to how they are structured in the local authority" (KBC).

8.5 Mapping

Mapping was seen as an integral part of all the local authority websites by the interviewees and of the planning content contained therein. Presenting planning information in map format is seen as "complementary to each other" and the two are "very much ... combined" (DCC).

Clonmel borough council was aware of the benefits of GI presented graphically through their use of their in-house GIS system. The aerial photograph was seen as particularly beneficial for ease of navigation and recognition of familiar local features in the viewing of planning applications. As the development plan is published with a zoning map, the presentation of this information on the Internet was also seen as important. The greatest benefit noted by Clonmel borough council is the display of different map layers so that the maps could be customised to best suit the user's requirements. However, concerns about the possible difficulties in using this system

were expressed and the possibility of providing support at the public counter was proposed as a possible solution.

Problems with the provision of mapping on a website were expressed by Mayo county council. Due to the graphically intense nature of mapping, the speed of connection may cause problems for some users as "people are used to instant information" (MCC). The Mayo system was developed with consideration of the slower connection speeds of users on dialup modems. However the benefits of providing visual information are acknowledged and the advantages of increased user friendliness and ease of understanding aerial photography over ordnance survey mapping were also expressed. Copyright is an issue in the use of online mapping and local authorities with a smaller aerial remit and larger population density, such as South Dublin county council, may be able to supply greater online mapping facilities than other local authorities. Currently, Mayo pays approximately €350,000 a year to the OSi for the use of their copyrighted maps internally in the council. Mapping is visual and, as a result, cannot be AAA accessibility compliant.

Kilkenny borough council also expressed an opinion of the benefit in providing mapping information online. The perceived advantages are based on internal use of GIS. The borough currently provides eplan, an online planning application location system, would see the advantages of extending the use of GIS to other planning areas such as an interactive development plan.

8.5.1 Relationship with the National Mapping Agency

The Ordnance Survey of Ireland (OSi) is Ireland's national mapping agency. The OSi provide mapping on a commercial basis to the public sector. The public sector accounted for 60 to 65% of the business of the OSi but this situation has changed with the expansion of private sector interest in mapping. The pricing structure for the mapping is transparent and the copyright is negotiated by the county managers with the OSi and is applied to all the local authorities. Briefing about what is included in the copyright is conducted at regular intervals by the OSi and support is available outside of this for queries. The use of all OSi mapping is under strict copyright ("we would be paranoid about the assets that it couldn't be taken and resold or anything like that, unless they get a licence from us or there is a clear agreement ... our copyright is very tight" (Ruane 2006)). The local authorities first approached the OSi about providing mapping online. But the OSi is now "proactive in encouraging the local authorities to take up this service" (Bray 2006).

8.6 Public Involvement and Participation

8.6.1 Participation Practices

All local authorities interviewed undertake the minimum legal requirements for planning consultation as outlined in Chapter 2. Mayo county council also undertake a number of public meetings when large planning decisions are to be debated (e.g. a new sewerage treatments system and the Shell Corrib gasline). These meetings are education and information oriented ("depending on the size and type of development you would have representatives from the developer and the county council answering queries" (MCC)).

In addition to the statutory requirements, Kilkenny borough council also met with a number of self-selected local interest groups, including some residents associations, *an Taisce*, the chamber of commerce, the tourist board and the high street traders.

8.6.2 Internet Participation Practices

In Mayo county council, emails are available for all the different local authority services. In accordance with the customer action plan, the emails must replied to within three or four days. The minutes and agendas for council meetings are available online making the procedures are more transparent. The use of more interactive features, such as online discussion forums, is problematic. Moderating the discussions is important as there are legal implications (e.g. libel) but that imposes censorship. The location of those discussing the issues is also an issue (e.g. should participants be permitted from just the local area or should inputs from participants in America for example be considered?). Draft local or development plans are also available on the website for comment and, while emails are accepted for comments, the emphasis is on written paper submissions.

Kilkenny borough council provided an email address for submissions to the draft local area plan and for the current development plan.

8.6.3 Enabling Participation on the Internet

Most of the local authorities interviewed viewed the Internet as an appropriate medium for public participation and that public websites encourage participation and improve democracy. However, Dublin city council was unsure and thought the question was too vague. None of the authorities with websites were aware whether participation or shared governance was considered in the development of the website.

Providing a website and the appropriate information would enhance participation and democracy by;

- **Helping to inform the public of consultation opportunities** ("For Clonmel borough council, our development plan is due this year and it was advertised on the local newspaper but there are people who aren't aware of it. So if you had it on a website, that would be good ... Not everyone reads the papers" (CBC). Also mentioned by MCC.).
- **Increasing the transparency of local democracy** ("the public will be able to see everything the county councillors see. So that's a big aspect in terms of local democracy" by "knowing what the councillors know and know exactly what the councillors are reading" (MCC). "If we put the information out there I think it certainly makes people feel slightly more empowered and maybe slightly more involved in the process or production" (KBC)).
- **Easing the access to information** ("there is greater information... [before] no one knew what was happening apart from the newspaper reports" (MCC)).
- **Increasing the channels that people can use to participate** ("for example, with the local area plan we set up an email address... so people could email us their observations... they didn't have to physically go down to the post office and post it" (KBC)).
- **Making it more convenient to participate** ("I do think it allows people to participate just in their day to day lives, its not a big deal, I think to log onto something. Really it's convenient." (KBC)).

8.6.4 Advertising

Where a website is provided by the local authorities, it is included in local authority letterheads and other stationary, literature provided by the council and other signage, such as banners for Croagh Patrick in advance of Reek Sunday. Mayo county council has gone beyond this model and advertised "particular aspects of [their] services" with half page advertisements in the local papers (e.g. advertising the accessibility features of the website).

8.7 Conclusion

There are strong relationships between the county and the town and borough councils in the provision of technological support and services and planning expertise. These relationships also extend to the dissemination of application developed by individual local authorities or in conjunction with the LGCSB as well as a sharing of knowledge and experience of eGovernment. However, the importance of national technical support services is minimal for online service provision of the local authorities. There is a large difference in the resources available to the different types of local authorities.

The provision of websites in local authorities within the sample was very recent beginning around 2000. While there is no consistent provision of websites in Irish local authorities, the external pushes for their creation are consistent. Two of the three local authorities with websites have or are developing a content management system that will allow content creators to update and maintain their own information. Benefits of website provision is recognised by all the local authorities contacted but only three mention possible disadvantages to website provision. Of the four local authorities without a website, one website was developed and waiting for the political permission to be published online, one site was planned but not a priority and two local authorities did not have any plans for its creation. The website address is provided on most local authority stationary and in one case features of the site are actively advertised.

Planning is a key function of the local authorities both off and online. Planning receives the highest number of visitors to the local authority websites. Mapping is viewed as an important part of planning information. This viewpoint is partially attributed to the use of GIS within the local authority presently. Some concerns about accessibility and copyright in the use of mapping were expressed by one council. The OSi provides mapping to the local authorities under tight copyright restrictions. However, the OSi are also encouraging the use of online mapping by the local authorities.

Few of the local authorities interviewed go beyond the legal requirements for participation in planning or in other local authority areas. The additional practices take the form of public meetings for contentious planning issues or meetings with interest groups for draft plans. The Internet, while acknowledged as a space for public participation, is not heavily used in this regard. Initiatives are constrained to emailing comments to development plans or future provision for planning application objections. Legal problems with the use of discussion forums for participation were raised. While website provision was motivated by local authority cost saving methods, the local authorities expected that it would increase and ease participation without a clear vision of how this was accomplished. The enhancement of democracy and participation was seen to be provided by the simple presentation of information, the usability of the website and information, improving the transparency of council process and the provision of alternative and convenient methods of participation. Currently, the Internet does not have a large role in the development of public participation practises within the local authority strategy. The actual role the Internet in the promotion and facilitation of public participation is not currently addressed at a national or local level. To identify the public participation possibilities afforded by the

Internet, it needs to specifically addressed and identified at both a national policy level and a local implementation level.

Chapter 9: Discussion

9.1 Introduction

This thesis investigated online public information provision in Irish local authorities from a user perspective and looked specifically at spatial planning information. Local authorities are using the Internet in the delivery of public information and planning information in particular. This trend is likely to continue as more local authorities expand into the online environment.

This chapter discusses the results of the three methodological strands of this study, namely; an evaluation of the provision of planning information on the local authority websites, the perceptions of that information by planning information users and interviews with selected local authorities about their provision of planning information and their views of the users. This chapter also refers to the literature reviewed in Chapter 2 where appropriate.

Three research questions were identified in Section 1.4. The first question assessed the provision of the planning information and services currently provided on the local authority websites. The second question considered the need for planning information and whether the current provision fulfils that need. The third question was concerned with the motivation behind providing online public information. The provision of planning information is complex and accordingly the research questions are interlinked. This thesis argues that provision should be assessed in terms of user need and from a user perspective. This evaluation is only possible, therefore, after the user need is established. The users' need (Research Question 2) is dealt with first in Section 9.2. The users are identified and their demand and usage of online planning information are explored. The provision of online planning information (Research Question 1) is then examined in Section 9.3. Having identified the need for information and the provision, the second research question is examined further in Section 9.4. This addressed whether gaps exist between the provision and need of planning information. The third research question is assessed in Section 9.5 and the wider implications for the motivation and provision of online public information are explored in Sections 9.6 and 9.7. The three research questions are then explored explicitly in Section 9.8.

9.2 The Need for Planning Information

The provision of online planning information should only be assessed in terms of the needs it attempts to fulfil. For this reason the need is discussed here to place the current provision in context. The second research question (Section 1.4) focused on

the need for planning information on the Internet and whether or not this need is being fulfilled. The need for planning information is created by the users. The provision of planning information online is targeted, by its very nature, at the users of that information. The users' need for the information or service determines the amount and type of use. Public information differs from other information in its requirement to fulfil a public service for all citizens and, ideologically, to inform all citizens without discrimination.

Identifying and developing an understanding of the characteristics of users of planning information are fundamental steps in the design of a successful website (Dumas & Redish 1999). A clear idea of the user and their behaviour should guide online structures and service delivery. This section discusses the users of planning information and their characteristics. Identifying the generic characteristics of the users, e.g. age and education, can have a profound impact on the users' access to online information (Nielsen 1993). It enables the creation of realistic and insightful usability engineering, such as the provision of expert user customisation features which can ease the completion of online tasks. In addition, knowing the users allows for identification of subgroups of users for user testing. This section based on the identification of the users in Chapter 5 and the results of the questionnaire presented in Chapter 6.

9.2.1 The Users of Online Planning Information

This study divided the users of planning information into two broad categories; repeat users and novice users (Section 5.3). Novice users are those members of the public that interact with the planning system on a very infrequent basis. They may only apply for planning permission, be concerned about plans for developments in their neighbourhood or report a planning infringement once in their lives. Repeat users are those users with regular dealings with the planning system, such as the intermediaries who submit planning applications on behalf of clients. This thesis focused on the repeat users of the planning system as individual or private users may only have limited knowledge of the planning system. The process used to identify the repeat users was undertaken in Section 5.3. Tasks may be undertaken differently by the repeat and novice users (Wharton & Lewis 1994). Novice users, for example, can gain an understanding of processes through FAQs or through planning guides[38].

The development of a locality has an important impact on the area's residents, e.g. access to services, changes to the local environment or the development of accommodation (Healey 1997, Sassi 2000). Certain groups and individuals are more

[38] The experience of users unfamiliar with the planning process was not overlooked. It is reviewed explicitly in the examination of the provision of guides in the evaluation stage of this thesis (Chapter 4).

likely to interact with the planning system than others. Community, environmental and other voluntary groups, such as residents' associations, have an important role to play in the planning process (Stoker 1991). Some users will represent the views of a large organisation or membership in any submissions they make. The users are individuals accessing the sites in a personal, work or voluntary representative capacity. Certain professions are intrinsically involved with the planning system in Ireland (e.g. construction, architecture and planning consultants). Other professions have a professional interest but their emphasis is not on the planning process (e.g. archaeology and chambers of commerce). The consideration of intermediaries in the planning application process is an important element in determining the users of planning services online. Some of the characteristics measured in the questionnaire can be explained by the methods used. The distribution of the different professions in the results of the questionnaire is generally reflective of the number of practitioners within those fields contacted[39].

By providing information online, the planning authorities are implicitly targeting users of the Internet and planning information. By targeting Internet users, they are targeting certain sections of the general population. Internet users usually have higher levels of education than the general population (West 2005). This is accounted for in two ways. First, users with high levels of education are expected to have access to the resources necessary to go online. Second, these users are more likely to have the literacy and technical skills required to use the Internet. A high educational attainment was observed in the results of the user questionnaire. The users of planning information may be more likely to be Internet users than the average member of the population (West 2005) as repeat users of planning information are located in professions, such as architecture, which require a certain level of education. Providing services for these users online may, therefore, be a ideal use of local authority resources.

In addition to their familiarity of the planning system (as discussed above), the results highlight the fact that respondents are frequent and experienced Internet users. The Internet has infiltrated business and leisure activities. Users of planning information are most likely to access the Internet from work and then from home. The other access options were less important[40]. The respondents have undertaken a large number of different types of interactions with the Internet. They have purchased goods online; recognising the Internet as an extension of the market place. The

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[39] Excluding the addition of archaeology as a professional category not specifically contacted for the questionnaire.

[40] However, mobile connection devices such as mobile phones and PDAs may increase in popularity and require text based or graphically reduced content.

respondents have banked online or undertaken another financial service; accepting the Internet for the payment of bills or other interactions involving money. The respondents have used the Internet for work, either as an informational resource or to undertake work related tasks, such as updating documents or filling in forms. The average respondent to the questionnaire was male, in his thirties or forties, had a high level of education, was employed in a small company and had a professional interest in planning[41]. The users' age implied that they are more likely to be in established positions within their organisations. With these activities and the profile of respondents, especially the older age profile, it can be concluded that the Internet is widely accepted for professional purposes.

Email, as a form of communication, was widely accepted by the respondents. This emphasizes the role of the Internet as a communication medium which has changed work practices. 395 of the respondents said they had used email[42]. Very few of the respondents have used a chat room[43]. Current developments, such as VOIP, will further establish the communication abilities this medium further.

The respondents have used the Internet for research and information gathering purposes. The Internet's use as an information source is widely accepted (EBCI 2002) and fundamental for any online public information provision. Users accept the use of the Internet for business, leisure and communication. The provision of online public information sits comfortably within these contexts and the online local authority service provision fits with the established uses of the Internet.

While the suitability of the current online provision has been established from the user perspective, the characteristics of Internet users can also affect the actual provision of online information. The type of connection can determine the level at which the user can interact with the online provision. The majority of respondents use a broadband connection to access the Internet and many others use ISDN connections. This may be a feature of the methods used, as users on broadband will have fewer barriers to filling in the questionnaire. These are, by implication, the potential audience for the more computer-processing intensive, local authority, online applications. The users with high speed connections can avail of videos, high resolution images and interactive flash features.

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[41] This discription refers to the average respondent and masks the respondents from community and voluntary groups.

[42] As the survey was sent via email, this can be seen as close to the total number of respondents still willing to fill in the questionnaire at this point.

[43] A chat room is a facility on the Internet where more than one user can converse in real time (Wordnet 2006). Each chat room is usually dedicated to one topic or general area. The majority of such facilities online are related to leisure activities. However, chat rooms have also been proposed as a means to discuss local issues (Munt 2002) and they are increasingly been used as an innovative method of teaching in many third level institutions (e.g. Trinity College, Dublin).

There are also a high number of the users identified in the questionnaire using a dial up connection. The current roll-out of broadband is focused on large urban centres with the required hardware[44] (McCafferty 2003). The barriers to the roll out of broadband, such as low customer density and inferior infrastructure, are geographic and predominantly rural in nature. Rural communities are at an economic disadvantage as more business tasks, services and leisure activities have moved online (McCafferty 2003). These rural communities are the very areas which an online local authority service has the most potential but it is here that the physical barriers to availing of public information are the highest. Repeated use of a website on dialup connections can be prohibitively slow and contacting the authority by other methods may be more convenient. Using a broadband connection also does not interfere with the use of the telephone line. Users can then interact with the local authority over the telephone while visiting the local authority website and could be coached through the online tasks. As the connection speeds of users differs, the design of the website needs to allow for the variations in use. For example, local authorities should provide large documents in their entirety for download for high speed users as well as individual chapters for users on the slower connections. This highlights the need to retain other channels to local authority services.

Use of online planning information or services requires the development of two key skill areas; planning knowledge and technical Internet skills. Therefore, simply identifying users of the planning system will not identify the users of online planning. Professional users of the planning system in the offline or real world have an obvious advantage over novice users of the planning system when they both possess the same level of Internet skills. Professional or expert users of the planning system will find it easier to navigate the online planning system relying on their planning knowledge to select the correct options, especially in cases where acronyms or planning terms are used. However, as mentioned in Section 2.8.2, domain knowledge is only beneficial when combined with knowledge of the system (Egan 1988). The professional users of the planning system are domain experts of the planning system and are also likely to be able to access the resources and skills necessary to interact with the Internet. They have a professional understanding of the planning system, whereas a novice user will have to acquire knowledge of the workings of the planning system as well as learning how to navigate and use the local authority site. Their expertise means that the services and information provided online by the local authorities should allow customisation. Certain steps in the process can be reduced as a full explanation at each stage is not required. The expert users' familiarity with the planning process

[44] Certain types of exchanges and cables are unable to carry such an increase of traffic on the current infrastructure.

ensures that detailed explanations of the planning process will be tedious for these expert users. Users, being busy, appreciate a quick and easy to use website (Adler & Winograd 1992). Mayo county council recognise that the majority of applications are through an intermediary and a more expert user and thus an online system for these users could be stream lined.

It has been shown in this thesis that users can be identified and are willing to share their views and experience of the online local authority websites. However, they have not been included in the design of the websites by the local authorities. User testing in the local authorities has focussed on the users within the authority and, therefore, on its internal workings.

9.2.2 Demand and Usage of Online Planning Information

The demand for planning services online is affected by the use of the current services both on and offline. This section details the users' experience of the planning system and the factors influencing this experience and consequently their demand. This section is based on the findings of the user questionnaire presented in Section 6.6.

A higher number of planning application submissions, objections and comments are made than the number of submissions to development plans (DOELG 2001). This study found that more people are aware of the planning application process than development plans or the process of their creation. Consequently, certain planning tasks are more likely to be undertaken than others and are more relevant for larger numbers of people. It could be assumed that, all other factors being equal, these tasks would be undertaken in the same proportions online. However, ranking of the planning tasks changed when the respondents' use of the Internet was considered. Respondents are more likely to go online to undertake certain tasks which are not proportional to the numbers who need to undertake these tasks. Table 9.1 gives the rank of the different sample planning tasks undertaken and those undertaken online based on the number of users. It must be noted, however, that the order of tasks in the second column does not reflect whether tasks are available online. For example, seeking planning permission is not possible in any Irish local authority but most respondents went online for information connected with this task or to complete this task. There are a number of reasons for this disparity, which will be explored in the remainder of this section.

Table 9.1: Order of Tasks Undertaken and Tasks Undertaken Online

Order	Tasks Undertaken	Tasks Undertaken Online
1	Viewed Planning Permission	Sought Planning Permission
2	Viewed Development Plan	Viewed Development Plan
3	Sought Planning Permission	Viewed Planning Permission
4	Objected to Planning Permission	Objected to Planning Permission
5	Made Submission to Development Plan	Made Submission to Development Plan
6	Other Planning Activity	Other Planning Activity

Users view the Internet as an information provision space. The results indicate that they do not expect to actually undertake the process but expect that information on the process, the documentation required to complete the process and contact details to be provided. The results of the questionnaire show that there is an expectation that the Internet provides answers to the user's questions by providing information in the form of simple guides and FAQs or more detailed explanations. This supports the use of the Internet as an information provision medium which takes pressure off local authority staff in dealing with simple queries. Users expect certain planning tasks, such as downloading an application form, to be provided online. Application forms, for example, should be available in every planning authority office. Without the provision of the form on the Internet, a journey to the office, a phone call (and subsequent posting of the form), a letter, email or fax is required[45]. Some respondents, however, expressed concern about the use of online forms which may not be as rapidly updated as the printed forms available from the local authority offices. The provision of the form and fees on the local authority site may have significant time savings for both local authority users and the authority itself. However, it should also be noted that the submission of planning applications are rarely completed by the individual and are usually conducted via an intermediary party, such as an architect or planning consultant. The planning tasks expected are those most demanded by users. The tasks are informative, relatively unchanging and not interactive.

Overall, users are happy with the level of information provided online[46]. In spite of this, they see the benefit in providing online services and many of the respondents to the questionnaire would be very willing to use an online facility instead of more traditional methods. The types of services sought and complaints about the services and information not available were mostly available in other local authorities and on

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[45] This, of course, assumes that the information will be provided by the local authorities when they are contacted through these media. It does not take account of the fact that some local authorities may not provide this information through some of the media mentioned.

[46] The satisfaction expressed by users about the level of information, the interaction between information and models of public participation and the implications for participation in the planning process is discussed in Section 9.7.

Irish public agency sites, such as the motor tax site[47]. Thus, users are realistic about the provision of such information and compare the local authorities with suitable public agencies rather then private companies or services available in other countries. They are, in this respect, very Irish-centred and would have little interaction or knowledge of local authority provision in other countries. Users may use more than one local authority site and therefore, seek the similar provision of services across all the local authorities. Within this system, the local authority is still the provider of information and the user interaction is limited. This coincides with the lower rungs of Arnstein's (1969) participation ladder and a much reduced participation model as proposed by Bayley and French (2005).

Certain fears have emerged over the use of the Internet; privacy, hacking, identity theft, spam emails, hoax emails and computer viruses (DOJELR 1998, Moore 1999). Privacy and security are important in ensuring that planning users will avail of an online service. Some potential users will hesitate to use a service where substantial information is collected about the users, their web use and interactions, especially where that information is given to a third party. Interacting with the local authority online can require greater trust by the citizen or business than with using traditional methods. Submitting information to the local authority via a computer can be impersonal and the user must trust that the information received will be dealt with accordingly. Some respondents in filling out the questionnaire expressed their concern about whether the local authority would take their views on board. Planning is an important activity and planning applications are very time dependent. The users need to feel that the online service provided is, at least, as good as the offline service, is secure and will provide the same guarantees or receipts that submitting applications or comments via the planning office provides. Where the local authority has a poor offline service and interaction with citizens, it is likely that citizens will expect a similar experience online. As a result, they may over rely on the physical offices, telephone and post to contact and interact with the local authority. The findings imply some users will not be satisfied unless the process is conducted in person. Providing an online service, therefore, should not replace traditional services unless the local authority is willing to lose some level of user trust in the process. The local authority needs to be aware of the different issues when providing online services, especially those involving financial transactions, as users need to feel secure about any online transaction. The Internet is a unique medium and considerations in providing traditional services may not directly apply. Easing user fears will increase the numbers of users availing of online services.

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[47] Available at http://www.motortax.ie.

Demand is also affected by other factors, such as total population and the proportion number of users who use the Internet. Users are also more likely to demand Internet services if they have high speed connections[48]. Demand, therefore, is likely to be higher in urban centres. Demand increases in areas of high population and greater access to the Internet and ICTs, such as urban areas. Local authorities with high and/or urban populations will have a greater user demand for online services.

9.2.3 Online Planning Information

Planning is a core function of the local authorities (Oasis.gov 2006). This is reflected in the frequent use of planning information online. Local authorities cite planning as the section with the highest hits on their websites and most respondents visited the local authority site for planning related reasons. The second most common reason provided by respondents for the use of the websites was local authority services, such as waste. Other common reasons given were publications, contact details, general information, funding for community groups and community resources. This section explores the characteristics that users associate with online planning information (from the results in Section 6.6).

The findings reveal that users clearly believe planning information on the Internet is useful. Users generally agree that planning information is easy to find. Conversely, the numbers disagreeing with this statement is also high. This characteristic is related to the navigation structures and design of the local authority website as well as the ease in locating the website via search engines or other media.

Users were divided in their opinion as to whether planning information was up-to-date or regularly updated. This split in opinion can reflect different levels of service across the different planning tasks (for example, the development plan is easier to supply up to date than planning permission information) and across different local authorities. The current nature of the online planning information should, therefore, be flagged as an area worthy of particular attention by the local authorities. This affects the level of trust and the Internet's potential for the delivery of planning information. If users do not believe that the Internet is regularly updated the time and resources saved by not providing phone and counter services may be negligible. If users believe that the information may not be current or updated as quickly or regularly as required, they may contact the local authority for the up-to-date information. Most users did not think that planning information was complete. Again, the trust the users can place in

[48] The provision of high speed connections was more extensively discussed in Section 9.2.1.

the online planning information is limited if they believe that information is not complete[49].

The views of the reliability of planning information were particularly positive for the local authority provision but this may bring its own problems. If users place full trust in the online data and planning problems occur, the local authority may be held responsible. Similarly the users may place too much trust in the online information and not check with the local authority for confirmation. The local authority responsibility for correct and timely information was mentioned by two local authorities (Dublin city council and Kilkenny borough council).

If users have positive views about the characteristics of online planning information, they will be more likely to use that information. At present, users have some problems with the current provision. These problems, in combination with fears about Internet use, are forcing some users to access the information through other channels.

9.3 The Provision of Planning Information

Website provision is not consistent for all Irish local authorities. Not all local authorities have websites and fewer still have webpages dedicated to planning. The 16% of local authorities without websites and 41% without pages referring to the planning process are either town or borough councils. Within the study area, these figures are 26% and 41% respectively. However, it does not indicate the absence of planning information on the local authority site if planning pages or a planning homepage are not present. The planning information could be present on the local authority homepage or in non-planning specific pages surrounded by other local authority related content (as is the case in Dungarvan town council).

The provision of information is important both on and offline and accessing information is the first step in the planning system. Beyond this, the user must actually interact with the system and this involves communication from the user to the local authority. This is supported by the local authorities' statistics, where available, and their general view of planning on the websites. There are a number of different types of planning information; the development plan (both the map and textual components), the guides to the planning processes (such as objecting to planning permission or reporting infringements), forms for the administrative interaction with the local authority, checklists for the components of planning applications and the legal rights (for example, what can be undertaken without permission, what is an

[49] Issues of trust are dealt with in Section 9.4.

infringement and so on). The planning system is interlinked and different planning tasks depend on the same information. For example, information contained in the development plan is vital to the functioning of other planning processes. The development plan helps determine whether it is appropriate to grant planning permission.

This section investigates the provision of online planning information by the local authorities with websites. It explores the implications of the evaluation results recorded in Chapter 4 and, where appropriate, refers to the results of the user questionnaire in Chapter 6 and the survey of local authorities in Chapter 8. The evaluation methods developed in Chapter 3 measure the type, extent and quality of information provision in Irish local authority websites.

9.3.1 Finding the Website

Users must know of and, subsequently, be able to find the local authority website to make use of it. The vast majority of planning users utilize a search engine to find information on the Internet. Users also availed of this method to locate the local authority website, even when they visited the site previously. The placement of the site in search engine results is, therefore, of vital importance to ensure users are aware of the site address. All local authorities in the study area were located in the top one or two placements on the search results page. Consequently, once the local authority name is known, the sites are easy to locate. It must be noted, however, that this method used assumes that the user is aware, first, what local authority area they are interested in and second, the full name of the local authority. Given the high ranking of the authorities (Section 4.3) and the nature of search engine optimization (Section 3.4), the user is unlikely to be heavily penalised in terms of the time they spend searching the results due to an incorrect version of the local authority name. Also, the local authority should take care to ensure that the naming structure of the site is also clear and obvious so users can recognise the site from the page address in the search results.

The user's paths to information are numerous. The use of alternative methods to find the local authority webpage is higher than for the users' search for general information on the Internet. The alternative methods include guessing the address, linking from another page or email and finding the address in a newspaper or flyer. Bookmarking a page was the least common Internet activity assessed. Local authorities, therefore, cannot focus exclusively on search optimization strategies. Most of the local authorities interviewed with websites included the web address on their advertisements. Of the local authorities without websites, some council email addresses referred to the larger county council address. This is appropriate in

instances where the smaller local authority information is present on the county council websites. However, when this is not the case it may result in a significant waste of time for the potential user trying to track down information that is not present. Additionally, one local authority had a separate email address but did not have their own website. This may lead to a situation where users get frustrated at not being able to find a site they believe exists. During the evaluation procedure, establishing whether a service or piece of information was not available took significantly more time than finding the information when it was present. However, most users are quick to give up search for information using a search engine (Jansen *et al.* 2000) and resort to other methods of gaining the information. Many of the professional users will also use a number of local authority websites, for example, Kilkenny borough council has the highest number of website hits from the Dublin area. Thus, linking to other local authorities and relevant government departments and public agencies, such as *An Bord Pleanála*, is important.

9.3.2 Task Provision

Nine planning tasks were selected for the evaluation of the local authority online provision in this thesis. Two of these tasks were further broken down into text and mapping elements. One task evaluated the general contact details for the council and contact information for the planning section. The tasks chosen were standard tasks possible in all local authority offices. Furthermore, the tasks are available on at least one local authority website.

The category of council affected the provision of sample tasks. Town and borough councils, with fewer resources, provided fewer tasks than the county and city councils but when their provision on the county council sites was taken into account, this inequality decreased. There were large variations in the type and extent of information provided on the local authority sites. This situation was raised in a negative light by a number of respondents. The provision of tasks on the local authority websites ranged from full provision by two local authorities to the provision of two tasks (three local authorities). Smaller local authorities generally have fewer online tasks than the larger authorities. The town councils provide between 0 and 7 tasks and county councils from 7 to 12. Borough councils with websites provide more tasks than the town councils but there is very little difference in the operation of the two categories of local authorities.

Town and borough councils within a county council with good service provision were likely to provide more information online. The internal structure of the local authorities, dependence on county councils for technical and planning support and other expertises as well as the overlaps between the town clerks and the county

councils can go some way towards accounting for this situation. Also, the expectations of users of public information within that county would be at a particular level as comparisons would be obvious. The IT support is, generally, provided in the larger county council and the provision of the county council could be easily adapted for the town or borough council. It is very unlikely that a smaller local authority would develop services beyond that supplied by the larger county council as the resources and personnel are not in place to enable this.

Carlow town council and Athy town council, whose sites are provided as a subsection of the county council site provided the highest number of tasks of the town and borough councils. This points to the prudent use of available resources and should be explored by the other local authorities. Currently four types of provision are used by the town and borough councils

1. Distinct subsection of the county council site;
2. Integrated provision of services on the county council site;
3. Some provision of services on the county council site and the town and borough site; and
4. Autonomous provision of services on the town or borough council site.

Six websites of the 12 borough and town councils with Internet presences were provided as a subsection of the relevant county council website. This situation may result in some confusion on the user's part about the provision or non provision of services. Where a town or borough council has their own website, users may have to search both that site and the relevant county site before they can find the information they require or discover that the information they seek is not online. Providing a single portal for the county would allow users unaware of the administrative boundaries within the county to access information within a single information structure. It would also reduce the amount of repetition required in presenting users with guides or information about planning processes or about the operation of the planning department itself. Duplication of services is a common drawback to local government (Wilson & Game 2002). This idea was supported by some respondents who called for standardization of services across the local authorities. This is especially useful in situations where users are unaware of which local authority serves the area of interest. However, the benefit is reduced if the model is not followed by all the local authorities.

Certain sample tasks were more likely to be provided online. 100% of the county councils provide homepages, development plan documents, planning application forms and contact details. The majority of councils also provide planning application forms and the fees for planning permission. The contact details for the planning

departments were less available than generic contact details for the local authorities. Nevertheless, the majority of the larger local authorities have provided direct contact details for the planning department; Galway county council being a noticeable exception. This may reflect the higher number of staff involved in the planning process within these local authorities and the presence of structures for queries within the department (administrative, non-planning staff). It also hints at a recognition that provision of high levels of information on the Internet will not remove the need for contact by users with the planning authority, for example, for clarification on common issues, the proposal of unusual developments or preplanning meetings. Users may be happier to contact the section or service of interest directly. Fee information was provided more often than planning application forms. This may reflect the number of enquires the local authorities receive about the application fees from individuals. An intermediary making several applications could obtain a number of application forms during a single contact with the local authority.

Other sample tasks were provided by fewer local authorities. Guides to the planning process are provided by approximately 40% of local authorities. Though the majority of direct users of the planning application process are repeat users, the numbers of applications mean that there could be a sizable number of first time or infrequent direct users. There are also a number of people who engage an agent on their behalf but wish to understand the processes themselves. The dearth of information about the actual processes may be a significant oversight by the local authority.

Certain tasks were omitted by some local authorities. Wexford town council, for example, did not provide the development plan in either document or map format and did not follow the lead of its county council. The application process and many of the other planning procedures are dependent on the availability of this information. Neilsen and Tahir (2002) argue that all websites should take direction from the most popular sites on the Internet. Applying a similar idea to the local authorities, the tasks and the manner of presentation of tasks by the larger local authorities is a good template for the town and borough councils. Following this argument, the provision of tasks in more than 75% of the local authorities in city and council councils should provide the de facto standard for every local authority. All local authorities should, therefore, provide Tasks 1, 2, 3a, 3b, 4a, 5, 6, 9a and 9b and do not need to provide Tasks 4b, 7 and 8[50]. This, however, ignores the user benefit in the provision of these services online. This factor was considered by Neilsen and Tahir (2002) in their tacit acknowledgement that the most user friendly options do not necessarily become the de facto web standard. It may, however, provide the local authorities with poor task

[50] A more detailed description of these tasks is available in Section 4.4.

provision a ranking as to the importance of the tasks and may help focus attention on priority developments. Additionally, it complies conceptually with the user behaviour elicited from the results of the questionnaire, where users expect information and services available on other public websites to be available.

The amount and type of information varies across the local authorities. With this variation, however, are a number of consistencies which identify the areas the local authorities view to be most amenable to online provision. The online provision does not match the tasks most user undertake (Table 9.1). However, within this most users visit the site for applications forms, information about the processes and contact information, rather than actually undertaking the tasks themselves. Of the different tasks, contact information was most provided by the local authorities. For the other sample tasks, the availability varied; planning information was provided by 86% of the local authorities and forms and fees were provided by 66% and 59% respectively. Again, the local authorities are not immediately driven by the users' needs.

9.3.3 Site Structure

The structure of the site, as mentioned in Section 2.8.1, affects the use of the website. The presence of extra pages before the homepage (splash pages) and presenting content in different frames can decrease the usability of the website unnecessarily. The presence of these features of the local authority sites was recorded in Section 4.6. A number of the local authorities provide splash pages and supply their webpages through frames. The literature contends that sites with frames and splash pages do not best fulfil the needs of users to get at information easily.

A splash page is acceptable where adult content is contained on the site (for example, the page may question visitors 'are you over 18 years of age?'), where the user must choose the relevant country or where the language is determined in advance of accessing the site (Nielsen & Tahir 2002). There is some debate surrounding the applicability of using splash pages in the second and third cases, but strong arguments can be made on either side (King 2006, PubCon 2002). It is also argued that users could be immediately directed to content and asked to change language or country using functions based prominently on the page (qcross 2002). In the case of Irish local authorities, the splash page is only relevant where users are given the option of accessing content in either *Gaelige* (Irish) or English. In these cases, it could also be replaced by an obvious link to allow users to change the language.

The use of frames on local authority sites, places an unnecessary barrier to information on the site. Advances in HTML, CSS and template design allows web designers the same or better levels of flexibility over the positioning of content than

the use of frames (Nicholls 2005). Frames inconvenience users using text only browsing and add an unnecessary level of complexity to the display of local authority information. Moreover, when content is provided on an external site within frames, the user can get confused about references in the text and the identity of the appropriate local authority, such as the provision of Kilkenny county information within a frame on the borough site.

9.3.4 Navigation

Planning information accounts for the majority of traffic in the local authorities with access to usage information surveyed. The location and prominence of planning information on the homepage and on the planning homepage should support this (Section 4.8). Planning content and links should be obvious and located in areas expected by the users. The two methods in this section rely on the significance of the local authority homepage as well as the planning homepage. The homepage is generally seen as that part of the site into which most design work has gone and is a measure of the best the site can offer (Nielsen & Tahir 2002).

9.3.4i Prominence

Ceteris Paribus, it could be assumed that pages with a higher number of pixels devoted to the sample task information may be easier to navigate for users searching for planning information. As the percentage of screen devoted to this information decreases, the difficulty in identifying the correct links may increase. One respondent clearly identified the prominence of planning on the homepage as a design issue by saying "Some councils don't have planning clearly outlined on the home page" (Respondent 126).

On sites with the complete absence of planning content, the strongest conclusions can be drawn; users visiting Dublin city and Galway county homepages may easily become disheartened and leave the site believing that the information they seek is not available or because they do not know how to proceed. For other more planning aware sites, such as South Dublin (12.9% of screen space) and Roscommon (6.9%), the user's path is more obvious and less intimidating[51]. The average amount of screen space dedicated to this content was 3.90%. The highest of the tasks was the planning applications such as weekly planning lists and the gPlan and the largest amount of screen space was assigned by Dublin city council. The amount of space dedicated to other planning content ranged hugely from 0.5% to 7.4%. Contact details or links to contact details were provided on the majority of local authority homepages and a high amount of space was given to this content. Mayo county

[51] This method does not take into account a site that makes effective use of space and the complexity or relevance of the information presented.

council had the highest percentage of space given to contact details. The provision of or links to the search function accounted for an average of 0.56% of the screen space. The amount of space used to present potentially misleading content was low. However, this does not mean the threat should not be ignored but it should be considered within the broader remit of inward looking local authorities not focused on their users' needs and usage of the site.

The low proportions of the page given to planning information on most sites indicate that this information may not be an important function within the local authority. This was not reflected in the local authority interviews. More probably, it is due to a lack of corporate vision and understanding of how the website represents the local authority to the visitors to its site. It shows a lack of thought surrounding the design of the site from a usability and user viewpoint. Planning tasks are provided on the homepage more than potentially related areas, such as housing and environment. The planning related category contains content for related departments. This content may or may not be planning related but does not specifically refer to the sample planning tasks. This is a good measure of how planning information can compare with the other functions of the local authority. However, some caution must be exercised here as this measure does not take account of information within these related areas that obviously does not relate to planning, such as waste collection times and charges. From the figures recorded, it is possible to conclude that planning information may be more important in the local authorities than information contained in the planning related categories and the information contained in the planning categories is easier to find.

On the planning homepages assessed the range of content dedicated to general planning was 15.0-55.6% with an average of 35.98%. However, this figure is low when the possible justifications for a planning homepage are considered. The majority of the page should be devoted to planning content. In some cases, this was understandable. South Tipperary county council, for example, provided their planning page with environment, fire and other related services and this may better fit the navigational needs of the users. However, other local authorities provided filler images which did not add to or aid the communication of the content. The pages on a local authority should be informative and not entertaining nor simply 'pretty'. Content for related department or areas decreased from the homepage to the planning pages in accordance with expected use of these pages. Users are more likely to need planning information on the planning pages rather than links and content related to the cogent areas, such as housing.

Navigation is affected by the presence or absence of links and search facilities. There are different ways in which a user will navigate a site. Search features should allow users to directly navigate to the relevant page or pages or allow them to develop a greater understanding of the information they are looking for and refine their search. As the services provided by the local authorities are similar, some consensus about the use of certain phrases may alleviate this problem and reduce the number of wrong turns users may make on the site in search for the information of interest. The number of local authorities (14) providing a search function or a link to a search function on their homepage is surprisingly low[52]. Within the smaller local authorities this situation is understandable as the site may not be deep enough to require a search utility. Its absence on the larger county council and city council sites may be a real usability problem for the site visitors. The user may not locate the information of interest on the homepage or be familiar enough with the structure of the site or the local authority to determine which link on the site would lead to the information of interest, or they may miss information presented below the fold. The user's attempts to locate the information without a search function may also be hampered by doubts the user may have about the presence of the information on the site. Search links were provided on most but not all planning homepages.

Contact information on the planning pages is important and provided by seven of the local authorities with these pages[53]. There is emphasis on providing the contact information to direct users to other service delivery methods. The local authorities are also aware of the lack of functionality provided at present and the need for users to conduct important elements of the planning process in person or by other forms of more conventional contact with the authority.

What is obvious from the spread of values between the local authorities is the lack of consistent style among the local authorities. The proportion of space for each category was highly variable. Consistency within an organisation's website is one of the core values of usability engineering (Nielsen 1993). Additionally, there is little consideration of how the users will interact with the pages and the tasks they wish to undertake.

9.3.4ii Location

Users expect different web features, such as search functions, to be located in certain areas. This section draws on studies by Markum and Hall (2003) and Bernard (2001)

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[52] It must be noted that the absence of the search function here does not mean the function is not provided on the homepage as it may be located below the fold and therefore not counted in the statistics given in Chapter 4.

[53] Planning contact details may have been supplied elsewhere on the site.

presented in Section 2.8. There are definite placement consistencies across some of the local authorities. On the homepage, task related[54] content was concentrated within the main body of the page and particularly in the lower third of the page. This is somewhat surprising as internal links are expected on the left hand side of the page across to the user studies and to Internet conventions established by Nielsen and Tahir (2002). Planning information is presented more as content on the page, rather than simple navigation links. It points to a recognition by local authorities of the importance of this information but does not necessarily place it where users expect. However, Schroeder (1998) found that users first look at the centre area of the webpage and then at the left panel, so users may notice planning content in the centre of the page first. The distribution of planning information on the planning homepage differed. It more closely follows the usual concentration of information away from the navigational elements on the top and left sides of the page.

Links leading to the planning tasks, but not specifically mentioning the tasks, had a different distribution. The local authorities were more likely to place this information to the right hand side of the screen especially in the lower half of the page. On the planning homepage, most of this information was located in the standard navigation areas of the page. Related planning links and content were more concentrated into particular areas. They were placed to the left hand side of the page and concentrated into one particular cell of the matrix. This was replicated for the planning homepage, which follows the standard placement of internal links in the left hand side of the page. It also places internal links in the areas that users expect and are likely to look to this area for content.

Contact details on the homepage are dispersed but have a particular concentration in two cells at the centre of the top of the page. The details are less likely to be given on the right hand side of the page. While the user studies do not locate this information, it would be beneficial to supply it in a similar area on each of the local authority homepages, rather than making the users search for this information. two of the nine cells in Markum and Hall's (2003) study were empty and it would be preferable to place the information in either of these two cells. However, the placement of links within the homepage and the planning homepage are dissimilar. The emphasis on the planning homepage is in the left side of the page.

The search function on the homepage achieved one of the highest levels of consistency across the local authorities and was placed most often in the top right corner of the page. This is consistent also with the results of the Markum and Hall

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[54] Comprising mostly of links to the planning tasks.

(2003) study where 40% of users placed this feature. The other possible placements of the search function did not overlap between the study and the results calculated in this thesis. There is a small divergence in the provision of search functions between the planning homepage and the homepage. The planning homepage location of the search functions more closely mirrors the users' expected placement and the concentration in the top right corner of the page is continued. The search feature was usually provided in a navigational bar across the top of the pages. This bar should remain consistent where possible to allow users to learn the location of the different navigational elements they use.

The local authorities mostly agree on the placement of links to the homepage on the planning homepage. This also coincides with the placement expected by most users. The use of Internet norms, such as logos to return to the homepage, must be encouraged. Other planning elements are located away from three edges of the planning homepage. These edges are most associated with navigation links. However, the left side of the page normally reserved for internal and help links are also included by some of the local authorities in the location of this information. This placement is similar to that of the general planning elements but only one cell did not contain this information.

The local authorities did follow the web norms (Nielsen & Tahir 2002) for the location of standard navigation links but features such as search and contact details were less consistent. Any deviations from the norm in industry is a deviation from the conceptualised user schema of location and should users conform to this view, it could increase the amount of time the users take to complete a task or cause users to abandon their task due to frustration. There are benefits in keeping the placement of similar information consistent in the location of its provision on every page in the local authority site.

9.3.5 Clickpath

The clickpath records the number of times the user must click or interact with the site and the results discussed here were presented in Section 4.5. Each click results in a change within the browser window. The higher the number of clicks to the information, the harder that information is to find and, in general, the further away from the homepage this information is located. This method is used here as a proxy for the ease of access to each of the sample tasks. The clickpath of a local authority should be judged in comparison to other local authorities. If the clickpath is too short, the user is presented with too much information on a single page. Any authority providing the tasks in excess of two clicks from the mean provision are making the users' task more difficult. However, this does not take account of poorly presented

pages with large amounts of information users must scan through in order to find the link of relevance. The method is most appropriate if each of the pages is presented in a clear, straightforward and understandable fashion.

Planning contact details (where provided) were less than two clicks from the homepage and the majority of these pages were only one click, while most local authorities provided their contact details on the homepage. There is a difference between the mean number of clicks required to access an individual planning application and the mean number of clicks required to access the transportation information contained in the development plan. This difference is mostly caused by the individual nature of the planning applications and the need to search for the application based on some known information. The user is expected to be aware of some of the dates, address, name or even the planning application number of interest. Users unfamiliar with the areas in question may be placed at a disadvantage, especially due to the non-unique naming structure of many of the Irish addresses. For example, 60% of all the addresses in Roscommon do not have unique addresses (Fortheringham *et al.* 2005).

The clickpath to the two mapping components of the sample tasks was long; the clickpath for the development plan particularly so. Information that is connected, such as the development plan documents and the maps, should be provided within the same number of clicks where possible. The users should be able to use either option to navigate to the other if the maps are interactive and the documents make use of html to link to the correct map area.

Due to the importance of the planning functions of all the local authorities, providing the planning pages within a click of the homepage would allow users to quickly navigate the site towards the information of relevance. Supplying a splash page, as discussed in Section 9.3.3, increases the number of pages the user has to access before they can get to the information of interest, without benefiting the user.

Users in town councils with higher clickpaths than the county councils are required to interact more with the local authority webpage to receive the same level of information. Whereas, users in town councils with lower clickpaths are required to interact less with the appropriate site. Ideally, the differences between these two figures would be 0. Therefore, users of the county council site and users of the town or borough council sites would not be required to interact more or less to access similar information.

Again, local authorities were inconsistent in the provision of this information. Some sites will require much higher levels of interaction, significantly increasing the role of navigation within these sites. In the authorities with long clickpaths, the prominence and location of planning information on the homepage and planning homepage becomes more important. The local authorities with low clickpath (such as Kilkenny county council for planning application maps) and a high provision of tasks should be considered as possible templates for the provision of other local authority sites. For example, the similar provision of mapping and planning application details by Kilkenny county council should be considered by other local authorities.

9.3.6 Finding Planning Information

The dominant method for finding online information and the local authority website (as discussed in Section 9.3.1) is the use of a search engine and the high placement of local authority websites within the search results. While the highest numbers of users agreed that planning information is easy to find (37.7%), a sizable proportion (31.0%) disagreed with the statement and many did not express a positive or negative opinion. The favourable placement of the local authority sites in the search results that locating the site is not the issue, rather finding the information on the site is more problematic. The navigation of the sites and the prominence and location of planning information is not currently serving the needs of the users.

9.3.7 Web Accessibility

Making a website accessible reduces barriers to information for all users. Accessibility was discussed in Section 2.8.4, the method used was explored in Section 3.7 and the results of the accessibility evaluation are given in Section 4.7. Accessibility measures are widely recognised internationally. In Ireland, they are supported by the NCBI and promoted by central government. The accessibility of public information is more pertinent as public information should be accessible to all.

The level of accessibility across all local authorities is very poor and a high number of errors were encountered (section 4.7). Certain users are effectively barred from using public information while all users may find the information more difficult to utilize. Only seven local authorities provided A level accessibility for their homepage. Bray achieved AAA and New Ross achieved AA accessibility levels. When few priority 1 errors were on a webpage, fewer priority 2 and 3 errors were also likely. This may signify an awareness of accessibility in these local authorities and in the local authorities interviewed, this was found to be the case.

The most accessible tasks were the homepage and contact details. Due to the methodological approach of the evaluation[55] accomplishing all other tasks can only add errors to the results for the local authority. The majority of authority contact details are provided on the homepage, thus the accessibility results for the homepage and contact details are not surprising. The most inaccessible task is the guide to the appeals process. Different local authorities scored the lowest accessibility rating for each of the sample tasks and this was dependent on whether or not the task was supplied by the local authority. Some local authorities were significantly more inaccessible than others as the number of errors encountered did not cluster about the mean.

Accessibility guidelines cannot be fully tested automatically and require the developer or web designer to have some input in whether or not the page meets the criteria for that priority level. Ignoring the user checks can be tempting as some checks require the download and installation of specific software, e.g. testing for colour contrast. Additionally, the developer may be unable to adequately determine whether the navigation, for example, is concise and external user testing should also be used.

Accessibility guidelines, while widely accepted, cannot be simply compared across the local authorities. Sites with less information have fewer pages and therefore, less opportunity to be inaccessible. However, provided that the site has a similar provision, accessibility can be compared. Comparison, therefore, between each of the types of local authorities will be more meaningful.

The richly layered visual nature of maps as well as the importance of location within the map space does not immediately lend itself to the provision of alternative representation. The limitations of multimedia and GIS and the importance of the provision of alternative paths to information by people with disabilities was recognised by Zubrow and Rioux (2003). However, a site with a large amount of geographic information presented in map format, instead of escaping the need for accessibility guidelines should try to incorporate the guidelines on the remainder of the site to overcome the barriers visually impaired users face. This is discussed further in Section 9.3.8.

From this study's evaluation, it appears that the local authorities focus on the provision of priority 1 accessibility and reducing the most severe barriers to access. The high numbers of accessibility errors raise the question of whether local authorities are user focused or whether they provide the information without considering the

[55] It was assumed that the users would approach all local authority information via the homepage.

needs and requirements of its users. The different instances of errors depending on the local authority site accessed means that different levels of access exist for users in different geographic locations. Some planning authorities are more user aware than others. This awareness is not restricted to the division of large and small local authorities and is present throughout the different administrative types.

9.3.8 Mapping

The majority of planning information is tied to specific geographic locations and, therefore, automatically lends itself to graphical representation in maps. The presence of mapping, the information represented (Section 4.4), the format of its presentation (Section 4.9), the users' views of its benefit and their recollection of its use (Section 6.7) is discussed in this section. Mapping is not provided on all local authority sites and, even where the map is an intrinsic part of the information provided (such as a development plan), it is not provided by all the local authorities.

Where respondents recalled seeing maps roughly follows the provision of mapping applications for planning online. Most maps are provided with the development plan and the development plan maps were the mapping applications most recalled by the users. Additionally, there is an expectation that the development plan will be available and many users visit the website to view this document and the associated maps. Users also recall other local plans and the maps provided with planning applications. Mapping for planning applications may take the form of the outline of the planning application boundary, an XY coordinate for the planning application or scanned documents included with the planning application submission. This requires greater effort than publishing a pre-prepared map document and may account for its limited availability. The availability of planning application maps will increase as an orthophoto mapping application developed by the LGCSB under the title gPlan or ePlan is rolled out to interested local authorities. This roll out started before the evaluation period and continued afterwards.

Few users remember seeing direction maps and, though contact details are provided, the provision of a website is flawed if the users are unable to visit the physical offices of the authority without knowledge of the layout of the local area. However, this may reflect the lack of the user's need for this information. This could be due to a number of factors. First, most respondents are professional users of planning information and should be aware of the location of the local authority offices without referring to the Internet for directions. Second, the address should provide enough information to respondents after visiting the offices once. Third, the respondents are likely to be established in their careers (as discussed in Section 9.2.1) and may not visit the

authority offices themselves. They may send a more junior member of staff[56]. Fourth, the documents may be couriered to the local authority offices, thus negating the need to visit the offices in person.

The provision of mapping on the town and borough sites and mapping relating to the town and borough councils on the county council site is poor (18% and 5% for the two types of mapping in the sample tasks) and much lower than for the county councils. However, the planning application maps were not provided by all three city councils evaluated.

The poor recollection of mapping may be related to the long clickpath the user needs to follow to find the maps. Mapping, although recognised as an intrinsic part of planning information by the local authorities, is provided in a way that suggests it is seen as an optional extra and not intertwined with the presentation of information pertaining to the planning process. The user has to expend extra effort to find the maps. Where more advanced mapping applications were provided, however, they were often presented pride of place on the local authority homepages. This follows the observation of Campagna and Deplano (2004).

The types of maps remembered by respondents roughly reflect the online provision. Users most remember seeing static maps which coincides with the most common format for maps provided. There is no consistency in the provision of static images. The local authorities use many formats, such as PDF, embedded HTML and standalone GIFs. Some Flash-based applications are used but these are not commonly provided. PDF maps are difficult to use and while PDF documents are suitable for printing, they do not make use of the interactive features of the Internet which aid the interpretation and exploration of map data.

Interactive maps are remembered by fewer users. Maps with layers are recalled by seven respondents. However, this type of mapping was not available in the study area of local authorities chosen. The provision of this type of mapping is possible but not probable. Two users remembered seeing three dimensional maps. This is unlikely as all the local authorities in the study area did not provide this type of mapping. Additionally, the author is unaware of this type of mapping being provided by other Irish local authorities. Where mapping is interactive, the interaction is in the selection of certain records or the zooming of the map scales and not in the content of the mapping or the addition of the users' own information or enabling a real exploration of the data. Searching by geographic location for specific applications is intuitively

[56] This staff member would need access to directions to the local authority office but may not have responded to the questionnaire.

appealing as users may be unaware of the correct address of neighbouring properties or streets or roads within their local area. However, account must be made for those users who are unable to read a map or find information displayed in map format difficult to interpret. Users are encouraged to locate the individual application first then link to the associated map. The provision of aerial photography is increasing with the roll out of the ePlan applications. However, most respondents were unaware of the provision of aerial photography online.

In general, users are familiar with the mapping provided on the local authority websites. However, they are more likely to demand mapping facilities that are available in other local authorities rather than demand options that have not yet been offered in Irish local authorities. The number of respondents stating that mapping would be of benefit was highest for those applications most available on the local authority sites. Respondents are clearly interested in the display of mapping information and recognise the possible benefits in supplying this information online in the types of planning tasks undertaken by the respondents.

A high number of users were dissatisfied with their use of local authority maps and a relatively high number of users were extremely dissatisfied. This identifies an area of online provision the local authorities should address. This high level of dissatisfaction combined with the poor recall of mapping applications available means that online mapping in Irish local authorities does not currently meet the users' demands for that information.

Few respondents think that mapping is not beneficial. Users saw static images of maps as less beneficial than other more interactive options but recognise that it is the current method of provision in many of the local authorities. Few users recognised the benefit of more interactive GIS type applications for mapping than the other forms of mapping presented. This may mean that the increasing technical provision of information is not as important as the design of mapping applications that are easy to use, immediately understandable and require little time to operate. Writing on the map, for example, could be beneficial for users submitting development plan comments but, as yet, it has not been provided in Ireland. Respondents, therefore, may be unaware of the benefits and not expect or demand its provision.

Due to the use of intermediaries in the planning process, the ability to print mapping to increase its portability is desirable from the users' point of view. The copyright of mapping provided on the local authority sites involves the OSi, the local authority and, in the case of mapping provided with the applications submitted, the architect or designer. The possibility of paying for mapping was raised by one respondent but

many felt that this service should be provided without cost. Many respondents to the questionnaire mentioned the restrictive copyright practices. Local authorities may not be keen to undertaken innovative online mapping provision which moves outside of the national copyright agreements. The copyright agreements and the cost of the mapping means flexible local practices are may be difficult to facilitate.

One user commented on the problems with map reading online. The appropriate scale and resolution is important. In delivering static mapping, the local authorities need to pay attention to the design of mapping and cartographic design rules but also consider the new environment and their digital delivery. The speed of download of mapping can be slow due to its graphically intense nature and this was problematic for one user. This is standard usability problem and it was also recognised by Mayo county council in the design of its website.

In most local authorities, the mapping application scoring highest in the CTM on the site is planning related. Planning was one of the first areas in Irish local authorities to recognise the benefits of and implement GIS. It, therefore, has a relationship with the technology and is likely to have a first mover status in any similar mapping related developments in the future. The Irish PAGIweb content is concentrated in the informative planning information category. The most common advanced application provided was the gPlan. The tools are currently available and used for the wide-scale provision of technically advanced PAGIweb applications. However, the local authorities have not provided higher categories of content which allow users to perform their own analysis to provide their own information back to the local authority. In this thesis, the Irish provision of PAGIwebs was compared to similar studies in Italy (Campagna & Deplano 2004) and Denmark (Arleth 2005). The Irish provision of online mapping compared favourably to the mapping provided in the two other European countries. This may mean that current Irish provision of mapping is in keeping with the rest of Europe.

Providing mapping information online can be problematic. Mapped information is inaccessible due to its intense, graphical nature. This situation is more challenging as mapping intensive systems will require heavy usage of network capacity and a rollout of nationwide broadband or will remain unavailable to users. Users also need particular map reading skills to view online mapping. Additionally, the online environment creates more difficulties for potential map readers. Realigning the field of view, possible when reading a paper map, is not a common tool supplied with GIS software and is virtually non-existent online. This makes map reading more difficult for users.

Some online mapping provision software requires the user to download and install a plugin, such as Active X CGM (Computer Graphics Metafile). Once installed it enables users to interact with the mapping application provided according to the functions provided by the local authority. Installing this software is placing another technical barrier in the way of map users. Google Earth is likely to have an influence on the future expectations of geographic information provision. The simple user interface means that users are growing more accustomed to viewing information geographically. This is likely to lead to the demand for better and more geographic information. The success of Google Earth (Spacemart 2006) contradicts best practise for usability as it requires users to download and install the software (Head 1999). However, it demonstrates that users will tackle this barrier when the benefits of doing so are worthwhile. Also, the software needs to be installed once and can then be used with many different applications or add-ons which allows a novice user to ask a more experienced user to install the software for them. This allows the local authorities to reassess the use of plugins where the advantage to users overcomes the disadvantages of installing the plugin.

Users recognise the benefit of providing mapping with planning information and seek greater map provision which more closely matches the tasks they undertake. Many users, however, do not recall their actual use of mapping. Local authorities also recognise the intrinsic relationship with mapping and planning information. The provision of mapping is poor across the local authorities. The local authorities use GIS for the display of spatial information internally (Gilfoyle & Thorpe 2004). The lack of mapping on their websites is therefore surprising. The current map provision is informative and not interactive. This provision may reflect a view of the Internet, held by Irish local authorities, as simply an information dissemination tool and an adjunct to the public participation methods required by legislation as opposed to a participation method itself. The results, discussed here, reveal a demand for greater and more appropriate mapping applications.

9.3.9 Suitability of Methods Employed

A number of objectives were identified in Section 1.3. The second of these objectives was concerned with whether the derived methods used in the study were suitable for public information and, in particular, spatial information. The assessment of the provision of online planning information was undertaken using methods derived from methods used on commercial information. Few of the evaluation methods applied have been used with public information prior to this study (with the notable exception of accessibility standards). Public information is unique in that it is not actively furthering the commercial dominance of a company and has the widest possible target audience. This study found that the methods are generally appropriate for use with

public information but assessing spatial information, in many cases, calls for different methods and further research.

The first method determined the presence or otherwise of the local authority websites. This method was presented in Section 3.4 and discussed in Section 9.3.1. This method was developed specifically for this study and is not suitable for individual sites. It could, however, be used to determine the online presence of sites in a particular commercial sector. A slight variation on the definition of a homepage was necessary for this method to be appropriate for the local authorities. Webpages for some local authorities are provided on other local authority sites. In addition, some local authorities provide their information on websites shared with local agencies, such as chambers of commerce or tourist boards. As users of public information rely heavily on search engines to access the local authority websites, the steps used in this method were appropriate. Searching for public information is undertaken in a similar manner to commercial or other information available online. However, many users are likely to be repeat users of the site, which increase the importance of other methods of locating information. Additionally, the search engine used (Google) in this was also supported by the results of the user survey (Section 6.4).

Clickpath is similar to a concept currently used in website design and evaluation (clickdepth). The method was derived in Section 3.6 and discussed in Section 9.3.5. However, clickpath also takes all interactions with the webpage into account and was designed specifically for this study. The evaluation is simple to undertake and is an indication of the difficulty of finding information on the website. It can be used on both commercial and public websites without any modification. The clickpath is particularly suitable for the evaluation of spatial information. A dynamic map may require greater interaction with a site than the simple linking from one webpage to another which is measured by clickdepth.

Web accessibility measures the barriers to information (the literature informed this method was explored in Section 2.8.4 and the adaptations for its use in this thesis are given in Section 3.7). In a public information context, barriers to information can be more problematic than in the private sector. Public information provided in a democracy should be targeted at all citizens and barriers to information can reduce the benefit of providing information online. Inaccessible websites affect the access to the information by all users. Currently, this method does not account for the highly visual nature of the presentation of spatial information and providing alternative representation can be difficult. The richly layered visual nature of maps as well as the importance of location within the map space do not immediately lend itself to the provision of alternative representation. Some work in the areas of immersive

technologies and the incorporation of audio to aid the comprehension of spatial data by the general public and, particularly, users with disabilities have explored means of communicating visual information in other formats (Fisher 1994, Fisher *et al.* 1993, MacEachren & DiBiase 1991, Plaisant & Zhao 2004). As yet, these methods of 'accessing' geographic information are extremely limited and may require training and expensive equipment. While this does mean users with visual disabilities are effectively eliminated from use of the information and other users may find the information more difficult to understand, it does not reduce the applicability of the guidelines from the remainder of the website. For example, the text accompanying a development plan may provide enough information to the user.

Two methods used in this thesis drew on specific research with commercial websites to derive methods for public information. The types of information assessed in these studies, however, were changed to suit the aim of this thesis. The first method drew on work by Nielsen and Tahir (2002) to establish the screen space associated with planning information online. The local authorities, in direct contrast with commercial companies, will have many of the same services and information on their website. Many of the local authorities were consistent about the provision of different types of information on their homepage. This research can be immediately used to create a template for an ideal local authority homepage using the current design of many of the local authorities. The method can be easily repeated for other categories of information supplied by the local authorities. In conjunction with accepted Internet norms, this method can help the local authorities plan the design of their homepages to best suit the needs of its users in easing the access to the content on the site. The second method compared the location of webpage elements across the local authorities. Again, this method is appropriate for the local authorities and the information gained is useful in establishing a template. However, these two methods are less likely to be undertaken by an individual local authority. They are most useful in comparing the local authorities. The results can then be supplied to all the local authorities, rather than the individual authorities undertaking the methods for each of their sites. These two methods do not currently assess spatial information as none was provided on the local authorities' homepages or main planning pages. However, it could be easily adapted for spatial information to determine the standard placement of mapping elements on a webpage.

The final method used was developed by Campagna and Deplano (2004) to evaluate public websites and spatial information, in particular. The method was directly applied to the Irish local authority mapping without adaptation. The method is, therefore, appropriate for use with public information. However, it is only appropriate at an aggregate level and is of less use to the individual local authorities.

The methods derived and applied in this thesis required minimal or non-propriety software, could be undertaken by a single evaluator and were simple to implement. As such, they can be used by the local authorities with minimal resources to identify problems in their current provision and adapt their services to ease the user's interaction with the information and services.

The methods used in this thesis were chosen for their comparability across the different local authorities. As such, other methods which are less replicable may allow greater analysis of the information provided but the results obtained will be more subjective. The Internet can supply an easy means of comparing service provision across the local authorities. By comparing the local authorities, the best practise can be examined and the local authorities with the poorest provision, for example, can be easily identified and resources targeted to the local authorities in most need.

9.4 Online Service Provision

Local authorities are constitutionally required to create, collate and maintain information (Burkert & Weiss 2004). Irish citizens have relatively strong rights to information (Local Government (Planning & Development) Act (1963)) and the Internet can facilitate access to this information. The evaluation methods discussed in the previous section explored the online provision of planning information in Irish local authorities. This section explicitly looks at the overall provision and conclusions that can be drawn. It, further, identifies the gaps between the needs of the users and the current provision (Research Question 2). In addition, this section examines the subsequent implications for the provision of and the demand for planning information online in Irish local authorities in a wider context.

The general perception by local authorities, central government and users is that websites are suitable for public information dissemination and services. All local authorities within the study area recognise the benefit of having an Internet site. The findings indicate that users appreciate online services and local authority websites fit with their use of the Internet for information, work, professional and research purposes. The local authority and most user perceptions of the websites are positive, however, the users have some concerns about Internet use.

In the eyes of both users and local authorities, the function of the local authority websites is the provision of information. The Internet, as an information provision medium, can reduce the pressure on local authority staff by redirecting simple queries. Users visit a local authority site to find either specific or general information. Adapting Lenk's (1999) three types of planning information and the results of the

questionnaire (Chapter 6), four broad categories of information were identified on the local authority sites;

- general information on the services provided by the local authority,
- further information for current council activities and services, e.g. application forms, entitlements, council minutes, tender information, information packs and other documentation that may not be supplied in their entirety by traditional forms of public communication (by radio or in newspapers),
- contact information, and
- general information concerning the locality and community activities and groups.

Contact details are an important section of the local authority website for all planning tasks. Further enquiries beyond the scope of general information are directed to the local authority staff via contact details. Guides to processes or FAQs should also remain an important aspect of the online local authority information provision. Guides on processes completed infrequently, such as every five years, are of importance to both novice and expert users. However, in providing guides and FAQs, the Internet may be perceived as more relevant for users unfamiliar with the process. This was echoed in the results of the questionnaire. Where respondents to the questionnaire were already familiar with the process or had the information previously, they were less likely to consult the website. Users were also likely to use the website for their task if specific parts, such as downloading a planning application form, were available online.

Users recognise online services are limited and that there is a variation in the levels of service and the amount of information provided across the different local authorities. Users particularly identify the absence of information or the poor online provision in some local authorities as an issue. A local authority boundary can differentiate between widely varying levels of access to information for similar planning locations. The disjointed provision of online information in Irish local authorities does not appear to be unique as a similar conclusion was reached by West (2005).

The range of figures and the complete absence of some local authorities from the Internet reveal an inconsistency about information provision and priorities assigned to different tasks by the local authorities. However, there is some consensus about the importance of providing particular types of information online. The resources for local government are shared among a number of different authorities and, as such, may mean the authorities find it difficult to undertake innovative methods in carrying out their duties (Wilson & Game 2002). The offline services for authorities can differ (Wilson & Game 2002) and this is reflected in their online provision.

As established in Section 9.2.2, certain tasks are more likely to be undertaken online. This is possibly due to users' perceptions of the availability of that task on the relevant local authority site or from their prior experience of that site or other local authority sites. The results of the questionnaire show users visited the local authority website to undertake the planning task or some part of that task. When the users visit a website, they look for information on the task (e.g. guides and checklists), documentation (e.g. forms) and contact details. If the task was available online in some local authorities (e.g. viewing the development plan), users were more likely to visit the site to complete the actual task.

There were a number of reasons why the users did not make use of the local authority websites. Two of which do not reflect the respondents' views of the local authority website. First, the users already had the information; this reason will be lessened when procedures are changed and development plans are updated. The second reason was that an intermediary was used and they supplied the information without a visit to the website. Certain tasks provided online, therefore, will be of more benefit to some users rather than others.

Planning, as mentioned in Section 2.3, is an amenity service and is shaped by the needs of the local community (Wilson & Game 2002). The provision of planning information online may also shaped by local policy. However, certain core information and tasks are required by many users of the planning system. A number of these tasks were evaluated in this thesis and the availability and usefulness of the online provision varied across the local authorities. These tasks are not affected by the local priorities as all are relevant to each planning authority. This reason, therefore, can easily be dismissed.

The users of the local authority site are, generally, satisfied with the information provided but this hides the users' mixed expectations and varying levels of satisfaction. The lower the users' expectations, the less likely users will be dissatisfied.

> *"I wouldn't really expect the planning service of any Irish local authority to be up to date with this sort of thing, so I can't claim to be dissatisfied"*
> *Respondent 379*

While the satisfaction ratings were mainly positive, there were a high number of users unable to complete the purpose of their visit (from two to four in every ten users depending on the task). The satisfaction ratings also hide the difference in provision across the local authorities as users may visit more than one site. Deciding to use the

local authority website for a planning task did not mean that users were able to complete that task. When users wanted to make a submission to a development plan for example, which can be provided using simple Internet options, they visited the Internet but many were unable to complete this task online.

From an understanding of the ideologies driving the emergence of eGovernment (Chapter 2), it can be assumed that the local authority want users to be satisfied with their use of the site and to be able to complete their tasks. The high number of users unable to complete the purpose of their visit to the local authority site poses the question 'What is an acceptable level of loss of users through bad service?'

For each of the sample tasks assessed, the majority of users were able to complete the purpose of their visit. Only focussing on the majority ignores the two to four users in every ten which were unable to complete the purpose of their visit. The high rate of failure shows that the current demand is not being met. These figures are more worrying when the users' frequency of visits to the local authority website and their familiarity with the planning system is taken into account. If most users visit a local authority website a few times a month, they should be familiar with the workings of online local authorities. However, they may visit a number of sites and be unable to use their experience of other local authority sites. Additionally, the respondents had a high level of computer and Internet experience and all users used email and many undertake complex interactions online. The users also had a high level of education. Therefore, there are two possible reasons for such a high non-completion rate. First, the information or task may not have been available or may have been partially available. It may have been out-of-date, inaccurate or required the use of other channels of service delivery. Second, where the relevant task was possible, the poor design of the website may make it impossible for the user to complete it online. Users, unable to complete the purpose of their visit, are more likely to be dissatisfied.

If the information is out of date, it will discourage users from availing of the online facilities; thereby, placing pressure on counter services and other points of contact with the local authority. Additionally, providing services or information online requires resources in terms of personnel with responsibilities for dealing with queries and updating the information. If it is difficult to interact with the local authority through traditional channels, this difficulty is likely to translate into online provision. Not all respondents were satisfied with the level of service via traditional channels. In some cases, respondents found it difficult to contact the appropriate person or receive an appropriate level of service. The Internet may ease pressure on resources and the automation of service can facilitate the reassignment of personnel from answering simple queries to deal with more involved issues. However, the using the Internet to

provide services will not automatically overhaul those services and many of the current problems will be carried into the online environment. There is a definite demand for online services but online provision must be seen as an authoritative source of information and services.

Thought needs to be given to the manner of information presentation and access to information online ("I think it should be made as easy as possible to carry out basic tasks" Respondent 408). Poor website and content design will negate the positive aims of website provision. If the information provided is unusable, it follows that transparency and public involvement will not be increased and decision making will not be enhanced. Providing an online service without an understanding of the users and use of that information is just paying lip service to eGovernment and its objectives. For example, some local authorities are wedded to their offline structures. They retain not only their departmental divisions at the expense of task or user focused architecture and design but also the larger departmental divisions which force users to visit the grouped pages first before moving to the individual department information. Providing services online should not be a simple matter of provision that mimics the offline structures and services of the local authorities. Services are not restricted to just one department. Planning, for example, requires interaction with other services and departments within the local authority, such as fire, roads and sewage. The high response rate achieved in the questionnaire is indicates that users are willing to be included in the design process of the local authority websites. Additionally, it highlights the need for local authorities to educate the users about what information and services are available as suggested by West (2005).

Following from Giddens' (1990) assertion that trust in an abstract system is affected by experiences at the access points, user's trust in the online service is important. The use of eGovernment must overcome any distrust of the Internet as a place for electronic interaction with government services. Potential users have concerns about hacking and a lack of privacy. A traceable system is important where delays to projects due to minor problems can cost large amounts of money. However, it must be borne in mind that the online service must show a benefit over current services.

Should the use of eGovernment affect apathy, it is likely to be most effective if the services are usable and user friendly. West's (2005) assertion that effective eGovernment and a resulting increase in citizen trust in government may be related to varying and poor services rather than an immediate connection. eGovernment is not neutral and there are costs to its provision (West 2005). Milner (1999) hypothesises that wasted resources will turn public opinion about the benefits of eGovernment. This thesis argues that employing usability practises and a greater focus on the users,

as well as the proper response mechanisms proposed by Richard (1999) could prevent this possibility. Milner (1999) called for a more citizen centred approach to eGovernment. This call is supported by the findings in this research. Usability methods are possible and can greatly improve the local authority online provision from a user perspective which is also supported by calls by van Dijk (2000b). Openness, access and privacy were identified by Bargmann *et al.* (2004) as key factors in the consideration of users in public information provision. All of these factors are aided by usability practises. The trust in government and use of the local authority online services could increase with the application of usability measures. Usability problems were common on the local authority sites and navigational and consistency issues, identified in Section 2.8.1, were present on many of the local authority websites.

Usability, however, needs management support for its proper integration into current development practises (Nielsen 1993). The benefits of usability need to be obvious and service oriented for their integration by management. Once the information and services are present online, usability improvements may not affect local government resources. The savings may be wholly or mostly accruing to the users. Usability decisions, due to the resource costs involved, reduced translation into local authority savings and their policy implications, may only be implemented as a result of political decisions rather than the commercial motivation of the local authority administrators. Therefore, usability for its implementation needs to be a political priority.

Providing easy-to-use and appropriate services online can have a number of possible outcomes. Some of which appear to be contradictory. Technological advancements could speed the process (as proposed by Jiang (2002)) or as one respondent proposed an online system if correctly implemented would cut down on objections. While, in direct contrast to this another respondent felt that the easing use make it too easy for spurious objections to be made, thus, slowing down the planning process. The possible increase in objections facilitated by easing of the objection process cannot be viewed in a simply negative light. The planning process can be seen as contentious (Healey 1997). Any developments proposed may not be in the best interest of all individuals within that planning authority area. Increasing the ease of involvement is an ideologically based decision. This decision seems to be supported more in the literature and documentation published by governments rather than an examination of how this can actually be achieved in an online environment. The difficulty in using the current online services has been linked with the discouragement of third party comments by one respondent.

Users, in general, do not expect local authorities to provide full services online or to provide an interactive website. Much of the Internet content provided by the local

authorities is not interactive and is simply informative. Despite the view of the Internet as information provision environment, many users are positive about the provision of local authority services in their entirety ("All services provided online are welcomed and can save huge amounts of public, consultant and local authority time." Respondent 264). A fully digital system is important to some users as it reduces the paper and resources needed to submitting all the documents in hard copy and then for the local authority to digitise them.

At present, local authority procedures rely on non-Internet methods and the Internet is not the first choice in service delivery. Many of the users feel that using the Internet to submit queries, applications or observations is secondary to face-to-face, telephone or postal contact. The widespread provision of contact details online supports the Internet as a feeder to the local authority traditional services. Users' attitudes reflect this situation and when users are familiar with the process, they do not interact with the website and contact the local authority to undertake procedures in excess of information gathering. The technical capabilities are available for the use of the Internet in full service provision. This is not currently practised and may only be of interest to the more technologically focussed authorities. The remainder of the local authorities may continue to see the website as a feeder mechanism.

Where the local authorities recognise the benefit of providing full services online, it is a channel of service delivery supplied in addition to traditional channels, such as counter or postal services. This view is to be commended. While the provision of online services and information has been broadly encouraged by users, some users will prefer a different channel of service delivery for different aspects of planning processes. Users, sometimes, just prefer the personal contact provided by a 'real' person to deal with their queries rather than the more impersonal Internet. This is especially true in cases where large quantities of money are involved in the development or where the user does not trust the Internet.

> *In principle, easier access to planning departments would be a bonus - and electronic access can make things simpler....however I believe that human contact is essential at some stages and that this must always be available. It's easy enough now for Planning Departments to be selectively available behind voicemails and emails and then only replying by email or letter. For all the benefits of electronic communication, the time it often takes for applications to be considered, and the lack of human contact are things that concern me*
>
> *(Respondent 439)*

The continuation of non-Internet forms of service delivery negates some of the possible disadvantages of those information users who are on the wrong side of the digital divide.

As yet, online provision does not fulfil all the basic planning tasks on all the local authority sites or go beyond the simple provision of tasks to allow users input their own data in a transparent process. All of the tasks assessed were obtainable and could be provided without legislative changes and in the current legislative environment. The local authorities have recognised the Internet's benefit in providing information and to provide fully digital services; however they are ignoring the potential for more engaging content. The possible participation implications are discussed in Section 9.7.

As developments in the more technologically advanced local authorities continue, users are increasingly likely to expect the provision of online services in all the local authorities. The provision of a full online planning system in some local authorities is likely to drive the demand for this service in other local authorities. Users expect consistency and once they see a similar service somewhere else they expect the local authorities to develop it. The users are guided by what is available in other local authorities and in public agencies in Ireland. The Companies Register Office (CRO) and the Motor Tax online provision were used by respondents as examples of the service they would like. However, comparisons with other public agencies in other countries, e.g. England, Australia and America, are also likely to be used. As the councils without websites do not have clear future plans for website provision, the diversion in services available online in Irish local authorities is likely to grow. Certain local authorities are more technologically aware and have first mover status in the piloting of national projects, such as the LGCSB coordinated *Mobhaile* project.

Service provision is one of the four main roles of local government identified by Wilson and Game (2002). The local government has undergone significant reform (Local Government Act (2001)). This reform has focused on the provision of more customer-oriented services and a greater commercialisation of the local authorities following similar developments in the UK (Wilson & Game 2002). eGovernment is primarily concerned with service provision (West 2005). It is hardly surprising therefore that online development in Irish local authorities has focused on this area. Irish provision is concentrated within the second stage of eGovernment (partial service delivery) identified by West (2005). However, as the level of services and information vary, many of the sites are located in the first stage are purely billboard information. Future developments will be focused on reaching the third stage of the model (portals with fully service delivery) and it is not certain that the final stage (interactive democracy) will be sought or achieved. The provision of portals is an international development in eGovernment and as such is recognised as an efficient form of government online services. However, West's (2005) work was not specifically

targeted to local authority online provision. This thesis has, therefore, extended the reach of this previous research.

The provision of a local authority website is not limited to improving current service provision and the other three roles (regulation, advocacy and policy formation and promotion) (Wilson & Game 2002) can also be affected. The Internet can facilitate the local authority in promoting the interests of the local community.

While the points made in this thesis directly relate to planning information, they can also be used to estimate the features of information available elsewhere on the site. Planning is a core function of local authorities and an early adopter of computer technology. It can, therefore, be argued that the presence or absence of planning pages from a site is an indicator of the level of online information provision across the local authority functions within that particular local authority.

Despite possible and real drawbacks to online provision, it remains an important area of study as it is increasingly employed by local authorities and other public agencies. Future demand for eGovernment will, however, increase as the younger sections of the population, who most accept the use of the Internet, get older and demand services (West 2005). The Internet is likely to have further implications for public information provision and may still live up to some of its early promises. The extent of future changes can be postulated by reference to a general model of technological change as presented by West (2005) and explored in Section 2.7. GIS use is common in local authorities and its spread documented by authors such as Masser, Campbell and Craglia (1996) can be used to estimate the spread of eGovernment. The factors identified by Worrall (1994) in the integration of GIS are similar to those identified by West (2005) in the model of technological change. The Internet has been adopted by a number of individual local authorities and can be pictured in the second stage of institutional change. Mayo county council is currently tendering for an automation of many planning processes and as this and other technological developments are rolled out to all local authorities, institutional change will be more apparent. The acceptance of these developments at an institutional level can then live up to some of the hypothesised political and social ramifications as depicted in the third stage of West's (2005) model. The effects of eGovernment will not be known in the short term (Hacker 2000). Good intentions, such as not replacing traditional services, may yet be phased out.

9.5 Motivation for Online Public Information

Some of the respondents see the movement of local authority services onto the Internet as a progression and a step 'forward' against the more 'backward' traditional

provision of services. This perception of a progression is reflected in popular media and by politicians[57]. Central government are encouraging the provision of eGovernment. It is against this backdrop that the motivation behind the provision of online public information (Research Question 3) needs to be assessed.

As discussed in Section 9.3, local authorities are focussed on the service provision element of the Internet in providing their websites. The sites are a means of easing logistical and resource pressures within the local authorities. Online services, therefore, facilitate the more efficient operation of the current systems. However, government literature assumes that eGovernment and online information and service provision will lead to a greater level of citizen involvement, reduce contention surrounding controversial government decisions and lower public apathy towards government.

In the private sector, demand translates into sales; whereas, in the public sector, the motivations for online provision must differ. Currently, the main aim of online information provision appears to be the diversion of users of the planning system onto the Internet for general information. This was directly evident from the interviews with the local authorities, the evaluation of provision and user perceptions in this thesis. While the technical tools are available to facilitate interaction and bidirectional communication (Richard 1999) on the Internet they are not currently provided[58]. There is little evidence to support any claims that the ideological aims of eGovernment are driving online provision. However, the provision of information is recognised as a fundamental step in the participation process (Arnstein 1969, Lenk 1999). In this way, online information may achieve the stated government aims. This is explored further in Section 9.7.

The legislative, regulatory and societal conditions, facing the local authorities are similar. As a result, the difference in provision must be attributed to other factors. The absence of some local authorities from the Internet reveals a difference in opinions or priorities about the benefit to the local authority of providing such a service. Providing information on the Internet is not a cost or resource free method of service delivery. It requires decisions to be taken about its development. Copyright and IT support costs, for example, must be considered.

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[57] For example, on the 17th of October 2006, the Irish *Taoiseach*, Bertie Ahearn, proposed in the *Dáil* that "Ireland would be the laughing stock of Europe" by continuing to use a paper and pencil system rather than an electronic method of voting (Ahearn 2006).

[58] This excludes the use of email.

Other factors are influencing online provision. Pushes for online provision are present in the form of governmental support and interest in eGovernment but these are only translated into action where local authorities themselves have made the decisions. No government mandates in Ireland have forced the local authorities to develop an online presence, provide particular information or service. The Freedom of Information (Amendment) Act (2003) encourages the transparent undertaking of services. The implementation of which is guided by the legislation but some interpretation is left to the local authorities. Some of the local authorities interviewed recognised the benefit of the Internet in the dissemination of their information and to increase the transparency of their undertakings. Additionally, the local authorities recognise the benefits users gain from online provision of public information and services. Nevertheless, this is not a primary motivating factor. Gaps between the user need and provision were identified in this thesis. These gaps are not driving the future development of online services in the local authorities. However, this does not mean that local authorities will not fulfil these needs in the future.

The provision of a local authority website relies on decisions taken across the local authority rather by a single person or department. In the smaller local authorities, these decisions are made by a smaller number of individuals than in the county and city councils. In the local authorities interviewed and where the decisions were known, it appears that champions of the cause promoted Internet use. These champions can be administrative staff or politicians. This fits with West's (2005) model of technological diffusion (Section 2.7). Individuals can provide the necessary leadership role for the technology to gain widespread acceptance and organisational change. Rogers and Malhotra (2000) also stressed the importance of champions.

Wilson and Game (2002) summarised three possible models of power distribution between the elected representatives and administrators within the local authorities; formal, technocratic and joint elite. The joint elite model of these three most represented observed power sharing within the local authorities. In the context of this thesis and for online provision, this means that either the elected representatives or the local authority administrators could champion eGovernment. In the selected local authorities interviewed, the administrative staff drove online provision and the elected representatives were only trivially involved. The focus, therefore, was on the improvement of service provision and was not policy or community interest driven. Policy is formed exclusively by elected representatives (Local Government Act (2001)). However, the extent of the power of the elected representative is questioned (Lenihan 2006). Their power may be limited but could include the promotion of ICTs and eGovernment. Unless politicians are involved, there will be a focus on improving service provision and not policy and the other roles of local government. The new

power of general competence in Ireland and the UK means that Irish local authorities have partial autonomy. This partial autonomy allows the local authorities to set their own priorities for the local area. The local authorities can innovate and adapt current practises to include innovative service delivery, policy promotion and online participation methods. However, it seems most likely from the findings of this thesis that innovation beyond service delivery will originate from the elected representatives.

The political or administrative motivation is not present in each authority. The need for online provision may not be recognised. The elected representatives are not involved directly in service provision which seems has been identified, in this study, as the focus of local authority provision. The differences in such priorities and opinions may be influenced by the geographic dispersal of the inhabitants of the particular local authority area. The smaller town and borough local authorities are responsible for a smaller geographic area and a smaller population than the larger county and city councils. The geographic barriers to physically visiting the town and borough council offices are, therefore, reduced when the citizen's residence or business is located in the local authority area. However, this ignores the high number of interactions by intermediaries, residents and businesses located in other local authority areas, as mentioned by Kilkenny borough council. A property developer may be located in Dublin and wish to develop a housing estate in Donegal, for example. As the councillors and local authority employees are most likely to live within the local authority area, they are less likely to see the need for the expense and resource allocation to provide a website.

The different functions of the town and borough councils are subject to major and minor change where the central government will reassign functions to central agencies, other public agencies (such as the National Roads Authority (NRA)), and other usually larger local authorities. This instability of identity can only contribute to the slowness the smaller local authorities have exhibited in creating and populating their online presence. When the county council are pushing for online provision the smaller local authorities can exert their influence by not providing a site. Conversely, providing a site can also strengthen the identity of the smaller local authority. But a website may place the delivery of information and services into the county council based IT department and away from the town council. Providing a one-stop shop for online planning, while it may be in the best interests of the users of that information and services, may be met with strong opposition from the local authorities who may see such a development as a means of taking away this function from their remit.

Additionally, the support of online services has to be politically beneficial for its cause to be taken up by local politicians. If, for example, online provision is championed

through national initiatives or in popular media, the political benefit may increase. The results of online provision are not all positive. Providing an Internet site may also subject the local authority to external scrutiny and can result in a loss of power of the individuals within the authority. As a result, there may be specific reasons to avoid providing a website. Issues of power and online provision of public information are discussed in more detail in Section 9.7.

Not all of the remaining five factors identified by Rogers and Malhotra (2000) for the acceptance of computers as communication tools are present in the development of the use of the Internet for local eGovernment. The resources may not be available in each local authority to provide the same service, particularly for town and borough councils. The smaller councils are dependent on the county councils for IT support and other resource allocation. Although content is created by the individual town or borough council, the dependence on IT support can reduce their autonomy.

Establishing motivation for online provision will also help estimate the future provision of public websites and their content. As all county councils are providing online services, the eventual adoption of the technology by all local authorities is likely. The time taken to implement websites for each local authority will defer across the country unless some external force is applied in the form of mandates, legislation or funding support.

9.6 Local Governance and the Internet

The potential of the Internet to enhance democracy, facilitate new forms of governance and enable participation are not the primary motivators behind the current online provision of local authority information and services online. However, it is hypothesised that the Internet can affect not only the provision of government information and services, but also governance democracy and participation. These areas were introduced in Sections 2.4.1, 2.4.2 and 2.4.3. The application of ICTs to areas was explored in Section 2.5. This section discusses the implications of online provision in terms of local governance with regard to the results established in this thesis.

Within the framework of new governance, the Internet can be a tool for information dissemination, communication and encouragement of active participation. Its use can enable flexible interaction between the public, businesses, community and other groups and the local authority. Though the role of government has been re-evaluated (Pierre 2000b), government is not ineffective and can steer the local community. The Internet can assist collaborative approaches to governance proposed by Healey (1997)

and interconnections between the different stakeholders in the local community which are vital for positive policy effects (Held 1987).

Local authorities have a large influence on the vibrancy of the community groups within their remit (Healey 1997). In many cases, they supply funding, facilitates meetings in public buildings, and in the case of the *Mobhaile* project (LGCSB 2004a) helps disseminate their information. Aiding local groups to provide websites can also facilitate their establishment as alternative sources of information (Locke 1999) in opposition to the local authorities.

The extent of the change in government and governance due to the Internet is debatable. The local authorities, through their website provision, view the Internet as an information dissemination space. Thus, extensive restructuring of the boundaries of government due to the incorporation of online practices, as discussed by van Dijk (2000a), is unlikely. Website provision is concerned with government and its service and not with governance or flexibility in methods of governing. Keogan (2003) noted that government may have only changed rather than reformed. This is borne out in the retention of offline division in information provision as well as other factors. Only online service provision is promoted rather than more innovative uses of the Internet in methods of governance.

The Internet can solidify the position of the local government within local governance, however, by developing and strengthening identity of the local government within the minds of the citizen within an area. If the local government site is seen as a location for information about the local area and its issues as well as a space for its debate, the local government can identify issues as they arise and be more responsive to the needs and demands of citizens. Technology can enable but it does not necessarily follow that the processes enabled will be implemented (Gualtieri 1998). The local authorities are not obliged to use the Internet or promote online participation.

Additionally, use of the Internet has its own problems. This ensures that the inclusive benefits gained through the use of the Internet are restricted to those with the access to the technology and most likely to be enabled and included. Many citizens are excluded from accessing the Internet and others are effectively barred due to poor web usability or poor web accessibility.

The changing service provision role by supplying online services within context of local government is limited. As more services are outsourced and privatised the local authority becomes one of a number of organisations involved in service provision. The local authorities are guiding the provision of services rather than directly supplying

them. This change in service provision is changing the definition of local government and local governance to include the companies that are providing the services. However, the effect of the Internet on this service provision is minimal. Many services affected by this outsourcing in many cases cannot be provided online. In availing of these services users may have to interact with the local authority and choose the Internet as the method that they undertake this interaction.

As previously noted in Section 2.4.2ii, Planning is an example of a local governance activity (Healey 1997). Recently, local authorities have been encouraged and in many cases legally mandated to consult with local interest groups in developing the strategies and policies for the local area (Local Government Act (2001)). Additionally, the planning process relies on citizen involvement in both development control and strategic planning. This consultative process can be enriched by the provision of online information. The Internet can automate portions of the current processes of involvement and, as a result, allow for more flexible and varied methods of governance (Stoker 2000). However, planning remains a core activity of the local government and the boundaries between the public, private and voluntary sectors have not been influenced by the provision of ICT based applications on the local authority websites. Two way communication, vital for governance (Kooiman 2000), is facilitated by the Internet, but not necessarily employed by the local authorities. The local authorities have been encouraged to exploit ICTs and the Internet, in particular, in the provision of eGovernment. Certain aspects of the provision of the planning system is left to the discretion of the local authorities and are within their autonomy. An innovative role for the Internet in the planning system was not found. As the powers and functions of local authorities are constrained, Wilson and Game (2002) argue that their discretion is reduced. With greater autonomy, it is likely that some local authorities would pursue the facilitation of methods of governance via the Internet. However, it is likely that the extent of this would be limited to a small number of technically aware local authorities. These authorities are most likely to be those with high current provision who have already identified the Internet as an important medium for the delivery of government. Additionally, the local authorities employing the Internet in this means are also likely to be the current innovators in participation.

9.7 Online Public Participation

This thesis takes a broad view of local authority online provision from a user perspective. The user perspective should not be viewed from the fulfilment of the demands for services and information but the inclusion of the user in the whole process as facilitated by the Internet. Participation online is, therefore, a core tenet of the arguments presented in this thesis. Participation is viewed as a means of

achieving eGovernment aims of enhanced democracy and reducing apathy (ODPM 1998). The process of how online information provision will lead to greater participation or engagement is not debated.

The Internet can be seen as one of a series of tools in the local authority public participation toolbox and examples of Internet use in this context have been piloted by researchers, such as Kingston et al. (2000). The benefits of use have been presented in Section 2.4.3 and are largely based around the reduction in the resources needed and the easing of logistical problems to participate.

The local authorities, when questioned, associated the Internet with facilitating public participation. Some users of planning information also have a similar view. Many of the questionnaire respondents saw that the Internet could ease their involvement with the planning process and three respondents mentioned that providing information and services online could affect the participation with the local authority. One respondent associated the provision of quick and easy access to information, including mapping, as a way of ensuring civic participation.

The Internet extends the local authority services to a new online environment and the local authorities have not made use of the innovative nature of the medium to move beyond service provision. The Internet is a means cheap, mass communication (Hacker 2000). Nevertheless, local authorities do not facilitate two way communication structures (other than email[59]) or online participation by citizens or users of the site. Additionally, information about the process and means of participating are not a priority and are provided by few of the local authorities. A low percentage of authorities provide information about the appeal and commenting process. The guides are available on the Department of the Environment, Heritage and Local Government homepage and beyond providing a link to the guides in a suitable location do not require further time or resource commitment by the local authority.

The benefit of using geographic information in public participation contexts has been recognised by a number of authors (Al-Kodmany 2003, Carver *et al.* 2001, Parker & Pascual 2002) but this has not translated into its provision on the Internet with planning information. Many of the advantages to the use of spatial information in participation (Section 2.5.2i) can be brought to the Internet with the use of online GIS functions. However, disadvantages also follow participation into the online environment (Section 2.5.3) and data sharing may be more problematic online.

[59] Some local authorities allow the submission of comments to the draft development plan via email.

Submissions to development or local area plans online can be particularly useful when georeferenced to a particular geographic area. Users, for example, could add features to online maps or can select areas about which they would like to comment. These comments are then easier to assimilate into the decision making process about the revisions of the area's development plan.

Furthermore, the comparison of geographic information applications on Irish local authority sites with those in Denmark (Arleth 2005) and Italy (Campagna & Deplano 2004) may point towards a European-wide dearth of more advanced participatory methods on the Internet. The advanced technical tools are available and in use in the local authorities. Possible reasons behind their absence in online public participation include a limited knowledge of the benefits of such provision or complacency about the possible inclusion of the citizen through online applications.

Innovative participation practises, which reach the higher rungs of Arnstein's (1969) ladder of participation and result in a redistribution of power, are rare (Bickerstaff & Walker 2001). Many of the local authorities interviewed did not go beyond the legislative requirements of public participation set out by central government. The methods used and the current provision are located in the first rungs of Arnstein's (1969) participation ladder and focus on one way information provision rather than information sharing as identified by Bayley and French (2005). Some respondents mentioned their dissatisfaction with current participation procedures, such as public information meetings.

> *"Public consultation process was not undertaken. A series of private meetings in a large public room left no scope for public discussion or cross-examination of public officials or interaction between opposing interests"*
> *(Respondent 142)*

Lenk (1999) identified four ways of supporting participation (information, debate, communication and supporting decision making) and all of which can be facilitated by the Internet. Currently, the local authority websites are, however, focused on information provision. Conventional thinking on participation emphasises the importance of information (Arnstein 1969, Lenk 1999). One of the problems in including citizens in local authority decision making is the one sided store of knowledge. Citizens do not have access to the information and skills possessed by the local authority experts. The Internet in providing an information provision space, allows citizens to view local authority documents, the resulting decisions made by the local authority and assess them against their own value judgements. They can use the information furnished in such a way as to lobby or influence future local authority undertakings. Providing citizens with the same information provided to the local

authority councillors and employees means that there is a levelling of the playing field in any public participation endeavours. The decisions taken by the local authority are placed in the public sphere and can be evaluated by the citizen. This does not mean, however, that citizens will take advantage of such information provision to greater involve themselves in the local authority undertakings or to greater inform themselves. The Internet may inform people and interactive methods may not be used by all participants but, as with lurkers on email lists, they may follow the discussion. West (2005) believed that most citizens value eGovernment as a means of easing their day-to-day living, however, this over simplistic view does not take account of the interests of local pressure groups.

Planning is contentious and adversarial. Therefore, it is particularly amenable to the provision of transparent processes and full information. Long running tribunals in Ireland have uncovered corruption concerning the rezoning of land for development (TICPMP 2006). A transparent system could open the system to more rigorous scrutiny. Online information provision would facilitate citizens with concerns about decisions to access the same material as the decision makers.

> *"The whole system should be on-line and transparent."*
>
> *(Respondent 296)*

> *"No indications were given how decisions are made had a veil of secrecy about it!"*
>
> *(Respondent 78)*

Much participation literature is focussed on individuals and not groups (Arnstein 1969, Healey 1997, Lenk 1999), however, planning can be significantly affected by the interests of groups and, in particular, local business interests (Stoker 1991). The online provision of participation initiatives and planning processes needs to take the characteristics of the stakeholders into account. This means actively acknowledging the group nature of local interests and the importance of participants with a commercial interest.

The benefit of the use of the Internet for public participation in planning has not been conclusively established. Implementing interactive and bidirectional communication can be problematic. A more user interactive system which uses GI may require negotiation with the commercial provision of mapping with the Ordnance Survey. The respondents to the online user questionnaire were largely unfamiliar with the standard functionality of chat room based services. This and other bidirectional communication methods may not be suitable for planning information users. The users may not trust such online methods. The Internet can be impersonal and the identity of both the

user and the person dealing with the communication may be hidden and, therefore, decrease trust in the process. Additionally, the online implementation of current public participation practices may require secure payment and digital signatures (Smith *et al.* 1999). The security of which may discourage potential participants.

The power of information in a participatory framework is severely limited if that information is not readily available or usable. However, easing the public's access to information may also have unintended consequences as mentioned in Section 9.4. In a participatory context, additional factors need to be considered. When the Internet is relied on to gauge public opinion and used as a participation mechanism, those sections of the community excluded from the Internet are further marginalised. Any information provided should be as understandable and accessible as possible. The provision of local authority planning information in an inaccessible and unusable format shows a lack of consideration to the users of this information. It also means that the local authority is not embracing the Internet as a means of opening its processes to external eyes, despite the rhetoric in much governmental documentation.

The location of the participation arena is important for its success (Healey 1997). The Internet is a unique location which brings with it the danger of targeting only the technologically aware members of society (McCafferty 2003). Furthermore, previous online participation has been overtaken by technical experts and less technical aware participants may be intimidated (Coleman 1999). Transparency of processes and decisions can promote a feeling of inclusion. The Internet cannot be used without consideration to the exclusion of certain groups when used in a public context. The groups that are currently excluded from the Internet are those without adequate access to the necessary resources. They are also those groups who lack the necessary technical skills and confidence to use the Internet. These groups may have poor literacy, poor understanding of the structure of public agencies and how to access relevant services and funds, be in older age groups or may speak a language other than English[60]. Inclusion is an important aspect of participation (Hale *et al.* 1999). As such, the local authority should ease the use of the public information it provides in any way possible. Conforming to the W3C or WAI standards is an obvious first step in dealing with users who may have literacy difficulties; for example, text can be enlarged or spoken. Providing alternative 'texts' such as images, audio and video, allow users who are unable to access information in a textual format to consume the information. This will also aid users who may be visually disabled or may just prefer this method. However, the proportion of the population that the

[60] The traditionally homogenous population of Ireland is changing. Ireland has been the destination for a large number of migrant workers. In more recent years, the expansion of the European Union has resulted in large scale immigration of different nationalities, especially Polish workers. This may increase the numbers of potential users with difficulties understanding online content due to language barriers.

Internet reaches will increase as it becomes more embedded in daily life. Its use as a public participation method will become more likely. The Internet's particular role in public participation was explored in Section 2.5.3.

Providing full and transparent information on the Internet can threaten the status quo. It allows for a more detailed scrutiny of the actions of the local authority and individual employees and councillors. This transparency may be unwelcome. It opens the individual concerned to enquiry and may force them to justify their actions.

Public participation should be a form of power sharing (Arnstein 1969). The provision of information is placed on the lower rungs of Arnstein's (1969) participation ladder and was identified as only a single attribute of a successful participation process by Bayley and French (2005). Planning authorities by providing information on their websites still retain power and also control the extent and focus of the information. The local authority in consulting with the public can devolve power from the local authority to the public. When power is devolved, it is taken from one or more parties and given to other parties. The current power holders may be unwilling to give away their power and their interest in the process. This struggle needs to be overcome for meaningful participation to take place. There may be resistance within the local authority to the meaningful inclusion of the public in the decision making process. This action would take power from the hands of the public authority and place it out of their reach. The facilitators of such a process could have a profound impact on the final product produced. In a more open and informed environment, the Internet could reduce the influence of the facilitator. But barriers to Internet use could only skew the information towards a particular subsection of the community. Hacker (2000) identified a number of characteristics affecting the likelihood of participation. Of these social class mirrors characteristics of profiles of users most likely to use the Internet. Therefore, the groups normally excluded from government and participation processes are also those excluded from the Internet and possible online participation practises. The position of the information 'haves' identified by van Dijk (2000b) will the further strengthened. Thus, further enabling those who have traditionally had the greatest access to the local authority decision-making process. When information is provided, local government decide what information to release. Provision online may also result in a power shift within the local authorities from the planners to the IT departments. As a result, there may be internal motivations not to provide planning information online, not elicited from the results of the local authority interviews.

At present, the local authorities make decisions which are supposedly informed by public consultations and comments. In terms of power relations, poor information systems can keep power within the local authorities. The provision of online

information in its current incarnation is simply an appeasement of the public and a token inclusion without a devolvement of power. This situation may mean that the Internet has limited powers in this area and the links with the various theoretical areas (governance, democracy and participation) are unlikely to materialise.

The fundamental question of public website provision is whether providing online access to services and information can lead to an increase in public participation and a reduction of public apathy. An easy-to-use service will reduce some of the barriers users face when they want to interact with government. More efficient use of resources and automation can result in a speedier process. The transparency of processes and information will allow more interested citizens to gain the necessary knowledge to participate. Transparent processes can only be encouraged but their impact may be limited and the middlemen (e.g. the media), who process the information and present it to the public, will still be required (Shenk 1997). The citizen's benefit in using the system must be proven as citizens are unlikely to continue to participate if they feel their views are being ignored. However, the possible benefits of usable information are only conjecture at present and the doubts expressed by West (2005) about the wider applicability of eGovernment to engage citizens seem to be borne out by the findings of this study. While participation may not be the solution to public apathy (Hale *et al.* 1999), it can facilitate other possible solutions, such as educating citizens about government as proposed by Coleman (1999).

9.8 Addressing the Research Questions

This chapter has discussed the results of a number of different methods used to explore the newly created area of online public information and service provision from a user perspective, focussing in particular on the provision of planning information in both spatial and textual formats. This study identified three research questions to address the aim of the research. The first question aimed to:

> *What is the level of provision of public information in terms of presentation, quality and quantity via the Internet; focusing on publicly available planning information and where appropriate spatial represented information?*

To answer this research question a number of objectives were devised. First, methods were derived from literature to assess the accessibility and usability of the information presented on the local authority planning pages. Spatial features are an important aspect of much of local authority information. Representing planning information spatially is common in the offline provision of that information. Therefore, methods need to assess the provision of spatial information or need to be adapted where appropriate. The methods were derived mainly from commercial research and, in some cases, this meant that the aims of the methods needed to be reassessed.

Furthermore, the means by with which the methods were undertaken may need to be adapted for both spatial and public information where the emphasis is on informing rather than selling to the user.

The methods were applicable for use in assessing public information. This thesis focuses on a broad investigation into the provision of public information and, therefore, some of the methods derived will not be directly applicable to individual local authorities. Notwithstanding this, the results of the methods have an immediate application to the local authority information and can inform the design and future development of the websites.

The local authority view of public information was assessed both, implicitly, in an assessment of their provision and, explicitly, in semi-structured interviews with the local authorities. The local authorities chosen were taken from the four different types of planning authorities and provided different amounts and quality of planning information. From the evaluation of the provision of planning information, it appeared that the different types of local authority determined to some extent the type of provision. It was, therefore, important to include local authorities from each of the four categories of local authority to determine the similarities and differences in opinions expressed depending on provision, resources and structure.

Online information is valuable and both the local authorities and the users can realise the benefits. However, the application of ICTs to government is not simple and does not immediately translate into simply positive outcomes.

The provision of planning information on the local authority sites varies considerably. Some local authorities do not have an online presence while others provide all of the sample tasks. This provision appears to be largely dependent on the type of local authority, whether town, borough, city or county council. This, however, does not give a full picture of the online provision. Simply providing information online does not adequately approximate the users' perspective of that information. Usability refers to the ease with which something can be used. The provision was assessed with this in mind. The usability of the information provided online varies. This variation is less tied to local authority type. From the provision of information, it appears that the local authorities are less concerned with how the users interact with the information than simply providing it.

The spatial nature of planning information is not recognised as a fundamental part of its presentation by all the local authorities. However, of the different types of cartographic representations available on the local authority websites, planning in

most cases, provided the most technologically advanced type of mapping and the most informative, moving beyond simply the delivery of basic and general information to provide information specific to the local area.

Users are, not yet, considered in the design and development of the websites. The sites follow current local authority structures and not the user needs of that information. Full provision of tasks is not currently possible for a number of reasons; copyright, digital signatures, unavailable resources, lack of political or administrative motivation, lack of technical support and poor national cohesion. Local government is, by its very nature, local and determines the policies and priorities for the local area. However this is translating into different levels of service provision as well as different priorities.

The second research question aimed to:

> *Do gaps exists between the public **need** for publicly available information and the local authority **provision** of that information?*

The users of the planning system drive the demand for local authority provision on the Internet and there is a definite demand for services online. In many cases the demand for these services are being met, as currently the users have a low expectation of what the local authorities should provide. Where demand of some users is not being met, the difference in demand and provision can be concentrated in to a few key areas. First, there is a noticeable difference in the provision of information and services across the local authorities with some local authorities not providing a website. Second, the usability of the information provided and technical access to the information is problematic.

While this study focused particularly on repeat users of the planning system, the results reflect the demand of other less frequent users in two ways. First, in areas of the planning process, such as submitting planning applications, members of the public rely on agents (e.g. architects) to submit the plans. The direct interaction with the planning system is undertaken by the agent already familiar with the process rather than an individual. Second, through the inclusion of community and environmental groups, community concerns outside of the commercial sphere were also incorporated into the results.

A single gap between the provision and need for planning information does not exist. Users demand different types of information and services and in many of the demands the local authorities are providing what is needed. However, there a number of areas where the information needs of users are not being met. In particular, users are demanding a consistent service. They expect the same services to be provided online

in all of the local authorities. This is not the case. They are reasonable in their expectations and demands and only compare the local authority provision with other similar public agencies and not necessarily with the technical possibilities afforded by the Internet.

The other obvious gap between provision and needs is in the absence of spatial representation and advanced online GIS. The results reported on in this thesis show that users would make use of mapping facilities if they were provided and, in most cases, think that advanced spatial representation features are beneficial. This demand has not been identified as a priority for development in many of the local authorities and where the textual alternatives are provided a spatial representation is not necessarily present.

Only a few users demand the online provision of participatory measures. The link between the Internet and democracy so readily assumed in government literature has not been made by the public in their assessment of local authority provision. They do not expect interactive features and mainly focus on the informational capabilities of the Internet. Where interactive elements or two way communication is sought, it is in the areas of task provision and the easing of the current planning process. It is in the translation of current processes onto the website and not in the changing of the borders of government to a more inclusive power sharing option of governance.

While the need for planning information can be sated by the use of other channels of service delivery, users demand online services. The Internet is becoming more integrated into the business environment and as users experience the provision of online services by a number of different providers, they will come to demand further provision of government online.

The third research question was:

> *What is the motivation behind the increasing governmental emphasis on service provision via the Internet and is the provision of online public information driven by user need?*

The motivation behind the increasing provision of online public information was discussed in Section 9.5. The benefits are recognised and realised by both the users and the local authorities. There is a push from central government towards the provision of online services and eGovernment as a new channel of service delivery. However, they are not mandating the local authorities to provide websites. The autonomous nature of the local authorities means that some local authorities have yet to embrace the Internet. Essentially, the local authorities are looking for a means to decrease their costs of service provision but also to provide a more effective service.

The stated aims of greater involvement are not a driving force at local level. The local authorities and the central government expect the provision of online information to achieve greater participation and consensus building without thought to how this will actually be achieved. Providing information online can address some knowledge gaps in participation but it serves an elite and may only be an appeasement exercise with token involvement. The users expect services and not participation with the local authority. This may reflect the professional interests in the planning process and not the view of the general population. The local authorities provide services and not new methods of public participation. However, participation is supported by the provision of information. Providing information to potential participants corrects the asymmetric information problems and can be more inclusive and facilitate different forms of governance. This situation is not as straightforward as would first appear, however, due to the barriers to Internet use and the possible barriers to information contained on the local authority sites. Online information is not simply restricted to Internet users. Non-Internet users can be supplied with information or can guide the searches made by Internet users on their behalf (Carver *et al.* 2001). Additionally, some of the barriers to Internet use will also decrease as infrastructure is upgraded and the costs of personal computing continue to fall. National initiatives to provide computing experience in schools will reach greater numbers of the population. This does not take into account the advancements in the technology. As mentioned in Section 2.5.3, the digital divide is not just concerned with access to ICTs. It is also affected by access to the latest ICTs. Users may not be able to access the full range of services online.

Providing information online can make the information more accessible. However, the use of that information may be restricted by the access to ICTs or interest to the empowered sections of the community. Moving the focus from personal interaction to interaction through technology may move resources away from traditional services which are accessed by those sections of the community that most need them.

Chapter 10: Conclusion

10.1 Introduction

The use of the Internet has expanded into many areas of day-to-day life. The use of ICTs, such as the Internet, in governmental activities has been promoted as a means of engaging the public, enhancing democracy and providing better services to citizens. However, there has been little evaluation of how this will or has been accomplished. More importantly, the users have been largely ignored in the design of services and local authority websites.

This study brought together three methodological strands to investigate the area of online planning information and service provision supplied by Irish local authorities. The actual provision, user expectations and needs and local authority view of online provisions was assessed. In doing this, this thesis evaluated the provision of local authority planning information in terms of its presentation, quality and availability in Ireland. It then assessed the user need of that information and established whether a gap exists between the user need and the local authority provision. Finally, the motivations for providing this information online were investigated.

This chapter gives a summary of the findings of the research undertaken in this study. It provides a list of recommendations relating to the provision of information and the resources necessary to ensure better information and services are provided from a user perspective. A number of future research areas in the newly emerging field of ICTs and government are identified. In Section 10.5, some final conclusions are given.

10.2 Summary of Findings

In summary the findings of this research are:

- The Internet is suitable for public information and service provision. Its use is demanded by users for information and service provision and it can ease the access to information by some citizens. In addition, as Carver et al. (2001) have concluded its use is not simply restricted to the more enabled members of society as those who are unable to use the Internet may be aided by those who can. However, the provision of public information online is different from the commercial provision of information. Public information has a duty to all citizens and is not primarily motivated by commercial reasons. The information itself is inherently geographical in many cases, a fact that has been recognised

by local authorities who have employed the use of GIS internally to deal with the information (Gilfoyle & Thorpe 2004).

- The local authorities view the Internet as a means of providing information and increasingly of providing services online. The Internet can reduce their costs of disseminating information and reduce the demand on the support staff within the local authorities.

- The online provision of information and services varies across the local authorities. Not all local authorities have websites and the information and services where provided are not consistent. The city and county councils are the larger local authorities and provide more of the sample tasks than the smaller town and borough councils. The provision of services is geographically biased. A boundary between two different local authorities, even in the same county, can differentiate between two different levels of services and information for citizens.

- Planning is an important activity in all of the local authorities but this does not necessarily translate into the provision of a website to present this information on the Internet or the provision of this information when a website is provided. Some local authorities use their websites for the promotion of the local area and the provision of council minutes rather than providing information on planning processes.

- At present, local authority websites are focused on information and not service provision. Future developments are concentrated on providing services online. For example, the complete digital submission of planning applications has been proposed by central government two years ago but has yet to be implemented. Public participation and more policy oriented uses are technically possible but not currently provided.

- Local authorities provide their services through a number of traditional communication channels. Using the Internet can add email and web submissions to this list. Email has been incorporated into the work practices of the local authorities but formal online submissions have not.

- Though planning processes have long been associated with the need to represent data spatially, there is little provision of cartographic elements on the local authority websites. Mapping, while considered important by the local authorities, is not an intrinsic part of the provision of planning information.

However, the history of GIS application in planning means that the online spatial representation of planning information is likely.

- The provision of public information on the Internet has unique issues. The copyright of the information provided can be contentious. The information published online may not be the local authority's and are subject to the copyright of their creators. The digital mapping is provided under copyright from the OSi in most cases and can be prohibitively expensive for some local authorities, while plans provided with planning applications are under the copyright of the developers or architects.

- The demand for public information and services online is driven by the users of that information. Users should, therefore, be of primary consideration in the development and enhancement of any public website both in terms of demand and the ideology behind the provision of this information to users. The Internet is not fully integrated into all aspects of society and many potential users do not have the skills or resources to go online. Even though the Internet's catchment may not include all of the community, there are benefits in its use.

- The user demand for and the benefits obtained by the provision of online services by the local authority are real. However, the need for counter and other more traditional services still remain. Not all users will have the skills or resources to access online services. Additionally, some users will prefer to deal with a human rather than mechanical interface.

- While, the provision of information on the Internet by Irish local authorities is poor. Many local authorities are fulfilling the needs of most of their users. However, this study identified some gaps in the provision and demand for services. There is a demand for information based on users' expectations of other local authorities and public agencies. Users expect consistency and most demand those services they see provided on other local authority or public agency websites. In addition, users demand more interactive mapping even if it is not currently provided online. Users do not demand the singular provision of services on the Internet. They expect support and alternative channels of services to be available. Users are demanding the provision of planning information in a cartographic format but this demand is not being met. Users have recognised the benefit in the presentation of planning information spatially and feel this would ease their interaction with the local authority.

- The Internet would be particularly effective in ensuring that the applications or other submissions contained all relevant information. In this way, the returning of files for missing information could be reduced significantly. The Internet as a mechanisation of the current process can speed the manual delays in decision making by the local authority. The processing of the documentation received can be seriously reduced thus the entire time-span allocated to dealing with the applications or submissions to the draft development plan can be given to the appropriate decision maker within the planning authority.

- The results of the methods in this thesis indicate that improved service provision is the main motivating factor for local authorities in providing a website.

- While the Internet is suitable for information and service provision, its suitability for enabling the greater involvement of citizens is questionable. Local authorities do not view the Internet as a means of actively engaging citizens and empowering them through the use of downloadable data and innovative methods of online involvement such as PPGIS online. Much government literature on the promotion of the Internet and government is concerned with the enhancement of democracy; but beyond the provision of online information, this is not actively sought. Additionally, its potential audience is limited to the information and resource rich sections of the community. Its use in this regard is not recognised by local government or promoted in any meaningful way by central government in Ireland. Thought has yet to be given as to how the use of the Internet can actually accomplish the lofty goals set out by central government in Ireland and elsewhere.

- There were a number of usability problems encountered on the local authority websites. Chief amongst these were navigation, consistency and accessibility issues.

- Most of the usability methods employed in this thesis were available in or informed by current literature about the provision of commercial information online. The methods were cheap to use, suitable for public information and replicable. Usability methods for commercial websites can be used but must be evaluated for their appropriateness and changed where necessary.

- The local authorities are aware of certain usability and accessibility principles but their use is not widespread. The application of usability principles would

ease user interaction with the websites and ensure that the benefits of Internet use are applied in the case of the provision of public information. However, the benefits are in terms of service delivery and the easing of processes and will not translate automatically into the wider engagement of the public with government and an increase in the levels of trust.

10.3 Recommendations

Several recommendations can be made regarding the design of local authority websites and their provision of public information.

The local authorities should:

1. **Identify the local authority areas which most fit with the goals of online provision and those most suitable for provision in an online environment and provide them.**

Little thought or public debate has been devoted to understanding how the application of ICTs to government will actually achieve the stated aims of better democracy and greater public involvement. Additionally, not all local authority services are suitable for online provision and these may vary from authority to authority based on individual practices and policies. Identifying these areas will provide a ranking which can then be used to prioritise certain provision on local authority websites. These areas can be identified through discussion with users.

2. **Be consistent in the provision and presentation of services on all local authority websites.**

Consistency in the provision of services is vital. Users, navigating through a consistent environment, can use knowledge gleamed from elsewhere to enhance their experience of a website. While the convention is to have intra- not inter-site consistency, the planning authorities may be catering for a number of the same users and by promoting a sector wide level of consistency they may ease the use of all the sites by information seekers. Certain users may need to access planning information across a number of planning authority sites; the novice user may be confused about which local authority area there property is situated and may need to visit a number of sites before they locate their home or builders may develop in more than one local authority area.

3. **Involve the users in the development of the local authority websites.**

Users have not been meaningfully involved in the development of local authority websites to date. This is a significant oversight and impacts heavily on the usefulness of the local authority websites. User testing of online service and the identification of specific users and their wants can streamline the interaction with the local authorities

and significantly ease the process for users and reduce demands on the local authorities.

4. **Apply usability evaluation methods to the local authority online information.**

There are a number of evaluation methods available in the literature which can be adapted to suit the unique requirements of public information. Some of these methods were used in this thesis. Common usability evaluation methods were identified in Section 2.8.3.

5. **Present planning information spatially where appropriate.**

Users recognise the benefit in the use of mapping with planning information. This needs to be mirrored in the provision of that information by the local authorities.

6. **Use statistics about the use of the website by users and previous search queries to improve the design of the local authority websites and identify those areas of most importance to users.**

User problems and search queries can be a goldmine for developers of the websites. They can help identify the local authority areas most in need of redesign and where users place the most importance. However, their use must be cautioned as it only assessed the users' use of a website as it appears currently and is restricted by the services on offer.

7. **Optimise the code on the local authority website to allow search engines to most appropriately locate the website when users search for it.**

Simply providing a website does not mean users will be able to find it. Currently, users will not have trouble finding the local authority site but this may change as more businesses go online. This evaluation should include a clear naming structure which will allow users to immediately identify the local authority pages in a list of search results. Books and webpages are available to facilitate this process.

8. **Design for different types of users.**

The users of the local authority websites will have a range of Internet skills and experience with the relevant local authority service. Both novice and expert users can be accommodated with little effort. For example, navigation to the homepage could use Internet conventions, such as the company logo or the local authority crest, which would be expected by many experience Internet users but supplying a textual link to the homepage would also serve the novice users. Additionally, connection speeds can also affect the use of a website. For example, users with slower connections will appreciate smaller file sizes than users on broadband connections. The design for

different users is dependent on the identification of the important characteristics. These characteristics can be identified by a similar methodology to Chapter 5, by using site statistics and mining user queries.

Central government should:

9. **Support the provision of Internet services by providing resources, lowering the associated costs and providing political incentive for its development.**

The dissemination of technology relies on a number of different factors (West 2005). By addressing many of these factors the technology is more likely to be adopted without recourse to other measures, e.g. legislative. National development and a subsequent roll out of online facilities would reduce costs by reducing duplication. Political incentive could be provided by increasing governmental promotion of this area. This is practised currently to a lesser extent by the LGCSB.

10. **Encourage a culture of innovation, adoption and diffusion to foster online service provision in local authorities.**

Services in the more technologically advanced local authorities continue to be improved and developed and the divergence between the local authorities is likely to widen. If innovative methods are encouraged a more flexible approach to local issues and policies can be undertaken. Innovative practises need to be encouraged and rewarded. Should the practises be successful they should be promoted across the public sector.

11. **Promote consistency in service provision.**

Consistency in the provision of local authority websites would allow users to apply knowledge of the online planning processes gained from the use of other local authority websites. Further, it would reduce the amount of time users spend on determining whether the local authority provides a particular service.

12. **Provide a single point of contact for potential users of the planning system.**

Planning is a process which relies on information provided by planning departments in the local authorities, information provided by other departments within the local authority (such as fire and water), guides provided by the department of the Environment and Local government and appeals adjudicated by *An Bord Pleanála*. While all this information is treated separately by the different agencies involved the users are undertaking a single service. The information provided is in many cases repeated as information such as the fee structures and the guides to the process are the same.

There may also be confusion over the location of an area within a certain local authority spatial remit. Within a particular county boundary, the area of interest may be assigned to a county, city, town or borough council. The boundaries of which are subject to change and the resulting local authority may not be known by the relevant applicants.

A single portal has benefits for both the users and providers of this service. A single point of contact or a one-stop-shop may significantly ease the undertaking of the user's task. It would allow consistency across local authorities and therefore allow expert users of the planning system to apply their knowledge of the online system to a new local authority where necessary. Any usability testing carried out on the single website would be applicable to all local authorities thus easing access and reducing duplication of effort in service provision. This does not mean that the local authorities should be disbanded or this service provided at a national level, rather the local concerns and policies can be provided in a seamless service delivery mechanism where users can be unaware of the service provider as it should not impact upon their interaction with the online system. The smaller local authorities need the resources and education necessary to provide this online service. Currently, they fall well below the average online provision by all authorities, possibly due to their small size. Providing an online service does not need to impact on the offline provision of services. A seamless provision of service can be provided by a number of departments or rely on information from a number of different and diverse sources. The responsibility for this service at a county level would be the county council, as is the case in some counties currently. At a national level, the LGCSB is the public agency best located to provide this service.

13. Identify and promote a user-centred minimum provision.

Users expect certain services and information to be provided online. At a national level, a body such as the LGCSB could identify what these are across the local authorities at a national level would allow users to have access to a more consistent service and promote the use of the Internet for local authority services.

14. Provide educational literature on possible usability methods to the local authorities.

Educating the local authorities on the benefits of usability engineering is important. It is also valuable to provide easy to understand instructions for the local authorities as usability evaluation is not the singular responsibility of the IT department, especially as content is provided more and more by the individual departments. This information could be disseminated online by the government department with responsibility for

local government (currently the Department of Environment, Heritage and Local Government) or by the LGCSB.

15. Mandate accessibility compliance across all public agencies.

Supplying information on the Internet in inaccessible formats does not fulfil policies of greater transparency and openness or promote or improve access to new areas of governmental decision making processes. Instead it points to a lack of understanding of the use of the Internet and the potential users and aims of online public information. Incorporating the guidelines especially at the lower levels of compliance should be a priority in governmental Internet policy. Placing the information on the Internet is not good enough if use is to be made of that information by as many sections of the community as possible and not just cater to a particular subsection. Mandating accessibility measures would significantly ease user interaction with the local authority websites. Similar legislative measures are currently in operation in the US (Section 508 2004).

16. Consider accessibility measures targeting the high proportion of spatial information created by the local authorities and further steps taken to ensure greater accessibility beyond the guidelines.

The high proportion of spatial information should not exclude large sections of the local authority websites from being accessible. Alternative methods of accessibility should be explored and used. Some users will have difficulties understanding mapping and alternative paths to information should also be provided.

17. Investigate the suitability of a national agency, such as the LGCSB, in providing a coordination role, usability engineering on a national level or support for the individual authorities.

This type of support is similar to the technical support currently provided by the LGCSB and a role for this agency or a private body hired on behalf of all the local authorities in usability engineering of the local authority sites needs to be investigated. As the services are provided in a similar way, user testing and usability engineering conducted at a national level could significantly aid all the local authorities.

18. At a national level, advertise the benefits of accessing the local authority websites.

If users know a service is available, they will be more likely to go online and make use of it reducing the pressures on the other local authority resources. Consistency in provision would also allow the national promotion of services across the country and

advertising the user benefits of accessing the Internet to undertake the user's task could increase the relevancy of government.

10.4 Recommendations for Further Research

There is little research into the provision of public information on the Internet especially from a user perspective. As such, a number of future research areas can be identified:

- The research conducted in this thesis was based on Ireland. The wider applicability of the findings presented in this chapter needs to be explored. Comparing the Irish situation with other countries, such as the UK, would allow these conclusions to be developed. Additionally, the methodologies could be applied to a different area of local authority service provision, such as housing.

- The prevalence of public participation practices in Ireland needs to be investigated. The actual effects of participation of providing Internet participation methods need to be evaluated in terms of increased participation and other quantifiable benefits. The innovative use of ICTs in participation initiatives, for example, could then be assessed against a backdrop of a more complete understanding of the participatory context of Ireland. The literature on the use of PPGIS in Ireland, for example, is sparse and disorganised.

- The current provision of Internet GIS needs an evaluation of its appropriateness and effectiveness in terms of the motivations for its provision. The actual benefit of online mapping in the cases of public participation, public understanding of the data supplied and service provision needs to be evaluated. Evaluate the online provision in terms of in terms of participation and user trust.

- The expectation of where different web features should be located was based on research conducted in a commercial context. The commercial research focused on the placement of commercial features, such as shopping carts. The users' expectation of the location of public sector webpage elements needs to be investigated. A template can be created from the results of this thesis and the ideal placement for each category of information evaluated could then be identified.

- The online representation of spatial information could benefit significantly from similar research. Maps may contain specific elements, e.g. legends and north arrows. Creating a placement template for mapping elements according to

user expectations and preferences could ease the users' interaction with the site and the map data specifically. The grouping of public information into appropriate categories by potential users would provide valuable information to the local authorities for the appropriate design of their websites.

- The individual results of this thesis for each local authority could provide valuable information for the different local authorities. The results of the evaluations of this thesis will be repackaged to provide support for local authorities to identify the usability issues with their own site.

- The specific demand for different local authority services needs to be evaluated. The appropriateness of the different local authority services needs to be assessed to see which local authority services are most amenable to Internet provision.

10.5 Final Conclusions

More and more public information is being provided online and the Internet is becoming progressively more important in the operation of government. Local government in Ireland view the Internet as a new method of service and information delivery. Planning information is provided by many of the local authorities but the extent and quality of that provision differs across the local authorities. It is increasingly likely that the gap between the local authorities will widen as the more advanced authorities increase their provision and the authorities with poor or no provision remain stagnant. However, changes in the concepts of online public information delivery are possible.

Involving the users in the development of the services for their benefit can only be to the advantage of both the local authorities and the users. Information is a corner stone to the involvement of citizens in government as well as the operation of municipal services and local government itself. Providing better and more relevant information can only improve the informational environment for all stakeholders.

The benefits of providing information, even 'usable' information, online in terms of better government, democracy and governance are not automatic. This is a rapidly expanding area and requires further study, thought, debate and consideration. The application of ICTs to government is likely to continue and research and understanding must keep up with the technological developments to provide a context for these developments and determine their true benefit or otherwise. Without a proper evaluation of developments, marginalised groups can be further marginalised or failures in democracy can be exacerbated.

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Appendix A: Provision of Planning Information

Table A.1: Planning Authorities with Websites

Planning Authorities	Website	Planning Homepage	Planning Pages
County Councils			
Carlow	✓	x	✓
Cavan	✓	✓	✓
Clare	✓	✓	✓
Cork	✓	✓	✓
Donegal	✓	✓	✓
Dun Laoghaire / Rathdown	✓	✓	✓
Fingal	✓	✓	✓
Galway	✓	✓	✓
Kerry	✓	✓	✓
Kildare	✓	✓	✓
Kilkenny	✓	✓	✓
Laois	✓	✓	✓
Leitrim	✓	✓	✓
Limerick	✓	✓	✓
Longford	✓	✓	✓
Louth	✓	✓	✓
Mayo	✓	✓	✓
Meath	✓	✓	✓
Monaghan	✓	✓	✓
Offaly	✓	✓	✓
Roscommon	✓	✓	✓
Sligo	✓	x	✓
South Dublin	✓	✓	✓
North Tipperary	✓	✓	✓
South Tipperary	✓	✓	✓
Waterford	✓	✓	✓
Westmeath	✓	✓	✓
Wexford	✓	✓	✓
Wicklow	✓	✓	✓
City Councils			
Cork City	✓	✓	✓
Dublin City	✓	✓	✓
Galway City	✓	✓	✓
Limerick City	✓	✓	✓
Waterford City	✓	✓	✓
Borough Councils			
Clonmel	x	x	x
Drogheda	✓	✓	✓
Kilkenny	✓	✓	✓
Sligo	✓	x	✓
Wexford	✓	✓	✓
Town Councils (Urban District Councils UDCs)			
Arklow, Co Wicklow	x	x	x
Athlone, Co. Westmeath.	✓	x	x
Athy, Co. Kildare	✓	✓	✓
Ballina, Co. Mayo	x	x	x

Ballinasloe, Co. Galway	✓	x	x
Birr, Co. Offaly	✓	✓	✓
Bray, Co. Wicklow	✓	✓	✓
Buncrana, Co. Donegal	x	x	x
Bundoran, Co. Donegal	x	x	x
Carlow	✓	x	✓
Carrickmacross, Co. Monaghan	✓	x	x
Carrick-on-Suir, Co. Tipperary	x	x	x
Cashel, Co. Tipperary	x	x	x
Castlebar, Co. Mayo	✓	x	x
Castleblayney, Co. Monaghan	✓	✓	✓
Cavan	✓	x	x
Ceannanas Mor (Kells) Co Meath	✓	x	x
Clonakilty, Co. Cork	✓	x	x
Clones, Co. Monaghan	✓	✓	✓
Cobh, Co. Cork	✓	x	x
Dundalk, Co. Louth	✓	✓	✓
Dungarvan, Co Waterford	✓	x	x
Ennis, Co. Clare	✓	x	x
Enniscorthy, Co. Wexford	x	x	x
Fermoy, Co. Cork	✓	✓	✓
Killarney, Co. Kerry	✓	x	x
Kilrush, Co. Clare	✓	x	x
Kinsale, Co. Cork	x	x	x
Letterkenny, Co. Donegal	x	x	x
Listowel, Co. Kerry	x	x	x
Longford	✓	✓	✓
Macroom, Co. Cork	✓	x	x
Mallow, Co. Cork	✓	x	x
Midleton, Co. Cork	✓	✓	✓
Monaghan	✓	x	x
Naas, Co. Kildare	✓	✓	✓
Navan, Co. Meath	✓	x	x
Nenagh, Co. Tipperary	✓	✓	✓
New Ross, Co. Wexford	✓	✓	x
Skibbereen, Co. Cork	✓	x	x
Templemore, Co. Tipperary	✓	x	x
Thurles, Co. Tipperary	✓	x	x
Tipperary	x	x	x
Tralee, Co. Kerry	x	x	x
Trim, Co. Meath	✓	x	x
Tullamore, Co. Offaly	✓	✓	✓
Westport, Co. Mayo	x	x	x
Wicklow	✓	x	x
Youghal, Co. Cork	✓	x	x
Total	74	48	51
Percentage	**84%**	**55%**	**58%**

Table A.2: Website and Planning Section Availability and Google Result Position for Local Authorities in Study Area

Planning Authority	Website	Planning Homepage	Planning Pages	Google Position
County Councils				
Carlow	✓	x	✓	1
Dun Laoghaire / Rathdown	✓	✓	✓	1
Fingal	✓	✓	✓	1
Galway	✓	✓	✓	1
Kildare	✓	✓	✓	1
Kilkenny	✓	✓	✓	1
Mayo	✓	✓	✓	1
Meath	✓	✓	✓	1
Roscommon	✓	✓	✓	1
South Dublin	✓	✓	✓	1
South Tipperary	✓	✓	✓	1
Waterford	✓	✓	✓	1
Wexford	✓	✓	✓	1
Wicklow	✓	✓	✓	1
City Councils				
Dublin City	✓	✓	✓	1
Galway City	✓	✓	✓	1
Waterford City	✓	✓	✓	1
Borough Councils				
Clonmel	x	x	x	
Kilkenny	✓	✓	✓	1
Wexford	✓	✓	✓	1
Town Councils (Urban District Councils (UDCs))				
Arklow, Co Wicklow	x	x	x	
Athy, Co. Kildare	✓	✓	✓	1
Ballina, Co. Mayo	x	x	x	
Ballinasloe, Co. Galway	✓	x	x	1
Bray, Co. Wicklow	✓	✓	✓	2
Carlow	✓	x	✓	1
Carrick-on-Suir, Co. Tipperary	x	x	x	
Cashel, Co. Tipperary	x	x	x	
Castlebar, Co. Mayo	x	x	x	
Ceannanas Mor, Kells, Co Meath	✓	x	x	1
Dungarvan, Co Waterford	✓	x	x	1
Enniscorthy, Co. Wexford	x	x	x	
Naas, Co. Kildare	✓	✓	✓	1
Navan, Co. Meath	✓	x	x	1
New Ross, Co. Wexford	✓	✓	x	2
Tipperary	x	x	x	
Trim, Co. Meath	✓	x	x	1
Westport, Co. Mayo	x	x	x	
Wicklow	x	x	x	
Total (39 Planning Authorities)	**29**	**22**	**23**	-
Percentage	**74%**	**56%**	**59%**	-

Table A.3: Task Availability on Local Authority Websites

Planning Authority	Task 1	Task 2	Task 3A	Task 3B	Task 4A	Task 4B	Task 5	Task 6	Task 7	Task 8	Task 9A	Task 9B	Total Tasks
County Councils													
Carlow	✓	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	11
Dun Laoghaire /Rathdown	✓	✓	✓	✓	✓	x	✓	✓	✓	✓	✓	✓	11
Fingal	✓	✓	✓	✓	✓	x	x	✓	x	x	✓	x	7
Galway	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	12
Kildare	✓	✓	✓	x	✓	x	✓	✓	x	x	✓	✓	8
Kilkenny	✓	✓	✓	✓	✓	✓	✓	x	x	x	✓	✓	9
Mayo	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	12
Meath	✓	✓	✓	✓	✓	x	✓	✓	✓	✓	✓	✓	11
Roscommon	✓	✓	✓	✓	✓	x	x	✓	✓	x	✓	✓	9
South Dublin	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	12
South Tipperary	✓	✓	✓	✓	✓	x	✓	✓	x	✓	✓	✓	10
Waterford	✓	✓	✓	✓	✓	x	x	✓	✓	✓	✓	✓	10
Wexford	✓	✓	✓	✓	✓	✓	✓	✓	x	✓	✓	✓	11
Wicklow	✓	✓	✓	✓	✓	x	x	x	x	x	✓	✓	7
City Councils													
Dublin City	✓	✓	✓	✓	✓	x	✓	✓	✓	x	✓	x	9
Galway City	✓	✓	✓	✓	✓	x	✓	✓	✓	✓	✓	✓	11
Waterford City	✓	✓	✓	x	✓	x	✓	✓	x	x	✓	✓	8
Borough Councils													
Clonmel*	x	x	x	x	x	x	x	x	x	x	x	x	0
Kilkenny	✓	✓	✓	✓	✓	✓	✓	✓	x	x	✓	✓	10
Wexford	✓	✓	x	x	✓	x	✓	x	✓	x	✓	✓	7
Town Councils													
Arklow, Co Wicklow*	x	x	x	x	x	x	x	x	x	x	x	x	0
Athy, Co. Kildare	✓	✓	✓	x	✓	x	✓	✓	x	x	✓	x	7
Ballina, Co. Mayo*	x	x	x	x	x	x	x	x	x	x	x	x	0
Ballinasloe, Co. Galway	✓	x	x	x	x	x	x	x	x	x	x	x	2
Bray, Co. Wicklow	✓	✓	x	x	✓	x	x	x	x	x	✓	x	4
Carlow	✓	x	✓	✓	x	x	✓	x	✓	✓	✓	x	7

Carrick-on-Suir, Co. Tipperary*	x	x	x	x	x	x	x	x	x	x	x	x	0
Cashel, Co. Tipperary*	x	x	x	x	x	x	x	x	x	x	x	x	0
Castlebar, Co. Mayo*	x	x	x	x	x	x	x	x	x	x	x	x	0
Ceannanas Mor, Kells, Co Meath	✓	x	x	x	x	x	x	x	x	x	✓	x	2
Dungarvan, Co Waterford	✓	x	✓	✓	✓	x	✓	x	x	x	✓	x	6
Enniscorthy, Co. Wexford*	x	x	x	x	x	x	x	x	x	x	x	x	0
Naas, Co. Kildare	✓	✓	✓	x	✓	x	✓	x	x	x	✓	x	6
Navan, Co. Meath	✓	x	x	x	x	x	x	x	x	x	✓	x	2
New Ross, Co. Wexford	✓	✓	x	x	✓	x	x	x	x	x	✓	x	3
Tipperary*	x	x	x	x	x	x	x	x	x	x	x	x	0
Trim, Co. Meath	✓	x	✓	✓	x	x	x	x	x	x	✓	x	4
Westport, Co. Mayo*	x	x	x	x	x	x	x	x	x	x	x	x	0
Wicklow*	x	x	x	x	x	x	x	x	x	x	x	x	0
Total (Note: 39 Planning Authorities)	29	22	23	19	24	7	19	17	12	11	28	17	228
Percentage	74%	56%	59%	49%	62%	18%	49%	44%	31%	28%	72%	44%	-
With websites	-	74%	79%	66%	83%	24%	66%	59%	41%	38%	97%	59%	-

* Authorities marked with an asterisk do not have a website

Table A.4: Tasks Availability for Smaller Local Authorities on County Council Websites

Planning Authority	Task 1	Task 2	Task 3A	Task 3B	Task 4A	Task 4B	Task 5	Task 9A	Task 9B	Link to Borough/Town Council	Part of Same Site	Total
Borough Councils												
Clonmel*	x	x	x	x	✓	x	x	x	x	x	x	1
Kilkenny	x	x	✓	✓	x	x	x	x	x	x	x	2
Wexford	x	x	x	x	x	x	✓	x	x	✓	x	2
Town Councils												
Arklow, Co Wicklow*	x	x	✓	✓	✓	x	x	x	x	x	x	3
Athy, Co. Kildare	x	x	✓	x	✓	x	✓	✓	x	x	✓	5
Ballina, Co. Mayo*	x	x	✓	✓	✓	✓	✓	✓	x	x	x	6
Ballinasloe, Co. Galway	x	x	x	x	x	x	x	✓	x	x	x	1
Bray, Co. Wicklow	x	x	✓	✓	✓	x	x	x	x	✓	x	4
Carlow	✓	x	✓	✓	x	x	✓	✓	x	✓	✓	7
Carrick-on-Suir, Co. Tipperary*	x	x	✓	x	✓	x	x	x	x	x	x	2
Cashel, Co. Tipperary*	x	x	✓	x	✓	x	x	x	x	x	x	2
Castlebar, Co. Mayo*	x	x	✓	✓	✓	✓	✓	✓	x	x	x	6
Ceannanas Mor, Kells, Co Meath	✓	x	✓	✓	✓	x	x	✓	x	✓	✓	7
Dungarvan, Co Waterford	✓	x	✓	✓	✓	x	✓	✓	x	✓	✓	8
Enniscorthy, Co. Wexford*	x	x	x	x	✓	✓	x	✓	x	x	x	3
Naas, Co. Kildare	x	x	x	x	✓	x	x	✓	x	x	✓	3
Navan, Co. Meath	✓	x	✓	✓	✓	x	✓	✓	x	✓	✓	8
New Ross, Co. Wexford	✓	✓	✓	✓	✓	x	x	✓	x	✓	x	7
Tipperary*	x	x	✓	✓	✓	x	x	x	x	x	x	3
Trim, Co. Meath	✓	x	✓	✓	✓	x	x	✓	x	✓	✓	7

Westport, Co. Mayo*	x	x	✓	✓	✓	✓	✓	✓	x	x	x	6
Wicklow*	x	x	x	x	x	x	x	x	x	x	x	0
Total	6	1	16	13	17	4	8	13	0	8	7	-
Percentage	27%	5%	73%	59%	77%	18%	36%	59%	0%	36%	32%	-

* Authorities marked with an asterisk do not have a website

Table A.5: Combined Town and Borough Council Websites with County Council Websites

Planning Authority	Task 1	Task 2	Task 3A	Task 3B	Task 4A	Task 4B	Task 5	Task 9A	Task 9B	Total
Borough Councils										
Clonmel*	x	x	x	x	✓	x	x	x	x	1
Kilkenny	✓	✓	✓	✓	✓	✓	✓	✓	✓	9
Wexford	✓	✓	x	x	✓	x	✓	✓	✓	6
Town Councils										
Arklow, Co Wicklow*	x	x	✓	✓	✓	x	x	x	x	3
Athy, Co. Kildare	✓	✓	✓	x	✓	x	✓	✓	x	6
Ballina, Co. Mayo*	x	x	✓	✓	✓	✓	✓	✓	x	6
Ballinasloe, Co. Galway	✓	x	x	x	x	x	x	✓	x	2
Bray, Co. Wicklow	✓	✓	✓	✓	✓	x	x	✓	x	6
Carlow	✓	x	✓	✓	x	x	✓	✓	x	5
Carrick-on-Suir, Co. Tipperary*	x	x	✓	x	✓	x	x	x	x	2
Cashel, Co. Tipperary*	x	x	✓	x	✓	x	x	x	x	2
Castlebar, Co. Mayo*	x	x	✓	✓	✓	✓	✓	✓	x	6
Ceannanas Mor, Kells, Co Meath	✓	x	✓	✓	✓	x	x	✓	x	5
Dungarvan, Co Waterford	✓	x	✓	✓	✓	x	✓	✓	x	6
Enniscorthy, Co. Wexford*	x	x	x	x	✓	✓	x	✓	x	3
Naas, Co. Kildare	✓	✓	✓	x	✓	x	✓	✓	x	6
Navan, Co. Meath	✓	x	✓	✓	✓	x	✓	✓	x	6
New Ross, Co. Wexford	✓	✓	✓	✓	✓	x	x	✓	x	6
Tipperary*	x	x	✓	✓	✓	x	x	x	x	3
Trim, Co. Meath	✓	x	✓	✓	✓	x	x	✓	x	5
Westport, Co. Mayo*	x	x	✓	✓	✓	✓	✓	✓	x	6
Wicklow*	x	x	x	x	x	x	x	x	x	0
Total	12	6	17	13	19	5	10	16	2	-
Percentage	55%	27%	77%	59%	86%	23%	45%	73%	9%	-

* Authorities marked with an asterisk do not have a website

Table A.6: Clickpath for Planning Authorities

Planning Authority	Task 2	Task 3A	Task 3B	Task 4A	Task 4B	Task 5	Task 6	Task 7	Task 8	Task 9A	Task 9B	Mean
County Councils												
Carlow	x	2	2	5	6	3	1	2	2	2	2	2.7
Dun Laoghaire /Rathdown	1	4	6	3	x	3	2	4	4	1	1	2.9
Fingal	2	3	3	3	x	x	4	x	x	0	x	2.5
Galway	1	3	4	5	5	3	3	2	2	1	1	2.7
Kildare	1	2	x	5	x	6	3	x	x	1	1	2.7
Kilkenny	2	6	6	3	3	3	x	x	x	0	1	2.8
Mayo	1	2	2	4	8	3	3	3	3	0	1	1.6
Meath	1	5	5	4	x	4	2	3	3	0	1	2.5
Roscommon	1	2	2	3	x	x	2	1	x	1	1	1.6
South Dublin	1	2	3	4	5	2	2	3	3	0	2	2.5
South Tipperary	1	3	5	3	x	3	3	x	3	1	2	2.7
Waterford	1	5	5	5	x	x	3	2	2	0	1	2.7
Wexford	1	3	4	3	5	2	2	x	2	0	1	2.3
Wicklow	1	4	4	4	x	x	x	x	x	1	1	2.5
City Councils												
Dublin City	2	3	3	8	x	5	5	5	x	0	x	3.9
Galway City	2	4	2	3	x	2	2	3	2	0	2	2.2
Waterford City	1	2	x	3	x	2	2	x	x	0	1	1.6
Borough Councils												
Clonmel	x	x	x	x	x	x	x	x	x	x	x	-
Kilkenny	2	5	7	3	5	4	3	x	x	0	2	3.5
Wexford	1	x	x	2	x	1	x	1	x	0	1	1
Town Councils (Urban District Councils (UDCs))												
Arklow, Co Wicklow	x	x	x	x	x	x	x	x	x	x	x	-
Athy, Co. Kildare	1	3	x	5	x	2	2	x	x	0	x	2.2
Ballina, Co. Mayo	x	x	x	x	x	x	x	x	x	x	x	-
Ballinasloe, Co. Galway	x	x	x	x	x	x	x	x	x	1	x	1
Bray, Co. Wicklow	1	x	x	4	x	x	x	x	x	0	x	1.7
Carlow	x	2	2	x	x	2	x	2	2	1	x	1.8

Carrick-on-Suir, Co. Tipperary	x	x	x	x	x	x	x	x	x	x	x	-
Cashel, Co. Tipperary	x	x	x	x	x	x	x	x	x	x	x	-
Castlebar, Co. Mayo	x	x	x	x	x	x	x	x	x	x	x	-
Ceannanas Mor, Kells, Co Meath	x	x	x	x	x	x	x	x	x	0	x	0
Dungarvan, Co Waterford	x	8	6	3	x	3	x	x	x	0	x	4
Enniscorthy, Co. Wexford	x	x	x	x	x	x	x	x	x	x	x	-
Naas, Co. Kildare	1	3	x	4	x	2	x	x	x	1	x	2.2
Navan, Co. Meath	x	x	x	x	x	x	x	x	x	0	x	0
New Ross, Co. Wexford	1	x	x	1	x	x	x	x	x	0	x	0.7
Tipperary	x	x	x	x	x	x	x	x	x	x	x	-
Trim, Co. Meath	x	3	3	x	x	x	x	x	x	0	x	2
Westport, Co. Mayo	x	x	x	x	x	x	x	x	x	x	x	-
Wicklow	x	x	x	x	x	x	x	x	x	x	x	-
Mean	1.3	3.4	3.9	3.7	5.3	2.9	2.6	2.6	2.5	0.4	1.3	-
Standard Deviation	0.4	1.5	1.6	1.4	1.5	1.2	0.9	1.2	0.7	0.6	0.5	-
Range	1 - 2	2 - 8	2 - 7	2 - 5	3 – 8	2 – 6	1 - 5	1 – 5	2 – 4	0 – 2	1 - 2	-

Table A.7: Task Availability via County Council Websites

Planning Authority	Task 1	Task 2	Task 3A	Task 3B	Task 4A	Task 4B	Task 5	Task 9A	Task 9B	Link to Borough/Town Council	Mean
Borough Councils											
Clonmel	x	x	x	x	4	x	x	x	x	x	4.0
Kilkenny	x	x	6	7	x	x	x	x	x	x	6.5
Wexford	x	x	x	x	x	x	2	x	x	2	2.0
Town Councils (Urban District Councils UDCs)											
Arklow, Co Wicklow	x	x	5	3	3	x	x	x	x	x	3.7
Athy, Co. Kildare	x	x	5	x	x	x	x	1	x	x	3.0
Ballina, Co. Mayo	x	x	2	3	4	8	3	1	x	x	3.5
Ballinasloe, Co. Galway	x	x	x	x	x	x	x	1	x	x	1.0
Bray, Co. Wicklow	x	x	5	5	3	x	x	x	x	2	4.3
Carlow	1	x	3	3	5	6	3	2	x	1	3.3
Carrick-on-Suir, Co. Tipperary	x	x	4	x	4	x	x	x	x	x	4.0
Cashel, Co. Tipperary	x	x	4	x	3	x	x	x	x	x	3.5
Castlebar, Co. Mayo	x	x	2	2	4	8	3	2	x	x	3.5
Ceannanas Mor, Kells, Co Meath	1	x	4	4	4	x	x	2	x	1	3.0
Dungarvan, Co Waterford	1	x	9	7	5	x	4	1	x	1	4.5
Enniscorthy, Co. Wexford	x	x	x	x	3	5	x	1	x	x	3.0
Naas, Co. Kildare	x	x	x	x	5	x	x	1	x	x	3.0
Navan, Co. Meath	1	x	4	2	4	x	4	2	x	1	2.8
New Ross, Co. Wexford	2	x	4	4	3	5	x	1	x	2	3.2
Tipperary	x	x	6	4	4	x	x	2	x	x	4.0
Trim, Co. Meath	1	x	3	3	4	x	x	x	x	1	2.8
Westport, Co. Mayo	x	x	2	2	4	8	3	2	x	x	3.5
Wicklow	x	x	x	x	x	x	x	x	x	x	-
Mean	1.2	-	4.3	3.8	3.9	6.7	3.1	1.5	-	1.4	-
Standard Deviation	0.4	-	1.8	1.7	0.7	1.5	0.7	0.5	-	0.5	-
Range	1-2	-	2-9	2-7	3-5	5-8	2-4	1-2	-	1-2	-

Table A.8: Borough and Town Council Clickpath Combined with County Councils

Planning Authority	Task 2	Task 3A	Task 3B	Task 4A	Task 4B	Task 5	Task 9A	Task 9B	Number of Tasks	Average	Relevant County Council	Difference
Borough Councils												
Clonmel	x	x	x	4	x	x	x	x	1	4	2.7	+1.3
Kilkenny	2	5	7	3	5	4	0	2	8	3.5	2.8	+0.7
Wexford	1	x	x	2	x	1	0	1	4	1.3	2.3	-1.0
Town Councils (Urban District Councils UDCs)												
Arklow, Co Wicklow*	x	5	3	3	x	x	x	x	3	3.7	2.5	+1.2
Athy, Co. Kildare	1	3	x	5	x	2	0	x	5	2.2	2.7	-0.5
Ballina, Co. Mayo*	x	2	3	4	8	3	1	x	6	3.5	1.6	+1.9
Ballinasloe, Co. Galway	x	x	x	x	x	x	1	x	1	1	2.7	-1.7
Bray, Co. Wicklow	1	5	5	3	x	x	0	x	5	2.8	2.5	+0.3
Carlow	x	2	2	5	6	2	1	x	6	3	2.7	+0.3
Carrick-on-Suir, Co. Tipperary*	x	4	x	4	x	x	x	x	2	4	2.7	+1.3
Cashel, Co. Tipperary*	x	4	x	3	x	x	x	x	2	3.5	2.7	+0.8
Castlebar, Co. Mayo*	x	2	2	4	8	3	2	x	6	3.5	1.6	+1.9
Ceannanas Mor, Kells, Co Meath	x	4	4	4	x	x	0	x	4	3	2.5	+0.5
Dungarvan, Co Waterford	x	8	6	3	x	3	0	x	5	4	2.7	+1.3
Enniscorthy, Co. Wexford*	x	x	x	3	5	x	1	x	3	3	2.3	+0.7
Naas, Co. Kildare	1	3	x	4	x	2	1	x	5	2.2	2.7	-0.5
Navan, Co. Meath	x	4	2	4	x	4	0	x	5	2.8	2.5	+0.3
New Ross, Co. Wexford	x	4	4	1	5	x	1	x	5	3	2.3	+0.7
Tipperary*	x	6	4	4	x	x	2	x	4	4	2.7	+1.3
Trim, Co. Meath	x	3	3	4	x	x	0	x	4	2.5	2.5	0
Westport, Co. Mayo*	x	2	2	4	8	3	2	x	6	3.5	1.6	+1.9
Wicklow*	x	x	x	x	x	x	x	x	0	-	2.5	-2.5
Average	1.2	3.9	3.6	3.6	6.4	2.7	0.7	1.5	4.1	-	2.4	0.5

Table A.9: Local Authority Accessibility Results: Homepage

Local Authority	Priority 1	Errors	Instances	Priority 2	Errors	Instances	Priority 3	Errors	Instances	Pages	Number of Errors	Number of Instances
County Councils												
Carlow	1	1	30	1	5	131	1	4	30	1	10	191
Dun Laoghaire/ Rathdown	1	3	77	1	5	73	1	4	37	3 (frames)	12	187
Fingal	0	0	0	1	1	1	1	1	1	1	2	2
Galway	1	2	90	1	6	167	1	5	51	2 (splash)	13	308
Kildare	0	0	0	1	2	3	1	1	4	1	3	7
Kilkenny	1	2	12	1	5	41	1	3	87	4 (frames)	10	140
Mayo	0	0	0	1	1	1	1	1	1	1	2	2
Meath	1	2	127	1	5	199	1	4	62	1	11	388
Roscommon	1	1	2	1	4	74	1	3	16	2 (splash)	8	92
South Dublin	1	1	2	1	5	24	1	4	15	1	10	41
South Tipperary	1	1	5	1	3	29	1	2	32	1	6	66
Waterford	1	2	31	1	5	103	1	4	60	3 (frames)	11	194
Wexford	1	4	50	1	6	84	1	3	33	1	13	167
Wicklow	1	2	8	1	3	60	1	3	37	5 (frames)	8	105
City Councils												
Dublin	0	0	0	1	1	1	1	2	4	1	3	5
Galway	1	1	20	1	5	116	1	3	32	2 (splash)	9	168
Waterford	1	1	33	1	3	76	1	3	28	1	7	137
Borough Councils												
Kilkenny	1	2	5	1	5	47	1	3	55	4 (frames)	10	107
Wexford	1	3	38	1	3	172	1	4	28	4 (frames)	10	238
Town Councils												
Athy, Co. Kildare	1	1	40	1	1	76	1	3	22	1	5	138
Ballinasloe, Co. Galway	1	1	2	1	2	8	1	3	21	1	6	31
Bray, Co. Wicklow	0	0	0	0	0	0	0	0	0	1	0	0
Carlow	1	1	7	1	2	36	1	2	11	1	5	54
Ceannanas Mor, Kells, Co. Meath	0	0	0	1	2	2	1	2	2	1	4	4
Dungarvan, Co. Waterford	1	1	29	1	4	117	1	4	68	1	9	214

Naas, Co. Kildare	1	2	21	1	2	61	1	3	27	1	7	109
Navan, Co. Meath	1	2	7	1	3	22	1	3	14	4 (frames)	8	43
New Ross, Co. Wexford	0	0	0	0	0	0	1	1	6	1	1	6
Trim, Co. Meath	1	2	6	1	3	21	1	3	19	4 (frames)	8	46
Total	22	5/6	642	27	10/11	1745	28	5/5	803	55	-	-
Mean		1.3	22.1	0.9	3.2	60.2	1.0	2.8	27.7	1.9	-	-

Table A.10: Local Authority Accessibility Results: Planning Main Page

Local Authority	Priority 1	Errors	Instances	Priority 2	Errors	Instances	Priority 3	Errors	Instances	Pages	Number of Errors	Number of Instances
County Councils												
Carlow											-	-
Dun Laoghaire/ Rathdown	1	3	78	1	5	158	1	4	64	4	12	300
Fingal	0	0	0	1	3	15	1	1	8	3	4	23
Galway	1	2	116	1	6	293	1	5	84	3	13	493
Kildare	0	0	0	1	2	6	1	1	8	2	3	14
Kilkenny	1	2	20	1	5	68	1	3	120	6	10	208
Mayo	0	0	0	1	1	1	1	1	1	2	2	2
Meath	1	2	130	1	6	235	1	4	91	2	12	456
Roscommon	1	1	1	1	4	53	1	3	6	3	8	60
South Dublin	1	1	2	1	5	27	1	4	19	2	10	48
South Tipperary	1	1	10	1	3	67	1	3	86	2	7	163
Waterford	1	2	62	1	5	219	1	4	129	4	11	410
Wexford	1	4	91	1	6	139	1	3	51	2	13	281
Wicklow	1	3	11	1	3	75	1	4	47	5	10	133
City Councils												
Dublin	0	0	0	1	2	4	1	2	10	3	4	14
Galway	1	2	80	1	5	339	1	3	73	4	10	492
Waterford	1	1	64	1	4	263	1	3	54	2	8	381
Borough Councils												
Kilkenny	1	2	6	1	5	84	1	3	85	6	10	175
Wexford	1	3	57	1	3	262	1	4	43	5	10	362
Town Councils												
Athy, Co. Kildare	1	1	70	1	1	112	1	3	33	2	5	215
Ballinasloe, Co. Galway											-	-
Bray, Co. Wicklow	0	0	0	0	0	0	1	1	1	2	1	1
Carlow											-	-
Ceannanas Mor, Kells, Co. Meath											-	-
Dungarvan, Co. Waterford											-	-
Naas, Co. Kildare	1	2	65	1	3	91	1	3	53	2	8	209
Navan, Co. Meath												-
New Ross, Co. Wexford												-
Trim, Co. Meath												-
Total	16	2/6	863	20	8/10	2511	21	5/5	1066	66	-	-

Table A.11: Local Authority Accessibility Results: Development Plan Chapter

Local Authority	Priority 1	Errors	Instances	Priority 2	Errors	Instances	Priority 3	Errors	Instances	Pages	Number of Errors	Number of Instances
County Councils												
Carlow	1	1	74	1	5	170	1	4	54	2	10	298
Dun Laoghaire/ Rathdown	1	3	81	1	5	187	1	4	70	6	12	338
Fingal	1	2	3	1	3	16	1	2	21	4	7	40
Galway	1	2	114	1	6	192	1	5	81	4	13	387
Kildare	0	0	0	1	3	22	1	1	12	3	4	34
Kilkenny	1	2	25	1	5	135	1	4	212	14	11	372
Mayo	0	0	0	1	2	10	1	2	7	2	4	17
Meath	1	3	130	1	6	267	1	4	77	6	13	474
Roscommon	1	1	2	1	5	88	1	4	29	3	10	119
South Dublin	1	1	2	1	5	88	1	4	29	2	10	298
South Tipperary	1	1	5	1	3	29	1	2	32	1	6	66
Waterford	1	2	122	1	4	394	1	4	228	6	10	744
Wexford	1	4	164	1	6	766	1	3	90	4	13	1020
Wicklow	1	2	10	1	4	116	1	3	47	7	9	173
City Councils												
Dublin	0	0	0	1	2	2	1	2	20	3	4	22
Galway	1	1	24	1	5	232	1	3	52	2	9	308
Waterford	1	1	33	1	4	116	1	3	32	1	8	181
Borough Councils												
Kilkenny	1	2	13	1	5	108	1	3	149	12	10	270
Wexford												
Town Councils												
Athy, Co. Kildare	1	1	86	1	2	125	1	3	42	3	6	253
Ballinasloe, Co. Galway												
Bray, Co. Wicklow												
Carlow	1	1	36	1	2	120	1	2	27	2	5	183
Ceannanas Mor, Kells, Co. Meath												
Dungarvan, Co. Waterford	1	1	179	1	4	582	1	4	336	6	9	1097
Naas, Co. Kildare	1	2	55	1	4	138	1	3	56	3	9	249
Navan, Co. Meath												
New Ross, Co. Wexford												
Trim, Co. Meath	1	2	23	1	5	359	1	3	28	8	10	410
Total	20	5/6	1181	23	10/10	4262	23	5/5	1731	104	-	-

Table A.12: Local Authority Accessibility Results: Development Plan Map

Local Authority	Priority 1	Errors	Instances	Priority 2	Errors	Instances	Priority 3	Errors	Instances	Pages	Number of Errors	Number of Instances
County Councils												
Carlow												
Dun Laoghaire/ Rathdown	1	4	86	1	5	273	1	4	143	10	13	502
Fingal	1	1	3	1	4	16	1	3	24	5	8	43
Galway	1	2	115	1	6	221	1	5	84	4	13	420
Kildare												
Kilkenny	1	2	26	1	5	98	1	4	142	10	11	266
Mayo												
Meath	1	3	130	1	6	268	1	4	94	7	13	492
Roscommon												
South Dublin	1	1	2	1	7	48	1	4	44	4	12	94
South Tipperary												
Waterford												
Wexford												
Wicklow												
City Councils												
Dublin												
Galway	1	3	44	1	5	237	1	4	71	6	12	352
Waterford												
Borough Councils												
Kilkenny	1	2	12	1	5	84	1	3	95	9	10	191
Wexford												
Town Councils												
Athy, Co. Kildare	1	1	86	1	2	129	1	3	62	3	6	277
Ballinasloe, Co. Galway												
Bray, Co. Wicklow												
Carlow												
Ceannanas Mor, Kells, Co. Meath												
Dungarvan, Co. Waterford	1	1	119	1	4	409	1	4	236	4	9	764

Naas, Co. Kildare												
Navan, Co. Meath												
New Ross, Co. Wexford												
Trim, Co. Meath	1	2	21	1	5	29	1	3	25	8	10	75
Total	11	5/6	644	11	9/10	1812	11	5/5	1020	70	-	-

Table A.13: Local Authority Accessibility Results: Planning Application

Local Authority	Priority 1	Errors	Instances	Priority 2	Errors	Instances	Priority 3	Errors	Instances	Pages	Number of Errors	Number of Instances
County Councils												
Carlow	1	1	45	1	6	181	1	4	55	3	11	281
Dun Laoghaire/ Rathdown	1	3	84	1	5	1179	1	4	111	6	12	1374
Fingal	0	0	0	1	5	958	1	3	40	4	8	998
Galway	1	2	90	1	6	181	1	5	80	6	13	351
Kildare	0	0	0	1	5	177	1	4	19	7	9	196
Kilkenny	1	2	14	1	5	75	1	4	114	6	11	203
Mayo	0	0	0	1	1	1	1	2	2	3	3	3
Meath	1	3	138	1	6	404	1	4	110	8	13	652
Roscommon	1	1	5	1	5	641	1	3	124	4	9	770
South Dublin	1	1	4	1	4	41	1	5	36	4	10	81
South Tipperary	1	1	6	1	6	62	1	4	42	2	11	110
Waterford	1	2	45	1	6	144	1	4	81	7	12	270
Wexford	1	4	50	1	7	73	1	4	51	3	15	174
Wicklow	1	3	26	1	6	125	1	5	72	8	14	223
City Councils												
Dublin	1	1	1	1	5	23	1	3	33	6	9	57
Galway	1	1	24	1	6	203	1	4	46	3	11	273
Waterford	1	1	46	1	6	127	1	5	55	3	12	228
Borough Councils												
Kilkenny	1	2	8	1	6	74	1	4	77	6	12	159
Wexford	1	3	41	1	4	179	1	4	41	5	11	261
Town Councils												
Athy, Co. Kildare	1	1	70	1	4	174	1	4	15	8	9	259
Ballinasloe, Co. Galway	1	1	4	1	2	20	1	3	57	3	6	81
Bray, Co. Wicklow	1	1	16	1	6	47	1	4	26	4	11	89
Carlow												
Ceannanas Mor, Kells, Co. Meath												
Dungarvan, Co. Waterford	1	1	119	1	4	378	1	4	218	4	9	715
Naas, Co. Kildare	1	2	21	1	5	235	1	4	42	6	11	298
Navan, Co. Meath												

New Ross, Co. Wexford	0	0	0	0	0	0	1	1	12	2	14	281
Trim, Co. Meath												
Total	21	5/6	857	24	10/10	5702	25	5/5	1559	121	-	-

Table A.14: Local Authority Accessibility Results: Planning Application Maps

Local Authority	Priority 1	Errors	Instances	Priority 2	Errors	Instances	Priority 3	Errors	Instances	Pages	Number of Errors	Number of Instances
County Councils												
Carlow	1	2	53	1	6	188	1	4	60	4	12	301
Dun Laoghaire/ Rathdown												
Fingal												
Galway	1	2	90	1	6	181	1	5	80	6	13	351
Kildare												
Kilkenny												
Mayo	0	0	0	1	3	5	1	3	5	4	6	10
Meath												
Roscommon												
South Dublin	1	2	14	1	6	75	1	5	57	8	13	146
South Tipperary												
Waterford												
Wexford	1	4	63	1	7	95	1	5	42	5	16	200
Wicklow												
City Councils												
Dublin												
Galway												
Waterford												
Borough Councils												
Kilkenny												
Wexford												
Town Councils												
Athy, Co. Kildare												
Ballinasloe, Co. Galway												
Bray, Co. Wicklow												
Carlow												
Ceannanas Mor, Kells, Co. Meath												
Dungarvan, Co. Waterford												
Naas, Co. Kildare												
Navan, Co. Meath												

New Ross, Co. Wexford												
Trim, Co. Meath												
Total	4	4/6	220	5	8/10	544	5	5/5	244	27	-	-

Table A.15: Local Authority Accessibility Results: Planning Application Form

Local Authority	Priority 1	Errors	Instances	Priority 2	Errors	Instances	Priority 3	Errors	Instances	Pages	Number of Errors	Number of Instances
County Councils												
Carlow	1	1	24	1	5	101	1	4	26	3	10	151
Dun Laoghaire/ Rathdown	1	3	98	1	5	181	1	4	73	5	12	352
Fingal												
Galway	1	2	137	1	6	397	1	5	107	4	13	641
Kildare	0	0	0	1	3	31	1	1	12	3	4	43
Kilkenny	1	2	20	1	5	68	1	3	120	6	10	208
Mayo	0	0	0	1	1	2	1	1	1	3	2	3
Meath	1	2	132	1	6	254	1	4	98	4	12	484
Roscommon												
South Dublin	1	1	2	1	5	53	1	4	6	2	10	61
South Tipperary	1	1	15	1	4	67	1	3	96	3	8	178
Waterford												
Wexford	1	4	88	1	6	131	1	5	81	2	15	300
Wicklow												
City Councils												
Dublin	0	0	0	1	3	5	1	2	29	5	5	34
Galway	1	2	84	1	6	574	1	3	122	5	11	780
Waterford	1	1	64	1	4	263	1	3	54	2	8	381
Borough Councils												
Kilkenny	1	2	6	1	5	104	1	3	109	7	10	219
Wexford	1	3	38	1	3	172	1	4	28	1	10	238
Town Councils												
Athy, Co. Kildare	1	1	63	1	2	103	1	3	39	2	6	205
Ballinasloe, Co. Galway												
Bray, Co. Wicklow												
Carlow	1	1	13	1	2	75	1	2	21	2	5	109
Ceannanas Mor, Kells, Co. Meath												
Dungarvan, Co. Waterford	1	1	89	1	4	291	1	4	168	3	9	548
Naas, Co. Kildare	1	2	157	1	2	97	1	3	65	2	7	319
Navan, Co. Meath												

New Ross, Co. Wexford												
Trim, Co. Meath												
Total	16	5/6	1030	19	9/10	2969	19	5/5	1255	64	-	-

Table A.16: Local Authority Accessibility Results: Planning Application Fees

Local Authority	Priority 1	Errors	Instances	Priority 2	Errors	Instances	Priority 3	Errors	Instances	Pages	Number of Errors	Number of Instances
County Councils												
Carlow	1	1	36	1	5	360	1	4	40	2	10	436
Dun Laoghaire/ Rathdown	1	3	78	1	6	203	1	4	66	5	13	347
Fingal	0	0	0	1	3	15	1	1	8	5	4	23
Galway	1	2	161	1	6	823	1	5	141	5	13	1125
Kildare	0	0	0	1	3	31	1	1	12	3	4	43
Kilkenny												
Mayo	0	0	0	1	1	1	1	1	1	2	2	2
Meath	1	2	127	1	5	199	1	4	62	2	11	388
Roscommon	1	1	1	1	4	171	1	3	15	4	8	187
South Dublin	1	1	2	1	5	27	1	4	19	2	10	48
South Tipperary	1	1	15	1	4	67	1	3	96	3	8	178
Waterford	1	2	92	1	4	306	1	4	179	3	10	577
Wexford	1	4	132	1	6	324	1	3	74	3	13	530
Wicklow												
City Councils												
Dublin	0	0	0	1	2	5	1	3	29	5	5	34
Galway	1	1	24	1	6	351	1	3	81	3	10	456
Waterford	1	1	95	1	4	480	1	3	80	3	8	655
Borough Councils												
Kilkenny	1	2	6	1	5	107	1	3	116	7	10	229
Wexford												
Town Councils												
Athy, Co. Kildare	1	1	63	1	2	103	1	3	39	2	6	205
Ballinasloe, Co. Galway												
Bray, Co. Wicklow												
Carlow												
Ceannanas Mor, Kells, Co. Meath												
Dungarvan, Co. Waterford												
Naas, Co. Kildare												
Navan, Co. Meath												

New Ross, Co. Wexford												
Trim, Co. Meath												
Total	13	5/6	832	17	8/10	3573	17	5/5	1058	59	-	-

Table A.17: Local Authority Accessibility Results: Information on Objecting Process

Local Authority	Priority 1	Errors	Instances	Priority 2	Errors	Instances	Priority 3	Errors	Instances	Pages	Number of Errors	Number of Instances
County Councils												
Carlow	1	1	45	1	5	169	1	4	43	2	10	257
Dun Laoghaire/ Rathdown	1	3	78	1	5	164	1	4	72	6	12	314
Fingal												
Galway	1	2	135	1	6	433	1	5	108	4	13	676
Kildare												
Kilkenny												
Mayo	0	0	0	1	1	4	1	1	1	3	2	5
Meath	1	3	133	1	6	294	1	4	99	7	13	526
Roscommon	1	1	4	1	4	127	1	3	20	3	8	151
South Dublin	1	1	2	1	5	30	1	4	23	3	10	55
South Tipperary												
Waterford	1	2	92	1	4	306	1	4	179	5	10	577
Wexford												
Wicklow												
City Councils												
Dublin	0	0	0	1	2	6	1	2	29	5	4	35
Galway	1	2	80	1	5	339	1	3	73	5	10	492
Waterford												
Borough Councils												
Kilkenny												
Wexford												
Town Councils												
Athy, Co. Kildare												
Ballinasloe, Co. Galway												
Bray, Co. Wicklow												
Carlow	1	1	13	1	2	75	1	2	21	2	5	109
Ceannanas Mor, Kells, Co. Meath												
Dungarvan, Co. Waterford												
Naas, Co. Kildare												
Navan, Co. Meath												

New Ross, Co. Wexford												
Trim, Co. Meath												
Total	9	4/6	582	11	7/10	1947	11	5/5	668	45	-	-

Table A.18: Local Authority Accessibility Results: Information on Appeals Process

Local Authority	Priority 1	Errors	Instances	Priority 2	Errors	Instances	Priority 3	Errors	Instances	Pages	Number of Errors	Number of Instances
County Councils												
Carlow	1	1	45	1	5	169	1	4	43	2	10	257
Dun Laoghaire/ Rathdown	1	3	78	1	5	164	1	4	72	6	12	314
Fingal												
Galway	1	2	135	1	6	456	1	5	109	4	13	700
Kildare												
Kilkenny												
Mayo	0	0	0	1	1	4	1	1	1	3	2	5
Meath	1	3	133	1	6	316	1	4	99	7	13	548
Roscommon												
South Dublin	1	1	2	1	5	30	1	4	23	3	10	55
South Tipperary	1	1	15	1	4	67	1	3	96	3	8	178
Waterford	1	2	122	1	4	117	1	4	72	6	10	311
Wexford	1	4	132	1	6	195	1	3	69	3	13	396
Wicklow												
City Councils												
Dublin												
Galway	1	2	84	1	6	574	1	3	122	5	11	780
Waterford												
Borough Councils												
Kilkenny												
Wexford												
Town Councils												
Athy, Co. Kildare												
Ballinasloe, Co. Galway												
Bray, Co. Wicklow												
Carlow	1	1	13	1	2	75	1	2	21	2	5	109
Ceannanas Mor, Kells, Co. Meath												
Dungarvan, Co. Waterford												
Naas, Co. Kildare												
Navan, Co. Meath												

New Ross, Co. Wexford												
Trim, Co. Meath												
Total	10	5/6	759	11	8/10	2167	11	5/5	727	44	-	-

Table A.19: Local Authority Accessibility Results: Planning Contact Details

Local Authority	Priority 1	Errors	Instances	Priority 2	Errors	Instances	Priority 3	Errors	Instances	Pages	Number of Errors	Number of Instances
County Councils												
Carlow	1	1	55	1	6	261	1	4	49	3	11	365
Dun Laoghaire/ Rathdown	1	3	78	1	5	158	1	4	64	4	12	300
Fingal												
Galway	1	2	116	1	6	295	1	5	84	3	13	495
Kildare	0	0	0	1	2	6	1	1	8	2	3	14
Kilkenny	1	2	12	1	5	58	1	3	110	5	10	180
Mayo	0	0	0	1	1	2	1	1	1	2	2	3
Meath	1	2	127	1	5	270	1	4	65	2	11	462
Roscommon	1	1	4	1	4	127	1	3	20	1	8	151
South Dublin	1	1	2	1	5	30	1	4	36	3	10	68
South Tipperary	1	1	15	1	3	65	1	3	95	3	7	175
Waterford	1	2	63	1	5	220	1	4	130	4	11	413
Wexford	1	4	91	1	6	139	1	3	51	2	13	281
Wicklow	1	3	11	1	3	75	1	4	47	6	10	133
City Councils												
Dublin												
Galway	1	2	80	1	5	339	1	3	73	4	10	492
Waterford	1	1	64	1	4	263	1	3	54	2	8	381
Borough Councils												
Kilkenny												
Wexford	1	3	41	1	3	785	1	4	54	5	10	880
Town Councils												
Athy, Co. Kildare												
Ballinasloe, Co. Galway												
Bray, Co. Wicklow												
Carlow												
Ceannanas Mor, Kells, Co. Meath												
Dungarvan, Co. Waterford												
Naas, Co. Kildare												
Navan, Co. Meath												

New Ross, Co. Wexford												
Trim, Co. Meath												
Total	14	5/6	759	16	9/11	3093	16	5/5	941	51	-	-

Table A.20: Local Authority Accessibility Results: Contact Details

Local Authority	Priority 1	Errors	Instances	Priority 2	Errors	Instances	Priority 3	Errors	Instances	Pages	Number of Errors	Number of Instances
County Councils												
Carlow	1	1	55	1	5	260	1	4	49	3	10	364
Dun Laoghaire/ Rathdown	1	3	77	1	5	73	1	4	37	3	12	187
Fingal	0	0	0	1	1	1	1	1	1	1	2	2
Galway	1	2	112	1	6	351	1	5	84	3	13	547
Kildare	0	0	0	1	2	5	1	1	9	2	3	14
Kilkenny	1	2	12	1	5	58	1	3	111	5	10	181
Mayo	0	0	0	1	1	1	1	1	1	1	2	2
Meath	1	2	127	1	5	199	1	4	62	1	11	388
Roscommon	1	1	2	1	4	170	1	3	34	3	8	206
South Dublin	1	1	2	1	5	24	1	4	15	1	10	41
South Tipperary	1	1	10	1	3	47	1	3	63	2	7	120
Waterford	1	2	31	1	5	103	1	4	60	3	11	194
Wexford	1	4	50	1	6	84	1	3	33	1	13	167
Wicklow	1	2	8	1	3	77	1	3	38	6	8	123
City Councils												
Dublin	0	0	0	1	1	1	1	2	4	1	3	5
Galway	1	1	20	1	5	116	1	3	32	2	9	168
Waterford	1	1	33	1	3	76	1	3	28	1	7	137
Borough Councils												
Kilkenny	1	2	5	1	5	47	1	3	55	4	10	107
Wexford	1	3	38	1	3	172	1	4	28	4	10	238
Town Councils												
Athy, Co. Kildare	1	1	40	1	1	76	1	3	22	1	5	138
Ballinasloe, Co. Galway												
Bray, Co. Wicklow	0	0	0	0	0	0	0	0	0	1	0	0
Carlow	1	1	10	1	2	94	1	2	20	2	5	124
Ceannanas Mor, Kells, Co. Meath	0	0	0	1	2	2	1	2	2	1	4	4
Dungarvan, Co. Waterford	1	1	29	1	4	117	1	4	68	1	9	214
Naas, Co. Kildare	1	2	36	1	2	89	1	3	40	2	7	165
Navan, Co. Meath	1	2	7	1	3	22	1	3	14	4	8	43

New Ross, Co. Wexford	0	0	0	0	0	0	1	1	6	1	1	6
Trim, Co. Meath	1	2	6	1	3	21	1	3	19	4	8	46
Total	21	5/5	710	26	10/11	2286	27	5/5	935	64	-	-

Appendix B: Questionnaire Email Contacts

Table B.1: First Contact Email to a Specified Contact in a Community Group

From: Mairéad de Róiste
To: respondent@respondent'saddress.com
Sent: Wednesday, September 14, 2005 12:12 PM
Subject: Planning survey

Mr Paul Mulligan
Community Group
Street, Town, Co. County.

Dear Mr Mulligan,

I am undertaking a short online survey about the planning system in Ireland (e.g. planning permission and development plans). Your organisation (Community Group) has been contacted because you are listed on the Active Links Community website as a Community Group and many of these groups have an interest in planning issues especially in their local area.

I would appreciate it if you would fill out the online survey. However, if another member of your voluntary group is better suited to deal with the planning system, I would be very grateful if you could forward this email to them.

The online survey will only take approximately five minutes to complete. The survey asks questions about your need of planning services, local authority websites and Internet experience. The results will be used to identify the needs of users of the planning system. Responses from all users of planning information are needed. Identifying the characteristics of those who do not use the planning system is just as important as determining the characteristics of regular users. Responses will be
anonymous; your name will not appear anywhere on the survey.

The web address for the survey is

http://www.tcd.ie/geography/survey

The survey will close on the 30th of September 2005.

The results of this survey will be made available to local authorities to help improve the Irish planning system. It also represents an important part of my PhD thesis and your time and input is, therefore, greatly appreciated. Should you wish to contact me about this survey or my research, I am available at this email address or can be contacted via the details given below.

I very much appreciate your assistance in helping me carry out this research.

Thank you very much for your time,

Mairéad de Róiste

Geography Department, Museum Building,
Trinity College, Dublin 2.
Office: 01 608 2359
Email: rochema@tcd.ie

My supervisor (Dr Krysia Rybaczuk) can also contacted through the department, by phone (01) 608 1576 or by email krybczuk@tcd.ie.

Table B.2: Second Contact Email to an Unspecified Contact in a Community Group

From: Mairéad de Róiste
Sent: 28 September 2005 15:12
To: respondent@respondent'saddress.com
Subject: Planning survey (reminder)

Community Group
Street, Town, Co. County.

Dear Sir or Madam,

About two weeks ago I sent you a link to a survey via email. The survey asks a number of questions about the planning system in Ireland (planning permission, development plans, etc.). Your organisation (Community Group) was contacted because you are listed on the Active Links Community website as a Community Group and many of these groups have an interest in planning issues especially in their local area.

If you have not already done so, I would appreciate it if you would fill out the online survey. However, if another member of your voluntary group is better suited to deal with the planning system, I would be very grateful if you could forward this email to them.

The online survey will only take approximately ten minutes to complete. The survey asks questions about your need of planning services, local authority websites and Internet experience. The results will be used to identify the needs of users of the planning system. Responses from all users of planning information are needed. Identifying the characteristics of those who do not use the planning system is just as important as determining the characteristics of regular users. Responses will be anonymous; your name will not appear anywhere on the survey.

The web address for the survey is

http://www.tcd.ie/geography/survey

(If you encounter problems linking to the address, please cut and paste the address into the address line of your Internet/Web browser)

The survey will close on the 7th of October 2005.

The results of this survey will be made available to local authorities to help improve the Irish planning system. It also represents an important part of my PhD thesis and your time and input is, therefore, greatly appreciated. Should you wish to contact me about this survey or my research, I am available at this email address or can be contacted via the details given below.

I very much appreciate your assistance in helping me carry out this research.

Thank you very much for your time,

Mairéad de Róiste

Geography Department, Museum Building,
Trinity College, Dublin 2.
Office: 01 608 2359
Email: rochema@tcd.ie

My supervisor (Dr Krysia Rybaczuk) can also contacted through the department, by phone (01) 608 1576 or by email krybczuk@tcd.ie.

Survey address: http://www.tcd.ie/geography/survey

Table B.3: Third and Final Contact Email to an Unspecified Contact in a Community Group

From: Mairéad de Róiste
Sent: 05 October 2005 15:37
To: respondent@respondent'saddress.com
Subject: Planning survey (final reminder)

Community Group
Street, Town, Co. County.

Dear Sir or Madam,

I recently sent you a link to an online survey which asks a number of questions about the planning system in Ireland (planning permission, development plans, etc.). This is the final reminder email and you will not be contacted about this survey again.

If you have already completed and submitted the survey, I want to thank you for taking the time and for your input. The results of this survey will be made available to local authorities to help improve the Irish planning system. It also represents an important part of my PhD thesis. If you have not yet had time to complete the questionnaire, I would greatly appreciate if you could do so as soon as possible. However, if another member of your organisation is better suited to deal with the planning system, I would be very grateful if you could forward this email to them.

The online survey will only take approximately ten minutes to complete. The survey asks questions about your need of planning services, local authority websites and Internet experience. The results will be used to identify the needs of users of the planning system. Responses from all users of planning information are needed. Identifying the characteristics of those who do not use the planning system is just as important as determining the characteristics of regular users. Responses will be anonymous; your name will not appear anywhere on the survey and responses cannot be traced to a particular organisation or individual.

To access the web survey please click on the link below

http://www.tcd.ie/geography/survey

(If you encounter problems linking to the address, please cut and paste the address into the address line of your Internet/Web browser)

The survey will close on the 7th of October 2005.

Should you wish to receive a copy of the report or to contact me about this survey or my research, I am available at this email address or can be contacted via the details given below.

I very much appreciate your assistance in helping me carry out this research.

Thank you very much for your time,

Mairéad de Róiste

Geography Department, Museum Building,
Trinity College, Dublin 2.
Office: 01 608 2359
Email: rochema@tcd.ie

My supervisor (Dr Krysia Rybaczuk) can also contacted through the department, by phone (01) 608 1576 or by email krybczuk@tcd.ie.

Survey address: http://www.tcd.ie/geography/survey

Appendix C: Questionnaire Code

Index.html

```
<html>
<head>
<title>Survey Introduction</title>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
<link rel="stylesheet" href="surveysettings.css">
</head>

<body bgcolor="#FFFFFF" text="#000000">
<h2>Thank you for agreeing to fill out my online survey.</h2>
<p>This survey looks at  Planning services on the Internet in Ireland
  and should take <b>approximately ten minutes </b>to complete. </p>
<p>The survey asks questions about your need of planning services, local authority websites
and Internet experience. The results will be used to identify the needs of users of the planning
system and will be made available to local authorities to help improve their provision of online
planning services. Responses from all users of planning information are needed because
identifying the characteristics of those who do not use the planning system is just as important
as determining the characteristics of regular users.</p>
<p>The questionnaire will close on the <b>30th of October 2005</b>. Responses
  will be <strong>anonymous</strong>; your name will not appear anywhere on the
survey.</p>
<p>It is hoped that this survey will be used to improve the Irish planning system. It also
represents an important part of my PhD thesis in the Department of Geography, Trinity College
and your time and input is, therefore, greatly appreciated. Should you wish to contact me about
this survey or would like further details about my research, I am available at <a
href="mailto:rochema@tcd.ie">rochema@tcd.ie</a> or can be contacted via the details given
below.<br>
</p>
<p><b>Thank you again for agreeing to fill out the questionnaire.</b></p>
<p>Mair&eacute;ad de R&oacute;iste </p>
<p>
<form name="takeQuestionnaire" method="post" action="sectionA_Planning.html">
  <p>
    <input type="submit" name="Submit" value="Take the Questionnaire">
  </p>
  <p>  Please click on the button above to fill in the questionnaire. <br>
  </p>
</form>
<p> </p>
<p>My <strong>contact details</strong> are;</p>
<p>Mair&eacute;ad de R&oacute;iste, Geography Department, Museum Building, Trinity
College, Dublin 2. <br>
Office: 01 608 2359 <br>
Email: <a href="mailto:rochema@tcd.ie">rochema@tcd.ie</a></p>
<p>My supervisor (Dr Krysia Rybaczuk) can also contacted through the department, by phone
(01) 608 1576 or by email <a href="mailto:krybczuk@tcd.ie">krybczuk@tcd.ie</a>. </p>
<p>  </p>
</body>
</html>
```

SectionA_Planning.html

```
<html>
<head>
<title>Section A: Planning Experience</title>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
<link rel="stylesheet" href="surveysettings.css">
<SCRIPT LANGUAGE="JavaScript">
<!-- Begin
function popUp(URL) {
day = new Date();
id = day.getTime();
eval("page" + id + " = window.open(URL, '" + id + "',
'toolbar=0,scrollbars=1,location=0,statusbar=0,menubar=0,resizable=1,width=500,height=300
');");
}
// End -->
</script>
</head>

<body><table border="0" width="100%"><tr><td><h2>Section A: Planning
Experience</h2></td>
   <td>
    <div align="right">
     <table border="0">
      <tr>
       <td>
        <table width="85" border ="1">
         <tr>
          <td bgcolor="blue"> </td>
          <td> </td>
          <td> </td>
          <td> </td>
         </tr>
        </table>
       </td>
       <td>[Section 1 of 4] </td>
      </tr>
     </table>
    </div>
   </td></tr></table>
<form name="PlanningExperience" method="POST" action="sectionB_LocalAuth.php">
<p class="question"><strong><font size="+1">1</font></strong><b><font size =+1>. Do
you know what an application
   for planning permission is? </font></b>[Please select <b><u>one</u></b> answer
 by clicking the appropriate circle] </p>
<p class="indent">
    <input type="radio" name="A1awareApp" value="1">
    Yes<br>
    <input type="radio" name="A1awareApp" value="2">
    No<br>
    <input type="radio" name="A1awareApp" value="3">
    Not sure</p>
 <p class="question"><b><font size="+1">2</font><font size="+1">. Have you <u>looked
for</u> planning permission in the last five years?</font></b> <span class="indent">(<A
HREF="javascript:popUp('http://www.tcd.ie/geography/survey/definitions.html#PlanApp')"><fo
nt size="-1">Click Here for an explanation of <b>planning
permission</b></font></A>)</span> [Please select <b><u>one</u></b> answer
   by clicking the appropriate circle]
 <p class="indent">
   <input type="radio" name="A2permission" value="1">
   Yes<br>
   <input type="radio" name="A2permission" value="2">
```

```
   No<img src="arrow.jpg" width="22" height="13"> [<u><b>If No</b></u>, <a
href="#q3">please
   Click Here to go to Question 3 </a>] </p>
  <p class="subquestion"><b><font size =+1>A. Did you  visit the local authority website to
help you look for planning permission or for information about planning
permission?</font></b> <span class="question"><span class="indent">(<A
HREF="javascript:popUp('http://www.tcd.ie/geography/survey/definitions.html#website')"><fo
nt size="-1">Click Here for an explanation of <b>website</b></font></A>)</span></span>
[Please select
  <b><u>one</u></b> answer by clicking the appropriate circle]</p>
  <p class="subindent"><table border="0">
   <tr>
    <td valign="top">
     <input type="radio" name="A2AvisitSite" value="1">
   Yes</td>
    <td> </td>
    <td> </td>
   </tr>
   <tr>
    <td valign="top">
     <input type="radio" name="A2AvisitSite" value="2">
   No</td>
    <td valign="top">
     <img src="arrow.jpg" width="22" height="13">
    </td>
    <td>[<u><b>If No</b></u>, Please comment briefly on your answer] <br>
     <TEXTAREA NAME="A2AVisitSite_Comment" COLS=50 ROWS=3></TEXTAREA>
   <br>
     [If No, <a href="#q3">please Click Here to go to Question 3</a>] </td>
   </tr>
  </table>
<p class="subquestion"><b><font size =+1>B.
  In this instance (planning permission), why did you
   visit the local authority website?</font></b> [Please select <b><u>all</u></b> that apply
by clicking the appropriate box(es)]</p>
<p class="subindent">
  <input type="checkbox" name="A2BWhySite_submit" value="1">
  To submit a planning application<br>
  <nobr><input type="checkbox" name="A2BWhySite_download" value="1">
To download a planning application form (<A
HREF="javascript:popUp('http://www.tcd.ie/geography/survey/definitions.html#download')"><
font size="-1">Click Here for an explanation of <b>download</b></font></A>)</nobr><br>
<input type="checkbox" name="A2BWhySite_info" value="1">
   To find information about the planning application process<br>
   <input type="checkbox" name="A2BWhySite_contact" value="1">
   To find the contact details for the local authority<br>
   <input type="checkbox" name="A2BWhySite_other" value="1">
  Other, please specify <span class="indent">
  <input type="text" name="A2BWhySite_other_specify" size=60>
  </span></p>
<p class="subquestion"><b><font size =+1>C. In this instance (planning permission), were
you able to complete the purpose of your  visit to the  the local authority website?</font></b>
[Please select <b><u>one</u></b> answer by clicking the appropriate circle]</p>
<p class="subindent"><table border="0">
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   <td valign="top">
    <input type="radio" name="A2Cpurpose" value="1">
    Yes</td>
   <td> </td>
   <td> </td>
  </tr>
  <tr>
   <td valign="top">
    <input type="radio" name="A2Cpurpose" value="2">
    No</td>
   <td valign="top"> <img src="arrow.jpg" width="22" height="13"> </td>
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    <td>[<u><b>If No</b></u>, Please comment briefly on your answer] <br>
      <TEXTAREA NAME="A2Cpurpose_Comment" COLS=50 ROWS=3></TEXTAREA>
    </td>
  </tr>
</table>
<p class="subquestion"><b><font size =+1>D. <b><font size =+1>How satisfied or
dissatisfied were you with your use of the local authority's online service for </font></b>
planning permission?</font></b> <span class="question"><span class="indent">(<A
HREF="javascript:popUp('http://www.tcd.ie/geography/survey/definitions.html#online')"><font
size="-1">Click Here for an explanation of <b>online</b></font></A>)</span></span>
[Please select <b><u>one</u></b> answer by clicking the appropriate circle]</p>
<p class="subquestion">
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      <td width="20%">
        <div align="center">Satisfied</div>
      </td>
      <td width="20%">
        <div align="center">Neither Satisfied nor Dissatisfied</div>
      </td>
      <td width="20%">
        <div align="center">Dissatisfied</div>
      </td>
      <td width="20%">
        <div align="center">Extremely Dissatisfied</div>
      </td>
    </tr>
    <tr>
      <td>
        <div align="center">
          <input type="radio" name="A2Dsat" value="1">
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      <td>
        <div align="center">
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      </td>
      <td>
        <div align="center">
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        </div>
      </td>
    </tr>
  </table>
  <p class="subquestion"><b>Please comment briefly on your
satisfaction/dissatisfaction</b><br>
    <TEXTAREA NAME="A2Dsat_Comment" COLS=80 ROWS=3></TEXTAREA>
  </p>
  <a name="q3"></a><p class="question"><b><font size =+1>3</font><font size =+1>.
Have you <u>commented</u> or been involved in commenting on an application for planning
permission in the past 5 years?</font></b> [Please select
  <b><u>one</u></b> answer by clicking the appropriate circle]</p>
```

```
<p class="indent">
 <input type="radio" name="A3Object" value="1">
 Yes<br>
 <input type="radio" name="A3Object" value="2">
 No<img src="arrow.jpg"> [<u><b>If No</b></u>, <a href="#q4">please Click Here to go
to Question
 4</a>] </p>
<p class="subquestion"><b><font size =+1>A. <b><font size =+1>Did you visit the local
authority website to help you comment on an application for planning permission or for
information about commenting?</font></b> </font></b>
[Please select <b><u>one</u></b> answer by clicking the appropriate circle]</p>
<p class="subindent"><table border="0">
 <tr>
  <td valign="top">
   <input type="radio" name="A3Object_visit" value="1">
   Yes</td>
  <td> </td>
  <td> </td>
 </tr>
 <tr>
  <td valign="top">
   <input type="radio" name="A3Object_visit" value="2">
   No</td>
  <td valign="top">
   <img src="arrow.jpg" width="22" height="13">
  </td>
  <td>[<u><b>If No</b></u>, Please comment briefly on your answer] <br>
   <textarea name="A3Object_visit_Comment" cols=50 rows=3></textarea>
   <br>
   [If No, <a href="#q4">please Click Here to go to Question 4 </a>]</td>
 </tr>
</table>
<p class="subquestion"><b><font size =+1>B. In this instance (commenting on planning
permission), why did you visit the local authority website?</font></b> [Please select
<b><u>all</u></b> that apply by clicking the appropriate box(es)]</p>
      <p class="subindent">
  <input type="checkbox" name="A3Object_commentApp" value="1">
To comment on a planning application <br>
<input type="checkbox" name="A3Object_info" value="1">
To find information about commenting on a planning application<br>
<input type="checkbox" name="A3Object_contact" value="1">
To find the contact details for the local authority<br>
<input type="checkbox" name="A3Object_other" value="1">
Other, please specify <span class="indent">
<input type="text" name="A3Object_other_specify" size=60>
</span></p>
      <p class="subquestion"><b><font size =+1>C. In this instance (commenting on
planning permission), were you able to complete the purpose of your visit to the the local
authority website?</font></b> [Please select <b><u>one</u></b> answer by clicking the
appropriate circle]</p>
      <p class="subindent"><table border="0">
   <tr>
    <td valign="top">
     <input type="radio" name="A3Object_purpose" value="1">
  Yes</td>
    <td> </td>
    <td> </td>
   </tr>
   <tr>
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  No</td>
    <td valign="top"> <img src="arrow.jpg" width="22" height="13"> </td>
    <td>[<u><b>If No</b></u>, Please comment briefly on your answer] <br>
     <TEXTAREA NAME="A3Object_purpose_comment" COLS=50
ROWS=3></TEXTAREA>
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        </td>
       </tr>
      </table>
          <p class="subquestion"><b><font size =+1>D. How satisfied or dissatisfied were you
with your use of the local authority's online
   service for commenting on planning applications?</font></b> [Please select
<b><u>one</u></b> answer by clicking the appropriate circle]</p>
          <p class="subquestion"><table width="90%" border="1">
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    <div align="center">Extremely Satisfied</div>
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   <td width="20%">
    <div align="center">Satisfied</div>
   </td>
   <td width="20%">
    <div align="center">Neither Satisfied nor Dissatisfied</div>
   </td>
   <td width="20%">
    <div align="center">Dissatisfied</div>
   </td>
   <td width="20%">
    <div align="center">Extremely Dissatisfied</div>
   </td>
  </tr>
  <tr>
   <td>
    <div align="center">
     <input type="radio" name="A3Object_sat" value="1">
    </div>
   </td>
   <td>
    <div align="center">
     <input type="radio" name="A3Object_sat" value="2">
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    </div>
   </td>
  </tr>
</table>
<p class="subquestion"><b>Please comment briefly on your
satisfaction/dissatisfaction</b><br>
    <TEXTAREA NAME="A3Object_sat_comment" COLS=80 ROWS=3></TEXTAREA>
  </p>
  <a name="q4"></a><p class="question"><strong><font
size="+1">4</font></strong><b><font size =+1>. Have you <b><font size
=+1><u>viewed</u> </font></b>plans submitted for
   planning permission in the past 5 years?</font></b> [Please select <b><u>one</u></b>
  answer by clicking the appropriate circle]</p>
  <p class="indent">
   <input type="radio" name="A4viewApp" value="1">
   Yes<br>
   <input type="radio" name="A4viewApp" value="2">
```

```
   No<img src="arrow.jpg"> [<u><b>If No</b></u>, <a href="#q5">please Click Here to go
to
   Question 5 </a>] </p>

  <p class="subquestion"> <b><font size =+1>A. <b><font size =+1>Did you visit the local
authority website to view plans submitted for planning permission or for information about
viewing plans for planning permission?</font></b></font></b> [Please select
<b><u>one</u></b> answer by clicking the appropriate circle]</p>
  <p class="subindent"><table border="0">
    <tr>
      <td valign="top">
        <input type="radio" name="A4viewApp_visit" value="1">
        Yes</td>
      <td> </td>
      <td> </td>
    </tr>
    <tr>
      <td valign="top">
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      <td valign="top">
        <img src="arrow.jpg" width="22" height="13">
      </td>
      <td>[<u><b>If No</b></u>, Please comment briefly on your answer] <br>
        <textarea name="A4viewApp_visit_comment" cols=50 rows=3></textarea>
        <br>
        [If No, <a href="#q5">please Click Here to go to Question 5 </a>]</td>
    </tr>
  </table>
    <p class="subquestion">
<b><font size =+1>B. In this instance (viewing planning applications), why did you visit the
local authority website?</font></b> [Please select <b><u>all</u></b> that apply by clicking
the appropriate box(es)]</p>
    <p class="subindent">
      <input type="checkbox" name="A4viewApp_view" value="1">
  To view particular planning applications <br>
  <input type="checkbox" name="A4viewApp_lists" value="1">
  To view the decisions or status of particular planning applications<br>
  <input type="checkbox" name="A4viewApp_info" value="1">
  To find information about viewing submitted planning applications<br>
  <input type="checkbox" name="A4viewApp_contact" value="1">
  To find the contact details for the local authority<br>
  <input type="checkbox" name="A4viewApp_other" value="1">
  Other, please specify <span class="indent">
  <input type="text" name="A4viewApp_other_specify" size=60>
</span></p>
    <p class="subquestion"><b><font size =+1>C. <b><font size =+1>In this instance
(viewing planning applications), </font></b>were you able to complete the purpose of your
visit to the the local authority website?</font></b> [Please select <b><u>one</u></b>
answer by clicking the appropriate circle]</p>
    <p class="subindent"><table border="0">
      <tr>
        <td valign="top">
          <input type="radio" name="A4viewApp_complete" value="1">
      Yes</td>
        <td> </td>
        <td> </td>
      </tr>
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          <input type="radio" name="A4viewApp_complete" value="2">
      No</td>
        <td valign="top"> <img src="arrow.jpg" width="22" height="13"> </td>
        <td>[<u><b>If No</b></u>, Please comment briefly on your answer] <br>
          <TEXTAREA NAME="A4viewApp_complete_comment" COLS=50
ROWS=3></TEXTAREA>
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      </td>
     </tr>
      </table>
<p class="subquestion"><b><font size =+1>D. <b><font size =+1>How satisfied or
dissatisfied were you with your use of the local authority's online service for </font></b>
planning applications?</font></b> [Please select <b><u>one</u></b> answer by clicking
the appropriate circle]</p>
   <p class="subquestion"><table width="90%" border="1">
 <tr>
   <td width="20%">
    <div align="center">Extremely Satisfied</div>
   </td>
   <td width="20%">
    <div align="center">Satisfied</div>
   </td>
   <td width="20%">
    <div align="center">Neither Satisfied nor Dissatisfied</div>
   </td>
   <td width="20%">
    <div align="center">Dissatisfied</div>
   </td>
   <td width="20%">
    <div align="center">Extremely Dissatisfied</div>
   </td>
 </tr>
 <tr>
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     <input type="radio" name="A4viewApp_sat" value="1">
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    <div align="center">
     <input type="radio" name="A4viewApp_sat" value="5">
    </div>
   </td>
 </tr>
</table>
<p class="subquestion"><b>Please comment briefly on your
satisfaction/dissatisfaction</b><br>
    <TEXTAREA NAME="A4viewApp_sat_comment" COLS=80 ROWS=3></TEXTAREA>
 </p>
<a name="q5"></a><p class="question"><strong><font
size="+1">5</font></strong><b><font size =+1>. Do you know what a development plan
is?</font></b> [Please select <b><u>one</u></b> answer by clicking the appropriate
circle]</p>
<p class="indent">
 <input type="radio" name="A5devplanAware" value="1">
 Yes<br>
 <input type="radio" name="A5devplanAware" value="2">
 No<br>
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 <input type="radio" name="A5devplanAware" value="3">
 Not sure</p>
<p class="question"><b><font size =+1>6</font><font size =+1>. In the last 5 years, have
you made or been involved in making a <u>submission</u> to a development
plan?</font></b> <span class="indent">(<A
HREF="javascript:popUp('http://www.tcd.ie/geography/survey/definitions.html#devplan')"><fo
nt size="-1">Click Here for an explanation of <b>development plan</b></font></A>)
</span>[Please select <b><u>one</u></b> answer by clicking the appropriate circle]<br>
<p class="indent">
 <input type="radio" name="A6subDevPlan" value="1">
 Yes<br>
 <input type="radio" name="A6subDevPlan" value="2">
 No <img src="arrow.jpg" width="22" height="13"> [If No, <a href="#q7">please Click Here
to go to Question 7 </a>] </p>
<p class="subquestion"><b><font size =+1>A. <b><font size =+1>Did you visit the local
authority website to help you make a submission to a draft development plan or  for information
about making a submission</font></b>?</font></b> [Please select <b><u>one</u></b>
answer by clicking the appropriate circle]
<p class="subindent">
<table border="0">
 <tr>
  <td valign="top">
   <input type="radio" name="A6subDev_visit" value="1">
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 <tr>
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  <td>[<u><b>If No</b></u>, Please comment briefly on your answer] <br>
    <textarea name="A6subDev_visit_comment" cols=50 rows=3></textarea>
    <br>
   [If No, <a href="#q7">please Click Here to go to Question 7 </a>]</td>
 </tr>
</table>
<p class="subquestion"><b><font size =+1>B. <b><font size =+1>In this instance (making
a submission), </font></b>why did you visit the local authority website?</font></b> [Please
select <b><u>all</u></b> that apply by clicking the appropriate box(es)]</p>

<p class="subindent">
 <input type="checkbox" name="A6subDev_submit" value="1">
 To make a submission to a draft development plan <br>
 <input type="checkbox" name="A6subDev_info" value="1">
 To find information about making a submission to a draft development plan<br>
  <input type="checkbox" name="A6subDev_contact" value="1">
  To find the contact details for the local authority<br>
  <input type="checkbox" name="A6subDev_other" value="1">
  Other, please specify <span class="indent">
  <input type="text" name="A6subDev_other_specify" size=60>
  </span></p>
<p class="subquestion"><b><font size =+1>C. <b><font size =+1><b><font size =+1>In
this instance (making a submission), </font></b>w</font></b>ere you able to complete the
purpose of your visit to the the local authority website?</font></b> [Please select
<b><u>one</u></b> answer by clicking the appropriate circle]</p>
<p class="subindent"><table border="0">
 <tr>
  <td valign="top">
   <input type="radio" name="A6subDev_complete" value="1">
   Yes</td>
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    <td valign="top">
      <input type="radio" name="A6subDev_complete" value="2">
      No</td>
    <td valign="top"> <img src="arrow.jpg" width="22" height="13"> </td>
    <td>[<u><b>If No</b></u>, Please comment briefly on your answer] <br>
       <TEXTAREA NAME="A6subDev_complete_comment" COLS=50 ROWS=3></TEXTAREA>
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  </tr>
</table>
<p class="subquestion"><b><font size =+1>D. <b><font size =+1>How satisfied or
dissatisfied were you with your use of the local authority's online service for
</font></b>submissions?</font></b> [Please select <b><u>one</u></b> answer by
clicking the appropriate circle]</p>
<p class="subquestion">
<table width="90%" border="1">
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      <div align="center">Extremely Satisfied</div></td>
    <td width="20%">
      <div align="center">Satisfied</div></td>
    <td width="20%">
      <div align="center">Neither Satisfied nor Dissatisfied</div></td>
    <td width="20%">
      <div align="center">Dissatisfied</div></td>
    <td width="20%">
      <div align="center">Extremely Dissatisfied</div></td>
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  </tr>
</table>
<p class="subquestion"><b>Please comment briefly on your
satisfaction/dissatisfaction</b><br>
    <TEXTAREA NAME="A6subDev_sat_comment" COLS=80 ROWS=3></TEXTAREA>
</p>
<a name="q7"></a><p class="question"><b><font size =+1>7. In the past 5 years, have
you <u>viewed</u> or consulted a development plan?</font></b> [Please select
<b><u>one</u></b> answer by clicking the appropriate circle]</p>
<p class="indent">
  <input type="radio" name="A7viewDev" value="1">
  Yes<br>
  <input type="radio" name="A7viewDev" value="2">
  No <img src="arrow.jpg" width="22" height="13"> [<u><b>If No</b></u>, <a
href="#q8">please Click Here to go to Question 8 </a>] </p>
<p class="subquestion"><b><font size =+1>A. Did you visit the local authority website to
view  the development plan or for information about viewing the development
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plan?</font></b> [Please select <b><u>one</u></b> answer by clicking the appropriate
circle]</p>
<p class="subindent">
<table border="0">
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  <td valign="top">
   <input type="radio" name="A7viewDev_visit" value="1">
   Yes</td>
  <td> </td>
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  <td valign="top">
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   No </td>
  <td valign="top"> <img src="arrow.jpg" width="22" height="13"> </td>
  <td>[<u><b>If No</b></u>, Please comment briefly on your answer] <br>
    <TEXTAREA NAME="A7viewDev_visit_comment" COLS=50 ROWS=3></TEXTAREA>
    <br>
   [If No, <a href="#q8">please Click Here to go to Question 8 </a>]</td>
 </tr>
</table>
<p class="subquestion"><b><font size =+1>B. <b><font size =+1><b><font size =+1>In
this instance (viewing a development plan), </font></b>w</font></b>hy did you visit the
local authority website?</font></b> [Please select <b><u>all</u></b> that apply by clicking
the appropriate box(es)]</p>
<p class="subindent">
 <input type="checkbox" name="A7viewDev_view" value="1">
 To view the development plan <br>
 <input type="checkbox" name="A7viewDev_info" value="1">
 To find information about viewing the development plan<br>
 <input type="checkbox" name="A7viewDev_contact" value="1">
 To find the contact details for the local authority<br>
 <input type="checkbox" name="A7viewDev_other" value="1">
 Other, please specify <input type="text" name="A7viewDev_other_specify" size=60>
</p>
<p class="subquestion"><b><font size =+1>C. <b><font size =+1><b><font size
=+1><b><font size =+1>In this instance (viewing a development plan),
</font></b>w</font></b></font></b>ere you able to complete the purpose of your visit to
the the local authority website?</font></b> [Please select <b><u>one</u></b> answer by
clicking the appropriate circle]</p>
<p class="subindent"><table border="0">
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  <td valign="top">
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  <td> </td>
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 <tr>
  <td valign="top">
   <input type="radio" name="A7viewDev_complete" value="2">
   No</td>
  <td valign="top"> <img src="arrow.jpg" width="22" height="13"> </td>
  <td>[<u><b>If No</b></u>, Please comment briefly on your answer] <br>
    <TEXTAREA NAME="A7viewDev_complete_comment" COLS=50 ROWS=3></TEXTAREA>
  </td>
 </tr>
</table>
<p class="subquestion"><b><font size =+1>D. <b><font size =+1>How satisfied or
dissatisfied were you with your use of the local authority's online service for </font></b>
development plan(s)?</font></b> [Please select <b><u>one</u></b> answer by clicking the
appropriate circle]</p>
<p class="subquestion">
<table width="90%" border="1">
 <tr>
```

```
    <td width="20%">
      <div align="center">Extremely Satisfied</div></td>
    <td width="20%">
      <div align="center">Satisfied</div></td>
    <td width="20%">
      <div align="center">Neither Satisfied nor Dissatisfied</div></td>
    <td width="20%">
      <div align="center">Dissatisfied</div></td>
    <td width="20%">
      <div align="center">Extremely Dissatisfied</div></td>
  </tr>
  <tr>
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        <input type="radio" name="A7viewDev_sat" value="1">
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    <td>
      <div align="center">
        <input type="radio" name="A7viewDev_sat" value="2">
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    <td>
      <div align="center">
        <input type="radio" name="A7viewDev_sat" value="3">
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    <td>
      <div align="center">
        <input type="radio" name="A7viewDev_sat" value="4">
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    <td>
      <div align="center">
        <input type="radio" name="A7viewDev_sat" value="5">
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  </tr>
</table>
<p class="subquestion"><b>Please comment briefly on your
satisfaction/dissatisfaction</b><br>
    <TEXTAREA NAME="A7viewDev_sat_comment" COLS=80 ROWS=3></TEXTAREA>
</p>
<a name="q8"></a>
<p class="question"><b><font size =+1>8. Have you undertaken any other planning related
activity (e.g. reporting planning infringements, tree preservation orders, etc.) in the last five
years?</font></b> [Please select <b><u>one</u></b> answer
    by clicking the appropriate circle]</p>
<p class="indent">
    <input type="radio" name="A8other" value="1">
    Yes, please specify
    <input type="text" name="A8other_specify" size="70">
    <br>
    <input type="radio" name="A8other" value="2">
    No<img src="arrow.jpg"> [<u><b>If No</b></u>, <a href="#q9">please Click Here to go
to
    Question 9 </a>] </p>

  <p class="subquestion"><b><font size =+1>A. Did you visit the local authority website to
help you complete this planning related activity or for information about this
activity?</font></b> [Please select <b><u>one</u></b> answer
  by clicking the appropriate circle]</p>
    <p class="subindent"><table border="0">
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        Yes</td>
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      <td> </td>
    </tr>
    <tr>
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    <td valign="top">
      <input type="radio" name="A8other_visit" value="2">
      No</td>
    <td valign="top">
      <img src="arrow.jpg" width="22" height="13">
    </td>
    <td>[<u><b>If No</b></u>, Please comment briefly on your answer] <br>
      <textarea name="A8other_visit_comment" cols=50 rows=3></textarea>
      <br>
      [If No, <a href="#q9">please Click Here to go to Question 9 </a>]</td>
  </tr>
 </table>
 <p class="subquestion"><b><font size =+1>B. Why did you visit the local authority website
for this planning related activity?</font></b> [Please select <b><u>all</u></b> that apply
by clicking the appropriate box(es)]</p>
 <p class="subindent">
 <input type="checkbox" name="A8other_info" value="1">
 To find information about the planning related activity<br>
 <input type="checkbox" name="A8other_contact" value="1">
 To find the contact details for the local authority<br>
 <input type="checkbox" name="A8other_other" value="1">
 Other, please specify <span class="indent">
 <input type="text" name="A8other_other_specify" size=60>
</span></p>
 <p class="subquestion"><b><font size =+1>C. Were you able to complete the purpose of
your visit to the the local authority website for this planning related activity?</font></b>
[Please select <b><u>one</u></b> answer by clicking the appropriate circle]</p>
 <p class="subindent"><table border="0">
  <tr>
   <td valign="top">
    <input type="radio" name="A8other_complete" value="1">
   Yes</td>
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   <td> </td>
  </tr>
  <tr>
   <td valign="top">
    <input type="radio" name="A8other_complete" value="2">
   No</td>
   <td valign="top"> <img src="arrow.jpg" width="22" height="13"> </td>
   <td>[<u><b>If No</b></u>, Please comment briefly on your answer] <br>
     <TEXTAREA NAME="A8other_complete_comment" COLS=50 ROWS=3></TEXTAREA>
   </td>
  </tr>
 </table>
 <p class="subquestion"><b><font size =+1>B. How satisfied or dissatisfied were you with
the planning
 authority's online provision for this planning related activity?</font></b> [Please select
<b><u>one</u></b>
 answer by clicking the appropriate circle]</p>
 <p class="subquestion">
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 <tr>
  <td width="20%">
   <div align="center">Extremely Satisfied</div>
  </td>
  <td width="20%">
   <div align="center">Satisfied</div>
  </td>
  <td width="20%">
   <div align="center">Neither Satisfied nor Dissatisfied</div>
  </td>
  <td width="20%">
   <div align="center">Dissatisfied</div>
  </td>
  <td width="20%">
```

```
    <div align="center">Extremely Dissatisfied</div>
   </td>
  </tr>
  <tr>
   <td>
    <div align="center">
     <input type="radio" name="A8other_sat" value="1">
    </div>
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   <td>
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     <input type="radio" name="A8other_sat" value="2">
    </div>
   </td>
   <td>
    <div align="center">
     <input type="radio" name="A8other_sat" value="3">
    </div>
   </td>
   <td>
    <div align="center">
     <input type="radio" name="A8other_sat" value="4">
    </div>
   </td>
   <td>
    <div align="center">
     <input type="radio" name="A8other_sat" value="5">
    </div>
   </td>
  </tr>
</table>
<p class="subquestion"><b>Please comment briefly on your
satisfaction/dissatisfaction</b><br>
    <TEXTAREA NAME="A8other_sat_comment" COLS=80 ROWS=3></TEXTAREA>
  </p>

<a name="q9"></a><p class="question"><b><font size =+1>9. If an online facility were
available, do you think you would use it in future if you wanted to do any of the following
planning related activities?</font></b> <span class="subquestion">[Please select
<b><u>all</u></b> that apply by clicking the appropriate box(es)]</span></p>
<p class="indent"><input type="checkbox" name="A9_planApp" value="1">
Submit a planning application<br>
<input type="checkbox" name="A9_appComment" value="1">
Comment on a planning application <br>
<input type="checkbox" name="A9_viewApp" value="1">
View applications for planning permission<br>
<input type="checkbox" name="A9_subDevPlan" value="1">
Make a submission to a draft development plan<br>
<input type="checkbox" name="A9_viewDevPlan" value="1">
View a development plan<br>
<input type="checkbox" name="A9_Contact" value="1">
Look up the planning department contact details<br>
<nobr><input type="checkbox" name="A9_Other" value="1">
Other planning related task, please specify
<input type="text" name="A9_Other_specify" size=60></nobr></p>
<p class="subquestion"><b>Please comment briefly on your answers</b><br>
  <TEXTAREA NAME="A9_Other_comment" COLS=80 ROWS=3></TEXTAREA>
</p>
<p class="question"><b><font size =+1>10. Based on  your <u>experience</u>, to what
extent do you agree or disagree with the following
   statements regarding information relating to planning on local authority
websites?</font></b>
    [Please select <b><u>one</u></b> answer by clicking the appropriate circle]</p>
<p class="question">[<a href="#q12">If you do not have any experience with planning,
please Click Here to go to Question 11</a>] </p>
```

```
<p class="optionheading"><b><font size =+1>Online Planning Information is
Available</font></b>
</p>
  <table width="80%" border="1">
 <tr>
  <td width="20%">
   <div align="center">Strongly Agree</div>
  </td>
  <td width="20%">
   <div align="center">Agree</div>
  </td>
  <td width="20%">
   <div align="center">Neither Agree nor Disagree</div>
  </td>
  <td width="20%">
   <div align="center">Disagree</div>
  </td>
  <td width="20%">
   <div align="center">Strongly Disagree</div>
  </td>
 </tr>
 <tr>
  <td>
   <div align="center">
    <input type="radio" name="A10Available" value="1">
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  </td>
  <td>
   <div align="center">
    <input type="radio" name="A10Available" value="2">
   </div>
  </td>
  <td>
   <div align="center">
    <input type="radio" name="A10Available" value="3">
   </div>
  </td>
  <td>
   <div align="center">
    <input type="radio" name="A10Available" value="4">
   </div>
  </td>
  <td>
   <div align="center">
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   </div>
  </td>
 </tr>
</table>
<p class="optionheading"><b><font size =+1>Online Planning Information is Up to
Date</font></b></p>
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 <tr>
  <td width="20%">
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  </td>
  <td width="20%">
   <div align="center">Agree</div>
  </td>
  <td width="20%">
   <div align="center">Neither Agree nor Disagree</div>
  </td>
  <td width="20%">
   <div align="center">Disagree</div>
  </td>
  <td width="20%">
```

```
      <div align="center">Strongly Disagree</div>
    </td>
  </tr>
  <tr>
    <td>
      <div align="center">
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        <input type="radio" name="A10Current" value="4">
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    </td>
    <td>
      <div align="center">
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      </div>
    </td>
  </tr>
</table>
<p class="optionheading"><b><font size =+1>Online Planning Information is
Reliable</font></b></p>
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    </td>
    <td width="20%">
      <div align="center">Agree</div>
    </td>
    <td width="20%">
      <div align="center">Neither Agree nor Disagree</div>
    </td>
    <td width="20%">
      <div align="center">Disagree</div>
    </td>
    <td width="20%">
      <div align="center">Strongly Disagree</div>
    </td>
  </tr>
  <tr>
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      </div>
    </td>
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      </div>
    </td>
    <td>
      <div align="center">
        <input type="radio" name="A10Reliable" value="3">
      </div>
```

```
    </td>
    <td>
      <div align="center">
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      </div>
    </td>
    <td>
      <div align="center">
        <input type="radio" name="A10Reliable" value="5">
      </div>
    </td>
  </tr>
</table>
<p class="optionheading"><b><font size =+1>Online Planning Information is Regularly
Updated</font></b></p>
   <table width="80%" border="1">
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    </td>
    <td width="20%">
      <div align="center">Agree</div>
    </td>
    <td width="20%">
      <div align="center">Neither Agree nor Disagree</div>
    </td>
    <td width="20%">
      <div align="center">Disagree</div>
    </td>
    <td width="20%">
      <div align="center">Strongly Disagree</div>
    </td>
  </tr>
  <tr>
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      </div>
    </td>
    <td>
      <div align="center">
        <input type="radio" name="A10Updated" value="2">
      </div>
    </td>
    <td>
      <div align="center">
        <input type="radio" name="A10Updated" value="3">
      </div>
    </td>
    <td>
      <div align="center">
        <input type="radio" name="A10Updated" value="4">
      </div>
    </td>
    <td>
      <div align="center">
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    </td>
  </tr>
</table>
<p class="optionheading"><b><font size =+1>Online Planning Information is
Complete</font></b></p>
   <table width="80%" border="1">
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    <td width="20%">
```

```
      <div align="center">Strongly Agree</div>
    </td>
    <td width="20%">
      <div align="center">Agree</div>
    </td>
    <td width="20%">
      <div align="center">Neither Agree nor Disagree</div>
    </td>
    <td width="20%">
      <div align="center">Disagree</div>
    </td>
    <td width="20%">
      <div align="center">Strongly Disagree</div>
    </td>
  </tr>
  <tr>
    <td>
      <div align="center">
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      </div>
    </td>
    <td>
      <div align="center">
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      </div>
    </td>
    <td>
      <div align="center">
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    </td>
    <td>
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      </div>
    </td>
  </tr>
</table>
<p class="optionheading"><b><font size =+1>Online Planning Information is
Useful</font></b></p>
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    <td width="20%">
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    </td>
    <td width="20%">
      <div align="center">Agree</div>
    </td>
    <td width="20%">
      <div align="center">Neither Agree nor Disagree</div>
    </td>
    <td width="20%">
      <div align="center">Disagree</div>
    </td>
    <td width="20%">
      <div align="center">Strongly Disagree</div>
    </td>
  </tr>
  <tr>
    <td>
      <div align="center">
```

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      <input type="radio" name="A10Useful" value="1">
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    </td>
    <td>
     <div align="center">
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    </td>
    <td>
     <div align="center">
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     </div>
    </td>
    <td>
     <div align="center">
      <input type="radio" name="A10Useful" value="4">
     </div>
    </td>
    <td>
     <div align="center">
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     </div>
    </td>
  </tr>
</table>
<p class="optionheading"><b><font size =+1>Online Planning Information is Easy to
Find</font></b></p>
   <table width="80%" border="1">
  <tr>
    <td width="20%">
     <div align="center">Strongly Agree</div>
    </td>
    <td width="20%">
     <div align="center">Agree</div>
    </td>
    <td width="20%">
     <div align="center">Neither Agree nor Disagree</div>
    </td>
    <td width="20%">
     <div align="center">Disagree</div>
    </td>
    <td width="20%">
     <div align="center">Strongly Disagree</div>
    </td>
  </tr>
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    <td>
     <div align="center">
      <input type="radio" name="A10Find" value="3">
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    </td>
    <td>
     <div align="center">
      <input type="radio" name="A10Find" value="4">
     </div>
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```
    <td>
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        <input type="radio" name="A10Find" value="5">
      </div>
    </td>
  </tr>
</table>
<p class="question"><b><font size =+1>Are there any additional comments you would like to
     make about these statements?</font></b><br>
     <TEXTAREA NAME="A10experienceComments" COLS=80 ROWS=3></TEXTAREA>
  </p>
  <p class="question"><b><font size =+1> <a name="q11"></a>11. As part of your planning
experiences,
    did you see  any online maps?</font></b> [Please select <b><u>one</u></b>
    answer by clicking the appropriate circle]</p>
  <p class="indent">
    <input type="radio" name="A11maps" value="1">
    Yes<br>
    <input type="radio" name="A11maps" value="2">
    No <img src="arrow.jpg" width="22" height="13"> [<u><b>If No</b></u>, <a
href="#q12">please Click Here to
    go to Question 12</a>] </p>
  <p class="subquestion"><b><font size =+1>A. What type of maps appeared on the
    planning webpages of the local authority?</font></b> [Please select <u><b>all</b></u>
that
    apply by clicking the appropriate box(es)]</p>
  <p class="subindent">
    <input type="checkbox" name="A11ALAmapsNotKnown" value="1">
    Don't know<br>
    <input type="checkbox" name="A11ALAmapsImage" value="1">
    An image of a map in a webpage<br>
    <input type="checkbox" name="A11ALAmapsWord" value="1">
    A map in a word document or PDF document (Adobe Acrobat document)<br>
    <input type="checkbox" name="A11ALAmapsInter" value="1">
    Interactive maps (e.g. zooming, moving around and other features)<br>
    <input type="checkbox" name="A11ALAmapsAerial" value="1">
    Aerial photographs<br>
    <input type="checkbox" name="A11ALAmaps3D" value="1">
    A three dimensional (3D) map<br>
    <input type="checkbox" name="A11ALAmapsLayers" value="1">
    A map with different types of information that you can switch on and off (e.g.
    turn off all the roads)<br>
    <input type="checkbox" name="A11ALAmapsOther" value="1">
    Other, please specify
    <input type="text" name="A11ALAmapsOtherSpecify" size=60>
  </p>

  <p class="subquestion"><b><font size="+1">B. What were the maps associated with on the
planning webpages of the local authority?</font></b> [Please select <u><b>all</b></u>
    that apply by clicking the appropriate box(es)]</p>
  <p class="subindent">
    <input type="checkbox" name="A11BmapAssocDontKnow" value="1">
    Don't know<br>
        <input type="checkbox" name="A11BmapAssocDevPlan" value="1">
    A development plan<br>
    <input type="checkbox" name="A11BmapAssocAPlan" value="1">
    Another plan (such as a local area plan)<br>
    <input type="checkbox" name="A11BmapAssocPlanApp" value="1">
    Planning applications<br>
    <input type="checkbox" name="A11BmapAssocDirections" value="1">
    Directions to the planning office<br>
        <input type="checkbox" name="A11BmapAssocOther" value="1">
        Other, please specify <input type="text" name="A11BmapAssocOther_specify"
size=60></p>
```

```
 <p class="subquestion"> <b><font size="+1">C. How satisfied or dissatisfied
  were you with your use of the maps provided on the planning webpages of the local
authority?</font></b> [Please
  select <b><u>one</u></b> answer by clicking the appropriate circle]</p>
 <p class="subquestion">
<table width="90%" border="1">
 <tr>
 <td width="16%"><div align="center">Did Not Use</div></td>
  <td width="16%">
   <div align="center">Extremely Satisfied</div>
  </td>
  <td width="16%">
   <div align="center">Satisfied</div>
  </td>
  <td width="16%">
   <div align="center">Neither Satisfied nor Dissatisfied</div>
  </td>
  <td width="16%">
   <div align="center">Dissatisfied</div>
  </td>
  <td width="16%">
   <div align="center">Extremely Dissatisfied</div>
  </td>
 </tr>
 <tr>
 <td><div align="center">
     <input type="radio" name="A11Cmapsat" value="6">
    </div></td>
  <td>
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  </td>
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   <div align="center">
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  </td>
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  <td>
   <div align="center">
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   </div>
  </td>
 </tr>
</table>
<p class="subquestion"><b>Please comment briefly on your
satisfaction/dissatisfaction</b><br>
    <TEXTAREA NAME="A11CmapsatComment" COLS=80 ROWS=3></TEXTAREA>
 </p>
 <p class="question"><b><font size =+1><a name="q12"></a>12. Do you think supplying
  an online map would be of benefit in the following
  situations?</font></b> [Please select <u> <b>all</b></u> that apply by clicking
  the appropriate box(es)]</p>

 <p class="indent">
  <input type="checkbox" name="A12mapbenefitDevplan" value="1">
```

```
    With development plan documents <br>
    <input type="checkbox" name="A12mapbenefitObjsDev" value="1">
    To help make submissions to draft development plans <br>
        <input type="checkbox" name="A12mapbenefitApps" value="1">
    To display planning applications <br>
        <input type="checkbox" name="A12mapbenefitRegApp" value="1">
    To submit planning applications<br>
    <input type="checkbox" name="A12mapbenefitObjsApps" value="1">
    To help comment on planning applications<br>
    <input type="checkbox" name="A12mapbenefitOther" value="1">
    Other, please specify
    <input type="text" name="A12mapbenefitSpecify" size=60>
  </p>

  <p class="question"><b><font size =+1>13. What mapping features for
     planning information or services provided on the Internet would be of use to you?
</font></b>
    <span class="subquestion"><span class="indent">(<A
HREF="javascript:popUp('http://www.tcd.ie/geography/survey/definitions.html#Internet')"><fo
nt size="-1">Click Here for an explanation of
<strong>Internet</strong></font></A>)</span></span> [Please select
<u><b>all</b></u> that apply by clicking the appropriate box(es)]</p>

  <p class="indent">
    <input type="checkbox" name="A13mapfeaturesNone" value="1">
    None<br>
    <input type="checkbox" name="A13mapfeaturesStatic" value="1">
    A non-moving map or an image of a map<br>
    <input type="checkbox" name="A13mapfeaturesPrint" value="1">
    Printable maps<br>
    <input type="checkbox" name="A13mapfeaturesResize" value="1">
    Maps  you can resize <br>
    <input type="checkbox" name="A13mapfeaturesMove" value="1">
    Maps  you can move around (panning)<br>
    <input type="checkbox" name="A13mapfeaturesWrite" value="1">
    Maps  you can write on<br>
        <input type="checkbox" name="A13mapfeaturesSave" value="1">
    Maps  you can save <br>
    <input type="checkbox" name="A13mapfeaturesLayers" value="1">
    Maps where you can turn on and off different types of information (e.g. display
    or don't display the roads)<br>
        <input type="checkbox" name="A13mapfeaturesOther" value="1">
    Other, please specify
    <input type="text" name="A13mapfeaturesOther_specify" size=60>
  </p>
<p class="question"><b><font size =+1>Are there any additional comments you would like to
     make about online mapping associated with planning information?</font></b><br>
      <TEXTAREA NAME="A13onlineMapping" COLS=80 ROWS=3></TEXTAREA>
  </p>
  <p>
  <input type="submit" name="SectionA" value="Go to Next Page">
</p>
</form>
</body>
</html>
```

SectionB_LocalAuth.php

```
<?
// opening connection to database using supplied credentials
$dbase = mysql_connect("www.tcd.ie" , "rochema", "bTeKdExn")
or die("Please contact Mairead at rochema@tcd.ie or 01 6082359 and if the problem
cannot be fixed immediately, a printed survey will be posted or a word document can be sent
out by email. Could not connect: " . mysql_error());
mysql_select_db("rochema_db")
or die("Please contact Mairead at rochema@tcd.ie or 01 6082359 and if the problem
cannot be fixed immediately, a printed survey will be posted or a word document can be sent
out by email. Could not select database: " . mysql_error());
// opened connection
?>

<?
// Apostrophes cause SQL errors and need to be replaced in the text variables that will be
submitted
$apostrophe = "'";

// * will be placed instead of the apostrophe
$replaceApostrophe = "*";

// This variable records the IP address of the respondent, which will be used for validation
purposes only
$IPAddress = $_SERVER['REMOTE_ADDR'];

// This variable records the system details of the respondent, such as operating system and
browser type
$BrowserOS = $_SERVER['HTTP_USER_AGENT'];

// Record the date and time of submission
$Date_Time = date('F j, Y, g:i a');

// Read in the variables from the first page of the survey

// Question 1
$A1awareApp =$_POST['A1awareApp'];
if ($A1awareApp == "") {
        $A1awareApp = "0";
}

// Question 2
$A2permission =$_POST['A2permission'];
if ($A2permission == "") {
        $A2permission = "0";
}

$A2AvisitSite =$_POST['A2AvisitSite'];
if ($A2AvisitSite == "") {
        $A2AvisitSite = "0";
}

//text input
$A2AVisitSite_Comment =$_POST['A2AVisitSite_Comment'];
if ($A2AVisitSite_Comment == "") {
        $A2AVisitSite_Comment = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$A2AVisitSite_Comment = str_replace($apostrophe , $replaceApostrophe ,
$A2AVisitSite_Comment);

$A2BWhySite_submit =$_POST['A2BWhySite_submit'];
if ($A2BWhySite_submit == "") {
```

```
        $A2BWhySite_submit = "0";
}

$A2BWhySite_download =$_POST['A2BWhySite_download'];
if ($A2BWhySite_download == "") {
        $A2BWhySite_download = "0";
}

$A2BWhySite_info =$_POST['A2BWhySite_info'];
if ($A2BWhySite_info == "") {
        $A2BWhySite_info = "0";
}

$A2BWhySite_contact =$_POST['A2BWhySite_contact'];
if ($A2BWhySite_contact == "") {
        $A2BWhySite_contact = "0";
}

$A2BWhySite_other =$_POST['A2BWhySite_other'];
if ($A2BWhySite_other == "") {
        $A2BWhySite_other = "0";
}

// text input
$A2BWhySite_other_specify =$_POST['A2BWhySite_other_specify'];
if ($A2BWhySite_other_specify == "") {
        $A2BWhySite_other_specify = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$A2BWhySite_other_specify = str_replace($apostrophe , $replaceApostrophe ,
$A2BWhySite_other_specify);

$A2Cpurpose =$_POST['A2Cpurpose'];
if ($A2Cpurpose == "") {
        $A2Cpurpose = "0";
}

// text input
$A2Cpurpose_Comment =$_POST['A2Cpurpose_Comment'];
if ($A2Cpurpose_Comment == "") {
        $A2Cpurpose_Comment = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$A2Cpurpose_Comment = str_replace($apostrophe , $replaceApostrophe ,
$A2Cpurpose_Comment);

$A2Dsat =$_POST['A2Dsat'];
if ($A2Dsat == "") {
        $A2Dsat = "0";
}

// text input
$A2Dsat_Comment =$_POST['A2Dsat_Comment'];
if ($A2Dsat_Comment == "") {
        $A2Dsat_Comment = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$A2Dsat_Comment = str_replace($apostrophe , $replaceApostrophe , $A2Dsat_Comment);

//Question 3
$A3Object =$_POST['A3Object'];
if ($A3Object == "") {
        $A3Object = "0";
}

$A3Object_visit =$_POST['A3Object_visit'];
```

```
if ($A3Object_visit == "") {
        $A3Object_visit = "0";
}
//text input
$A3Object_visit_Comment =$_POST['A3Object_visit_Comment'];
if ($A3Object_visit_Comment == "") {
        $A3Object_visit_Comment = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$A3Object_visit_Comment = str_replace($apostrophe , $replaceApostrophe ,
$A3Object_visit_Comment);

$A3Object_commentApp =$_POST['A3Object_commentApp'];
if ($A3Object_commentApp == "") {
        $A3Object_commentApp = "0";
}

$A3Object_info =$_POST['A3Object_info'];
if ($A3Object_info == "") {
        $A3Object_info = "0";
}

$A3Object_contact =$_POST['A3Object_contact'];
if ($A3Object_contact == "") {
        $A3Object_contact = "0";
}

$A3Object_other =$_POST['A3Object_other'];
if ($A3Object_other == "") {
        $A3Object_other = "0";
}

// text input
$A3Object_other_specify =$_POST['A3Object_other_specify'];
if ($A3Object_other_specify == "") {
        $A3Object_other_specify = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$A3Object_other_specify = str_replace($apostrophe , $replaceApostrophe ,
$A3Object_other_specify);

$A3Object_purpose =$_POST['A3Object_purpose'];
if ($A3Object_purpose == "") {
        $A3Object_purpose = "0";
}

// text input
$A3Object_purpose_comment =$_POST['A3Object_purpose_comment'];
if ($A3Object_purpose_comment == "") {
        $A3Object_purpose_comment = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$A3Object_purpose_comment = str_replace($apostrophe , $replaceApostrophe ,
$A3Object_purpose_comment);

$A3Object_sat =$_POST['A3Object_sat'];
if ($A3Object_sat == "") {
        $A3Object_sat = "0";
}

// text input
$A3Object_sat_comment =$_POST['A3Object_sat_comment'];
if ($A3Object_sat_comment == "") {
        $A3Object_sat_comment = "0";
}
// Run through the text and replaces all occurrences of apostrophes
```

```
$A3Object_sat_comment = str_replace($apostrophe , $replaceApostrophe ,
$A3Object_sat_comment);

//Question 4
$A4viewApp =$_POST['A4viewApp'];
if ($A4viewApp == "") {
        $A4viewApp = "0";
}

$A4viewApp_visit =$_POST['A4viewApp_visit'];
if ($A4viewApp_visit == "") {
        $A4viewApp_visit = "0";
}
//text input
$A4viewApp_visit_comment =$_POST['A4viewApp_visit_comment'];
if ($A4viewApp_visit_comment == "") {
        $A4viewApp_visit_comment = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$A4viewApp_visit_comment = str_replace($apostrophe , $replaceApostrophe ,
$A4viewApp_visit_comment);

$A4viewApp_view =$_POST['A4viewApp_view'];
if ($A4viewApp_view == "") {
        $A4viewApp_view = "0";
}

$A4viewApp_lists =$_POST['A4viewApp_lists'];
if ($A4viewApp_lists == "") {
        $A4viewApp_lists = "0";
}

$A4viewApp_info =$_POST['A4viewApp_info'];
if ($A4viewApp_info == "") {
        $A4viewApp_info = "0";
}

$A4viewApp_contact =$_POST['A4viewApp_contact'];
if ($A4viewApp_contact == "") {
        $A4viewApp_contact = "0";
}

$A4viewApp_other =$_POST['A4viewApp_other'];
if ($A4viewApp_other == "") {
        $A4viewApp_other = "0";
}

// text input
$A4viewApp_other_specify =$_POST['A4viewApp_other_specify'];
if ($A4viewApp_other_specify == "") {
        $A4viewApp_other_specify = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$A4viewApp_other_specify = str_replace($apostrophe , $replaceApostrophe ,
$A4viewApp_other_specify);

$A4viewApp_complete =$_POST['A4viewApp_complete'];
if ($A4viewApp_complete == "") {
        $A4viewApp_complete = "0";
}

// text input
$A4viewApp_complete_comment =$_POST['A4viewApp_complete_comment'];
if ($A4viewApp_complete_comment == "") {
        $A4viewApp_complete_comment = "0";
}
```

```
// Run through the text and replaces all occurrences of apostrophes
$A4viewApp_complete_comment = str_replace($apostrophe , $replaceApostrophe ,
$A4viewApp_complete_comment);

$A4viewApp_sat =$_POST['A4viewApp_sat'];
if ($A4viewApp_sat == "") {
        $A4viewApp_sat = "0";
}

// text input
$A4viewApp_sat_comment =$_POST['A4viewApp_sat_comment'];
if ($A4viewApp_sat_comment == "") {
        $A4viewApp_sat_comment = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$A4viewApp_sat_comment = str_replace($apostrophe , $replaceApostrophe ,
$A4viewApp_sat_comment);

//Question 5
$A5devplanAware =$_POST['A5devplanAware'];
if ($A5devplanAware == "") {
        $A5devplanAware = "0";
}

//Question 6
$A6subDevPlan =$_POST['A6subDevPlan'];
if ($A6subDevPlan == "") {
        $A6subDevPlan = "0";
}

$A6subDev_visit =$_POST['A6subDev_visit'];
if ($A6subDev_visit == "") {
        $A6subDev_visit = "0";
}
//text input
$A6subDev_visit_comment =$_POST['A6subDev_visit_comment'];
if ($A6subDev_visit_comment == "") {
        $A6subDev_visit_comment = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$A6subDev_visit_comment = str_replace($apostrophe , $replaceApostrophe ,
$A6subDev_visit_comment);

$A6subDev_submit =$_POST['A6subDev_submit'];
if ($A6subDev_submit == "") {
        $A6subDev_submit = "0";
}

$A6subDev_info =$_POST['A6subDev_info'];
if ($A6subDev_info == "") {
        $A6subDev_info = "0";
}

$A6subDev_contact =$_POST['A6subDev_contact'];
if ($A6subDev_contact == "") {
        $A6subDev_contact = "0";
}

$A6subDev_other =$_POST['A6subDev_other'];
if ($A6subDev_other == "") {
        $A6subDev_other = "0";
}

// text input
$A6subDev_other_specify =$_POST['A6subDev_other_specify'];
if ($A6subDev_other_specify == "") {
```

```
        $A6subDev_other_specify = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$A6subDev_other_specify = str_replace($apostrophe , $replaceApostrophe ,
$A6subDev_other_specify);

$A6subDev_complete =$_POST['A6subDev_complete'];
if ($A6subDev_complete == "") {
        $A6subDev_complete = "0";
}

// text input
$A6subDev_complete_comment =$_POST['A6subDev_complete_comment'];
if ($A6subDev_complete_comment == "") {
        $A6subDev_complete_comment = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$A6subDev_complete_comment = str_replace($apostrophe , $replaceApostrophe ,
$A6subDev_complete_comment);

$A6subDev_sat =$_POST['A6subDev_sat'];
if ($A6subDev_sat == "") {
        $A6subDev_sat = "0";
}

// text input
$A6subDev_sat_comment =$_POST['A6subDev_sat_comment'];
if ($A6subDev_sat_comment == "") {
        $A6subDev_sat_comment = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$A6subDev_sat_comment = str_replace($apostrophe , $replaceApostrophe ,
$A6subDev_sat_comment);

//Question 7
$A7viewDev =$_POST['A7viewDev'];
if ($A7viewDev == "") {
        $A7viewDev = "0";
}

$A7viewDev_visit =$_POST['A7viewDev_visit'];
if ($A7viewDev_visit == "") {
        $A7viewDev_visit = "0";
}
//text input
$A7viewDev_visit_comment =$_POST['A7viewDev_visit_comment'];
if ($A7viewDev_visit_comment == "") {
        $A7viewDev_visit_comment = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$A7viewDev_visit_comment = str_replace($apostrophe , $replaceApostrophe ,
$A7viewDev_visit_comment);

$A7viewDev_view =$_POST['A7viewDev_view'];
if ($A7viewDev_view == "") {
        $A7viewDev_view = "0";
}

$A7viewDev_info =$_POST['A7viewDev_info'];
if ($A7viewDev_info == "") {
        $A7viewDev_info = "0";
}

$A7viewDev_contact =$_POST['A7viewDev_contact'];
if ($A7viewDev_contact == "") {
        $A7viewDev_contact = "0";
```

```
}

$A7viewDev_other =$_POST['A7viewDev_other'];
if ($A7viewDev_other == "") {
        $A7viewDev_other = "0";
}

// text input
$A7viewDev_other_specify =$_POST['A7viewDev_other_specify'];
if ($A7viewDev_other_specify == "") {
        $A7viewDev_other_specify = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$A7viewDev_other_specify = str_replace($apostrophe , $replaceApostrophe ,
$A7viewDev_other_specify);

$A7viewDev_complete =$_POST['A7viewDev_complete'];
if ($A7viewDev_complete == "") {
        $A7viewDev_complete = "0";
}

// text input
$A7viewDev_complete_comment =$_POST['A7viewDev_complete_comment'];
if ($A7viewDev_complete_comment == "") {
        $A7viewDev_complete_comment = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$A7viewDev_complete_comment = str_replace($apostrophe , $replaceApostrophe ,
$A7viewDev_complete_comment);

$A7viewDev_sat =$_POST['A7viewDev_sat'];
if ($A7viewDev_sat == "") {
        $A7viewDev_sat = "0";
}

// text input
$A7viewDev_sat_comment =$_POST['A7viewDev_sat_comment'];
if ($A7viewDev_sat_comment == "") {
        $A7viewDev_sat_comment = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$A7viewDev_sat_comment = str_replace($apostrophe , $replaceApostrophe ,
$A7viewDev_sat_comment);

// Question 8
$A8other =$_POST['A8other'];
if ($A8other == "") {
        $A8other = "0";
}

// text input
$A8other_specify =$_POST['A8other_specify'];
if ($A8other_specify == "") {
        $A8other_specify = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$A8other_specify = str_replace($apostrophe , $replaceApostrophe , $A8other_specify);

$A8other_visit =$_POST['A8other_visit'];
if ($A8other_visit == "") {
        $A8other_visit = "0";
}

// text input
$A8other_visit_comment =$_POST['A8other_visit_comment'];
if ($A8other_visit_comment == "") {
```

```
        $A8other_visit_comment = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$A8other_visit_comment = str_replace($apostrophe , $replaceApostrophe ,
$A8other_visit_comment);

$A8other_info =$_POST['A8other_info'];
if ($A8other_info == "") {
        $A8other_info = "0";
}

$A8other_contact =$_POST['A8other_contact'];
if ($A8other_contact == "") {
        $A8other_contact = "0";
}

$A8other_other =$_POST['A8other_other'];
if ($A8other_other == "") {
        $A8other_other = "0";
}

// text input
$A8other_other_specify =$_POST['A8other_other_specify'];
if ($A8other_other_specify == "") {
        $A8other_other_specify = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$A8other_other_specify = str_replace($apostrophe , $replaceApostrophe ,
$A8other_other_specify);

$A8other_complete =$_POST['A8other_complete'];
if ($A8other_complete == "") {
        $A8other_complete = "0";
}

// text input
$A8other_complete_comment =$_POST['A8other_complete_comment'];
if ($A8other_complete_comment == "") {
        $A8other_complete_comment = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$A8other_complete_comment = str_replace($apostrophe , $replaceApostrophe ,
$A8other_complete_comment);

$A8other_sat =$_POST['A8other_sat'];
if ($A8other_sat == "") {
        $A8other_sat = "0";
}

// text input
$A8other_sat_comment =$_POST['A8other_sat_comment'];
if ($A8other_sat_comment == "") {
        $A8other_sat_comment = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$A8other_sat_comment = str_replace($apostrophe , $replaceApostrophe ,
$A8other_sat_comment);

// Question 9
$A9_planApp =$_POST['A9_planApp'];
if ($A9_planApp == "") {
        $A9_planApp = "0";
}

$A9_appComment =$_POST['A9_appComment'];
if ($A9_appComment == "") {
```

```
        $A9_appComment = "0";
}

$A9_viewApp =$_POST['A9_viewApp'];
if ($A9_viewApp == "") {
        $A9_viewApp = "0";
}

$A9_subDevPlan =$_POST['A9_subDevPlan'];
if ($A9_subDevPlan == "") {
        $A9_subDevPlan = "0";
}

$A9_viewDevPlan =$_POST['A9_viewDevPlan'];
if ($A9_viewDevPlan == "") {
        $A9_viewDevPlan = "0";
}

$A9_Contact =$_POST['A9_Contact'];
if ($A9_Contact == "") {
        $A9_Contact = "0";
}

$A9_Other =$_POST['A9_Other'];
if ($A9_Other == "") {
        $A9_Other = "0";
}

// text input
$A9_Other_specify =$_POST['A9_Other_specify'];
if ($A9_Other_specify == "") {
        $A9_Other_specify = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$A9_Other_specify = str_replace($apostrophe , $replaceApostrophe , $A9_Other_specify);

// text input
$A9_Other_comment =$_POST['A9_Other_comment'];
if ($A9_Other_comment == "") {
        $A9_Other_comment = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$A9_Other_comment = str_replace($apostrophe , $replaceApostrophe , $A9_Other_comment);

// Question 10
$A10Available =$_POST['A10Available'];
if ($A10Available == "") {
        $A10Available = "0";
}

$A10Current =$_POST['A10Current'];
if ($A10Current == "") {
        $A10Current = "0";
}

$A10Reliable =$_POST['A10Reliable'];
if ($A10Reliable == "") {
        $A10Reliable = "0";
}

$A10Updated =$_POST['A10Updated'];
if ($A10Updated == "") {
        $A10Updated = "0";
}

$A10Complete =$_POST['A10Complete'];
```

```
if ($A10Complete == "") {
	$A10Complete = "0";
}

$A10Useful =$_POST['A10Useful'];
if ($A10Useful == "") {
	$A10Useful = "0";
}

$A10Find =$_POST['A10Find'];
if ($A10Find == "") {
	$A10Find = "0";
}
// text input
$A10experienceComments =$_POST['A10experienceComments'];
if ($A10experienceComments == "") {
	$A10experienceComments = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$A10experienceComments = str_replace($apostrophe , $replaceApostrophe ,
$A10experienceComments);

// Question 11
$A11maps =$_POST['A11maps'];
if ($A11maps == "") {
	$A11maps = "0";
}

$A11ALAmapsNotKnown =$_POST['A11ALAmapsNotKnown'];
if ($A11ALAmapsNotKnown == "") {
	$A11ALAmapsNotKnown = "0";
}

$A11ALAmapsImage =$_POST['A11ALAmapsImage'];
if ($A11ALAmapsImage == "") {
	$A11ALAmapsImage = "0";
}

$A11ALAmapsWord =$_POST['A11ALAmapsWord'];
if ($A11ALAmapsWord == "") {
	$A11ALAmapsWord = "0";
}

$A11ALAmapsInter =$_POST['A11ALAmapsInter'];
if ($A11ALAmapsInter == "") {
	$A11ALAmapsInter = "0";
}

$A11ALAmapsAerial =$_POST['A11ALAmapsAerial'];
if ($A11ALAmapsAerial == "") {
	$A11ALAmapsAerial = "0";
}

$A11ALAmaps3D =$_POST['A11ALAmaps3D'];
if ($A11ALAmaps3D == "") {
	$A11ALAmaps3D = "0";
}

$A11ALAmapsLayers =$_POST['A11ALAmapsLayers'];
if ($A11ALAmapsLayers == "") {
	$A11ALAmapsLayers = "0";
}

$A11ALAmapsOther =$_POST['A11ALAmapsOther'];
if ($A11ALAmapsOther == "") {
	$A11ALAmapsOther = "0";
```

```
}

// text input
$A11ALAmapsOtherSpecify =$_POST['A11ALAmapsOtherSpecify'];
if ($A11ALAmapsOtherSpecify == "") {
        $A11ALAmapsOtherSpecify = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$A11ALAmapsOtherSpecify = str_replace($apostrophe , $replaceApostrophe ,
$A11ALAmapsOtherSpecify);

$A11BmapAssocDontKnow =$_POST['A11BmapAssocDontKnow'];
if ($A11BmapAssocDontKnow == "") {
        $A11BmapAssocDontKnow = "0";
}

$A11BmapAssocDevPlan =$_POST['A11BmapAssocDevPlan'];
if ($A11BmapAssocDevPlan == "") {
        $A11BmapAssocDevPlan = "0";
}

$A11BmapAssocAPlan =$_POST['A11BmapAssocAPlan'];
if ($A11BmapAssocAPlan == "") {
        $A11BmapAssocAPlan = "0";
}

$A11BmapAssocPlanApp =$_POST['A11BmapAssocPlanApp'];
if ($A11BmapAssocPlanApp == "") {
        $A11BmapAssocPlanApp = "0";
}

$A11BmapAssocDirections =$_POST['A11BmapAssocDirections'];
if ($A11BmapAssocDirections == "") {
        $A11BmapAssocDirections = "0";
}

$A11BmapAssocOther =$_POST['A11BmapAssocOther'];
if ($A11BmapAssocOther == "") {
        $A11BmapAssocOther = "0";
}

// text input
$A11BmapAssocOther_specify =$_POST['A11BmapAssocOther_specify'];
if ($A11BmapAssocOther_specify == "") {
        $A11BmapAssocOther_specify = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$A11BmapAssocOther_specify = str_replace($apostrophe , $replaceApostrophe ,
$A11BmapAssocOther_specify);

$A11Cmapsat =$_POST['A11Cmapsat'];
if ($A11Cmapsat == "") {
        $A11Cmapsat = "0";
}

// text input
$A11CmapsatComment =$_POST['A11CmapsatComment'];
if ($A11CmapsatComment == "") {
        $A11CmapsatComment = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$A11CmapsatComment = str_replace($apostrophe , $replaceApostrophe ,
$A11CmapsatComment);

// Question 12
$A12mapbenefitDevplan =$_POST['A12mapbenefitDevplan'];
```

```
if ($A12mapbenefitDevplan == "") {
        $A12mapbenefitDevplan = "0";
}

$A12mapbenefitObjsDev =$_POST['A12mapbenefitObjsDev'];
if ($A12mapbenefitObjsDev == "") {
        $A12mapbenefitObjsDev = "0";
}

$A12mapbenefitApps =$_POST['A12mapbenefitApps'];
if ($A12mapbenefitApps == "") {
        $A12mapbenefitApps = "0";
}

$A12mapbenefitRegApp =$_POST['A12mapbenefitRegApp'];
if ($A12mapbenefitRegApp == "") {
        $A12mapbenefitRegApp = "0";
}

$A12mapbenefitObjsApps =$_POST['A12mapbenefitObjsApps'];
if ($A12mapbenefitObjsApps == "") {
        $A12mapbenefitObjsApps = "0";
}

$A12mapbenefitOther =$_POST['A12mapbenefitOther'];
if ($A12mapbenefitOther == "") {
        $A12mapbenefitOther = "0";
}
// text input
$A12mapbenefitSpecify =$_POST['A12mapbenefitSpecify'];
if ($A12mapbenefitSpecify == "") {
        $A12mapbenefitSpecify = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$A12mapbenefitSpecify = str_replace($apostrophe , $replaceApostrophe ,
$A12mapbenefitSpecify);

// Question 13
$A13mapfeaturesNone =$_POST['A13mapfeaturesNone'];
if ($A13mapfeaturesNone == "") {
        $A13mapfeaturesNone = "0";
}

$A13mapfeaturesStatic =$_POST['A13mapfeaturesStatic'];
if ($A13mapfeaturesStatic == "") {
        $A13mapfeaturesStatic = "0";
}

$A13mapfeaturesPrint =$_POST['A13mapfeaturesPrint'];
if ($A13mapfeaturesPrint == "") {
        $A13mapfeaturesPrint = "0";
}

$A13mapfeaturesResize =$_POST['A13mapfeaturesResize'];
if ($A13mapfeaturesResize == "") {
        $A13mapfeaturesResize = "0";
}

$A13mapfeaturesMove =$_POST['A13mapfeaturesMove'];
if ($A13mapfeaturesMove == "") {
        $A13mapfeaturesMove = "0";
}

$A13mapfeaturesWrite =$_POST['A13mapfeaturesWrite'];
if ($A13mapfeaturesWrite == "") {
        $A13mapfeaturesWrite = "0";
```

```
}

$A13mapfeaturesSave =$_POST['A13mapfeaturesSave'];
if ($A13mapfeaturesSave == "") {
        $A13mapfeaturesSave = "0";
}

$A13mapfeaturesLayers =$_POST['A13mapfeaturesLayers'];
if ($A13mapfeaturesLayers == "") {
        $A13mapfeaturesLayers = "0";
}

$A13mapfeaturesOther =$_POST['A13mapfeaturesOther'];
if ($A13mapfeaturesOther == "") {
        $A13mapfeaturesOther = "0";
}
// text input
$A13mapfeaturesOther_specify =$_POST['A13mapfeaturesOther_specify'];
if ($A13mapfeaturesOther_specify == "") {
        $A13mapfeaturesOther_specify = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$A13mapfeaturesOther_specify = str_replace($apostrophe , $replaceApostrophe ,
$A13mapfeaturesOther_specify);

// text input
$A13onlineMapping =$_POST['A13onlineMapping'];
if ($A13onlineMapping == "") {
        $A13onlineMapping = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$A13onlineMapping = str_replace($apostrophe , $replaceApostrophe , $A13onlineMapping);


// Enter the variables into the database
$query = "INSERT INTO rochema_tbl (IPAddress, BrowserOS, Date_Time, A1awareApp,
A2permission, A2AvisitSite, A2AVisitSite_Comment, A2BWhySite_submit,
A2BWhySite_download, A2BWhySite_info, A2BWhySite_contact, A2BWhySite_other,
A2BWhySite_other_specify, A2Cpurpose, A2Cpurpose_Comment, A2Dsat, A2Dsat_Comment,
A3Object, A3Object_visit, A3Object_visit_Comment, A3Object_commentApp, A3Object_info,
A3Object_contact, A3Object_other, A3Object_other_specify, A3Object_purpose,
A3Object_purpose_comment, A3Object_sat, A3Object_sat_comment, A4viewApp,
A4viewApp_visit, A4viewApp_visit_comment, A4viewApp_view, A4viewApp_lists,
A4viewApp_info, A4viewApp_contact, A4viewApp_other, A4viewApp_other_specify,
A4viewApp_complete, A4viewApp_complete_comment, A4viewApp_sat,
A4viewApp_sat_comment, A5devplanAware, A6subDevPlan, A6subDev_visit,
A6subDev_visit_comment, A6subDev_submit, A6subDev_info, A6subDev_contact,
A6subDev_other, A6subDev_other_specify, A6subDev_complete,
A6subDev_complete_comment, A6subDev_sat, A6subDev_sat_comment, A7viewDev,
A7viewDev_visit, A7viewDev_visit_comment, A7viewDev_view, A7viewDev_info,
A7viewDev_contact, A7viewDev_other, A7viewDev_other_specify, A7viewDev_complete,
A7viewDev_complete_comment, A7viewDev_sat, A7viewDev_sat_comment, A8other,
A8other_specify, A8other_visit, A8other_visit_comment, A8other_info, A8other_contact,
A8other_other, A8other_other_specify, A8other_complete, A8other_complete_comment,
A8other_sat, A8other_sat_comment, A9_planApp, A9_appComment, A9_viewApp,
A9_subDevPlan, A9_viewDevPlan, A9_Contact, A9_Other, A9_Other_specify,
A9_Other_comment, A10Available, A10Current, A10Reliable, A10Updated, A10Complete,
A10Useful, A10Find, A10experienceComments, A11maps, A11ALAmapsNotKnown,
A11ALAmapsImage, A11ALAmapsWord, A11ALAmapsInter, A11ALAmapsAerial,
A11ALAmaps3D, A11ALAmapsLayers, A11ALAmapsOther, A11ALAmapsOtherSpecify,
A11BmapAssocDontKnow, A11BmapAssocDevPlan, A11BmapAssocAPlan,
A11BmapAssocPlanApp, A11BmapAssocDirections, A11BmapAssocOther,
A11BmapAssocOther_specify, A11Cmapsat, A11CmapsatComment, A12mapbenefitDevplan,
A12mapbenefitObjsDev, A12mapbenefitApps, A12mapbenefitRegApp, A12mapbenefitObjsApps,
A12mapbenefitOther, A12mapbenefitSpecify, A13mapfeaturesNone, A13mapfeaturesStatic,
A13mapfeaturesPrint, A13mapfeaturesResize, A13mapfeaturesMove, A13mapfeaturesWrite,
```

```
A13mapfeaturesSave, A13mapfeaturesLayers, A13mapfeaturesOther,
A13mapfeaturesOther_specify, A13onlineMapping)
VALUES ('$IPAddress', '$BrowserOS', '$Date_Time', '$A1awareApp', '$A2permission',
'$A2AvisitSite', '$A2AVisitSite_Comment', '$A2BWhySite_submit', '$A2BWhySite_download',
'$A2BWhySite_info', '$A2BWhySite_contact', '$A2BWhySite_other',
'$A2BWhySite_other_specify', '$A2Cpurpose', '$A2Cpurpose_Comment', '$A2Dsat',
'$A2Dsat_Comment', '$A3Object', '$A3Object_visit', '$A3Object_visit_Comment',
'$A3Object_commentApp', '$A3Object_info', '$A3Object_contact', '$A3Object_other',
'$A3Object_other_specify', '$A3Object_purpose', '$A3Object_purpose_comment',
'$A3Object_sat', '$A3Object_sat_comment', '$A4viewApp', '$A4viewApp_visit',
'$A4viewApp_visit_comment', '$A4viewApp_view', '$A4viewApp_lists', '$A4viewApp_info',
'$A4viewApp_contact', '$A4viewApp_other', '$A4viewApp_other_specify',
'$A4viewApp_complete', '$A4viewApp_complete_comment', '$A4viewApp_sat',
'$A4viewApp_sat_comment', '$A5devplanAware', '$A6subDevPlan', '$A6subDev_visit',
'$A6subDev_visit_comment', '$A6subDev_submit', '$A6subDev_info', '$A6subDev_contact',
'$A6subDev_other', '$A6subDev_other_specify', '$A6subDev_complete',
'$A6subDev_complete_comment', '$A6subDev_sat', '$A6subDev_sat_comment', '$A7viewDev',
'$A7viewDev_visit', '$A7viewDev_visit_comment', '$A7viewDev_view', '$A7viewDev_info',
'$A7viewDev_contact', '$A7viewDev_other', '$A7viewDev_other_specify',
'$A7viewDev_complete', '$A7viewDev_complete_comment', '$A7viewDev_sat',
'$A7viewDev_sat_comment', '$A8other', '$A8other_specify', '$A8other_visit',
'$A8other_visit_comment', '$A8other_info', '$A8other_contact', '$A8other_other',
'$A8other_other_specify', '$A8other_complete', '$A8other_complete_comment', '$A8other_sat',
'$A8other_sat_comment', '$A9_planApp', '$A9_appComment', '$A9_viewApp',
'$A9_subDevPlan', '$A9_viewDevPlan', '$A9_Contact', '$A9_Other', '$A9_Other_specify',
'$A9_Other_comment', '$A10Available', '$A10Current', '$A10Reliable', '$A10Updated',
'$A10Complete', '$A10Useful', '$A10Find', '$A10experienceComments', '$A11maps',
'$A11ALAmapsNotKnown', '$A11ALAmapsImage', '$A11ALAmapsWord', '$A11ALAmapsInter',
'$A11ALAmapsAerial', '$A11ALAmaps3D', '$A11ALAmapsLayers', '$A11ALAmapsOther',
'$A11ALAmapsOtherSpecify', '$A11BmapAssocDontKnow', '$A11BmapAssocDevPlan',
'$A11BmapAssocAPlan', '$A11BmapAssocPlanApp', '$A11BmapAssocDirections',
'$A11BmapAssocOther', '$A11BmapAssocOther_specify', '$A11Cmapsat',
'$A11CmapsatComment', '$A12mapbenefitDevplan', '$A12mapbenefitObjsDev',
'$A12mapbenefitApps', '$A12mapbenefitRegApp', '$A12mapbenefitObjsApps',
'$A12mapbenefitOther', '$A12mapbenefitSpecify', '$A13mapfeaturesNone',
'$A13mapfeaturesStatic', '$A13mapfeaturesPrint', '$A13mapfeaturesResize',
'$A13mapfeaturesMove', '$A13mapfeaturesWrite', '$A13mapfeaturesSave',
'$A13mapfeaturesLayers', '$A13mapfeaturesOther', '$A13mapfeaturesOther_specify',
'$A13onlineMapping')";
$result = mysql_query($query) or die('Please contact Mairead at rochema@tcd.ie or 01
6082359 and if the problem
cannot be fixed immediately, a printed survey will be posted or a word document can be sent
out by email. Query failed: ' . mysql_error());

$query = "SELECT SessionID FROM rochema_tbl";

$result = mysql_query($query) or die('Please contact Mairead at rochema@tcd.ie or 01
6082359 and if the problem
cannot be fixed immediately, a printed survey will be posted or a word document can be sent
out by email. Query failed: ' . mysql_error());

$thisSession = 0;
while ($line = mysql_fetch_array($result, MYSQL_ASSOC)) {

   foreach ($line as $col_value) {
      if ($thisSession < $col_value) {
                $thisSession = $col_value;
        }

   }

}

?>

<html>
```

```
<head>
<title>Section B: Level of Local Authority Webpage Use</title>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
<link rel="stylesheet" href="surveysettings.css">
<SCRIPT LANGUAGE="JavaScript">
<!-- Begin
function popUp(URL) {
day = new Date();
id = day.getTime();
eval("page" + id + " = window.open(URL, '" + id + "',
'toolbar=0,scrollbars=1,location=0,statusbar=0,menubar=0,resizable=1,width=500,height=300
');");
}
// End -->
</script>
</head>

<body>
<table border="0" width="100%"><tr><td><h2>Section B: Level of Local Authority Webpage
Use</h2></td>
   <td>
    <div align="right">
     <table border="0">
      <tr>
       <td>
        <table width="85" border ="1">
         <tr>
          <td bgcolor="blue"> </td>
          <td bgcolor="blue"> </td>
          <td> </td>
          <td> </td>
         </tr>
        </table>
       </td>
       <td>[Section 2 of 4] </td>
      </tr>
     </table>
    </div>
   </td></tr></table>
<form name="SectionB_LocalAuth" method="post" action="sectionC_Internet.php">

<?
echo "<input type = \"hidden\" name=\"SessionID\" value =\"$thisSession\">";
// $thisSession is the unique identifier that will be the session tracking hidden value.
//
 ?>
<p class="question"><b><font size =+1>1. Have you ever used or looked for information on a
local
    authority webpage?</font></b> (City Councils, County Councils, Borough Councils
    and Urban District Councils (UDCs) but not Town Commissions) [Please select
    <b><u>one</u></b> answer by clicking the appropriate circle]
  </p>
<p class="indent">
    <input type="radio" name="B1LAWebUse" value="1">
    Yes<br>
    <input type="radio" name="B1LAWebUse" value="2">
   No <img src="arrow.jpg" width="22" height="13">[<b><u>If
   No</u></b>, <a href="javascript:document.SectionBLAUse.submit()">please Click Here to
go to the  Next Page</a><noscript>
   or by pressing the button at the end of this page.
   </noscript>
   ]</p>

   <p class="question"><b><font size =+1>2. In the last year, how often have you visited
local authority
```

```
 webpages?</font></b> [Please select <b><u>one</u></b> answer by clicking the
appropriate circle]</p>
   <p class="indent">
    <input type="radio" name="B2LAFreq" value="1">
    Every day<br>
    <input type="radio" name="B2LAFreq" value="2">
    A few times a week<br>
    <input type="radio" name="B2LAFreq" value="3">
    A few times a month<br>
    <input type="radio" name="B2LAFreq" value="4">
    A few times during the year <br>
    <input type="radio" name="B2LAFreq" value="5">
    Once in the last year<br>
    <input type="radio" name="B2LAFreq" value="6">
    Did not use in the last year </p>
<p class="question"><b><font size =+1>3. How did you find the local authority
webpages?</font></b>
 [Please select <b><u>one</u></b> answer by clicking the appropriate circle]</p>
<p class="indent">
    <input type="radio" name="B3findLA" value="1">
    Search engine <span class="question">(<A
HREF="javascript:popUp('http://www.tcd.ie/geography/survey/definitions.html#searchengine')"
><font size="-1">Click Here for an explanation of <b>search
engine</b></font></A>)</span><br>
    <input type="radio" name="B3findLA" value="2">
    Guessed the address<br>
    <input type="radio" name="B3findLA" value="3">
   Linked to it from another Webpage (<A
HREF="javascript:popUp('http://www.tcd.ie/geography/survey/definitions.html#link')"><font
size="-1">Click Here for an explanation of <b>Linked</b></font></A>) <br>
    <input type="radio" name="B3findLA" value="4">
   Linked to it from an email (<A
HREF="javascript:popUp('http://www.tcd.ie/geography/survey/definitions.html#link')"><font
size="-1">Click Here for an explanation of <b>Linked</b></font></A>)<br>
    <input type="radio" name="B3findLA" value="5">
    Typed in the address from a newspaper or flyer <br>
    <input type="radio" name="B3findLA" value="6">
    Cannot remember<br>
    <input type="radio" name="B3findLA" value="7">
    Other, please specify
    <input type="text" name="B3findLAOther" size=60>
 </p>
<p class="question"><b><font size =+1><b>4<font size =+1>. What was the purpose of
your last visit to the local authority webpages?</font></b><br>
    <TEXTAREA NAME="B5purpose" COLS=80 ROWS=3></TEXTAREA>
</font></b></p>
<p class="question"><b><font size =+1>5. How satisfied or dissatisfied were you with your
use of the
   local authority webpages?</font></b> [Please select <b><u>one</u></b> answer by
clicking the appropriate circle]</p>
<br>
<table width="80%" border="1">
 <tr>
  <td width="20%">
   <div align="center">Extremely Satisfied</div>
  </td>
  <td width="20%">
   <div align="center">Satisfied</div>
  </td>
  <td width="20%">
   <div align="center">Neither Satisfied nor Dissatisfied</div>
  </td>
  <td width="20%">
   <div align="center">Dissatisfied</div>
  </td>
  <td width="20%">
```

```
    <div align="center">Extremely Dissatisfied</div>
   </td>
  </tr>
  <tr>
   <td>
    <div align="center">
     <input type="radio" name="B4Sat" value="1">
    </div>
   </td>
   <td>
    <div align="center">
     <input type="radio" name="B4Sat" value="2">
    </div>
   </td>
   <td>
    <div align="center">
     <input type="radio" name="B4Sat" value="3">
    </div>
   </td>
   <td>
    <div align="center">
     <input type="radio" name="B4Sat" value="4">
    </div>
   </td>
   <td>
    <div align="center">
     <input type="radio" name="B4Sat" value="5">
    </div>
   </td>
  </tr>
</table>
<br>
<p class="indent"><b>Please comment briefly on your satisfaction/dissatisfaction</b><br>
    <TEXTAREA NAME="B4CommentSat" COLS=80 ROWS=3></TEXTAREA>
  </p>
  <p class="question">
   <input type="submit" name="SectionB" value="Go to the Next Page">
</p>
</form>
</body>
</html>

<?
// closing database connection

mysql_close ($dbase);

// database connection closed
?>
```

SectionC_Internet.php

```
<?
// opening connection to database using supplied credentials

$dbase = mysql_connect( "www.tcd.ie" , "rochema", "bTeKdExn")
or die("Please contact Mairead at rochema@tcd.ie or 01 6082359 and if the problem
cannot be fixed immediately, a printed survey will be posted or a word document can be sent
out by email. Could not connect: " . mysql_error());
mysql_select_db("rochema_db")
or die("Please contact Mairead at rochema@tcd.ie or 01 6082359 and if the problem
cannot be fixed immediately, a printed survey will be posted or a word document can be sent
out by email. Could not select database: " . mysql_eror());

// opened connection
?>


<?
$SessionID =$_POST['SessionID'];
if ($SessionID== "") {
        $SessionID = "0";
}

// Apostrophes cause SQL errors and need to be replaced in the text variables that will be
submitted
$apostrophe = "'";

// * will be placed instead of the apostrophe
$replaceApostrophe = "*";

// Read in variables from Section B
// Question 1
$B1LAWebUse =$_POST['B1LAWebUse'];
if ($B1LAWebUse == "") {
        $B1LAWebUse = "0";
}

// Question 2
$B2LAFreq =$_POST['B2LAFreq'];
if ($B2LAFreq == "") {
        $B2LAFreq = "0";
}

//Question 3
$B3findLA =$_POST['B3findLA'];
if ($B3findLA == "") {
        $B3findLA = "0";
}

// text input
$B3findLAOther =$_POST['B3findLAOther'];
if ($B3findLAOther == "") {
        $B3findLAOther = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$B3findLAOther = str_replace($apostrophe , $replaceApostrophe , $B3findLAOther);

// Question 4
$B4Sat =$_POST['B4Sat'];
if ($B4Sat == "") {
        $B4Sat = "0";
}
```

```
// text input
$B4CommentSat =$_POST['B4CommentSat'];
if ($B4CommentSat == "") {
        $B4CommentSat = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$B4CommentSat = str_replace($apostrophe , $replaceApostrophe , $B4CommentSat);

// Question 5
$B5purpose =$_POST['B5purpose'];
if ($B5purpose == "") {
        $B5purpose = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$B5purpose = str_replace($apostrophe , $replaceApostrophe , $B5purpose);

$query = "UPDATE rochema_tbl  SET B1LAWebUse='$B1LAWebUse', B2LAFreq='$B2LAFreq',
B3findLA='$B3findLA', B3findLAOther='$B3findLAOther', B4Sat='$B4Sat',
B4CommentSat='$B4CommentSat', B5purpose='$B5purpose' WHERE SessionID
='$SessionID'";

$result = mysql_query($query) or die('Please contact Mairead at rochema@tcd.ie or 01
6082359 and if the problem cannot be fixed immediately, a printed survey will be posted or a
word document can be sent out by email. Query failed: ' . mysql_error());

?>

<html>
<head>
<title>Section C: Internet Use</title>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
<link rel="stylesheet" href="surveysettings.css">
<SCRIPT LANGUAGE="JavaScript">
<!-- Begin
function popUp(URL) {
day = new Date();
id = day.getTime();
eval("page" + id + " = window.open(URL, '" + id + "',
'toolbar=0,scrollbars=1,location=0,statusbar=0,menubar=0,resizable=1,width=500,height=300
');");
}
// End -->
</script>
</head>

<body>
<table border="0" width="100%"><tr><td><h2>Section C: Internet Use </h2></td>
   <td>
    <div align="right">
     <table border="0">
      <tr>
       <td>
        <table width="85" border ="1">
         <tr>
          <td bgcolor="blue"> </td>
          <td bgcolor="blue"> </td>
          <td bgcolor="blue"> </td>
          <td> </td>
         </tr>
        </table>
       </td>
       <td>[Section 3 of 4] </td>
      </tr>
     </table>
    </div>
   </td></tr></table>
```

```
 <form name="InternetUse" method="POST" action="sectionD_demographic.php">
 <?
echo "<input type = \"hidden\" name=\"SessionID\" value =\"$SessionID\">";
// $thisSession is the unique identifier that will be the session tracking hidden value.
//
 ?>
<p class="question"><b><font size=+1>1. How often do you use the Internet?</font></b>
(<A
HREF="javascript:popUp('http://www.tcd.ie/geography/survey/definitions.html#Internet')"><fo
nt size="-1">Click Here for an explanation of <b>Internet</b></font></A>) [Please select
<b><u>one</u></b> answer
 by clicking the appropriate circle]</p>
     <p class="indent">
    <input type="radio" name="C1netfreq" value="1">
    Every day <br>
    <input type="radio" name="C1netfreq" value="2">
    A few times a week<br>
    <input type="radio" name="C1netfreq" value="3">
    Once a week<br>
    <input type="radio" name="C1netfreq" value="4">
    Once a month <br>
    <input type="radio" name="C1netfreq" value="5">
    Less than once a month</p>
<p class="question"><b><font size=+1>2. Over the last week, how long have you spent on
the Internet
 on average per day? </font></b>[Please select <b><u>one</u></b> answer by clicking
the appropriate circle]<br>
</p>
<p class="indent">
    <input type="radio" name="C2weeknetuse" value="1">
    Less than 10 minutes per day<br>
    <input type="radio" name="C2weeknetuse" value="2">
    10 to 30 minutes<br>
    <input type="radio" name="C2weeknetuse" value="3">
    30 to 60 minutes<br>
    <input type="radio" name="C2weeknetuse" value="4">
    1 to 2 hours<br>
    <input type="radio" name="C2weeknetuse" value="5">
    2 to 4 hours<br>
    <input type="radio" name="C2weeknetuse" value="6">
    More than 4 hours</p>
 <p class="question"><b><font size=+1>3. In the past month have you accessed
  the Internet
  from any of the following Internet access locations? </font></b> [Please select <u>
<b>all</b></u> that apply by clicking the appropriate box(es)]</p>
 <p class="indent">
  <input type="checkbox" name="C3Home" value="1">
  Home<br>
  <input type="checkbox" name="C3Work" value="1">
  Work<br>
  <input type="checkbox" name="C3University" value="1">
  University (as a student)<br>
  <input type="checkbox" name="C3Cafe" value="1">
  Internet Cafes<br>
  <input type="checkbox" name="C3Club" value="1">
  Club, society or voluntary organisation<br>
  <input type="checkbox" name="C3Library" value="1">
  Library<br>
  <input type="checkbox" name="C3Other" value="1">
  Other, please specify
  <input type="text" name="C3other_Internetaccess" size=60>
 </p>
<p class="question"><b><font size=+1>4. Which of the following connection types do you
<u>mostly</u> use to
  access the Internet? </font></b> [Please select <b><u>one</u></b> answer by
  clicking the appropriate circle]</p>
```

```
<p class="indent">
<input type="radio" name="C4Connection" value="1">
Don't know<br>
<input type="radio" name="C4Connection" value="2">
Dialup modem (e.g. 56kbps modem)<br>
<input type="radio" name="C4Connection" value="3">
ISDN (Integrated Services Digital Network)<br>
<input type="radio" name="C4Connection" value="4">
Broadband<br>
<input type="radio" name="C4Connection" value="5">
Mobile phone (GPRS: General Packet Radio Service)<br>
<input type="radio" name="C4Connection" value="6">
Other, please specify
<input type="text" name="C4ConnectionOtherSpecify" size=60>
</p>
<p class="question"><b><font size=+1>5. How do you <u>usually</u> find information on
the Internet when you are interested in a particular topic? </font></b>(for example,
information on games, fashion, sport, work related, etc&#133;)
[Please select <b><u>one</u></b> answer by clicking the appropriate circle]</p>
<p class="indent">
<input type="radio" name="C5findInfo" value="1">
On your homepage or company or ISP (the first page)<br>
<input type="radio" name="C5findInfo" value="2">
Through a search engine (e.g. Google)<br>
<input type="radio" name="C5findInfo" value="3">
By guessing the web address (e.g. guessing that information on cars might
be available at cars.com)<br>
<input type="radio" name="C5findInfo" value="4">
From offline media such as newspapers, radio, television, etc.<br>
<input type="radio" name="C5findInfo" value="5">
Other, please specify
<input type="text" name="C5otherinfoFind" size=60>
</p>
<p class="question"><b><font size="+1">6. O<b><font size="+1">n the
Internet</font></b>, have
you ever completed any of the following options? </font></b> [Please select <u>
<b>all</b></u> that apply by
clicking the appropriate box(es)]</p>
<p class="indent">
<input type="checkbox" name="C6webuseInfo" value="1">
Looked for information about a topic of interest or leisure activity (cars,
games, cinema, fashion, sport, etc&#133;)<br>
<input type="checkbox" name="C6webusePurchase" value="1">
Purchased an item (flights, books, CDs, DVDs, clothes, insurance, etc&#133;)<br>
<input type="checkbox" name="C6webuseRecommend" value="1">
Visited an Internet site recommended by a friend, in an email, or in a newspaper,
etc.<br>
<input type="checkbox" name="C6webuseWork" value="1">
Used for work<br>
<input type="checkbox" name="C6webuseResearch" value="1">
Used for research<br>
<input type="checkbox" name="C6webuseBookmark" value="1">
Bookmarked a site (<A
HREF="javascript:popUp('http://www.tcd.ie/geography/survey/definitions.html#bookmark')"><
font size="-1">Click Here for an explanation of <b>Bookmarked</b></font></A>)<br>
<input type="checkbox" name="C6webuseSearchengine" value="1">
Used a search engine <br>
<input type="checkbox" name="C6webuseOnlineBank" value="1">
Used online banking or financial services<br>
<input type="checkbox" name="C6webuseChatrooms" value="1">
Used a chatroom <br>
<input type="checkbox" name="C6webuseEmail" value="1">
Sent an email </p>
<p class="indent"><b><font size="+1"> Apart from the activities mentioned
do you use the Internet for anything else?</font></b> <br>
<textarea NAME="C6OtherActivities" COLS=80 ROWS=3></TEXTAREA>
```

```
  </p>
  <p class="question"><b><font size="+1">7. Which <u>one</u> of the following search
engines do you mostly use? </font></b>(<A
HREF="javascript:popUp('http://www.tcd.ie/geography/survey/definitions.html#searchengine')"
><font size="-1">Click Here for an explanation of <b>search engine</b></font></A>)
[Please select <b><u>one</u></b> answer by clicking
    the appropriate circle]</p>
  <p class="indent">
      <input type="radio" name="C7searchengine" value="1">
      I do not use a search engine<br>
            <input type="radio" name="C7searchengine" value="2">
      Don't know<br>
      <input type="radio" name="C7searchengine" value="3">
      MSN<br>
      <input type="radio" name="C7searchengine" value="4">
      Yahoo!<br>
      <input type="radio" name="C7searchengine" value="5">
      Google<br>
      <input type="radio" name="C7searchengine" value="6">
      AskJeeves<br>
      <input type="radio" name="C7searchengine" value="7">
      A search engine on your homepage <span class="question">(<A
HREF="javascript:popUp('http://www.tcd.ie/geography/survey/definitions.html#homepage')">
<font size="-1">Click Here for an explanation of
<b>homepage</b></font></A>)</span><br>
      <input type="radio" name="C7searchengine" value="8">
      Other, please specify
      <input type="text" name="C7OtherSearchEngine" size=60>
    </p>
<p>
  <input type="submit" name="SectionC" value="Go to the Next Page">
</p>
</form>
</body>
</html>

<?

// closing database connection

mysql_close ($dbase);

// database connection closed

?>
```

SectionD_demographic.php

```
<?
// opening connection to database using supplied credentials

$dbase = mysql_connect( "www.tcd.ie" , "rochema", "bTeKdExn")
or die("Please contact Mairead at rochema@tcd.ie or 01 6082359 and if the problem
cannot be fixed immediately, a printed survey will be posted or a word document can be sent
out by email. Could not connect: " . mysql_error());
mysql_select_db("rochema_db")
or die("Please contact Mairead at rochema@tcd.ie or 01 6082359 and if the problem
cannot be fixed immediately, a printed survey will be posted or a word document can be sent
out by email. Could not select database: " . mysql_eror());


// opened connection
?>

<?
$SessionID =$_POST['SessionID'];
if ($SessionID== "") {
        $SessionID = "0";
}

// Apostrophes cause SQL errors and need to be replaced in the text variables that will be
submitted
$apostrophe = "'";

// * will be placed instead of the apostrophe
$replaceApostrophe = "*";

// Read in Variables from Section C
// Question 1
$C1netfreq =$_POST['C1netfreq'];
if ($C1netfreq == "") {
        $C1netfreq = "0";
}

// Question 2
$C2weeknetuse =$_POST['C2weeknetuse'];
if ($C2weeknetuse == "") {
        $C2weeknetuse = "0";
}

// Question 3
$C3Home =$_POST['C3Home'];
if ($C3Home == "") {
        $C3Home = "0";
}

$C3Work =$_POST['C3Work'];
if ($C3Work == "") {
        $C3Work = "0";
}

$C3University =$_POST['C3University'];
if ($C3University == "") {
        $C3University = "0";
}

$C3Cafe =$_POST['C3Cafe'];
if ($C3Cafe == "") {
        $C3Cafe = "0";
}
```

```
$C3Club =$_POST['C3Club'];
if ($C3Club == "") {
        $C3Club = "0";
}

$C3Library =$_POST['C3Library'];
if ($C3Library == "") {
        $C3Library = "0";
}

$C3Other =$_POST['C3Other'];
if ($C3Other == "") {
        $C3Other = "0";
}

//text input
$C3other_Internetaccess = $_POST['C3other_Internetaccess'];
if ($C3other_Internetaccess == "") {
        $C3other_Internetaccess = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$C3other_Internetaccess = str_replace($apostrophe , $replaceApostrophe ,
$C3other_Internetaccess);

// Question 4
$C4Connection =$_POST['C4Connection'];
if ($C4Connection == "") {
        $C4Connection = "0";
}

//text input
$C4ConnectionOtherSpecify =$_POST['C4ConnectionOtherSpecify'];
if ($C4ConnectionOtherSpecify == "") {
        $C4ConnectionOtherSpecify = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$C4ConnectionOtherSpecify = str_replace($apostrophe , $replaceApostrophe ,
$C4ConnectionOtherSpecify);

// Question 5
$C5findInfo =$_POST['C5findInfo'];
if ($C5findInfo == "") {
        $C5findInfo = "0";
}

//text input
$C5otherinfoFind =$_POST['C5otherinfoFind'];
if ($C5otherinfoFind == "") {
        $C5otherinfoFind = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$C5otherinfoFind = str_replace($apostrophe , $replaceApostrophe , $C5otherinfoFind);

// Question 6
$C6webuseInfo =$_POST['C6webuseInfo'];
if ($C6webuseInfo == "") {
        $C6webuseInfo = "0";
}

$C6webusePurchase =$_POST['C6webusePurchase'];
if ($C6webusePurchase == "") {
        $C6webusePurchase = "0";
}

$C6webuseRecommend =$_POST['C6webuseRecommend'];
```

```
if ($C6webuseRecommend == "") {
	$C6webuseRecommend = "0";
}

$C6webuseWork =$_POST['C6webuseWork'];
if ($C6webuseWork == "") {
	$C6webuseWork = "0";
}

$C6webuseResearch =$_POST['C6webuseResearch'];
if ($C6webuseResearch == "") {
	$C6webuseResearch = "0";
}

$C6webuseBookmark =$_POST['C6webuseBookmark'];
if ($C6webuseBookmark == "") {
	$C6webuseBookmark = "0";
}

$C6webuseSearchengine =$_POST['C6webuseSearchengine'];
if ($C6webuseSearchengine == "") {
	$C6webuseSearchengine = "0";
}

$C6webuseOnlineBank =$_POST['C6webuseOnlineBank'];
if ($C6webuseOnlineBank == "") {
	$C6webuseOnlineBank = "0";
}

$C6webuseChatrooms =$_POST['C6webuseChatrooms'];
if ($C6webuseChatrooms == "") {
	$C6webuseChatrooms = "0";
}

$C6webuseEmail =$_POST['C6webuseEmail'];
if ($C6webuseEmail == "") {
	$C6webuseEmail = "0";
}

//text input
$C6OtherActivities =$_POST['C6OtherActivities'];
if ($C6OtherActivities == "") {
	$C6OtherActivities = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$C6OtherActivities = str_replace($apostrophe , $replaceApostrophe , $C6OtherActivities);

// Question 7
$C7searchengine =$_POST['C7searchengine'];
if ($C7searchengine == "") {
	$C7searchengine = "0";
}

//text input
$C7OtherSearchEngine =$_POST['C7OtherSearchEngine'];
if ($C7searchengine == "") {
	$C7searchengine = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$C7OtherSearchEngine = str_replace($apostrophe , $replaceApostrophe ,
$C7OtherSearchEngine);

// Enter information into the database
$query = "UPDATE rochema_tbl  SET
C1netfreq='$C1netfreq',
C2weeknetuse='$C2weeknetuse',
```

```
C3Home='$C3Home', C3Work='$C3Work', C3University='$C3University', C3Cafe='$C3Cafe',
C3Club='$C3Club', C3Library='$C3Library', C3Other='$C3Other',
C3other_Internetaccess='$C3other_Internetaccess',
C4Connection='$C4Connection', C4ConnectionOtherSpecify='$C4ConnectionOtherSpecify',
C5findInfo='$C5findInfo', C5otherinfoFind='$C5otherinfoFind',
C6webuseInfo='$C6webuseInfo', C6webusePurchase='$C6webusePurchase',
C6webuseRecommend='$C6webuseRecommend', C6webuseWork='$C6webuseWork',
C6webuseResearch='$C6webuseResearch', C6webuseBookmark='$C6webuseBookmark',
C6webuseSearchengine='$C6webuseSearchengine',
C6webuseOnlineBank='$C6webuseOnlineBank', C6webuseChatrooms='$C6webuseChatrooms',
C6webuseEmail='$C6webuseEmail', C6OtherActivities='$C6OtherActivities',
C7searchengine='$C7searchengine', C7OtherSearchEngine='$C7OtherSearchEngine'
WHERE SessionID ='$SessionID'";

$result = mysql_query($query) or die('Please contact Mairead at rochema@tcd.ie or 01
6082359 and if the problem cannot be fixed immediately, a printed survey will be posted or a
word document can be sent out by email. Query failed: ' . mysql_error());

?>

<html>
<head>
<title>Section D: Demographic Characteristics</title>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
<link rel="stylesheet" href="surveysettings.css">
<script language="javascript">
<!--//
function nullOptionsDMA(aMenu){
        var tot=aMenu.options.length;
        for (i=0;i<tot;i++)
        {
                aMenu.options[i]=null
        }
        aMenu.options.length=0;
}

function addRelevantAuthorities(aMenu, noSelected){
        nullOptionsDMA(aMenu)

        var categories;
        categories = Array(30);
        categories[0] = Array('Carlow County Council', 'Carlow Town Council');
        categories[1] = Array('Cavan County Council', 'Cavan Town Council');
        categories[2] = Array('Clare County Council', 'Ennis Town Council', 'Kilrush Town
Council');
        categories[3] = Array('Cork County Council', 'Cork City Council', 'Clonakilty Town
Council', 'Cobh Town Council', 'Fermoy Town Council', 'Kinsale Town Council', 'Macroom Town
Council', 'Mallow Town Council', 'Midleton Town Council', 'Skibbereen Town Council', 'Youghal
Town Council' );
        categories[4] = Array('Donegal County Council', 'Buncrana Town Council', 'Bundoran
Town Council', 'Letterkenny Town Council');
        categories[5] = Array('Dublin City');
        categories[6] = Array('Dun Laoghaire - Rathdown County Council');
        categories[7] = Array('Fingal County Council');
        categories[8] = Array('Galway County Council', 'Galway City Council', 'Ballinasloe Town
Council');
        categories[9] = Array('Kerry County Council', 'Killarney Town Council', 'Listowel Town
Council', 'Tralee Town Council');
        categories[10] = Array('Kildare County Council', 'Athy Town Council', 'Naas Town
Council');
        categories[11] = Array('Kilkenny County Council', 'Kilkenny Borough Council');
        categories[12] = Array('Laois County Council');
        categories[13] = Array('Leitrim County Council');
        categories[14] = Array('Limerick County Council', 'Limerick City Council');
        categories[15] = Array('Longford County Council', 'Longford Town Council');
```

```
	categories[16] = Array('Louth County Council', 'Drogheda Town Council', 'Dundalk Town
Council');
	categories[17] = Array('Mayo County Council', 'Ballina Town Council', 'Castlebar Town
Council', 'Westport Town Council');
	categories[18] = Array('Meath County Council', 'Kells (Ceannanas Mor) Town Council',
'Navan Town Council', 'Trim Town Council');
	categories[19] = Array('Monaghan County Council', 'Carrickmacross Town Council',
'Castleblayney Town Council', 'Clones Town Council', 'Monaghan Town Council');
	categories[20] = Array('Offaly County Council', 'Birr Town Council', 'Tullamore Town
Council');
	categories[21] = Array('Roscommon County Council');
	categories[22] = Array('Sligo County Council', 'Sligo Borough Council');
	categories[23] = Array('South Dublin County Council');
	categories[24] = Array('Tipperary (North)County Council', 'Nenagh Town Council',
'Templemore Town Council', 'Thurles Town Council');
	categories[25] = Array('Tipperary (South) County Council', 'Carrick on Suir Town
Council', 'Cashel Town Council', 'Clonmel Borough Council');
	categories[26] = Array('Waterford County Council', 'Waterford City Council', 'Dungarvan
Town Council');
	categories[27] = Array('Westmeath County Council', 'Athlone Town Council');
	categories[28] = Array('Wexford County Council', 'Wexford Borough Council',
'Enniscorthy Town Council', 'New Ross Town Council');
	categories[29] = Array('Wicklow County Council', 'Arklow Town Council', 'Bray Town
Council', 'Wicklow Town Council');

var arraystuff;
arraystuff = categories[noSelected-1];

	with (aMenu){
		//Rewrites the text and values
		options[0] = new Option("Please select your Planning Authority", "");
		for(i=0; i < arraystuff.length; i++) {
					options[i+1] = new Option(arraystuff[i], arraystuff[i]);
		}
		options[0].selected=true;
	}
}

/* ######################## setUp ######################## */
function setUpAuthorities(){

	with (document.sectionD) {

		if (D6AdminCounty.selectedIndex==0){

			D6AdminCounty.options[0].selected=true

			D7PlanAuthority.options[0].selected=true
		} else
		{addRelevantAuthorities(D7PlanAuthority)
		}
	}

}

/* ######################## changeFiles ######################## */
function changePlanningAuthority(){
	aMenu=document.sectionD.D6AdminCounty
	aMenu2=document.sectionD.D7PlanAuthority
	with (aMenu){

		if (selectedIndex==0) {
				aMenu2.options.length=0;
				aMenu2.options[0]= new Option("Planning Authorities appear
here","none")
				aMenu2.options[0].selected=true;
```

```
                                history.go(0)
                } else {
                                addRelevantAuthorities(aMenu2, selectedIndex);
                                aMenu2.options[0].text="Please select your Planning Authority";
                }
        }
}

//-->
</script>
</head>

<body onLoad="setUpAuthorities()">
<table border="0" width="100%"><tr><td><h2>Section D: Demographic
Characteristics</h2></td>
   <td>
    <div align="right">
     <table border="0">
      <tr>
       <td>
        <table width="85" border ="1">
         <tr>
          <td bgcolor="blue"> </td>
          <td bgcolor="blue"> </td>
          <td bgcolor="blue"> </td>
          <td bgcolor="blue"> </td>
         </tr>
        </table>
       </td>
       <td>[Section 4 of 4] </td>
      </tr>
     </table>
    </div>
   </td></tr></table>
<form name="sectionD" method="post" action="final.php">
<?
echo "<input type = \"hidden\" name=\"SessionID\" value =\"$SessionID\">";
// $thisSession is the unique identifier that will be the session tracking hidden value.
//
 ?>
<p class="question"><b><font size="+1">1. Have you had to  deal with the Planning
 System as part of your work?</font></b> (The Planning System comprises of all
 aspects of planning permission and development or local plans) [Please select
 <b>one</b> answer by clicking the appropriate circle]</p>
 <p class="indent">
  <input type="radio" name="D1work" value="1">
  Yes <br>
  <input type="radio" name="D1work" value="2">
  No <img src="arrow.jpg" width="22" height="13">[<u><b>If No</b></u>, <a
href="#q2">please
  Click Here to go to Question 2</a>]</p>
 <p class="subquestion"><b><font size="+1">A. Which of the following categories
 best describes your occupation?</font></b> [Please select <b><u>one</u></b>
 answer by clicking the appropriate circle]</p>
    <p class="subindent">
        <input type="radio" name="D1iworkType" value="1">
        Architecture<br>
                        <input type="radio" name="D1iworkType" value="2">
        Community group <br>
        <input type="radio" name="D1iworkType" value="3">
        Chamber of Commerce <br>
        <input type="radio" name="D1iworkType" value="4">
        Environmental<br>
        <input type="radio" name="D1iworkType" value="5">
        Property development<br>
        <input type="radio" name="D1iworkType" value="6">
```

```
        Planning<br>
        <input type="radio" name="D1iworkType" value="7">
        Other, please specify
        <input type="text" name="D1iworkTypeOtherSpecify" size=60>
  </p>

<p class="subquestion"><font size="+1"><b>B. How many staff members does your
  organisation employ?</b></font> [Please select <b><u>one</u></b> answer by clicking
the appropriate circle]</p>
    <p class="subindent">
        <input type="radio" name="D1iiworkstaff" value="1">
        0-10<br>
        <input type="radio" name="D1iiworkstaff" value="2">
        11-49<br>
        <input type="radio" name="D1iiworkstaff" value="3">
        50-249<br>
        <input type="radio" name="D1iiworkstaff" value="4">
        250+</p>

<p class="subquestion"><font size="+1"><b>C. Does your organisation represent
  members?</b></font></p>
<p class="subindent">
  <input type="radio" name="D1members" value="1">
Yes <br>
<input type="radio" name="D1members" value="2">
No <img src="arrow.jpg" width="22" height="13">[<u><b>If No</b></u>, <a
href="#q2">please Click Here to go to Question 2</a>]</span></p>
<p class="subquestion"><font size="+1"><b>D. What is the membership of your
organisation?</b></font> [Please select <b><u>one</u></b>
   answer by clicking the appropriate circle] </p>
<p class="subindent">
                        <input type="radio" name="D1iiiworkmembers" value="1">
        Not applicable<br>
        <input type="radio" name="D1iiiworkmembers" value="2">
        0-49<br>
        <input type="radio" name="D1iiiworkmembers" value="3">
        50-249<br>
        <input type="radio" name="D1iiiworkmembers" value="4">
        250-499<br>
        <input type="radio" name="D1iiiworkmembers" value="5">
        500-999<br>
        <input type="radio" name="D1iiiworkmembers" value="6">
        1,000+ <br>
                        <input type="radio" name="D1iiiworkmembers" value="7">
        Don't know</p>
<p class="question"><font size="+1"><b><a name="q2"></a>2. Have you had  to deal
  with the Planning System as part of any volunteer work?</b></font> [Please select
  <b><u>one</u></b> answer by clicking the appropriate circle]</p>
  <p class="indent">
    <input type="radio" name="D2Volunteer" value="1">
    Yes<br>
    <input type="radio" name="D2Volunteer" value="2">
    No <img src="arrow.jpg" width="22" height="13">[<u><b>If No</b></u>, <a
href="#q3">please
    Click Here to go to Question 3</a>] </p>

  <p class="subquestion"><font size="+1"><b>A. Which of the following voluntary
  categories best describes your volunteer work?</b></font> [Please select
<b><u>all</u></b>
  that apply by clicking the appropriate box(es)]</p>
     <p class="subindent">
        <input type="checkbox" name="D2iVolunteerTypeEnvironment" value="1">
        Environmental<br>
        <input type="checkbox" name="D2iVolunteerTypeCommunity" value="1">
        Community <br>
        <input type="checkbox" name="D2iVolunteerTypeCommerce" value="1">
```

```
        Chamber of Commerce<br>
        <input type="checkbox" name="D2iVolunteerTypeResidents" value="1">
        Residents' Association<br>
        <input type="checkbox" name="D2iVolunteerTypeOther" value="1">
        Other, please specify
        <input type="text" name="D2iVolunteerTypeOtherSpecify" size=60>
 </p>

<p class="subquestion"><font size="+1"><b>B. How many members does your voluntary
 organisation represent?</b></font> [Please select <b><u>one</u></b> answer by clicking
the appropriate circle]</p>
 <p class="subindent">
        <input type="radio" name="D2iiVolunteermembers" value="1">
        Not applicable<br>
        <input type="radio" name="D2iiVolunteermembers" value="2">
        0-49<br>
        <input type="radio" name="D2iiVolunteermembers" value="3">
        50-249<br>
        <input type="radio" name="D2iiVolunteermembers" value="4">
        250-499<br>
        <input type="radio" name="D2iiVolunteermembers" value="5">
        500-999<br>
        <input type="radio" name="D2iiVolunteermembers" value="6">
        1,000+<br>
                <input type="radio" name="D1iiiworkmembers" value="7">
        Don't know</p>

<p class="question"><font size="+1"><b><a name="q3"></a>3. What gender are
you?</b></font>
 [Please select <b><u>one</u></b> answer by clicking the appropriate circle]</p>
 <p class="indent"><input type="radio" name="D3gender" value="1">
 Male<br>
 <input type="radio" name="D3gender" value="2">
 Female</p>
<p class="question"><font size="+1"><b>4. Which of the following age groups do
 you belong to?</b></font> [Please select <b><u>one</u></b> answer by clicking the
appropriate circle]</p>
 <p class="indent"><input type="radio" name="D4Age" value="1">
 Under 19<br>
 <input type="radio" name="D4Age" value="2">
 20-29<br>
 <input type="radio" name="D4Age" value="3">
 30-39<br>
 <input type="radio" name="D4Age" value="4">
 40-49<br>
 <input type="radio" name="D4Age" value="5">
 50-59<br>
 <input type="radio" name="D4Age" value="6">
 60-69<br>
 <input type="radio" name="D4Age" value="7">
 69 and over</p>
 <p class="question"><font size="+1"><b>5. Did you complete&#133;?</b> </font>[Please
 select <b><u>all</u></b> relevant answers by clicking the appropriate box(es)]</p>
 <p class="indent"><input type="checkbox" name="D5EducationPrimary" value="1">
 Primary School<br>
 <input type="checkbox" name="D5EducationPostPrimary" value="1">
 Post Primary School<br>
 <input type="checkbox" name="D5EducationTech" value="1">
 Technical or Vocational Qualification<br>
 <input type="checkbox" name="D5EducationThird" value="1">
 Third Level Institution (cert, diploma or degree)<br>
 <input type="checkbox" name="D5EducationProfessional" value="1">
 Professional Qualification (degree status or greater) <br>
 <input type="checkbox" name="D5EducationPostgrad" value="1">
 Postgraduate Qualification (diploma, masters, PhD) <br>
 <input type="checkbox" name="D5EducationOther" value="1">
```

```
 Other, please specify
 <input type="text" name="D5EducationOtherSpecify" size=60>
</p>
<p class="question"><font size="+1"><b>6. What administrative county do you <u>live</u>
in? </b></font>[Please select <b><u>one</u></b> answer by clicking on the drop-down
menu]<br>
 <select id="D6AdminCounty" name="D6AdminCounty"
onChange="changePlanningAuthority()">
   <option value="none" >Select a county
    <option value="0">Carlow</option>
     <option value="1">Cavan</option>
     <option value="2">Clare</option>
     <option value="3">Cork</option>
     <option value="4">Donegal</option>
     <option value="5">Dublin City</option>
     <option value="6">Dun Laoghaire - Rathdown</option>
     <option value="7">Fingal</option>
     <option value="8">Galway</option>
     <option value="9">Kerry</option>
     <option value="10">Kildare</option>
     <option value="11">Kilkenny</option>
     <option value="12">Laois</option>
     <option value="13">Leitrim</option>
     <option value="14">Limerick</option>
     <option value="15">Longford</option>
     <option value="16">Louth</option>
     <option value="17">Mayo</option>
     <option value="18">Meath</option>
     <option value="19">Monaghan</option>
     <option value="20">Offaly</option>
     <option value="21">Roscommon</option>
     <option value="22">Sligo</option>
     <option value="23">South Dublin</option>
     <option value="24">Tipperary (North)</option>
     <option value="25">Tipperary (South)</option>
     <option value="26">Waterford</option>
     <option value="27">Westmeath</option>
     <option value="28">Wexford</option>
     <option value="29">Wicklow</option>
 </select>
</p>
<p class="question"><font size="+1"><b>7. What planning authority area do you
<u>live</u> in? </b></font><br>
 (Planning authorities are County Councils, City Councils, Borough Councils and Urban District
Councils (UDCs) but not Town Commissions.) <br>
 <select id="D7PlanAuthority" name="D7PlanAuthority">
   <option value="none"> Planning Authorities will appear here after you select a county
   </select>
<noscript>
<input type="text" name="D7noscript" size="90" value="Please type your Planning Authority in
this box if it does not appear in the drop-down menu">
</noscript>
<p class="question"><strong><font size="+1">8</font></strong><b><font size="+1">. Are
there any additional comments you
    would like to make?</font></b><br>
    <TEXTAREA NAME="D8AdditionalComments" COLS=80 ROWS=3></TEXTAREA>
</p>
<p>
 <input type="submit" name="EndQuestionnaire" value="Submit Questionnaire">
</p>
</form>
</body>
</html>

<?
// closing database connection
```

```
mysql_close ($dbase);

// database connection closed
?>
```

final.php

```
<?
// opening connection to database using supplied credentials

$dbase = mysql_connect( "www.tcd.ie" , "rochema", "bTeKdExn")
or die("Please contact Mairead at rochema@tcd.ie or 01 6082359 and if the problem
cannot be fixed immediately, a printed survey will be posted or a word document can be sent
out by email. Could not connect: " . mysql_error());
mysql_select_db("rochema_db")
or die("Please contact Mairead at rochema@tcd.ie or 01 6082359 and if the problem
cannot be fixed immediately, a printed survey will be posted or a word document can be sent
out by email. Could not select database: " . mysql_eror());


// opened connection
?>

<?

// Read in Section D
$SessionID =$_POST['SessionID'];
if ($SessionID== "") {
        $SessionID = "0";
}

// Apostrophes cause SQL errors and need to be replaced in the text variables that will be
submitted
$apostrophe = "'";

// * will be placed instead of the apostrophe
$replaceApostrophe = "*";

// Read in the variables from Section D
// Question 1
$D1work =$_POST['D1work'];
if ($D1work == "") {
        $D1work = "0";
}

$D1iworkType =$_POST['D1iworkType'];
if ($D1iworkType == "") {
        $D1iworkType = "0";
}
// text input
$D1iworkTypeOtherSpecify =$_POST['D1iworkTypeOtherSpecify'];
if ($D1iworkTypeOtherSpecify == "") {
        $D1iworkTypeOtherSpecify = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$D1iworkTypeOtherSpecify = str_replace($apostrophe , $replaceApostrophe ,
$D1iworkTypeOtherSpecify);

$D1iiworkstaff =$_POST['D1iiworkstaff'];
if ($D1iiworkstaff == "") {
        $D1iiworkstaff = "0";
}

$D1members =$_POST['D1members'];
if ($D1members == "") {
        $D1members = "0";
}

$D1iiiworkmembers =$_POST['D1iiiworkmembers'];
```

```
if ($D1iiiworkmembers == "") {
	$D1iiiworkmembers = "0";
}

// Question 2
$D2Volunteer =$_POST['D2Volunteer'];
if ($D2Volunteer == "") {
	$D2Volunteer = "0";
}

$D2iVolunteerTypeEnvironment =$_POST['D2iVolunteerTypeEnvironment'];
if ($D2iVolunteerTypeEnvironment == "") {
	$D2iVolunteerTypeEnvironment = "0";
}

$D2iVolunteerTypeCommunity =$_POST['D2iVolunteerTypeCommunity'];
if ($D2iVolunteerTypeCommunity == "") {
	$D2iVolunteerTypeCommunity = "0";
}

$D2iVolunteerTypeCommerce =$_POST['D2iVolunteerTypeCommerce'];
if ($D2iVolunteerTypeCommerce == "") {
	$D2iVolunteerTypeCommerce = "0";
}

$D2iVolunteerTypeResidents =$_POST['D2iVolunteerTypeResidents'];
if ($D2iVolunteerTypeResidents == "") {
	$D2iVolunteerTypeResidents = "0";
}

$D2iVolunteerTypeOther =$_POST['D2iVolunteerTypeOther'];
if ($D2iVolunteerTypeOther == "") {
	$D2iVolunteerTypeOther = "0";
}
// text input
$D2iVolunteerTypeOtherSpecify =$_POST['D2iVolunteerTypeOtherSpecify'];
if ($D2iVolunteerTypeOtherSpecify == "") {
	$D2iVolunteerTypeOtherSpecify = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$D2iVolunteerTypeOtherSpecify = str_replace($apostrophe , $replaceApostrophe ,
$D2iVolunteerTypeOtherSpecify);

$D2iiVolunteermembers =$_POST['D2iiVolunteermembers'];
if ($D2iiVolunteermembers == "") {
	$D2iiVolunteermembers = "0";
}

// Question 3
$D3gender =$_POST['D3gender'];
if ($D3gender == "") {
	$D3gender = "0";
}

$D4Age =$_POST['D4Age'];
if ($D4Age == "") {
	$D4Age = "0";
}

$D5EducationPrimary =$_POST['D5EducationPrimary'];
if ($D5EducationPrimary == "") {
	$D5EducationPrimary = "0";
}

$D5EducationPostPrimary =$_POST['D5EducationPostPrimary'];
if ($D5EducationPostPrimary == "") {
```

```
        $D5EducationPostPrimary = "0";
}

$D5EducationTech =$_POST['D5EducationTech'];
if ($D5EducationTech == "") {
        $D5EducationTech = "0";
}

$D5EducationThird =$_POST['D5EducationThird'];
if ($D5EducationThird == "") {
        $D5EducationThird = "0";
}

$D5EducationProfessional =$_POST['D5EducationProfessional'];
if ($D5EducationProfessional == "") {
        $D5EducationProfessional = "0";
}

$D5EducationPostgrad =$_POST['D5EducationPostgrad'];
if ($D5EducationPostgrad == "") {
        $D5EducationPostgrad = "0";
}

$D5EducationOther =$_POST['D5EducationOther'];
if ($D5EducationOther == "") {
        $D5EducationOther = "0";
}
// text input
$D5EducationOtherSpecify =$_POST['D5EducationOtherSpecify'];
if ($D5EducationOtherSpecify == "") {
        $D5EducationOtherSpecify = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$D5EducationOtherSpecify = str_replace($apostrophe , $replaceApostrophe ,
$D5EducationOtherSpecify);

// Question 6
$D6AdminCounty =$_POST['D6AdminCounty'];
if ($D6AdminCounty == "") {
        $D6AdminCounty = "99";
}

// Question 7
$D7PlanAuthority =$_POST['D7PlanAuthority'];
if ($D7PlanAuthority == "") {
        $D7PlanAuthority = "0";
}

// text input
$D7noscript =$_POST['D7noscript'];
if ($D7noscript == "") {
        $D7noscript = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$D7noscript = str_replace($apostrophe , $replaceApostrophe , $D7noscript);

// Question 8
// text input
$D8AdditionalComments =$_POST['D8AdditionalComments'];
if ($D8AdditionalComments == "") {
        $D8AdditionalComments = "0";
}
// Run through the text and replaces all occurrences of apostrophes
$D8AdditionalComments = str_replace($apostrophe , $replaceApostrophe ,
$D8AdditionalComments);
```

```
// Enter the data into the database
$query = "UPDATE rochema_tbl  SET D1work='$D1work', D1iworkType='$D1iworkType',
D1iworkTypeOtherSpecify='$D1iworkTypeOtherSpecify', D1iiworkstaff='$D1iiworkstaff',
D1members='$D1members', D1iiiworkmembers='$D1iiiworkmembers',
D2Volunteer='$D2Volunteer', D2iVolunteerTypeEnvironment='$D2iVolunteerTypeEnvironment',
D2iVolunteerTypeCommunity='$D2iVolunteerTypeCommunity',
D2iVolunteerTypeCommerce='$D2iVolunteerTypeCommerce',
D2iVolunteerTypeResidents='$D2iVolunteerTypeResidents',
D2iVolunteerTypeOther='$D2iVolunteerTypeOther',
D2iVolunteerTypeOtherSpecify='$D2iVolunteerTypeOtherSpecify',
D2iiVolunteermembers='$D2iiVolunteermembers', D3gender='$D3gender', D4Age='$D4Age',
D5EducationPrimary='$D5EducationPrimary',
D5EducationPostPrimary='$D5EducationPostPrimary', D5EducationTech='$D5EducationTech',
D5EducationThird='$D5EducationThird', D5EducationProfessional='$D5EducationProfessional',
D5EducationPostgrad='$D5EducationPostgrad', D5EducationOther='$D5EducationOther',
D5EducationOtherSpecify='$D5EducationOtherSpecify', D6AdminCounty='$D6AdminCounty',
D7PlanAuthority='$D7PlanAuthority', D7noscript='$D7noscript',
D8AdditionalComments='$D8AdditionalComments' WHERE SessionID ='$SessionID'" ;
$result = mysql_query($query) or die('Please contact Mairead at rochema@tcd.ie or 01
6082359 and if the problem cannot be fixed immediately, a printed survey will be posted or a
word document can be sent out by email. Query failed: ' . mysql_error());
?>


<html>
<head>
<link rel="stylesheet" href="surveysettings.css">
<title>Thank you for your response</title>
</head>
<body>
<h2 align="center">Thank you for filling out this questionnaire. </h2>
<h2 align="center">Your response is greatly appreciated.</h2>
<p>If you have any questions or comments regarding my research or this survey or
alternatively if you would like a copy of the report on the results of this questionnaire,
  I can be contacted at Geography Department, Museum Building, Trinity College,
  telephone: (01) 608 2359 and by email: <a
href="mailto:rochema@tcd.ie">rochema@tcd.ie</a>. </p>
<p>My supervisor (Dr Krysia
    Rybaczuk) can contacted through the department, by phone (01) 608 1576 or by
    email <a href="mailto:krybczuk@tcd.ie">krybczuk@tcd.ie</a>. </p>
<p>Thank you again,</p>
<p>Mair&eacute;ad de R&oacute;iste</p>
</body>
</html>

<?
// closing database connection

mysql_close ($dbase);
// database connection closed
?>
```

Surveysettings.css

```
body {
   font-family: Verdana, Arial, Helvetica, sans-serif;
   color: black;
   background-color: #ffffff }

 p.question {
        margin-bottom: 0em }

 p.subquestion {
        margin-left: 3em;
        margin-bottom: 0em }

 p.optionheading {
        margin-left: 3em;
        margin-bottom: 0em }

 p.indent {
        margin-left: 3em;
        margin-top: 0em }

 p.subindent {
        margin-left: 6em;
        margin-top: 0em }

 p.satis {
        margin-left: 3em;
        margin-bottom: 0em }
```

definitions.html

```
<html>
<head>
	<title>Survey Definitions</title>
	<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
	<link rel="stylesheet" href="surveysettings.css">
</head>

<body bgcolor="#FFFFFF" text="#000000">
	<h2>Definitons</h2>
	<h3><a name="bookmark"></a>Bookmarking</h3>
	<p>Bookmarking lets you save the address (URL) of a Webpage so that you can easily
	re-visit the page at a later time, e.g. adding a page to your favourites in Internet
Explorer.</p>
	<p><font size="-1">[Adapted from
http://www.webopedia.com/TERM/b/bookmark.html]</font></p>
<form>
	<input type=button value="Close Window" onClick="javascript:window.close();"
name="bookmark_close">
</form>
	<h3><a name="devplan"></a>Development Plan</h3>
	<p>A Development Plan sets out an overall strategy for the proper planning and
	  sustainable development of the County, City, Borough or Urban District. It generally
	  comprises of a detailed statement and maps of the planning area outlining the
	  different land use zonings such as recreation areas and potential development
	  areas.</p>
	<p><font size="-1">[Adapted from
http://www.kerrycoco.ie/planning/devplan/1.%20Introductionplan.pdf]</font></p>
<form>
	<input type=button value="Close Window" onClick="javascript:window.close();"
name="devplan_close">
</form>
	<h3><a name="download"></a>Download</h3>
	<p> To copy a file from a remote computer or website 'down' to your computer.</p>
	<p><font size="-1">[Adapted from
http://www.firstdata.com/abt_gloss_D.jsp]</font></p>
<form>
	<input type=button onClick="javascript:window.close();" value="Close Window"
name="download_close">
</form>
	<h3><a name="homepage"></a>Homepage</h3>
	<p>Your homepage is the first page you see when you start your web browser (e.g.
Internet Explorer) to start using the Internet.  It may be set to the main page of your
organisation or company or to the main page of your web service provider (e.g. Ireland On-Line
(IOL)). </p>
<form>
	<input type=button value="Close Window" onClick="javascript:window.close();"
name="homepage_close">
</form>
	<h3><a name="Internet"></a>Internet, Web, WWW</h3>
	<p>For the purpose of this survey, the Internet (Web or WWW) is a collection of
Websites or Webpages. <span class="subquestion"><span class="question"><span
class="indent">(<A
HREF="javascript:popUp('http://www.maths.tcd.ie/~mairead/seeing/definitions.html#website')
"><font size="-1">Click Here for an explanation of
<b>website</b></font></A>)</span></span></span></p>
	<p><font size="-1">[Adapted from http://www.hyperdictionary.com/dictionary/World-
Wide+Web]</font></p>
<form>
	<input type=button value="Close Window" onClick="javascript:window.close();"
name="Internet_close">
</form>
	<h3><a name="link"></a>Link, Linking, to Link</h3>
```

```
        <p>To link is to click a highlighted phrase or graphic at some point in one Internet
          or Web document to another document or another place in the same document. </p>
        <p><font size="-1">[Adapted from
http://dictionary.reference.com/search?q=hyperlink]</font></p>
<form>
        <input type=button value="Close Window" onClick="javascript:window.close();"
name="link_close">
</form>
        <h3><a name="online"></a>Online</h3>
        <p>When you are connected to the Internet, you are online.</p>
        <p><font size="-1">[Adapted from
http://www.sfcn.org/sfcn/custserv/glossary.htm]</font></p>
<form>
         <input type=button onClick="javascript:window.close();" value="Close Window"
name="online_close">
</form>
        <h3><a name="PlanApp"></a>Planning Permission, Planning Applications</h3>
        <p>If you are going to build a house or business premises in Ireland, you will
          need planning permission from your planning authority. If you are going to build
          an extension or make other changes to your existing house or business premises,
          you may also need planning permission. When you apply for planning permission,
          you submit a planning application to the local planning authority (such as Galway
          City Council).</p>
        <p><font size="-1">[Adapted from
http://www.oasis.gov.ie/housing/planning_permission/planning_permission_general.html?searc
h=planning+permission]</font></p>
<form>
        <input type=button value="Close Window" onClick="javascript:window.close();"
name="planApp_close">
</form>
        <h3><a name="searchengine"></a>Search Engine</h3>
        <p>A search engine is a program that searches Webpages for specified keywords
          and returns a list of the Webpages where the keywords were found. </p>
        <p><font size="-1">[Adapted from
http://www.webopedia.com/TERM/s/search_engine.html]</font></p>
<form>
        <input type=button value="Close Window" onClick="javascript:window.close();"
name="search_close">
</form>

        <h3><a name="website"></a>Website, web site or WWW site </h3>
        <p>A website is a collection of webpages for a particular organisation (e.g. the
collection of local authority webpages) with the same web address or URL (the location you type
in to access the webpages). </p>
<form>
        <input type=button value="Close Window" onClick="javascript:window.close();"
name="website_close">
</form>

</body>

</html>
```

Appendix D: Online User Questionnaire

Thank you for agreeing to fill out my online survey.

This survey looks at Planning services on the Internet in Ireland and should take **approximately ten minutes** to complete.

The survey asks questions about your need of planning services, local authority websites and Internet experience. The results will be used to identify the needs of users of the planning system and will be made available to local authorities to help improve their provision of online planning services. Responses from all users of planning information are needed because identifying the characteristics of those who do not use the planning system is just as important as determining the characteristics of regular users.

The questionnaire will close on the **30th of October 2005**. Responses will be **anonymous**; your name will not appear anywhere on the survey.

It is hoped that this survey will be used to improve the Irish planning system. It also represents an important part of my PhD thesis in the Department of Geography, Trinity College and your time and input is, therefore, greatly appreciated. Should you wish to contact me about this survey or would like further details about my research, I am available at rochema@tcd.ie or can be contacted via the details given below.

Thank you again for agreeing to fill out the questionnaire.

Mairéad de Róiste

Take the Questionnaire

Please click on the button above to fill in the questionnaire.

My **contact details** are;

Mairéad de Róiste, Geography Department, Museum Building, Trinity College, Dublin 2.
Office: 01 608 2359
Email: rochema@tcd.ie

My supervisor (Dr Krysia Rybaczuk) can also contacted through the department, by phone (01) 608 1576 or by email krybczuk@tcd.ie.

Section A: Planning Experience

[Section 1 of 4]

1. Do you know what an application for planning permission is? [Please select **one** answer by clicking the appropriate circle]

- ○ Yes
- ○ No
- ○ Not sure

2. Have you looked for planning permission in the last five years? (Click Here for an explanation of **planning permission**) [Please select **one** answer by clicking the appropriate circle]

- ○ Yes
- ○ No → [**If No**, please Click Here to go to Question 3]

A. Did you visit the local authority website to help you look for planning permission or for information about planning permission? (Click Here for an explanation of **website**) [Please select **one** answer by clicking the appropriate circle]

- ○ Yes
- ○ No → [**If No**, Please comment briefly on your answer]

[If No, please Click Here to go to Question 3]

B. In this instance (planning permission), why did you visit the local authority website? [Please select **all** that apply by clicking the appropriate box(es)]

- ☐ To submit a planning application
- ☐ To download a planning application form (Click Here for an explanation of **download**)
- ☐ To find information about the planning application process
- ☐ To find the contact details for the local authority
- ☐ Other, please specify

C. In this instance (planning permission), were you able to complete the purpose of your visit to the the local authority website? [Please select **one** answer by clicking the appropriate circle]

- ○ Yes
- ○ No → [**If No**, Please comment briefly on your answer]

D. How satisfied or dissatisfied were you with your use of the local authority's online service for planning permission? (Click Here for an explanation of online) [Please select **one** answer by clicking the appropriate circle]

Extremely Satisfied	Satisfied	Neither Satisfied nor Dissatisfied	Dissatisfied	Extremely Dissatisfied
○	○	○	○	○

Please comment briefly on your satisfaction/dissatisfaction

3. Have you commented or been involved in commenting on an application for planning permission in the past 5 years? [Please select **one** answer by clicking the appropriate circle]

- ○ Yes
- ○ No → [**If No**, please Click Here to go to Question 4]

A. Did you visit the local authority website to help you comment on an application for planning permission or for information about commenting? [Please select **one** answer by clicking the appropriate circle]

- ○ Yes
- ○ No → [**If No**, Please comment briefly on your answer]

[If No, please Click Here to go to Question 4]

B. In this instance (commenting on planning permission), why did you visit the local authority website? [Please select **all** that apply by clicking the appropriate box(es)]

- ☐ To comment on a planning application
- ☐ To find information about commenting on a planning application
- ☐ To find the contact details for the local authority
- ☐ Other, please specify

C. In this instance (commenting on planning permission), were you able to complete the purpose of your visit to the the local authority website? [Please select **one** answer by clicking the appropriate circle]

- ○ Yes
- ○ No → [**If No**, Please comment briefly on your answer]

D. How satisfied or dissatisfied were you with your use of the local authority's online service for commenting on planning applications?
[Please select **one** answer by clicking the appropriate circle]

Extremely Satisfied	Satisfied	Neither Satisfied nor Dissatisfied	Dissatisfied	Extremely Dissatisfied
○	○	○	○	○

Please comment briefly on your satisfaction/dissatisfaction

4. Have you viewed plans submitted for planning permission in the past 5 years? [Please select **one** answer by clicking the appropriate circle]

○ Yes
○ No → [**If No**, please Click Here to go to Question 5]

A. Did you visit the local authority website to view plans submitted for planning permission or for information about viewing plans for planning permission? [Please select **one** answer by clicking the appropriate circle]

○ Yes
○ No → [**If No**, Please comment briefly on your answer]

[If No, please Click Here to go to Question 5]

B. In this instance (viewing planning applications), why did you visit the local authority website? [Please select **all** that apply by clicking the appropriate box(es)]

☐ To view particular planning applications
☐ To view the decisions or status of particular planning applications

Section A: Planning Experience

- To find information about viewing submitted planning applications
- ☐ To find the contact details for the local authority
- ☐ Other, please specify [ ]

C. In this instance (viewing planning applications), were you able to complete the purpose of your visit to the the local authority website?
[Please select **one** answer by clicking the appropriate circle]

- ○ Yes
- ○ No → [**If No**, Please comment briefly on your answer]

D. How satisfied or dissatisfied were you with your use of the local authority's online service for planning applications? [Please select **one** answer by clicking the appropriate circle]

Extremely Satisfied	Satisfied	Neither Satisfied nor Dissatisfied	Dissatisfied	Extremely Dissatisfied
○	○	○	○	○

Please comment briefly on your satisfaction/dissatisfaction

5. Do you know what a development plan is? [Please select **one** answer by clicking the appropriate circle]

- ○ Yes
- ○ No
- ○ Not sure

6. In the last 5 years, have you made or been involved in making a submission to a development plan? (Click Here for an explanation of **development plan**)
[Please select **one** answer by clicking the appropriate circle]

- ○ Yes
- ○ No → [If No, please Click Here to go to Question 7]

A. Did you visit the local authority website to help you make a submission to a draft development plan or for information about making a submission? [Please select **one** answer by clicking the appropriate circle]

- ○ Yes
- ○ No → [**If No**, Please comment briefly on your answer]

[If No, please Click Here to go to Question 7]

B. In this instance (making a submission), why did you visit the local authority website? [Please select **all** that apply by clicking the appropriate box(es)]

- ☐ To make a submission to a draft development plan
- ☐ To find information about making a submission to a draft development plan
- ☐ To find the contact details for the local authority
- ☐ Other, please specify [ ]

C. In this instance (making a submission), were you able to complete the purpose of your visit to the the local authority website? [Please select **one** answer by clicking the appropriate circle]

- ○ Yes
- ○ No → [**If No**, Please comment briefly on your answer]

D. How satisfied or dissatisfied were you with your use of the local authority's online service for submissions? [Please select **one** answer by clicking the appropriate circle]

Extremely Satisfied	Satisfied	Neither Satisfied nor Dissatisfied	Dissatisfied	Extremely Dissatisfied
○	○	○	○	○

Please comment briefly on your satisfaction/dissatisfaction

7. In the past 5 years, have you viewed or consulted a development plan? [Please select **one** answer by clicking the appropriate circle]

- ○ Yes
- ○ No → [**If No**, please Click Here to go to Question 8]

A. Did you visit the local authority website to view the development plan or for information about viewing the development plan? [Please select **one** answer by clicking the appropriate circle]

- ○ Yes
- ○ No → [**If No**, Please comment briefly on your answer]

[If No, please Click Here to go to Question 8]

B. In this instance (viewing a development plan), why did you visit the local authority website? [Please select **all** that apply by clicking the appropriate box(es)]

- ☐ To view the development plan
- ☐ To find information about viewing the development plan
- ☐ To find the contact details for the local authority
- ☐ Other, please specify

C. In this instance (viewing a development plan), were you able to complete the purpose of your visit to the the local authority website? [Please select **one** answer by clicking the appropriate circle]

- ○ Yes
- ○ No → [**If No**, Please comment briefly on your answer]

D. How satisfied or dissatisfied were you with your use of the local authority's online service for development plan(s)? [Please select **one** answer by clicking the appropriate circle]

Extremely Satisfied	Satisfied	Neither Satisfied nor Dissatisfied	Dissatisfied	Extremely Dissatisfied
○	○	○	○	○

Please comment briefly on your satisfaction/dissatisfaction

8. Have you undertaken any other planning related activity (e.g. reporting planning infringements, tree preservation orders, etc.) in the last five years? [Please select **one** answer by clicking the appropriate circle]

- ○ Yes, please specify
- ○ No → [**If No**, please Click Here to go to Question 9]

A. Did you visit the local authority website to help you complete this planning related activity or for information about this activity? [Please select **one** answer by clicking the appropriate circle]

- ○ Yes
- ○ No → [**If No**, Please comment briefly on your answer]

[If No, please Click Here to go to Question 9]

B. Why did you visit the local authority website for this planning related activity? [Please select **all** that apply by clicking the appropriate box(es)]

- ☐ To find information about the planning related activity
- ☐ To find the contact details for the local authority
- ☐ Other, please specify

C. Were you able to complete the purpose of your visit to the the local authority website for this planning related activity? [Please select **one** answer by clicking the appropriate circle]

- ○ Yes
- ○ No → [**If No**, Please comment briefly on your answer]

B. How satisfied or dissatisfied were you with the planning authority's online provision for this planning related activity? [Please select **one** answer by

clicking the appropriate circle]

Extremely Satisfied	Satisfied	Neither Satisfied nor Dissatisfied	Dissatisfied	Extremely Dissatisfied
○	○	○	○	○

Please comment briefly on your satisfaction/dissatisfaction

9. If an online facility were available, do you think you would use it in future if you wanted to do any of the following planning related activities? [Please select **all** that apply by clicking the appropriate box(es)]

- ☐ Submit a planning application
- ☐ Comment on a planning application
- ☐ View applications for planning permission
- ☐ Make a submission to a draft development plan
- ☐ View a development plan
- ☐ Look up the planning department contact details
- ☐ Other planning related task, please specify

Please comment briefly on your answers

10. Based on your experience, to what extent do you agree or disagree with the following statements regarding information relating to planning on local authority websites? [Please select **one** answer by clicking the appropriate circle]

[If you do not have any experience with planning, please Click Here to go to Question 11]

Online Planning Information is Available

Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
○	○	○	○	○

Online Planning Information is Up to Date

Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
○	○	○	○	○

Online Planning Information is Reliable

Strongly Agree	Agree	Neither Agree	Disagree	Strongly

		nor Disagree		Disagree
○	○	○	○	○

Online Planning Information is Regularly Updated

Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
○	○	○	○	○

Online Planning Information is Complete

Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
○	○	○	○	○

Online Planning Information is Useful

Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
○	○	○	○	○

Online Planning Information is Easy to Find

Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
○	○	○	○	○

Are there any additional comments you would like to make about these statements?

11. As part of your planning experiences, did you see any online maps? [Please select **one** answer by clicking the appropriate circle]

- ○ Yes
- ○ No → [**If No**, please Click Here to go to Question 12]

A. What type of maps appeared on the planning webpages of the local authority? [Please select **all** that apply by clicking the appropriate box(es)]

- ☐ Don't know
- ☐ An image of a map in a webpage
- ☐ A map in a word document or PDF document (Adobe Acrobat document)
- ☐ Interactive maps (e.g. zooming, moving around and other features)
- ☐ Aerial photographs
- ☐ A three dimensional (3D) map
- ☐ A map with different types of information that you can switch on and off (e.g. turn off all the roads)
- ☐ Other, please specify

B. What were the maps associated with on the planning webpages of the local authority? [Please select **all** that apply by clicking the appropriate box(es)]

- ☐ Don't know
- ☐ A development plan
- ☐ Another plan (such as a local area plan)
- ☐ Planning applications

☐ Directions to the planning office
☐ Other, please specify

C. How satisfied or dissatisfied were you with your use of the maps provided on the planning webpages of the local authority? [Please select **one** answer by clicking the appropriate circle]

Did Not Use	Extremely Satisfied	Satisfied	Neither Satisfied nor Dissatisfied	Dissatisfied	Extremely Dissatisfied
○	○	○	○	○	○

Please comment briefly on your satisfaction/dissatisfaction

12. Do you think supplying an online map would be of benefit in the following situations? [Please select **all** that apply by clicking the appropriate box(es)]

☐ With development plan documents
☐ To help make submissions to draft development plans
☐ To display planning applications
☐ To submit planning applications
☐ To help comment on planning applications
☐ Other, please specify

13. What mapping features for planning information or services provided on the Internet would be of use to you? (Click Here for an explanation of **Internet**) [Please select **all** that apply by clicking the appropriate box(es)]

☐ None
☐ A non-moving map or an image of a map
☐ Printable maps
☐ Maps you can resize
☐ Maps you can move around (panning)
☐ Maps you can write on
☐ Maps you can save
☐ Maps where you can turn on and off different types of information (e.g. display or don't display the roads)
☐ Other, please specify

Are there any additional comments you would like to make about online mapping associated with planning information?

Go to Next Page

Section B: Level of Local Authority Webpage Use

[Section 2 of 4]

1. Have you ever used or looked for information on a local authority webpage? (City Councils, County Councils, Borough Councils and Urban District Councils (UDCs) but not Town Commissions) [Please select **one** answer by clicking the appropriate circle]

- ○ Yes
- ○ No →[**If No**, please Click Here to go to the Next Page]

2. In the last year, how often have you visited local authority webpages? [Please select **one** answer by clicking the appropriate circle]

- ○ Every day
- ○ A few times a week
- ○ A few times a month
- ○ A few times during the year
- ○ Once in the last year
- ○ Did not use in the last year

3. How did you find the local authority webpages? [Please select **one** answer by clicking the appropriate circle]

- ○ Search engine (Click Here for an explanation of **search engine**)
- ○ Guessed the address
- ○ Linked to it from another Webpage (Click Here for an explanation of **Linked**)
- ○ Linked to it from an email (Click Here for an explanation of **Linked**)
- ○ Typed in the address from a newspaper or flyer
- ○ Cannot remember
- ○ Other, please specify

4. What was the purpose of your last visit to the local authority webpages?

5. How satisfied or dissatisfied were you with your use of the local authority webpages? [Please select **one** answer by clicking the appropriate circle]

Extremely Satisfied	Satisfied	Neither Satisfied nor Dissatisfied	Dissatisfied	Extremely Dissatisfied
○	○	○	○	○

Please comment briefly on your satisfaction/dissatisfaction

Go to the Next Page

Section C: Internet Use

[Section 3 of 4]

1. How often do you use the Internet? (Click Here for an explanation of **Internet**) [Please select **one** answer by clicking the appropriate circle]

- ○ Every day
- ○ A few times a week
- ○ Once a week
- ○ Once a month
- ○ Less than once a month

2. Over the last week, how long have you spent on the Internet on average per day? [Please select **one** answer by clicking the appropriate circle]

- ○ Less than 10 minutes per day
- ○ 10 to 30 minutes
- ○ 30 to 60 minutes
- ○ 1 to 2 hours
- ○ 2 to 4 hours
- ○ More than 4 hours

3. In the past month have you accessed the Internet from any of the following Internet access locations? [Please select **all** that apply by clicking the appropriate box(es)]

- ☐ Home
- ☐ Work
- ☐ University (as a student)
- ☐ Internet Cafes
- ☐ Club, society or voluntary organisation
- ☐ Library
- ☐ Other, please specify

4. Which of the following connection types do you mostly use to access the Internet? [Please select **one** answer by clicking the appropriate circle]

- ○ Don't know
- ○ Dialup modem (e.g. 56kbps modem)
- ○ ISDN (Integrated Services Digital Network)
- ○ Broadband
- ○ Mobile phone (GPRS: General Packet Radio Service)
- ○ Other, please specify

5. How do you usually find information on the Internet when you are interested in a particular topic? (for example, information on games, fashion, sport, work related, etc...) [Please select **one** answer by clicking the appropriate circle]

- ○ On your homepage or company or ISP (the first page)
- ○ Through a search engine (e.g. Google)
- ○ By guessing the web address (e.g. guessing that information on cars might be available at cars.com)
- ○ From offline media such as newspapers, radio, television, etc.
- ○ Other, please specify

6. On the Internet, have you ever completed any of the following options? [Please select **all** that apply by clicking the appropriate box(es)]

- ☐ Looked for information about a topic of interest or leisure activity (cars, games, cinema, fashion, sport, etc...)
- ☐ Purchased an item (flights, books, CDs, DVDs, clothes, insurance, etc...)
- ☐ Visited an Internet site recommended by a friend, in an email, or in a newspaper, etc.
- ☐ Used for work
- ☐ Used for research
- ☐ Bookmarked a site (Click Here for an explanation of **Bookmarked**)
- ☐ Used a search engine
- ☐ Used online banking or financial services
- ☐ Used a chatroom
- ☐ Sent an email

Apart from the activities mentioned do you use the Internet for anything

else?

7. Which one of the following search engines do you mostly use? (Click Here for an explanation of **search engine**) [Please select **one** answer by clicking the appropriate circle]

- I do not use a search engine
- Don't know
- MSN
- Yahoo!
- Google
- AskJeeves
- A search engine on your homepage (Click Here for an explanation of **homepage**)
- Other, please specify

Go to the Next Page

Section D: Demographic Characteristics

[Section 4 of 4]

1. Have you had to deal with the Planning System as part of your work? (The Planning System comprises of all aspects of planning permission and development or local plans) [Please select **one** answer by clicking the appropriate circle]

- ○ Yes
- ○ No →[**If No**, please Click Here to go to Question 2]

A. Which of the following categories best describes your occupation? [Please select **one** answer by clicking the appropriate circle]

- ○ Architecture
- ○ Community group
- ○ Chamber of Commerce
- ○ Environmental
- ○ Property development
- ○ Planning
- ○ Other, please specify [ ]

B. How many staff members does your organisation employ? [Please select **one** answer by clicking the appropriate circle]

- ○ 0-10
- ○ 11-49
- ○ 50-249
- ○ 250+

C. Does your organisation represent members?

- ○ Yes
- ○ No →[**If No**, please Click Here to go to Question 2]

D. What is the membership of your organisation? [Please select **one** answer by clicking the appropriate circle]

- ○ Not applicable
- ○ 0-49
- ○ 50-249
- ○ 250-499
- ○ 500-999
- ○ 1,000+
- ○ Don't know

2. Have you had to deal with the Planning System as part of any volunteer work? [Please select **one** answer by clicking the appropriate circle]

- ○ Yes
- ○ No →[**If No**, please Click Here to go to Question 3]

A. Which of the following voluntary categories best describes your volunteer work? [Please select **all** that apply by clicking the appropriate box(es)]

- ☐ Environmental
- ☐ Community
- ☐ Chamber of Commerce
- ☐ Residents' Association
- ☐ Other, please specify [ ]

B. How many members does your voluntary organisation represent? [Please select **one** answer by clicking the appropriate circle]

- ○ Not applicable
- ○ 0-49
- ○ 50-249
- ○ 250-499
- ○ 500-999
- ○ 1,000+
- ○ Don't know

3. What gender are you? [Please select **one** answer by clicking the appropriate circle]

- ○ Male
- ○ Female

4. Which of the following age groups do you belong to? [Please select **one** answer by clicking the appropriate circle]

- ○ Under 19
- ○ 20-29
- ○ 30-39
- ○ 40-49
- ○ 50-59
- ○ 60-69
- ○ 69 and over

5. Did you complete...? [Please select **all** relevant answers by clicking the appropriate box(es)]

- ☐ Primary School
- ☐ Post Primary School
- ☐ Technical or Vocational Qualification
- ☐ Third Level Institution (cert, diploma or degree)
- ☐ Professional Qualification (degree status or greater)
- ☐ Postgraduate Qualification (diploma, masters, PhD)
- ☐ Other, please specify

6. What administrative county do you live in? [Please select **one** answer by clicking on the drop-down menu]

Select a county

7. What planning authority area do you live in?
(County Councils, City Councils, Borough Councils and Urban District Councils (UDCs) but not Town Commissions.)

Planning Authorities will appear here after you select a county

8. Are there any additional comments you would like to make?

Submit Questionnaire

Thank you for filling out this questionnaire.

Your response is greatly appreciated.

If you have any questions or comments regarding my research or this survey or alternatively if you would like a copy of the report on the results of this questionnaire, I can be contacted at Geography Department, Museum Building, Trinity College, telephone: (01) 608 2359 and by email: rochema@tcd.ie.

My supervisor (Dr Krysia Rybaczuk) can contacted through the department, by phone (01) 608 1576 or by email krybczuk@tcd.ie.

Thank you again,

Mairéad de Róiste

Definitons

Bookmarking

Bookmarking lets you save the address (URL) of a Webpage so that you can easily re-visit the page at a later time, e.g. adding a page to your favourites in Internet Explorer.

[Adapted from http://www.webopedia.com/TERM/b/bookmark.html]

Close Window

Development Plan

A Development Plan sets out an overall strategy for the proper planning and sustainable development of the County, City, Borough or Urban District. It generally comprises of a detailed statement and maps of the planning area outlining the different land use zonings such as recreation areas and potential development areas.

[Adapted from http://www.kerrycoco.ie/planning/devplan/1.%20Introductionplan.pdf]

Close Window

Download

To copy a file from a remote computer or website 'down' to your computer.

[Adapted from http://www.firstdata.com/abt_gloss_D.jsp]

Close Window

Homepage

Your homepage is the first page you see when you start your web browser (e.g. Internet Explorer) to start using the Internet. It may be set to the main page of your organisation or company or to the main page of your web service provider (e.g. Ireland On-Line (IOL)).

Close Window

Internet, Web, WWW

For the purpose of this survey, the Internet (Web or WWW) is a collection of Websites or Webpages. (Click Here for an explanation of **website**)

[Adapted from http://www.hyperdictionary.com/dictionary/World-Wide+Web]

Close Window

Link, Linking, to Link

To link is to click a highlighted phrase or graphic at some point in one Internet or Web document to another document or another place in the same document.

[Adapted from http://dictionary.reference.com/search?q=hyperlink]

Close Window

Online

When you are connected to the Internet, you are online.

[Adapted from http://www.sfcn.org/sfcn/custserv/glossary.htm]

Close Window

Planning Permission, Planning Applications

If you are going to build a house or business premises in Ireland, you will need planning permission from

your planning authority. If you are going to build an extension or make other changes to your existing house or business premises, you may also need planning permission. When you apply for planning permission, you submit a planning application to the local planning authority (such as Galway City Council).

[Adapted from http://www.oasis.gov.ie/housing/planning_permission/planning_permission_general.html?search=planning+permission]

Close Window

Search Engine

A search engine is a program that searches Webpages for specified keywords and returns a list of the Webpages where the keywords were found.

[Adapted from http://www.webopedia.com/TERM/s/search_engine.html]

Close Window

Website, web site or WWW site

A website is a collection of webpages for a particular organisation (e.g. the collection of local authority webpages) with the same web address or URL (the location you type in to access the webpages).

Close Window