

2016

MULTIPLE STAKEHOLDER PERSPECTIVES OF COMPLEX ONLINE SERVICES: an e-government case study

Kneller, Janet Denise

<http://hdl.handle.net/10026.1/4586>

<http://dx.doi.org/10.24382/3999>

Plymouth University

All content in PEARL is protected by copyright law. Author manuscripts are made available in accordance with publisher policies. Please cite only the published version using the details provided on the item record or document. In the absence of an open licence (e.g. Creative Commons), permissions for further reuse of content should be sought from the publisher or author.

COPYRIGHT STATEMENT

This copy of the thesis has been supplied on condition that anyone who consults it is understood to recognise that its copyright rests with its author and that no quotation from the thesis and no information derived from it may be published without the author's prior consent.

**RESEARCH
DEGREES
WITH
PLYMOUTH
UNIVERSITY**

MULTIPLE STAKEHOLDER PERSPECTIVES OF COMPLEX ONLINE SERVICES:

an e-government case study

by

JANET DENISE KNELLER

A thesis submitted to Plymouth University

in partial fulfilment for the degree of

DOCTOR OF PHILOSOPHY

In collaboration with

Planning Portal

May 2015

ACKNOWLEDGEMENTS

This thesis is the result of a long period of study and I wish to acknowledge the help and support of a number of people whose help has been essential to getting me to this point:

Firstly to my supervisors, Prof. Andy Phippen and Prof. Steve Furnell. Without their support, experience and above all forbearance I wouldn't have had the courage to start, let alone finish.

To my brothers for their support, throughout what have been difficult family times.

To Ian, for learning when to leave me alone, but doing so with such good grace.

To my friends and colleagues for being interested enough to ask how things are going, and being polite enough to listen when I've told them.

To Lee for moral support and staying awake long enough to be a wonderful proof-reader.

And above all the staff of the Planning Portal who have provided such an interesting and challenging opportunity, who have always been open to suggestions and have always been there with a welcome smile and lots of laughter.

Thank you.

AUTHOR'S DECLARATION

At no time during the registration for the degree of Doctor of Philosophy has the author been registered for any other University award without prior agreement of the Graduate Sub-Committee.

Work submitted for this research degree at the Plymouth University has not formed part of any other degree either at Plymouth University or at another establishment.

This study was carried out in collaboration with the Planning Portal, part of the Department for Communities and Local Government. Direct costs of the postal surveys in reported in Chapters 5, 6 and 7 were funded by the Planning Portal.

Conferences attended:

- European, Mediterranean & Middle Eastern Conference on Information Systems 2013 (EMCIS 1013) October 17-17 2013, Windsor, United Kingdom

Peer-reviewed publications:

- Kneller, J. D. (2013) 'Experiences and Perceptions of SME Professionals in e-Planning'. European, Mediterranean & Middle Eastern Conference on Information Systems 2013 (EMCIS 1013). Windsor, United Kingdom: October 17-18 2013.

Unpublished stakeholder-reviewed publications:

- Cheriton, K. & Kneller, J. D. (2009) 'How e-enabled are Local Planning Authorities in England and Wales?'. Planning Portal for DCLG.
- Kneller, J. D. (2010) 'Planning Portal: Citizen Journey Research', dated 8 October 2010. Unpublished..
- Kneller, J. D. (2012) 'Planning Portal Citizen Journey Research - Online Applications, v1.01', dated 2 April 2012. Unpublished.
- Kneller, J. D. (2013) 'Planning Portal Professional Research - SME applicants.', dated 21 August 2013. Unpublished.
- Kneller, J. D. (2014) 'Planning Portal Research - Local Planning Authorities (Planning Portal with Plymouth University)', dated 23 July 2014. Unpublished.

Post-graduate courses attended are listed overleaf:

Word count of main body of thesis: 74749

Signed

Date

Post –graduate courses attended:

- Introduction to qualitative research methods
- Introduction to SPSS (part 2)
- Analyse that !? Statistical help for researchers
- Endnote bibliographic referencing - for beginners
- Endnote bibliographic referencing – advanced
- The Transfer Process
- “Being Unique” Introduction to Myers-Briggs Type Indicator
- Negotiation Skills
- Writing for research publication
- Research Methodologies
- GIS - Introduction
- GIS - Workshop
- Overview to Searching and accessing information resources
- NVivo
- Writing up
- Preparing for the Viva
- Preparing to submit on Pearl including copyright and open access

ABSTRACT**MULTIPLE STAKEHOLDER PERSPECTIVES OF COMPLEX ONLINE SERVICES:
AN E-GOVERNMENT CASE STUDY**

Janet Denise Kneller

Much academic research has studied the factors that increase adoption of online government services. However, the study areas have generally been relatively simple transactional environments focussed on specific consumer roles, and where "the computer can decide".

However, this is not representative of all government services: many off-line services involve multiple government organisations or departments. Some services are used by a large range of different stakeholders who have different expectations and experiences of the administrative process concerned. Some require non-numeric elements to process the transaction. Some even involve humans to make a decision. All of these factors increase the complexity of supporting such services online and there is little literature either in the areas of stakeholder theory or technology adoption that examines how such services can be successfully deployed.

This research addresses this void in the literature through an exploratory case study of the online planning application service in the UK as provided by the Planning Portal. A mixed methodology, both multi-phase and emergent, has been used to gather and analyse both qualitative and quantitative data to investigate how a single online service can successfully support a wide range of different stakeholders, what factors impact on uptake amongst those diverse stakeholder groups and how the service manages its relationships with stakeholders to ensure all are supported by the service. The pivotal complexities added by visual elements in the planning application and determination process, and by the central-local government interaction that is integral to the online planning service, are explored.

The findings suggest that such a complex service can be very successful, but there are barriers outside the service provider's control that may ultimately affect the full provision of an end-to-end online service. Quantitative findings also suggest that there are factors other than those in the current models of technology adoption that may affect a more subjective and visually dependent service. This novel study of a distinctively complex and visual service provides insights that will be, and have already been, of use to real-world practitioners in supporting and developing complex online services.

PERMISSIONS FOR COPYRIGHT MATERIALS

Table 4	Reproduced by permission of Oxford University Press
Figure 3	Reproduced by permission of Academy of Management
Figure 4	Reproduced by permission of The Doughty Centre for Corporate Responsibility, Cranfield University School of Management
Figure 5	Reproduced by permission of John Wiley and Sons. Copyright Decision Sciences Institute
Figures 6 and 7	Reproduced with permission of Society for Management Information Systems and Management Information Systems Research Center of the University of Minnesota in the format Thesis/Dissertation via Copyright Clearance Center

TABLE OF CONTENTS

ABSTRACT.....	vii
PERMISSIONS FOR COPYRIGHT MATERIALS.....	viii
LIST OF TABLES.....	xiii
LIST OF FIGURES.....	xv
Chapter One: Introduction.....	1
1.1 Background to the study.....	2
1.2 Overview of the theoretical framework.....	2
1.3 Purpose of the research and the Research Questions.....	4
1.4 Introduction to the selected case study subject.....	5
1.5 Overview of the research design.....	5
1.6 Significance of the study: novel contributions.....	9
1.7 Structure of the thesis & chapter conclusion.....	10
Chapter 2: Underpinning theory and literature review.....	13
2.1 Definition of e-government services as used in this study.....	13
2.2 History of e-government in the UK.....	16
2.3 Stakeholder theory and e-government.....	22
2.4 Literature on the models of technology adoption.....	34
2.5 Implications for practitioners.....	45
2.6 Limitations of the theory.....	46
2.7 Research Questions.....	47
2.8 Chapter Summary.....	48
Chapter Three: Methodology and case study selection.....	49
3.1 Methodology in the e-government field.....	49
3.2 Development of the research questions in context.....	50
3.3 Research philosophy and strategy.....	51

3.4	Selection of the context for this research	54
3.5	Selecting a research approach	63
3.6	Selecting a research methodology	64
3.7	Mixed Methods Design for the Planning Portal case study	66
3.8	Data collection methodology.....	72
3.9	Analysis of results	80
3.10	Ethical considerations	85
3.11	Presentation of results	85
3.12	Limitations of the research design	86
3.13	Chapter Summary.....	87
Chapter 4: The Planning Portal Context Semi-structured interviews with Planning Portal staff		89
4.1	Methodology	89
4.2	Research Findings	93
4.3	The Planning Portal as an organisation.....	95
4.4	Impact of Government initiatives	97
4.5	Major Planning Portal projects.....	99
4.6	Changes in funding for the Planning Portal	103
4.7	Assessing the effectiveness of the Planning Portal	104
4.8	The future of the Planning Portal	106
4.9	Managing stakeholder relationships	108
4.10	Supporting Planning Portal users	121
4.11	Changing the focus in stakeholder relationships	126
4.12	Developing the Planning Portal website	131
4.13	Chapter Summary.....	135
Chapter Five: Citizen Applicant Studies		136

5.1	Purpose of the studies	136
5.2	Methodology	138
5.3	Study findings.....	142
5.4	Attitudes to e-planning as a concept	151
5.5	Themes from telephone interviews	154
5.6	Limitations of the study	156
5.7	Chapter Summary	156
Chapter Six: SME Professional Applicant Study		158
6.1	Purpose of this study phase	158
6.2	Methodology	159
6.3	Study findings.....	163
6.4	Limitations of this study	185
6.5	Chapter Summary	185
Chapter Seven: Local Planning Authority Study		187
7.1	Purpose of this study.....	187
7.2	Methodology	188
7.3	Study Findings.....	191
7.4	Limitations of this research phase.....	213
7.5	Chapter Summary	213
Chapter Eight: Further stakeholder studies and development of new adoption model factors		215
8.1	Purpose of this study.....	215
8.2	Methodology	215
8.3	Research Findings	222
8.4	Demographics of the citizen and SME agent respondent groups.....	223
8.5	Citizen findings	224

8.6	SME Professional (agents) findings.....	227
8.7	Proposing new adoption model factors for Professionals	231
8.8	Testing of new adoption model factors	234
8.9	Limitations of the study	236
8.10	Chapter Summary.....	238
Chapter Nine: Discussion of results.....		239
9.1	Measuring success of the Planning Portal	240
9.2	How does the Planning Portal interact with its stakeholders?	242
9.3	Supporting a subjective and visual human decision.....	258
9.4	Factors affecting adoption in different user communities	262
9.5	Supporting local government services from a central government application 263	
9.6	Issues and Limitations of the research	265
9.7	Applicability to practitioners in e-government.....	267
9.8	Chapter Summary.....	267
Chapter Ten: Summary and Conclusion		269
10.1	Overview of the study	269
10.2	Key findings	272
10.3	Contribution to knowledge	277
10.4	Implications for practitioners	278
10.5	Limitations of the study	279
10.6	Recommendations for future study.....	280
REFERENCES		282

LIST OF TABLES

Table 1: Types of e-government interaction (United Nations, 2003)	14
Table 2: Proposed development routes for e-government organizations	15
Table 3: UK Internet usage statistics	22
Table 4: Stakeholder management strategies, adapted from Friedman and Miles (2006) ...	29
Table 5: Rogers' adopter categories (2003)	35
Table 6: Corresponding factors in models of technology adoption	41
Table 7: Selected e-government user adoption studies	44
Table 8: Market groups for the Planning Portal website	60
Table 9: Data collection plan for Planning Portal case study.....	67
Table 10: Stakeholder groups involvement in relation to research questions	70
Table 11: Structure of the initial survey for paper citizens	76
Table 12: Aligning purpose and analysis type in mixed methods studies	84
Table 13: Reference scheme for participant quotations	86
Table 14: Changes in Planning Portal funding over study period.....	103
Table 15: Total number of applications made (data source: Alton, 2015)	105
Table 16: Selected developments to the Planning Portal online offering since 2009 as reported on Planning Portal Directors' Blog (https://portaldirector.wordpress.com/)	131
Table 17: Online citizens' surveys 2011.....	138
Table 18: Citizen survey response rates.....	142
Table 19: Factors to encourage citizen paper applicants to apply online	143
Table 20: European Commission definitions of SME organisations	160
Table 21: Results of analysis of all applications to target LPAs in a single week (2013)	161
Table 22: Additional statements for main phase SME survey	162
Table 23: Cross-tab table for Application Method and Applicant Type.....	166
Table 24: Cross-tab table for Application Method and Agent Application type.....	166
Table 25: SME Agent survey response rates	167
Table 26: Details of interview participants	167
Table 27: Effect of application volume on application method.....	177
Table 28: Effect of gender on application method	179
Table 29: Perceived disadvantages to chosen SME application methods	181
Table 30: Responding LPA types	191

Table 31: Details of LPA interviewees.....	192
Table 32: Top 3 factors causing invalid paper and online applications.....	195
Table 33: Comparing the 2006 and 2014 barriers to e-planning responses.....	207
Table 34: Results of analysis of all applications to target LPAs in a single week (2015)	216
Table 35: Comparing 2015 application method between applicant groups	217
Table 36: Construct definitions for proposed new constructs	218
Table 37: Scale items for new model constructs.....	219
Table 38: Testing reliability of adoption model constructs (Kneller, 2013b).....	220
Table 39: Response rates for new model factors study	222
Table 40: Citizen application methods (2015)	225
Table 41: Citizen application methods by application volume (2015)	225
Table 42: 2015 SME study - reliability of constructs	232
Table 43: Reliability of revised new factors	233
Table 44: Definitions of revised adoption constructs.....	233
Table 45: Comparing weighted means for proposed model factors.....	235
Table 46: Effect size for proposed model factors.....	236
Table 47: Planning Portal service stakeholders according to Greger <i>et al.</i> , (2014).....	247
Table 48: Planning Portal stakeholder management and engagement strategies	256
Table 49: New constructs affecting adoption rates in the Planning Portal context	263
Table 50: Proposed new factors for models of technology adoption	275

LIST OF FIGURES

Figure 1: Chronological timings of study phases	8
Figure 2: Structure of this thesis	12
Figure 3: Using salience to model stakeholder typology (Mitchell et al., (1997))	26
Figure 4: Stakeholder engagement planning process, after Jeffery (2009).....	27
Figure 5: Development of constructs in TAM, TAM2, and TAM3 (Venkatesh & Bala, 2008, with minor additions)	38
Figure 6: Linking intention to use and actual usage with user perceptions (Venkatesh et al., 2003)	39
Figure 7: UTAUT model (Venkatesh et al., 2003).....	39
Figure 8: A simplified view of the planning application process.....	59
Figure 9: A simplified context of the Planning Portal case study	62
Figure 10: Embedded case study design for the Planning Portal study	63
Figure 11: Multi-phase case study design	69
Figure 12: Simplified structure of the Planning Portal website (as at March 2015)	94
Figure 13: Planning Portal organisation chart (as at January 2015, adapted from Chilcott (2015a).....	96
Figure 14: KPI1 achieved progress against target made (data source: Alton, 2015)	105
Figure 15: Preliminary Planning Portal stakeholder map.....	109
Figure 16: Change approval process derived from staff stakeholder interviews	133
Figure 17: Encouraging citizen applicants to apply online	144
Figure 18: Encouraging online applications - 2011 surveys	147
Figure 19: Online citizens - would you apply online again?	148
Figure 20: 2011 surveys - Reasons for (not) applying online again	149
Figure 21: Comparing attitudes of paper and online citizen applicants to e-planning	153
Figure 22: Applications to 90 LPAs categorised by application method and applicant type	164
Figure 23: Application method by applicant type	165
Figure 24: Size of responding agent organisations (by employee).....	172
Figure 25: Period of respondents' professional planning involvement by organisation size	173
Figure 26: SME respondents' volume of planning applications	174
Figure 27: SME Professionals' 12-month application methods	175
Figure 28: SME application method by period of professional involvement	177

Figure 29: SME application method by application volume	178
Figure 30: Perceived benefits of application methods used.....	181
Figure 31: Comparing responses to attitudinal statements from citizen and SME studies..	184
Figure 32: Difference between in invalidity rates (= paper% rate- online % rate)	193
Figure 33: Comparison of the "Top 3" factors causing invalid paper and online applications	196
Figure 34: Benefits for LPAs of online planning applications	199
Figure 35: LPAs' Perceived barriers to increased e-planning services.....	202
Figure 36: The scope of barriers to e-planning	208
Figure 37: Comparing common LPA-identified barriers to e-planning from 2014 and 2006	209
Figure 38: Factors to increase the use of e-planning by agents	211
Figure 39: Proposed factors for amended adoption model	220
Figure 40: Size of responding agent organisations	223
Figure 41: Comparing Ages of 2015 citizen and professional respondents.....	224
Figure 42: Gender distribution of 2015 survey respondents	224
Figure 43: Factors affecting citizen application methods (2015)	226
Figure 44: Agent application methods (2015)	227
Figure 45: Period of professional involvement from SME2015 study	228
Figure 46: SME2015 application method by period of professional involvement	228
Figure 47: Impact of application method by application volume (SME 2015)	229
Figure 48: Factors affecting SME application method choice (SME2015).....	230
Figure 49: Factors for assessment in future studies	237
Figure 50: Analysis of PP stakeholder salience (after Mitchell et al., (1997)).....	246
Figure 51: A "Value Assets" view of the Planning Portal stakeholder environment.....	251
Figure 52: An Information view of the Planning Portal stakeholder environment	252
Figure 53: A process view of the stakeholder environment	253

Chapter One: Introduction

"Electronic service delivery offers huge opportunities to improve public services for the benefit of citizens: more convenient, more joined-up, more responsive and more personalised. It is going to transform the way the public sector does business, in many cases replacing traditional channels for doing business with more efficient and effective electronic channels." (Performance and Innovation Unit (PIU), 2000)

The quotation above comes from a UK Government report, published in 2000, which sets out the Government's commitment to put customer-focussed, multi-channel government services at the heart of service delivery from public agencies. The same report ambitiously targets 100% of central and local government services to be available electronically by 2005.

Almost 15 years on, what has changed? The push to online service resulted in a plethora of government websites, but delivery is not the same as usage. The PIU report indicates the key to success is "ensuring that government electronic service delivery is driven by the use that citizens make of it" and uptake was not as large as expected, as indicated when in 2009, a very similar target to that stated in 2005 was published - to move to near 100% by 2014 (TSO (The Stationery Office), 2009). The 2013 Government Digital Strategy sums it up:

"The government provides more than 650 transactional services. There is only a handful of these services where a significant majority of people who could use the online option do. Many have a digital option, but few people use it. Half of these don't offer a digital option at all." (Cabinet Office, 2013)

There has been almost continuous change in the delivery, strategy and management of online government services in the UK to tackle the lack of take-up. The drive for government efficiency in the light of the recent global economic crisis has focussed increased attention on e-government services as a money-saving channel and the UK Budget Statement in Spring 2015 still demands increased uptake.

This thesis presents research into a complex multi-stakeholder e-government service with the aim of providing insight into the factors and activities that drive take-up in such a service.

1.1 Background to the study

The key to increasing take-up of online services must be in understanding why potential users do (and do not) use the services already on offer. The academic literature offers two broad routes to such understanding: quantitative models of technology adoption to review the factors that might affect user behaviour, and a more qualitative reach via stakeholder theory to review how the relationships between e-government service suppliers and users are managed. Combining the two approaches can help provide a broader understanding of the factors that are important to different user communities and provide guidance for practitioners in designing more appealing, more effective and more used services.

1.2 Overview of the theoretical framework

1.2.1 Stakeholder theory

Freeman defines an organisation's stakeholder as "any group or individual who can affect or is affected by the achievement of an organization's purpose" (Freeman, 1984, p.53). He proposes that an organisation's success, and potentially even its ultimate survival, is at least partly determined by its ability to identify and manage the potentially conflicting needs of its various stakeholders. In the context of an e-government service, stakeholders can be seen to include government staff, users of the service, suppliers of the ICT (Information and Communications Technology) systems which support the services, the "owning" government agency and more. Donaldson and Preston (1995) identify three aspects to stakeholder theory – a "normative" ethical aspect, a "descriptive" aspect that creates an in-depth study of the organisation in its stakeholder environment and an "instrumental" aspect which studies the success of the focal organisation in relation to its stakeholder management. As an exploratory study of a new case study context, a primarily descriptive approach of stakeholder theory was applied in this research, reviewing the relationships that the Planning Portal (a service provided by the Department of Communities and Local Government in the UK) has with its stakeholders and how it actively manages these relationships to increase service uptake. Limited measures of service performance are also used to create a preliminary instrumental assessment of the success of the Planning Portal service. An assessment of stakeholder salience as a combination of attributes of legitimacy, urgency and

power (Mitchell *et al.*, 1997) is used to review how stakeholders are prioritised in the current situation of financial restraint where not all stakeholders can be satisfied all the time. The approaches taken to stakeholder engagement are reviewed against Friedman and Miles' (2006) ladder of engagement strategies.

The wide number and range of different stakeholders meant that the aspects of stakeholder theory described above were used as a lens through which to review the internal and external business environment of the Planning Portal.

1.2.2 Models predicting levels of technology adoption

A plethora of models have been developed to help researchers and practitioners understand why users do or do not engage with new technologies. A brief review of some of these is presented below. The Technology Adoption Model (TAM) (Davis, 1980; Davis, 1989) proposed that intention to use a new technology (and hence actual usage) would be increased where potential users had higher opinions of the technology's Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). Two extensions to this have sought to understand what factors in turn affect PU and PEOU. TAM2 (Venkatesh & Davis, 2000) added social factors to the model to include ideas of subjective norm, image, job relevance, output quality and result demonstrability as antecedents of PU. TAM3 (Venkatesh & Bala, 2008) adds antecedents for PEOU which are seen either as "anchor" factors affecting early adoption rates (computer self-efficacy, perceptions of external control, computer anxiety, and computer playfulness) or adjustment factors which affect perceptions after use (perceived enjoyment and objective usability).

There is a lot of cross-fertilization of ideas between adoption models. UTAUT reviews eight adoption models and attempts to make a Unified Theory of Acceptance and Use of Technology (Venkatesh *et al.*, 2003). A primary difference from the TAM family of models is that it takes into account, demographic attributes of the (potential) user: age, gender etc. TAM3 and UTAUT both highlight the feedback mechanism that actual usage can have on PEOU.

In an initially separate family of models, Diffusion of Innovation (Rogers, 2003) posits that rates of adoption of new technologies are positively affected by user perceptions of Relative Advantage, Compatibility with existing experiences and needs, and how Trialable

and Observable a technology is. Complexity of technology, conversely, has a negative effect.

Further models also look at IT adoption in the workplace in relation to user efficiency – Perceived Characteristics of Innovation (PCI) (Moore & Benbasat, 1991) and Task-Technology Fit (TTF) (Goodhue & Thompson, 1995) are examples.

In another separate development of adoption models, researchers look at the impact of trust and risk, initially in e-commerce. A number of aspects were identified – trust in e-commerce vendor, trust in the Internet etc (e.g. Bélanger *et al.*, 2002; Gefen *et al.*, 2003; McKnight *et al.*, 2002).

These trust-based models, along with many of the others, have more recently been tested and/or adapted for e-government scenarios. However, whilst these studies were set in a broader cultural context than the stakeholder literature had identified, with considerable bodies of work set in the USA and south-east Asia in particular, the technology focus was primarily either on simple, numeric transactional services or on e-government as a concept.

1.3 Purpose of the research and the Research Questions

The published literature in relation to technology adoption models does not consider complex transactional e-government cases. Those that it does study are generally formulaic, and numerical. Services are also generally targeted at one particular user group.

Government services can often be significantly more complex than this but such cases rarely appear in the current literature. Stakeholder theory was developed in a western business environment and although studies have attempted to apply it to the e-government field, there remain deficiencies particularly in cases where technological links between stakeholders are critical to the service under study.

The aim of the research is to use aspects of both theories to understand how e-government services can support a complex environment with multiple stakeholders, each with different needs and experiences, and complex transactional interconnections. Five questions form the basis for the research:

- RQ1: Can a single online service successfully provide a service to a wide range of different stakeholders?

- RQ2: How does an organisation manage relationships with stakeholders to ensure the service supports the needs of all the different groups?
- RQ3: What are the factors that affect uptake of an online service in different user communities with different levels of experience of the same process on conventional channels?
- RQ4: How does an online service support a human-made decision that is essentially both subjective and visual?
- RQ5: What issues arise from the provision of inputs to Local Government functions from a central government agency?

1.4 Introduction to the selected case study subject

The Planning Portal website (www.planningportal.gov.uk), supported by a small team in the UK Government's central Department for Communities and Local Government (DCLG) provides both informative and transactional functionality for a range of different user communities with online planning and development control facilities. Each of these user communities has different needs and levels of understanding, and requirements, of the planning process. The website includes an online planning application form which collates and supplies the required information to the approximately 360 Local Planning Authorities (LPAs) in England and Wales, meaning the Portal is central government functionality supporting local government business processes and decision-making. Furthermore, much of the information gathered is in the form of plans and/or drawings of proposed developments which are then used in human decision making with both visual and subjective elements.

All of the factors above combine to create a basis for a novel case study within which to explore the research questions posed.

1.5 Overview of the research design

The research addressed these questions using a multi-phase and emerging case study of the Planning Portal, which was at the time of the research, a public sector body providing functionality to support multiple stakeholder communities each with different

demands of the service encompassing Government-to-Citizen (G2C), Government-to-Business (G2B) and Government-to-Government (G2G) requirements.

Each user community was addressed during a separate research phase, with the developing understanding of the stakeholder environment and user perceptions adding to the emerging study focus during and after each phase. Each of the user community phases (citizens, professionals and LPAs) were designed to use mixed methods of both data collection and analysis to provide a complementary and triangulated set of findings. Research participants in the citizen and professionals studies were identified from an analysis of recent planning applicants (plus an applications database supplied by the Planning Portal, and through Planning Portal website visitors for the online citizens study). All English LPAs were invited to take part in that dedicated research phase. Access to Planning Portal staff for the interviews with that stakeholder group was negotiated through the Planning Portal Deputy Director, with whom a research relationship had been developed through the previous phases.

Survey instruments were developed to gather both quantitative and qualitative information on the participants planning histories, experiences and attitudes to planning application methods and demographics. Surveys were generally complementary to provide some comparison and triangulation between phases. Surveys were included in all phases except that with Planning Portal staff. Semi-structured interviews were held in all phases. These were face-to-face interviews with Planning Portal staff and telephone interviews in the remainder of the phases.

All phases with the exception of the final study were undertaken in collaboration with the Planning Portal and some direct costs of postal surveys were funded by them. In addition, Planning Portal staff provided a means of introduction to the LPA staff who contributed to that study phase.

Although always designed to take advantage of the researcher's part-time mode of study to provide a longitudinal element to the study, in reality the research has been undertaken over a significant period of time (six years) (Figure1). This was partly due to the part-time mode, but also due to experiencing periods of study suspension, particularly in 2012 due to family illness and bereavement. This means that the body of literature has developed during the period since the research design was developed. This newer literature is not covered in the literature review but is instead discussed in the light of findings in the

overall discussion of findings as presented in Chapter Nine. The timing and order of the planned research study phases has, to some extent, been guided by the needs of the Planning Portal as a collaborating and funding body. It should also be noted that the Planning Portal and its online offering, as a focus for this research has also changed and developed over the study period.

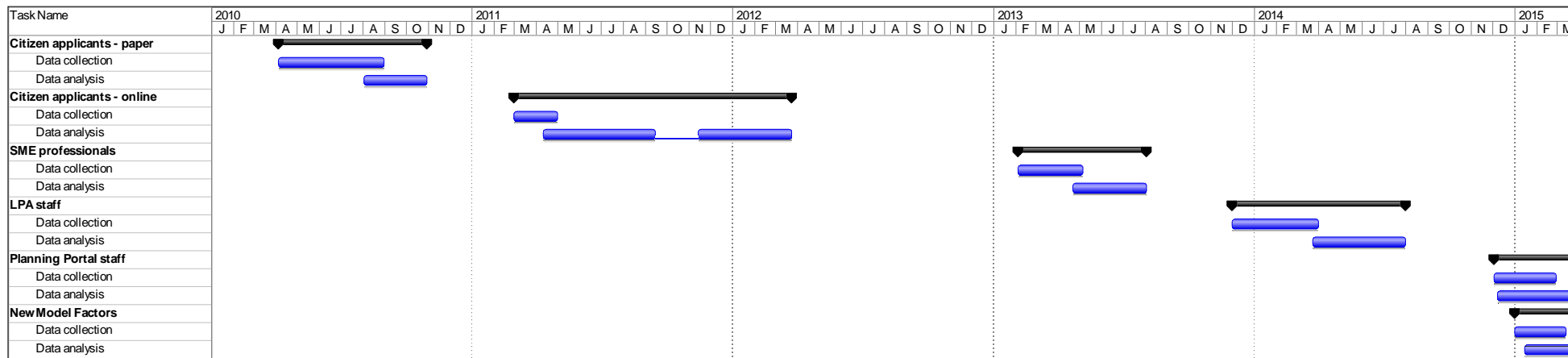


Figure 1: Chronological timings of study phases

1.6 Significance of the study: novel contributions

Online government services have been widely promoted in the UK and have become a key area of government strategy in times of financial restraint. Whilst ambitious targets have been set for service uptake, for many services, actual usage has not been as great as expected.

The UK Government's "Digital By Default" strategy sets out a plan for government services to become 'so straightforward and convenient that all those who can use them will choose to do so' (Cabinet Office, 2012) in order to, amongst other benefits, provide cost savings in the public sector. This aim is supported by the Government Digital Strategy (Cabinet Office, 2013; Cabinet Office, 2015) which encourages government departments to increase uptake of existing services by examining the real and perceived barriers to their uptake, and includes a Government Digital Inclusion Strategy (Cabinet Office, 2014) to actively take steps to remove such barriers. This research aims to provide a preliminary framework against which more complex e-government services can be viewed and a more detailed research agenda can be addressed. Whilst DCLG (and the Planning Portal) is not currently formally covered by the Government Digital Strategy, this research will show that many of the activities recommended in the strategy are already in place at the Planning Portal to help deliver a successful service to a wide range of stakeholders.

Much of the existing literature focuses on numeric-based transactional e-government services which can be computer-assessed and involve a simple supplier-customer relationship. The complex multi-stakeholder scenario presented by the Planning Portal, which relies for success on a three-way Planning Portal – LPA – applicant relationship provides an opportunity to review existing literature in a more complex service environment. This thesis contributes to the literature in a number of areas:

- a new case study investigation reviewing the application of existing theory to a new service environment,
- an understanding of the Planning Portal as an organisation under investigation and in particular as a case study of successfully using functionality from a single online service to support multiple diverse stakeholders,

- an understanding of the use of an online e-government service to support visual and subjective elements of a subjective, human-made decision,
- an understanding of the issues that may occur when creating multi-agency e-government services, where the relationship is one of a collaborative supplier-customer link between agencies in different levels of the central and local government hierarchy,
- proposal of new factors for inclusion in models of technology adoption based on a new theoretical understanding of the perceptions of service users.

It is anticipated that all these knowledge contributions will provide direction for both future academic research and in developing good-practice guidelines for real-world practitioners in the e-government field to provide services that users will choose to use.

1.7 Structure of the thesis & chapter conclusion

This chapter has presented an overview of the research starting with the research context in relation to the published literature at the time of the outline research design, stating the research questions to be answered, and briefly laying out the justification for the research methods chosen and contribution of the study to the body of literature.

Chapter Two now presents the published literature at the time of research design, including stakeholder theory and technology adoption models.

Chapter Three presents a description of the research methods adopted and the justification for why these were considered appropriate. It also presents this research design in relation to the chosen context for the research: a multi-phase case study of the Planning Portal and the planning system in England and Wales. It also puts forward the strategies for data collection and analysis. Chapter Four presents findings from stakeholder interviews with Planning Portal staff along with information from other documentary sources on the case study scenario. It should be noted that Chapter Four reports on what was, in reality, the penultimate study phase, but is presented out of chronological order so that it sets the scene for the findings reported in Chapters Five to Seven.

Chapter Five reports on the within-subcase findings of two mixed method studies looking at Citizen stakeholders of the Planning Portal. Chapter Six reports on a complementary study with individuals employed as Professionals in the planning process,

working for Small-Medium Enterprises. Chapter Seven presents findings of a study with a different stakeholder group – staff in Local Planning Authorities who are effectively consumers of the outputs from the Planning Portal online application service.

Chapter Eight reports on a final exploratory study proposing new factors for consideration in models of Technology Adoption as a result of findings in Chapters Five and Six. Chapter Nine presents the research findings with reference to the literature reviewed in Chapter Two and in new works published since the research design was created.

Chapter Ten provides a conclusion for the thesis, re-presenting the key findings, including a discussion of the limitations of the research, proposals of the implications of this research for both theory and real-world practitioners and concludes with suggested areas for future research.

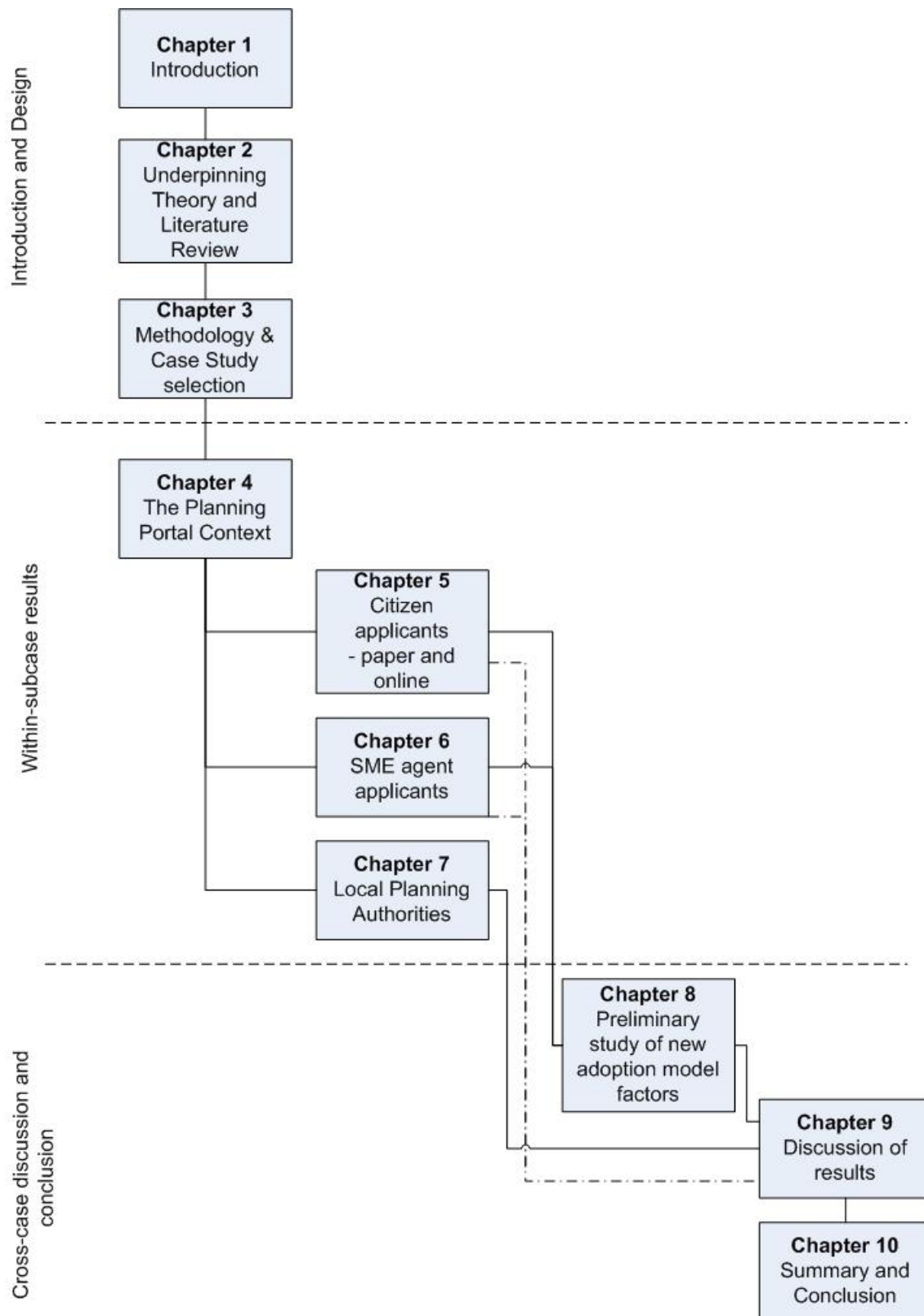


Figure 2: Structure of this thesis

Chapter 2: Underpinning theory and literature review

The primary aim of the research presented in this thesis is to explore whether e-government services can successfully support multiple stakeholder communities with different needs and expectations, in the context of complex, transactional services; and to provide evidence on whether, and how, an online service can support a visually-dependent and subjective government decision-making process. It also reviews the factors that might affect user adoption rates in such a multi-faceted environment.

The purpose of this chapter is to review the literature on e-government services including both technology adoption models on, and stakeholder theory in relation to, e-government services. These two research areas provide alternative approaches to the study of e-government. This review of the underpinning literature undertaken at the start of the research period indicated that there was an absence of literature studying complex e-government services in relation to stakeholder theory. Also it identified that there were few studies looking at more visual and complex e-services, and those integrating services between government agencies at different administrative levels.

The chapter begins with a definition of e-government services. It continues with a brief history of e-government services in the UK, as an example of how e-government services have developed in a western administration. The next section reviews stakeholder theory and its application to e-government. This is followed by a review of selected models of technology adoption which attempt to explain the factors that affect user take-up of such services. A selection of case studies which apply these theories to e-government scenarios are explored. Gaps in the literature are identified and a description of how this thesis contributes to the body of knowledge is offered.

The research reported in this thesis took place over a period of six years. The literature in these areas has moved on over this time, and other studies have been published that seek to address some of the same gaps. For clarity in understanding the research design these are presented in the discussion of findings presented in Chapter Nine.

2.1 Definition of e-government services as used in this study

E-government includes a very wide range of electronic governmental services including electronic transactions between government departments, and from governments

to supplier or customer businesses as well as interaction between authority and citizen. The broad types of services are summarised in Table 1.

The literature uses the phrase "e-government" to represent a wide range of scenarios including e-democracy, e-engagement and e-participation of citizens in civic or political activities and a channel shift of previously off-line services to an electronic platform. It is this latter meaning centred around a channel shift of government services to an online provision that forms the focus of this research.

Relationship type	
Government-to-Government	G2G
Government-to-Business	G2B
Government-to-Citizen	G2C

Table 1: Types of e-government interaction (United Nations, 2003)

Janssen *et al.* (2008) describe a more detailed taxonomy of business models for e-government services including models such as content provider, direct-to-customer, full-service-provider, collaboration and virtual communities.

Various authors describe stages of e-government development and examples are shown in Table 2, although, of course, in reality there is a continuous spectrum of development in Electronic Service Delivery (ESD), and a single authority can be at different stages of development for different services. Gil-Garcia and Martinez-Moyano (2007) also point out that in the later stages of integration, organisations can be at different stages in relations with different collaborating partners. Furthermore, the stages described are not necessarily sequential and developing services can skip stages.

Jones and Crowe (2001)	Layne and Lee (2001)	Gil-Garcia and Martinez-Moyano (2007)	United Nations (2008)
Information Information pages only	Catalogue An online presence. Downloadable forms	Initial Presence Static web pages about services	Emerging A simple web page or site with no interaction
Interaction Simple interaction e.g. email		Extended Presence More dynamic, specialized information. Email and/or search engines	
Transaction Online forms and "transactions of value"		Transactional Services and form online. Online transactions	Interactive presence Increased interaction. Use of password to allow customised or secure services
Integration Using conventional Business-to-Business techniques	Vertical Integration Local systems linked to higher level systems with a similar function	Transactional Presence Use of portals, more customization/personalisation. Secure, electronic transactions	Transactional Two-way interaction, access 24/7. Payment facilities.
	Horizontal Integration Systems linked across different functions	Vertical Integration Integration of similar services	Connected Government facilities become a connected entity. Integrated backoffice suite.
	Horizontal Integration Systems linked across different government services	Totally integrated presence Citizens have access to a variety of services through a portal, using a user ID and password.	

Table 2: Proposed development routes for e-government organizations

The United Nations have, since 2003, produced a biennial "E-Government Survey" which reviews the status of e-government in the 193 UN Member States as a measure of relative progress and changing trends. In the 2014 report (United Nations, 2014), all 193 nations have a national website for the first time, but for many the level of development remains low or intermediate. The report uses a calculated E-Government Development Index (EGDI) as a statistical comparison of the services provided in each member state. It combines three elements: "Scope and quality of online services", "development status of telecommunication infrastructure" and "inherent human capital" (a complex score evaluating levels of education) (p.185-186). The EGDI calculation produces a score in the range 0-1. The world mean score is 0.4712, with the top score being 0.9462 (Republic of Korea). The

United Kingdom is ranked 8 (score 0.8695), down 5 positions from the 2012 report, but still one of just 25 countries (13%) with EGD I scores over 0.75 (p.15-16).

E-government services are promoted in Europe via the Digital Agenda for Europe (European Commission, 2010) and the UN 2014 report indicates that as a region, Europe is the "global leader" (United Nations, 2014, p.31).

The report indicates the emerging importance of service delivery from public-private collaborations, but highlights that challenges from ICT infrastructure limitations and from "human capacity" may limit potential growth of e-government services particularly in countries with lower EGD I scores. It recommends the use of "more citizen-centric and user-friendly services putting the needs of citizens at the core of planning and implementing" (United Nations, 2014, p.44) to promote the scope and uptake of online services.

2.2 History of e-government in the UK

This section gives a brief history of e-government in the UK, as an example of how e-government services have developed and as background to the broader context of the research presented in this thesis. The section also reviews the types of research that have already been carried out.

In the UK, services to the citizen are provided by public sector organisations at all levels of UK government – from central government departments and government agencies to regional and Local Authorities (LAs). There has been a significant push towards providing services in ways other than conventional face-to-face service delivery. Digital TV, mobile telephones and other web devices have been considered, but Internet-based services are, in particular, seen as the way forward.

The UK Government's Performance and Innovation Unit (PIU) set out the strategy for the move towards e-government in the UK (Performance and Innovation Unit (PIU), 2000). This implementation plan would be championed by the e-Government Minister and the e-Envoy. It had a three-stranded approach:

- "Reaching the Citizen" - emphasizing that all citizens should be able to access electronic government services;
- "Mixed economy" enabling delivery via mixture of public and private sector providers using competitive tendering,

- “organising to deliver” investing in both the IT infrastructure and business processes to support these goals. (Performance and Innovation Unit (PIU), 2000)

The “Reaching the Citizen” strand emphasised that online activities should be driven by levels of uptake and by citizen preferred channels, but also “the government should take steps to ensure that those who are unable or unwilling to use electronic channels themselves can still benefit from electronic service delivery.” This indicated recognition that while e-government tools were primarily intended as a G2C facility, online services could also benefit LA staff, both by acting as a central information resource when dealing with citizens via other channels, and free up staff time from routine queries to provide a more effective enquiries service. Nonetheless it was recognised early in the project that e-government could only be successful if it was accepted by the public. It also recognised that many citizens would still prefer to use more conventional channels such as telephone, post and face-to-face meetings, even if they were equipped to use Internet-based channels.

Nonetheless, the report specified that “level of use must drive what they [authorities] do” (Performance and Innovation Unit (PIU), 2000) – that investment should be driven by take-up. The Government had already set an optimistic target that 100% of services would be available electronically by 2005.

However, the report authors realised that whilst efficiency gains were a primary driver for a move to e-services, such gains were dependent on service take-up and identified a number of factors leading to success :

- “enabling people to use electronic channels”
- “putting services on channels that encourage use”
- “making government services easy to find and use”
- “making people want to use government electronic services” (Performance and Innovation Unit (PIU), 2000)

Many of these themes have recurred in government policies and plans in the time since then.

2.2.1 Government initiatives to increase UK e-government uptake (2005-2015)

MORI conducted research on behalf of the UK e-Citizen National Project (2005) to investigate the types of e-government services that were being provided. They sampled 131

of the 388 English local authorities. They found that all of these offered e-government services via a website. Other communication channels (e-channels) offered included e-enabled call centres, kiosks and digital TV, but websites provided the widest range of services across the e-channels. They also found that many authorities were specifically marketing e-channels to different demographic groups. 21% were marketing e-government websites to people aged 50+, while 25% were targeting e-enabled call-centres to the same group.

The European Commission's (2005) Information Society and Media Directorate General identified a number of objectives for e-government development for the period until 2010. The first of these was "No Citizen Left Behind" which aimed to improve the availability and access to all forms of e-government services: specifically to increase "ease of access to public information and services for all" with aims for the Member States to "agree a road map for eGovernment inclusion objective".

Since announcing the strategy for "Citizen-focused government" in 2000 (Cabinet Office, 2000), the UK government has devoted huge resources to the development of on-line services. Further phases of development and marketing were announced in November 2005 in the "Local eGovernment Take-up Campaign" (Local eGov Project website, 2005) which identified a number of e-government services to be promoted nationally.

However, although there has been some on-going academic (e.g. Damodaran *et al.* (2005), Dutton *et al.* (2009), Gilbert *et al.* (2007)) and international research (European Commission Directorate General for Information Society and Media, 2009; United Nations, 2008) into e-government uptake in the UK and more general government research into digital exclusion (Communities and Local Government, 2008), there was at that time no specific UK government sponsored research into why the uptake was not as great as hoped. This is despite the Local eGov Project website recognising there is clear evidence that usage of council e-channels "lags considerably behind public interest in using them" and stating that "raising awareness ... is a priority".

The Varney report on Service Transformation (Varney, 2006) identified areas of success in service provision and set out recommendations for future development of all aspects including e-government. As an example of the benefits of e-government services, the report identified the cost-efficiencies in using self-service web-site delivery (25 pence per visit) over face-to-face service delivery (£14.65 per visit) for Tameside Council, as an

example. This, it claims, was achieved with a coincident increase in customer satisfaction. However, it does state that citizens would naturally compare e-government services with similar services provided by private sector organisations and consequently success will, in part, depend on the quality of such services and the perceived benefit that the citizen gains from using new service channels. In turn, understanding the citizens' perceptions is essential. This understanding Varney terms "Citizen Insight", and puts a responsibility on all central government departments to undertake such research.

The global financial situation of the last decade has only served to increase the pressure for governmental cost-saving and efficiencies. The "Putting the Frontline First" report (TSO (The Stationery Office), 2009) details the UK Government's action plan to "Improve public service outcomes" against this backdrop of financial restraint. It identifies three main action themes:

"Action 1: Strengthen the role of citizens and civic society"

"Action 2: Recast the relationship between the centre and the frontline"

"Action 3: Streamline central government for sharper delivery".

The first two of these have impacts for e-government delivery to citizens (G2C). In particular, Action 1 has a specific key action to accelerate "the move to digitalised public services that are personalised, flexible, cost-efficient and save people time." Action 2 describes changes in the relationship between central government departments and local, frontline services, by giving local areas more control over local priorities and resources and reducing (or coordinating) administrative burdens on local staff.

The report further details how individual government departments would develop strategies to move as near to 100% of services as possible to online delivery by 2014 reflect the very similar target issued in 2005 and discussed above (Performance and Innovation Unit (PIU), 2000). It suggests that this move and a reduction in the digital inclusion gap could result in £400 million efficiencies in three years, based on a report for the Champion for Digital Inclusion (PriceWaterhouseCoopers, 2009).

2010 saw the launch of the Digital Agenda for Europe (European Commission, 2010) which required EU Member States to commit to promoting economic well-being via the use of digital content and services. It instigated the use of a scoreboard to allow comparison across European nations against four priorities which included effective government. Martha

Lane Fox, as UK Digital Champion, published a summary of her review of Government Online services (2010) and recommended the use of a single front-end to enable public access to all transactional e-government services. She also proposed that a central team should be responsible for setting standards in user experience (this later became the Government Digital Service). The *gov.uk* website replaced the DirectGov (*direct.gov.uk*) and *Businesslink.gov.uk* websites as a single access point in October 2012.

The UK Government Digital Strategy (Cabinet Office, 2012) identified that seven government departments provided around 90% of transactions with central government. As a key part of the strategy, these seven were required to identify three "exemplar service transformations" (p.3) which would be redesigned and deployed by March 2015. The term "Digital by Default" was coined to indicate a target where "digital services that are so straightforward and convenient to use that all who can use them will choose to do so whilst those who can't are not excluded" (p.2). The statement clearly indicates an intention to help those who were currently not online to use services via an electronic channel via an "assisted digital" initiative. Central government departments would use *gov.uk* to publish corporate information in a standard way, by March 2013.

The 2013 UK Government Digital Strategy (Cabinet Office, 2013) highlights that despite repeated ambitious targets of previous years, in relation to online services from the private sector, the uptake of e-government services by citizens is low and reflects upon the cost savings that could be made from ensuring full "digital by default" services. It reviewed the Strategy aims and stated that all UK Government departments would undertake a redesign of all services supplying 100,000 or more transactions. The aim was that this end-to-end design would enable all services that were new or redesigned after April 2014 to become digital by default following compliance with a new service standard (*gov.uk*, c. 2012).

Spring 2014 saw the publication of a Digital Inclusion Strategy (Cabinet Office, 2014) to help provide non-Internet users with the skills and support they need to go online, in order to underpin the push towards digital by default. The stated aim is to get "everyone who can be online by 2020".

In the Autumn 2014 Budget Statement (HM Treasury, 2014), the Chancellor of the Exchequer announced that plans for "increasing the digital uptake of public services among those online by 10 percentage points in 2016" although it was unclear from the Statement

itself exactly what this meant. The same document revealed plans to ensure "superfast broadband will be delivered to 95% of the UK by 2017".

In the spring Budget 2015 (HM Treasury, 2015) announced that the digital transformation agenda that had previously focussed on selected central government departments, would be extended and that "HM Treasury, the Department for Communities and Local Government and the Government Digital Service will collaborate with partners in local government" to enable "more customer-focussed, digital-enabled and efficient local services". Whilst it is still unclear exactly how this will affect the Planning Portal services directly, taken at face value this simple statement may have the potential to help overcome some of the barriers that LPAs and their consultees, particularly in Parish Councils etc., experience.

2.2.2 UK Web Usage

Dwivedi and Williams (2008) carried out a demographic analysis of users of the UK Government Gateway, a portal providing access to a variety of e-government services via a single sign-on. 86% of their survey respondents had access to the Internet at home, but only 6% had registered with the Government Gateway and 76% were unaware of the facility. However, 86% of those who had signed up were home broadband users which the authors suggested supported the premise that the adoption of home internet would directly affect the adoption of new services such as e-government. In their analysis of these results, Dwivedi and Williams suggest that this supports ideas in the Diffusion of Innovation theory (Rogers, 2003, p. 296) that "change agents such as government agencies often follow the segmentation strategy with least resistance" i.e. they promote the innovation amongst the socio-economic elites.

Results from the biennial Oxford Internet Survey (OxIS) reports from the Oxford Internet Institute on Internet usage in the UK suggest rather more uptake of e-government services than Dwivedi and Williams (2008). Two sets of statistics are particularly interesting in the context of this study: the overall rate of Internet usage in the UK and the percentage of citizens saying that they had used at least one of a selection of seven online government services. The results from the most recent three surveys are given in Table 3, illustrating a clear growth in uptake over the period both overall and, by 2013 in the usage of each of the example e-government services the survey asked about (Dutton and Blank, 2013).

OxIS report	Percentage of UK population using the Internet	Percentage of UK population using the seven specified online government services
Dutton <i>et al.</i> (2009)	70%	59%
Dutton and Blank (2011)	73%	57% (but quotes 2009 value as 56%)
Dutton and Blank (2013)	78%	65%

Table 3: UK Internet usage statistics

Dutton and Blank (2013) attribute this to users "adapting to digital government services" but also an improvement in the e-government services" that make it easier and more efficient for individuals to complete transactions online." However, they also identify the idea of "digital choice" whereby non-users of the Internet say they simply have no interest in using it as a key factor. They report that 18% of the population fall into this category emphasising the fact that organisations cannot reasonably expect to provide services purely by online means. As a matter of principle government departments are required to continue to offer both online and offline versions of the service to support those users who cannot or prefer not to use electronic service channels

2.3 Stakeholder theory and e-government

This section covers a review of the literature available at the time of the research design. Subsequent relevant literature is discussed in relation to research findings in the discussion chapter.

2.3.1 The development of stakeholder theory

In his influential 1984 work, Freeman identifies an organisation's stakeholder as "any group or individual who can affect or is affected by the achievement of an organization's purpose" (Freeman, 1984, p.53), This broad definition can include individuals or groups internal or external to a focal organisation, and who have direct relationships with the focal organisation or who are affected indirectly through an intermediary. He indicates that the nature and importance of stakeholders and the organisation's relationship with them vary over time in response to both actions by the focal organisation, and by external events in the wider business and global environment. He also proposes that, in order for an organisation to work effectively, it must consider the needs and wants of such stakeholders and manage the relationships appropriately. Freeman identifies three different levels of activity in

stakeholder management: the "rational" level where stakeholders and the nature of the relationship with them is identified (stakeholder mapping), a "process" level where a strategic review process looks at the business and its processes in relation to external factors in the business environment, and a "transactional" level where the practical day-to-day interactions between the organisation and its stakeholders are considered (p.54-74). Once these levels are understood then the organisation can undertake activities in strategic planning and stakeholder engagement from a position of understanding. Freeman sets out proposals on how this might be done. However, he also argues that the situation is further complicated by the proposal that stakeholder relationships are bi-directional and that the nature of the "stake" as perceived by the holding stakeholder group is only revealed by discussing with them directly. Alternative approaches are likely to be distorted by the perception of those doing the analysis (p.92-93). This is strongly reflected in Donaldson and Preston's (1995) alternative view of stakeholders from Freeman – that a stakeholder is defined by "their legitimate interest in the corporation, rather than simply by the corporation's interest in them", supporting the idea that analysis of a stakeholder relationship from one direction only is not enough either for the robust development of new theory or for effective business practice.

Donaldson and Preston in their 1995 article, in reviewing publications since Freeman's 1984 work, noted a lack of consistency in the definitions of stakeholder concepts, led by the different applications that authors made of stakeholder theory. They state that such stakeholder theory, including in Freeman's work, is "intended to both explain and to guide the structure and operation" of an organisation, and identified that these variations in interpretation were themselves important. They criticised the lack of explicit acknowledgment of these differences and also the claims that they are independent theories. As an alternative, they identified three distinct, but "mutually supportive" aspects of stakeholder theory:

- "Normative" aspects – the ethical underpinning of the organisation,
- "Descriptive" aspects – identifying the organisation and its external environment
- "Instrumental" – examining the relationships between stakeholder management and organisational success (Donaldson & Preston, 1995).

Laplume *et al.* (2008) describe these as "how firms should behave", how firms [do] behave" and "how behaviour affects performance". Donaldson and Preston analyse the relative validity of each of these three components and conclude that, of the three, it is the

normative component that differentiates it from previous theories of management. They claim that such a normative approach provides explicit advice in the form "Do (Don't do) this because it is the right (wrong) thing to do", whilst an instrumental approach is much more hypothetical and outcomes-focussed: "If you want to achieve (avoid) results X, Y, or Z, then adopt (don't adopt) principles and practices A,B and C." They propose that descriptive approaches provide no more than that – a description which can then only be qualitatively reviewed against other descriptions – providing a unique case-study analysis but little specific guidance for practitioners. Friedman and Miles (2006) disagree with Donaldson and Preston's (1995) prioritisation of the normative aspects, observing that much of the normative aspect actually has an empirical, descriptive basis, and also that there are significant concepts such as trust and legitimacy that "straddle the normative/analytic divide" (Friedman & Miles, 2006, p.137). They contend that descriptive studies can lead to changes in normative theory, particularly around organisation-stakeholder relationships and the activities of stakeholders themselves.

2.3.2 Descriptive aspects - Stakeholder modelling

The first stage in stakeholder modelling, as in Freeman's "rational level" (1984) is to identify who the stakeholders are. Freeman's definition is broad: "any group or individual who can affect or is affected by the achievement of an organization's purpose". Donaldson and Preston (1995) refine this: "stakeholders are identified by their interests in the corporation" irrespective of whether the corporation has any interest in them and "the interests of all stakeholders are of intrinsic value". However, Mitchell *et al.* (1997) caution against creating inappropriately long lists of stakeholders by confusing stakeholders with influencers who may have influence but no material stake in the organisation.

Clarkson (1995) reports results of a substantial research programme into corporate social responsibility. He proposes that researchers and practitioners should "distinguish between stakeholder issues and social issues because corporations and their managers manage relationships with their stakeholders and not with society." He identifies primary stakeholders as entities "without whose continuing participation the corporation cannot survive as a going concern."

Having identified the stakeholders, Freeman (1984) proposes a number of simple stakeholder modelling methods, including a simple " hub and spoke " stakeholder map

showing the stakeholder entities and indicating that they have relationships with the focal organisation. He also discusses a Power-Stake grid which adds more detail on the type of power and nature of the stake that a stakeholder has in the organisation (p.63).

Mitchell *et al.*(1997) extend this idea and propose a categorisation based on three attributes, which will vary between stakeholders and over time: "power", "legitimacy" and "urgency". "Power" refers to the ability for a stakeholder to "impose its will" on the focal organisation including by normative or "coercive" means. Mitchell *et al.* use Suchman's definition of legitimacy (1995) of "a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs and definitions" to indicate that, while legitimacy is certainly concerned with "social good" (Mitchell *et al.*, 1997), the meaning of this definition is very dependent on the social context under scrutiny. Mitchell *et al.* also describe using "risk" as an addition to "stake" to identify legitimate stakeholders amongst others who are merely influencers, but have no real stake in the organisation. Urgency is used to combine two factors: a time-dependent need and its criticality to a stakeholder, to highlight occasions when a stakeholder has a claim for immediate attention from the focal organisation. They go on to use the three aspects to help identify stakeholder salience: "the degree to which managers give priority to competing stakeholder claims". They identify seven classes of stakeholders as shown in Figure 3.

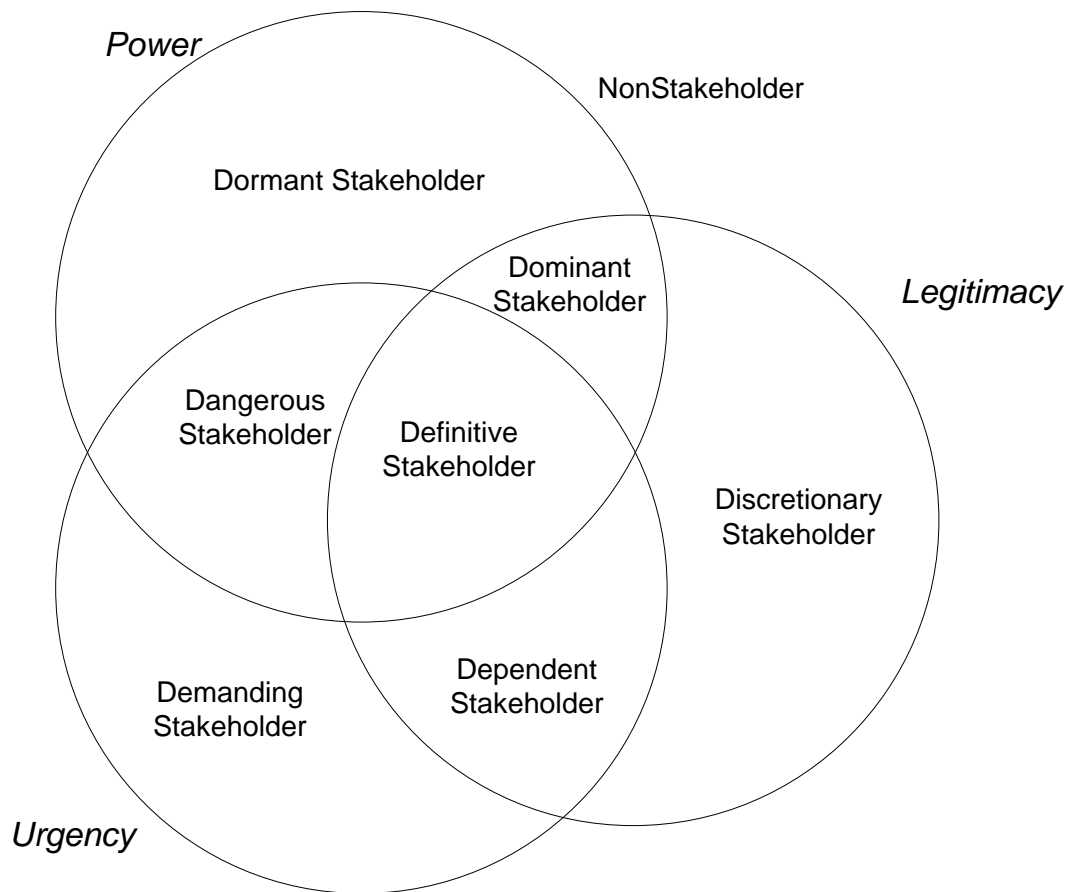


Figure 3: Using salience to model stakeholder typology (Mitchell *et al.*, (1997))

Definitive stakeholders hold all three attributes – power, legitimacy, urgency. The three categories of stakeholders with two of the attributes are known collectively as expectant stakeholders; whilst the three with just one attribute are latent stakeholders. This typology gives a structure on which managers can determine a communication and engagement strategy. Definitive stakeholders are obviously salient and managers will always need to consider the stakeholder's claim and decide a course of action. However, for other groups, other managerial options are possible. For example, discretionary stakeholders, whilst legitimate have no power and no urgency and hence there is no imperative on a manager to engage with them, although they may choose to. The range of stakeholder groups between these two extremes provide a spectrum of potential engagement strategy and action, at the discretion of the organisation's managers.

Frooman (1999) takes an alternative approach implying that it is the stakeholder's perception of their legitimacy that is important, advocating analysis of the stakeholder-organisation relationship from the stakeholder perspective, asking "what do they want? How are they going to try and get it?" He states that stakeholders hold considerable power in the

relationships and can use these in variety of ways (by withholding resources or putting conditions on their use, for example) that can pose a threat to the efficiency and effectiveness of the target organisation. He puts this into context for practitioners by stating that understanding how a stakeholder might choose to influence an organisation equips the organisation's managers to respond or engage with the stakeholders appropriately.

2.3.3 Stakeholder management and engagement

Jeffery (2009) in his guidance to practitioners differentiates between three approaches to managing relationships with stakeholders:

- "Crisis management" which he describes as "reactive... episodic, hostile";
- "Stakeholders Management" – "proactive, regular" but "defensive",
- "Stakeholders Engagement" – to which he assigns the following attributes: "interactive, encourage, inclusive, prepared to change" (p. 8).

This provides another viewpoint on stakeholder relationships and perhaps indicates a level of "pro-activeness" employed in managing and engaging with stakeholders. The same author also presents a recommended iterative process for stakeholder engagement.

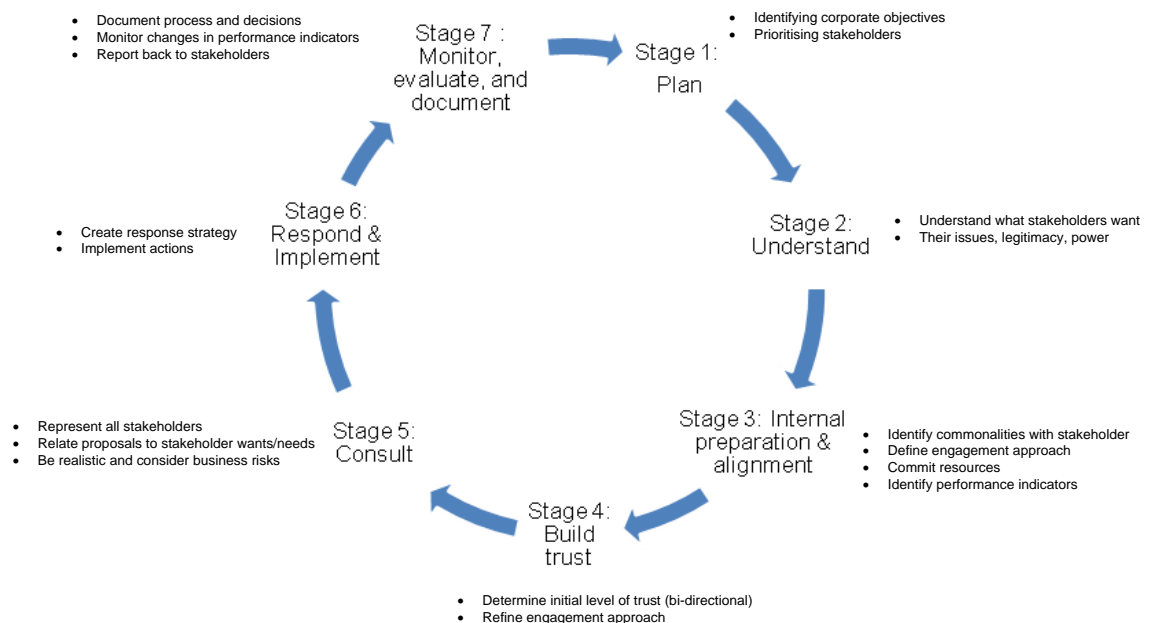


Figure 4: Stakeholder engagement planning process, after Jeffery (2009)

Stage 1 aligns with Freeman's "mapping" stage in identifying and creating a preliminary prioritisation of stakeholders. Stage 2 involves understanding what each stakeholder wants and their perceived level of salience for the focal organisation. Stage 3 is

entirely internal to the organisation and involves decisions on how to engage with stakeholders and committing resources to do so. Performance indicators should also be set at this level. This leads onto Stage 4 which reviews, and refines the preliminary stakeholder mapping in the light of perceived trust relationships. Stage 5 is a consultation phase involving representatives for all stakeholder groups in which proposals are presented and feedback listened to. Stage 6 allows the organisation to choose how to respond to such feedback – whether to take action or to ignore it. Stage 7 records those decisions, monitors changes and prepares for the cycle to start again.

There is a multitude of strategies that an organisation can employ in conjunction with Jeffery's process to manage relationships with their stakeholders. Friedman and Miles (2006, p.160-177) describe a range of strategies from deliberate misleading and manipulation of stakeholders through consultation and negotiation to collaborating and even full stakeholder control. They represent this as a "ladder of collaboration" (p.162) which is adapted in Table 4. Which strategies are used will vary according to a number of factors including: the stakeholders concerned and the perception that the focal organisation has of their salience, which will vary over time (Stage1); external environmental factors and internal business drivers prioritising one group of stakeholders over others (Stages 3 and 4); the resources that the organisation has to deal with stakeholders (Stages 4 and 6). In Freeman's terms, the "tactical" choice of strategy should be as a result of both "rational" level mapping and "process" level strategic reviews.

Table 4 shows a range of different strategies that could be used. Friedman and Miles (2006) are clear that it is not appropriate that all stakeholders should be engaged at Level 12 (stakeholder control), and that organisations are likely to use a range of strategies. Long-term these are probably most likely to be effective in the middle section: consultation – negotiation/involvement – collaboration.

	Stakeholder management strategy	Intention of engagement	Stakeholder influence	Examples of dialogue mechanisms
Proactive, responsive/trusting	12 Stakeholder Control	Stakeholders have majority representation in decision making	Stakeholders are involved in decision-making process	Full involvement in community projects
	11 Delegated Power	Stakeholders have minority representation in decision making		Representation on management board
	10 Partnership	Joint decision making in specified project		Joint Ventures
	9 Collaboration	Limited stakeholder decision-making power		Strategic alliances
	8 Involvement	Stakeholders provide support conditional on organisation's compliance		Constructive dialog
Responsive/neutral	7 Negotiation	Stakeholders can advise, but organisation decides	Stakeholders have influence on decisions	Reactive negotiation. bargaining
	6 Consultation	Appease stakeholder, but with no assurance of stakeholder influence	Stakeholder opinions are heard before decisions	Focus groups, interviews, surveys
	5 Placation	Educate stakeholders		Workshops (two-way dialog)
	4 Explaining	Educate stakeholders		Verified corporate social reports (one-way publication)
Non-participation	3 Informing	"Cure" stakeholders of preconceptions	Stakeholders have knowledge about corporate decisions	
	2 Therapy	"Misleading" stakeholders to change expectations		
	1 Manipulation			

Table 4: Stakeholder management strategies, adapted from Friedman and Miles (2006)

2.3.4 Stakeholder theory applied to public sector e-services

2.3.4.1 Normative aspects

Flak and Rose (2005), in their important paper, consider the stakeholder theory literature in relation to the e-government field. Freeman's original work (1984) focuses on commercial firms which have a primary aim of providing a dividend for their shareholders. This does not apply as a business driver for organisations such as government agencies who do not have shareholders. However, Flak and Rose identify "value maximization" from public money as an appropriate analogy to profit maximization.

Furthermore, there is a question of ownership. Boyne (2002) considers ownership (shareholders for private bodies, "political communities" for public-sector organisations) a prime difference between the two, along with sources of funding and control. In particular he highlights that organisations in the public sector are "controlled primarily by political forces" and "primary constraints are imposed by political system" rather than economic or market forces. He postulates that this political control creates "instability" in the organisation's external environment driven by the short-term dominance of the five-year political cycle in the UK.

However there is also one significant stakeholder group usually present for commercial organisations that is not generally an issue for public sector bodies – market competitors. This is complemented, for Boyne (2002), by a "public sector ethos" to "serve the public", and which does not generally allow the promotion of benefits to one stakeholder (group) in preference to another. In fact, it marries well with Donaldson and Preston's view that "all stakeholders are of intrinsic value" (1995).

With the increasing demand for channel shift to online government services, Flak and Rose (2005) warn against the ethics of over-promoting such services to the disadvantage of those citizens who are less computer-literate.

2.3.4.2 Descriptive and instrumental aspects applied to the public sector

E-government services are inherently reliant upon ICT. Flak and Rose (2005) find no evidence of this technological dimension in conventional stakeholder theory: it does not consider a number of important social aspects including "technology suppliers", "technology as a mediator" for changing relationships between stakeholders, or how the use of technology might change stakeholder actions.

Flak and Rose (2005) suggest without identifying them that there are many instrumental tools in use around stakeholder theory. Bourne and Walker (2005), for example, present a number of different tools such as: variants of the power-influence and power-interest grids, social network mapping and their own proposition a stakeholder circle. Bryson (2004) also identifies 15 techniques for stakeholder identification and analysis in the public sector.

However, Flak and Rose (2005) in their analysis of e-government literature find little use of these in rigorous academic investigation, and criticised the body of knowledge as having many "anecdotal best practice histories" and challenged the assumption that "the interests of government also represent the interests of other stakeholders" (2005). Much of the literature thus presents a descriptive rather than instrumental study of the application of stakeholder theory in e-government.

2.3.4.3 Implications for stakeholder engagement in e-government scenarios

Scholl (2001) claims that Donaldson and Preston "completely doubt the value and appropriateness " of applying stakeholder theory to public sector organisations as they are managed under very different principles to private, for-profit organisations. However, a number of other authors have identified commonalities between the two sectors in managerial decision-making processes and objectives: Scott *et al.* (2004), Flak & Rose (2005); Friedman & Miles (2006). Flak and Rose (2005) in particular submit four propositions for the application of stakeholder theory to e-government and for the formation of an appropriate research agenda:

- "Every government agency's external and internal stakeholders have legitimate interests. This descriptive reality can be verified.
- Government agencies have an ethical duty to respect stakeholders' interests, but can do so only to varying degrees.
- Stakeholder interests can be described and analyzed using appropriate tools. Agencies can form and implement appropriate stakeholder strategies and policies for e-government projects.
- Respecting stakeholders' interests can lead to improved e-government projects. Moreover, an ethical response to stakeholder e-government interests makes an agency reliable and trustworthy, thereby increasing its political credibility."

The same authors point out that most studies have looked at the use of stakeholder theory to specifically guide engagement in developing e-government projects. However, they also point out that such principles can also provide useful strategies for how stakeholders can impact on, and be engaged with, throughout a service lifecycle to create effective and sustainable relationships with stakeholders in the operational phase.

Scholl (2001) uses a large-scale ICT refreshment project to investigate the use of instrumental aspects of stakeholder theory in a public sector environment. He reflects that there are aspects of such large-scale projects that bear resemblance to private sector initiatives and hence concludes that stakeholder theory may well be a useful and relevant tool in cases of G2B and G2G scenarios. However, he expresses concern that the nature of the relationship between government and individual citizens is sufficiently different from business-to-customer relationships that stakeholder theory may not be as applicable in these G2C circumstances. .

Flak *et al.* (2008), in looking at potential ICT co-operation between Norwegian local municipalities, identified that conflict between stakeholders can occur between organisations at the same hierarchical level, or at different levels over common areas of interest (horizontal and vertical conflicts), and are caused by the different business priorities and concerns that these organisations have. The authors contend that conventional stakeholder mapping of a nexus of stakeholders centred on the focal organisation does not enable modellers to capture these potential conflicts (and presumably collaborations) between stakeholders. In the light of the efforts towards cross-organisation integration projects in e-government, they advocate further research on stakeholder dynamics.

In summary, the literature still displays a debate on the potential to apply stakeholder theory to e-government, rather than commercial, scenarios. There are similarities in the issues addressed by managers in both environments, but the funding, ownership environments and primary purpose are very different. Specifically the impact of the ICT vital to e-government on stakeholder relationships is not addressed. There are also debates of the relative importance of the normative, descriptive and instrumental/analytic aspects of stakeholder theory generally as well as in the e-government arena. Finally, mapping techniques do not capture the dynamic nature of the inter-stakeholder relationships, although mapping exercises can provide a useful framework for management decisions at that point in time.

2.3.5 Gaps in the Body of Knowledge – Stakeholder Theory

At time of this literature review and research design, Flak and Rose (2005) had stated that there had been little study from stakeholder theorists around the impact of technology and how it changes the relationship between supplier and user in the e-government arena and identified that this relationship needed further study. They also advance four further proposals for a research agenda including descriptive case studies on stakeholder relationships in e-government to improve understanding of stakeholder theory in such contexts.

They indicate that whilst government agencies can only respect all stakeholders' needs to varying degrees, there have been limited studies in this area. Investigations of complex e-government services supporting multiple stakeholders groups in different business models (G2G, G2B and G2C) from the same service have not been identified.

Stakeholder studies that investigate e-government services have concentrated on services that are inherent factual and definitive. No studies of services that support inherently subjective services have been identified. Studies looking at services integrated between government agencies in different parts of the administration hierarchy are also unusual.

These identified aspects form part of the focus of the research reported in this thesis.

2.4 Literature on the models of technology adoption

This section provides a review of the literature available at the time of the development of the research design for the study reported in this thesis and which was used to provide a theoretical framework basis for the study. The literature has inevitably moved on over the study period and newly published ideas are discussed in relation to the findings of this study in Chapter Nine.

Much research has been undertaken to investigate the drivers for and barriers to the take-up of new technology and innovations in general and e-government services in particular. Different authors have taken different approaches and a large range of models to explain such factors in different scenarios have been produced. The following sections review some of the more prevalent of these models.

2.4.1 Diffusion of Innovation

In Rogers' book (2003) on Diffusion of Innovation (DOI) he considers the factors that affect the rate of adoption of new technologies. He defines rate of adoption as "the relative speed with which an innovation is adopted by members of a social system" (p.23). He identifies that potential users' perceptions of five primary attributes contribute to most of the variance in the rate of technology adoption between individuals. Four of these five attributes are believed to increase the rate of adoption. These are:

- *Relative Advantage* (e.g. economic, in health, social prestige or the acceptance of an incentive) defined as "the degree to which an innovation is perceived as being better than the idea it supersedes";
- *Compatibility* with a potential adopter's "existing values, past experiences and needs";
- *Trialability* (how easy is it to try out an innovation, even in just a limited way?);
and
- *Observability* (can the benefits of an innovation be seen by others?) (p.15-16).

The fifth attribute, *Complexity*, defined as "the degree to which an innovation is perceived as relatively difficult to understand and use" (p.16) is presented as having a negative impact on adoption rates.

Rogers (p. 281) also presented a statistical classification of technology adopters in relation to the time they take to adopt a specified technology. Using the mean time to

adoption (\bar{x}), and the standard deviation, as in Table 5, he identifies five categories of users: innovators, early adopters, early majority, late majority, laggards. He posits that individuals have a natural tendency to risk and innovativeness that puts them into one of these categories, but that interventions can move them in either direction for different innovations. The challenge for suppliers and owners of new technologies and services is to increase the rate of adoption by moving individuals into earlier adoption groups.

Adopter category	Definition	Size of group	Overall level of uptake (max of group)
Innovators	$time < \bar{x} - 2sd$	2.5%	2.5%
Early adopters	$\bar{x} - 2sd < time < \bar{x} - sd$	13.5%	16%
Early majority	$\bar{x} - sd < time < \bar{x}$	34%	50%
Late majority	$\bar{x} < time < \bar{x} + sd$	34%	84%
Laggards	$time > \bar{x} + sd$	16%	100%

Table 5: Rogers' adopter categories (2003)

Moore and Benbasat (1991), critical of a lack of valid and reliable scales to test the adoption factors identified in DOI, created a new model (PCI) based on users' "perceived characteristics of using an innovation" and in doing so added two further constructs: *Voluntariness of use* (defined as "the degree to which use of the innovation is perceived as being voluntary, or of free will" and *Image* ("the degree to which use of an innovation is perceived to enhance one's image or social status in one's social system"). Following testing of their new model, they proposed that Rogers' idea of Observability actually covers two distinct constructs: *Result Demonstrability* (looking at the "tangibility" of results of using the technology) and *Visibility*. They also made a change in the definition of "Compatibility". Rogers uses it in DOI to reflect both users wants and needs; Moore and Benbasat believed including "needs" creates a conflict with "Relative Advantage" and so remove this from their definition.

2.4.2 Technology Adoption Model and its direct extensions

Davis' seminal paper (1989) on a proposed Technology Acceptance Model (TAM) presents two concepts: *Perceived Usefulness* (PU) and *Perceived Ease of Use* (PEOU) to help explain adoption of new technologies in a workplace context. This was based on existing models of individual behaviour from the psychology literature, particularly the Theory of Reasoned Action.

He defines Perceived Usefulness as 'the degree to which a person believes that using a particular system would enhance his or her job performance' whilst Perceived Ease

of Use, defined as "the degree to which a person believes that using a particular system would be free of effort", is presented as balancing the perceived usefulness with the user's perception of how hard it would be to use a system. Where both PU and PEOU are high, then high rates of intention to use a system are more likely than for lower rates of either variable. Intention to use in turn then affects actual usage. This original article is set in a business context, but there has been a multitude of literature examining its applicability in other contexts and presenting refinements of variants of the model in other contexts.

Venkatesh and Davis (2000) worked together to create TAM2 which sought to address the factors that are determinants and moderating factors for PE and PEOU. *Subjective Norm* was identified as a factor interpreting the effect of social influences around the (potential) user, but was only considered to be relevant factor in mandatory rather than voluntary settings, and hence *Voluntariness* was added as a moderating factor to the proposed model. Image was added, reflecting Moore and Benbasat's PCI work on a DOI test instrument (1991). *Result Demonstrability* was also added from the same source. *Job Relevance* adds the dimension of system applicability to the work environment, whilst *Output Quality* looks at how well a system is perceived to perform. A factor for Experience with the technology under study was also added although the authors did not consider there was "sufficient theoretical rationale" for it impacting on PU or Intention to Use.

The tests of the new model indicated that the social factors in particular subjective norm, (along with voluntariness, and image) influence acceptance levels as measured by PU. Positive effects were also found for PEOU, job relevance, output quality and result demonstrability. Experience was found to moderate the impacts of social forces impacting PU and Intention to Use, but status/image impacts still impacted PU even after system experience.

TAM3 was developed by Venkatesh and Bala (2008) to address the criticisms of TAM that it failed to provide practical guidance to practitioners in e-commerce organisations on increasing user uptake. They pulled together concepts from a range of previous studies and proposed, based on earlier work by Venkatesh (2000) that user perceptions of a technology are influenced in early (pre-engagement) stages by personal factors in relation to technology such as:

- *Computer Self-Efficacy* - "the degree to which an individual believes... he has a specific task/job using the computer",

- *Computer Anxiety* – "an individual's apprehension, or even fear, when she/he is faced with the possibility of using computers",
- *Computer Playfulness* – "the degree of cognitive spontaneity in microcomputer interaction"
- and also Perceptions Of External Control or Facilitating Conditions (see UTAUT below).

However, these early perceptions may be later modified by adjustments linked to *Perceived Enjoyment* and *Objective Usability*. They also identified that the relative impacts of these factors are likely to change over time, partly in response to experience with the system (Figure 5). They explicitly now state that Experience is a factor in IT environments – the effect of PEOU on PU will increase. This was an observation that Venkatesh had made in the development of UTAUT (see below) but had not proved at that time.

Based on the results of their testing, Venkatesh and Bala (2008) recommend both for research and to practitioners, a set of pre- and post-implementation actions (interventions) that can impact on PU and PEOU, and hence on Usage. These include user participation in pre-implementation activities, and the identification of user "incentives" although this is used in a wider context to refer to benefits of the new system. Post-implementation interventions suggested are user training and organisational and peer support.

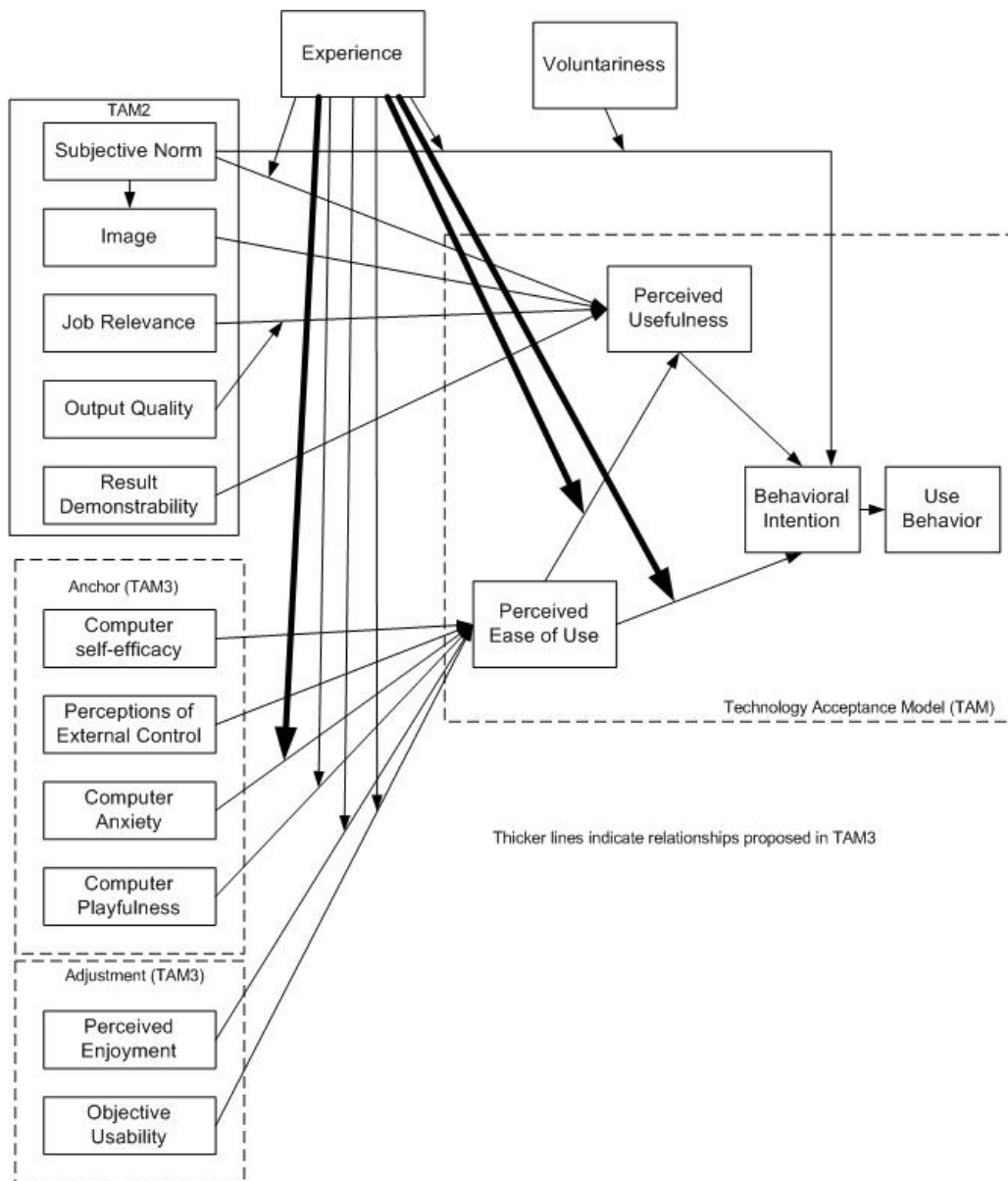


Figure 5: Development of constructs in TAM, TAM2, and TAM3 (Venkatesh & Bala, 2008, with minor additions)

2.4.3 Unified Theory for Acceptance and Use of Technology

Prior to his work on TAM3 described above, Venkatesh *et al.* (2003) had reviewed eight models of technology acceptance (including TAM) derived from a range of fields of study including psychology, and sociology as well as information systems and science. They constructed a Unified Theory of Acceptance and Use of Technology (UTAUT) using constructs and ideas from these eight models, to create a new adoption model. This model includes demographic characteristics of the (potential) users. They highlight a feedback mechanism by which users of a technology can have their perceptions modified by their experience as in Figure 6.

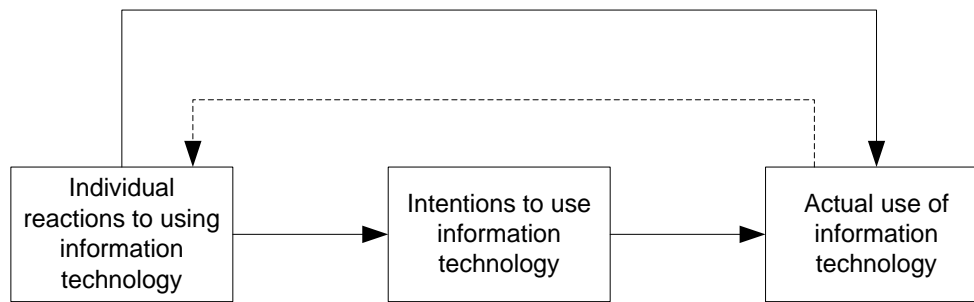


Figure 6: Linking intention to use and actual usage with user perceptions (Venkatesh et al., 2003)

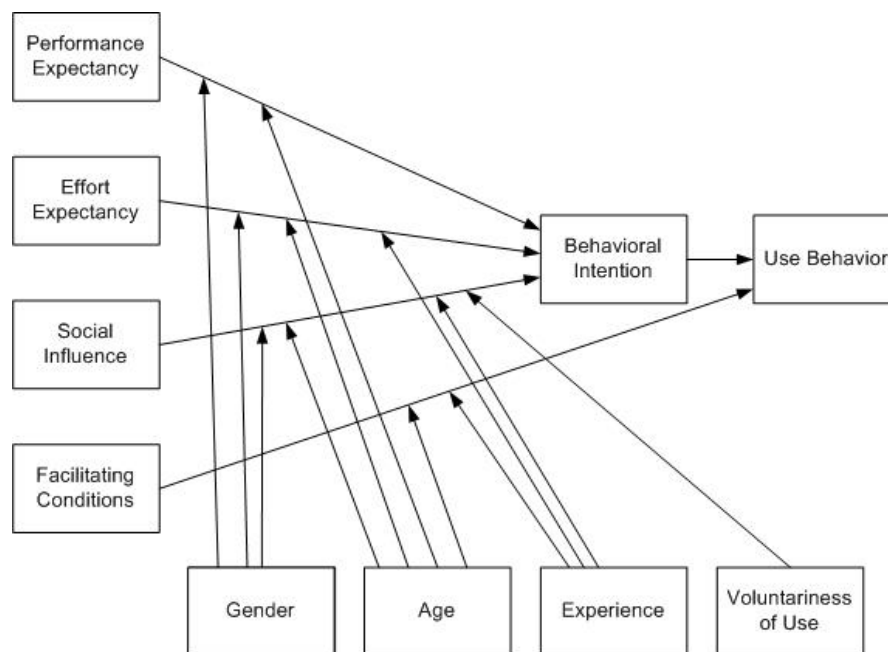


Figure 7: UTAUT model (Venkatesh et al., 2003)

Figure 7 illustrates the factors identified as relevant in the UTAUT model. The following factors were identified as affecting "*behavioural intention to use*" ICT:

- *Performance Expectancy* (defined as "the degree to which an individual believes that using the system will help him or her to attain gains in job performance"),
- *Effort Expectancy* ('the degree of ease associated with the use of the system'), and
- *Social Influence* ("the degree to which an individual perceives that important others believe he or she should use the new system").

In looking at actual usage, *Facilitating Conditions* ("the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system") had a direct effect, but did not have a similar effect on intention to use.

Noting that UTAUT was tested in a business environment in the USA, Kijsanayotin *et al.* (2009) review the usefulness and applicability of the UTAUT model by testing its applicability in ICT adoption in Community Health Centres in Thailand. Their results validate the model in this new scenario.

2.4.4 Task-Technology Fit

Goodhue and Thompson (1995) proposed a new model looking at links between information technology and "individual performance" for staff at all levels, but not involved in IT functions, in two different US employment scenarios (a transport company and a insurance company). The findings were that higher individual performance scores on a specific work-related task were positively related to both the "degree to which a technology assists an individual in performing his or her portfolio of tasks" (the Task-Technology Fit, TTF) and the rate of utilization that is made of the technology under study.

2.4.5 Comparison of factors identified in different models

As Carter and Bélanger (2005) note, and as can be seen in the brief analysis above, there is considerable overlap between the ideas presented in the various model. Table 6 shows the relationship between factors in models discussed above.

2.4.6 Models considering the impact of trust and risk

A number of authors have looked at the influence of trust in adoption of online services in commercial (Business-to-Consumer) contexts.

McKnight *et al.* (2002) review trust literature and propose a model for the role trust plays in the adoption of e-commerce, including constructs covering "trust in web vendor", "institution-based trust", and an individual's "disposition to trust".

Bélanger *et al.* (2002) also looked at the area of e-commerce defining trustworthiness as "perception of confidence in the electronic marketer's reliability and integrity". Their results indicated that "pleasure features" such as cosmetic appearance, convenience and ease of use, were of more importance in determining customers intention to purchase items from an e-commerce site than security and privacy features.

Gefen *et al.* (2003) proposed and tested an integrated model of the impact of trust and TAM on re-visit rates for online shoppers on retailer websites. They found that trust, PU and PEOU are all factors in repeat transactions, but familiarity with the e-commerce organisation was not a direct factor influencing re-visits.

User thinks:	Model	Construct name
"it's better than the previous idea"	DOI, PCI	Relative Advantage
"it will make things quicker"	UTAUT	Performance expectancy
	DOI	Relative Advantage
"it will make things cheaper"	DOI	Relative Advantage
"it's proven to be better than..."	TAM3	Objective usability
"it will be easy to use"	TAM, TAM2, TAM3, PCI	(Perceived) Ease of Use
	UTAUT	Effort expectancy
"it's difficult to understand"	DOI	Complexity
	UTAUT	Effort Expectancy
"it fits my values"	DOI, PCI	Compatibility
"it fits my needs"	DOI	Compatibility
"it will fit with the way I work"	UTAUT	Facilitating conditions
	TTF	Task-Technology Fit
"it will be useful (in my job)"	TAM, TAM2, TAM3	Perceived Usefulness
"it fits my needs in my job"	TTF	Compatibility
	TAM2	Job Relevance
"it will be relevant to my job"	TAM2, TAM3	Job Relevance
"it works well for my task"	TAM2, TAM3	Output Quality
"it will make me more efficient in my job"	UTAUT	Performance expectancy
	TTF	Individual Performance
"can I try it out?"	DOI, PCI	Trialability
"I can see the benefit"	DOI	Observability
	PCI, TAM2, TAM3	Result Demonstrability
"other people can see the benefit of (my) using it"	PCI	Visibility
"other people I know would use it"	TAM2, TAM3	Subjective Norm
"other people think I should use it"	UTAUT	Social Influence
"it enhances my image"	PCI, TAM2, TAM3	Image
	UTAUT	Social Influence
"I can do this on the computer"	TAM3	Computer Self-efficacy
"I have the (computing) resources to..."	UTAUT	Facilitating Conditions
	TAM3	Perceptions of external control
	UTAUT	Facilitating Conditions
"I have the knowledge to..."	UTAUT	Facilitating conditions
"I've got choice about using it"	PCI	Voluntariness of use
	UTAUT	Facilitating Conditions
"I worry about using computers"	TAM3	Computer Anxiety
"I enjoy "playing" with computers"	TAM3	Computer Playfulness
"I enjoyed doing that (on the computer)"	TAM3	Perceived enjoyment

Table 6: Corresponding factors in models of technology adoption

2.4.7 Technology adoption models applied to e-government services

Whilst technology adoption models have normally been developed and tested in an e-commerce/e-business scenario studies, several studies had been published at the time of the design of this research aiming to review the applicability of adoption models to e-government scenarios. Some of these are described below and summarised in Table 7.

Using a postal survey to look at the theoretical (i.e. not taken in the context of any particular e-government service) barriers and benefits to UK citizens in the context of TAM and DOI, Gilbert *et al.* (2004) identified that their respondents were more concerned with potential risks than potential benefits. Combining these risks and benefits into factors that could be related to the attitudinal models, they identified 8 factors that had a correlation with willingness to use e-government services – 6 barriers (experience, information quality, financial security, stress, trust and visual appeal) and 2 benefits (savings in cost and in time).

Fu *et al.* (2006) developed a model including the concept of perceived risk defined as "the ... perception of the uncertainty and adverse consequence of a desired outcome". However, against expectations, it was not identified as an important factor in the specific context of their study of Taiwanese taxpayers.

When looking at the e-government area, there are multiple potential facets to this trust – trust of the nominal government service supplier, trust in use of the Internet as a delivery channel, trust in the providers of the supporting IT infrastructure specific to their service. Whilst the first two of these are visible to the normal service user, most will not know how a service they are considering using is supported: whether it is provided by an in-house IT team or is provided as a hosted service package by a third-party supplier. It may be debated that this distinction is irrelevant for the user, but may have implications for the government department providing the service.

Carter and Bélanger (2005) looked at factors influencing users of the US Department of Motor Vehicles and Virginia Taxation websites, in the context of a number of technology adoption theories including DOI, TAM and models of web trust. They concluded that "Perceived ease of use, compatibility and trustworthiness were all significant indicators of citizen's intention to use state e-government services". The same authors extended their study in the impact of trust on e-government adoption and indicated that trust both in the relevant government institution and in the Internet as a whole "is an essential element in e-government adoption". (Bélanger & Carter, 2008)

An online tax filing and payment system in Taiwan was studied by Hung *et al.* (2006) to investigate aspects of user acceptance which they defined as "the act of receiving information technology use willingly". They used a model adapted from the Theory of Planned Behaviour, and tested, via a e-mail survey, its appropriateness with factors from a number of the models and studies above. They identified the following as determinants of

user acceptance: "perceived usefulness, ease of use, perceived risk, trust, compatibility, external influences, interpersonal influence, self-efficacy and facilitating condition.

Thompson *et al.* (2006) use the Decomposed Theory of Planned Behavior and TAM to look at usage intentions of the same cohort of US undergraduate students for PC applications, on two occasions, 2 months apart. The purpose was to create an integrated model of technology adoption. Of particular interest are the positive relationships identified between "personal innovativeness with IT" and "computer self-efficacy" with intention to use the systems under study.

Schaupp *et al.* (2010) used a cohort of students to study their intention to use an online tax filing system in the U.S. They used constructs from a variety of models, including UTAUT, perceived risk, optimism bias and online trust with the purpose of developing a more reliable adoption model for tax-filing systems. Optimism bias is used as an assessment of an individual's perception of their own susceptibility to risk – i.e. is a risk more or less likely to happen to them than an average person. They found that levels of perceived risk were not affected by higher levels of trust in the Internet, although levels of trust in the target system decreased the perceived risk. They found the most significant factors increasing the students' intention to use the e-filing system were *Performance Expectancy* (linked to Perceived Usefulness in TAM and Relative Advantage in DOI), *Social Influence*, *Facilitating Conditions* and *Optimism Bias*.

The above discussion illustrates, using a small selection of literature on technology adoption the range of models and test scenarios available at the time of the original literature review.

Study	Scope of study	Adoption models considered	Research Method
Goodhue and Thompson (1995)	Admin/clerical staff, non-IS employees in 2 US companies multiple technologies,	Task-Technology Fit	Survey
Thomas and Streib, (2003)	General and Internet usage, USA	Not Applicable	Telephone survey
Conroy and Evans-Cowley, (2004)	Civil planning, USA	Analysis of website only	Not Applicable
Carter and Bélanger (2005)	US, Department of Motor Vehicle and Department of Taxation	TAM, DOI, trustworthiness	Survey
Reddick (2005)	USA government services, comparing telephone and Internet contact	Not Applicable	Telephone survey
Fu <i>et al.</i> (2006)	Online tax-filing, Taiwan	TAM and Theory of Planned Behaviour	Survey via post, CD or online
Hung <i>et al.</i> (2006)	Online tax filing, Taiwan	Theory of Planned Behaviour	E-mail survey
Thompson, <i>et al.</i> (2006)	US undergraduate students, PC systems and software	Decomposed Theory of Planned Behaviour, TAM	Survey
Gilbert <i>et al.</i> (2007)	Willingness to use UK e-government services as a concept	Aspects of DOI, TAM, Service quality	Postal survey
Bélanger and Carter (2008)	US, Department of Motor Vehicle and Department of Taxation	Aspects of Trust in Internet and Trust in Government	Survey
Economides & Terzis (2008)	Tax websites, Greece,	Analysis of website only	Not Applicable
Better Connected (SOCITM, 2008)	UK e-government, Local Authority Websites	Analysis of websites only	Not Applicable
Schaupp <i>et al.</i> (2010)	Online tax-filing, US students	UTAUT, online trust, perceived risk, and optimism bias	Web-based survey
Dutton <i>et al.</i> (2009) (OxIS Survey)	7 selected UK e-government services	Usage only	Face-to-face survey

Table 7: Selected e-government user adoption studies

2.4.8 Gaps in the Body of Knowledge – Technology Adoption Theory

Whilst there are a large number of proposed models of technology adoption, with a vast array of literature testing these in different contexts, both e-commerce and e-government, there are some characteristics in the cases selected. The scenario under study either applies the models to e-government as a concept (e.g. Gilbert *et al.*, 2004) or to situations representing the channel shift of a simple "factual" or numerical transaction (e.g. Carter & Bélanger, 2005; Hung *et al.*, 2006; Schaupp *et al.*, 2010). The "decisions" made as part of the business processes in the services involved in these cases are objective and factual, so that, even if the decision is ultimately made by a human, there is no subjectivity in the decision.

In addition, the selected cases are simple in the fact that they involve the use of a single stakeholder group (or more precisely a single stakeholder role in relation to the service e.g. a service user applying for vehicle tax, irrespective of whether they are an individual citizen or applying for a company-owned vehicle).

In general the studies also involve either a single government agency or as a service shared between agencies of the same hierarchical level in the administration.

In summary the e-government cases studies represented by the technology adoption literature at the time of the research design are generally simple in a variety of attributes. However, not all off-line government services are like this. Some involve two or more agencies at different administration levels; some support users with different roles; some support more complex or subjective decisions. In order for the technology literature to truly be able to assess the applicability of technology models to real-life e-government services, some of these more complex applications must be studied.

2.5 Implications for practitioners

Kijsanayotin *et al.* (2009) in stating that "user acceptance of technology is one of the major determinants of the project success" reflect the concerns of the UK Government's Performance and Innovation Unit in 2000 that service delivery is not enough. E-government projects can only be truly considered successful if they are used, and that further investment should be guided by take-up. The models of technology adoption (and the many others that have been developed) have helped practitioners in different scenarios in both private and public sector understand what factors affect user take-up of new technologies. The

stakeholder theory presents a methodology by which organisations can engage with users and other stakeholders to promote their services and to break down the barriers (negative factors) identified in the adoption models.

However, the body of knowledge available at the time of the Research Design focussed on very simple e-government service scenarios. There was little to help public sector managers of more complex stakeholder and business process environments. This thesis aimed to provide, through a case study of such a complex service, some insight into the applicability of stakeholder theory and technology adoption models to other real-world situations.

2.6 Limitations of the theory

As discussed in the sections on stakeholder theory and technology adoption modelling, each has its own limitations.

Freeman's original work on stakeholder management (1984) was developed in a western, business environment, and its applicability to other cultural and business environments is not yet proven. There remain debates about the relative importance and relevance of the three aspects of stakeholder theory (normative, descriptive, instrumental) (Donaldson & Preston, 1995) and this is particularly true in the e-government environment where theory covering instrumental aspects which review the success of the organisation in relation to its stakeholder management appears to be limited. Defining success in organisations that do not seek to maximise profit can be challenging, although "value for money" might be considered analogous in the public sector. Other metrics of success, such as service take-up or repeat visit rates might help put success in context.

Flak and Rose (2005) emphasise that e-government projects and services have a very wide potential range of stakeholders, each of whom are likely to have a legitimate stake, and hence claim, on the attentions of the e-government service managers. The literature identified at the time of the research did not identify techniques specifically tailored to the public sector by which conflicting claims can be resolved or prioritised.

However, the key omission is the lack of consideration of the importance of technology as an enabler in e-government, almost to the point of being a stakeholder in its own right.

Conversely, the focus of the multitude of variants of models of technology adoption is on the interaction between technological-based service and service user, rather than the relationship between user and service supplier organisation. Many case studies have been published analysing the applicability of different models in different technological contexts, and in different cultures. Academic research also appears reviewing and adapting the models in simple e-government scenarios. However, there is little guidance for researchers or practitioners on how to select an appropriate model or on how to apply those findings to improve service uptake.

This research proposes that a research study that uses both research streams to explore the success of an e-government service may seek to bridge the gap and provide a novel contribution to the body of knowledge.

2.7 Research Questions

The literature review above has identified voids in the body of literature around the study of complex and non-numerical e-government services.

Five research questions were identified in the light of these gaps in the knowledge. These form the basis of the research presented in this thesis and provide a unique contribution to the literature:

- RQ1: Can a single online service successfully provide a service to a wide range of different stakeholders?
- RQ2: How does an organisation manage relationships with stakeholders to ensure the service supports the needs of all the different groups?
- RQ3: What are the factors that affect uptake of an online service in different user communities with different levels of experience of the same process on conventional channels?
- RQ4: How does an online service support a human-made decision that is essentially both subjective and visual?
- RQ5: What issues arise from the provision of inputs to Local Government functions from a central government agency?

2.8 Chapter Summary

This chapter has presented an overview of the theoretical background to the research and identified gaps in the body of knowledge which the research addresses. This covered both stakeholder theory and academic models of technology adoption. A brief discussion of e-government services, with a focus to those in the UK, as an example of the development of such services was presented. It should be noted that due to the researcher's part-time study mode, the proposed research place over a period of around six years. Inevitably, over this period of time, the published literature in the study area has moved on and some works have since been published which address similar issues to the identified gaps. For clarity of narrative, particularly in the design of the study, these have not been presented here, but rather are discussed in the light of results from this research in Chapter Nine.

Whilst there is much stakeholder literature studying the nature and management of relationships between stakeholders, a particular void was identified in the stakeholder literature in understanding how technology systems can be embedded as an enabler/barrier in stakeholder analyses of e-government systems. Models of technology adoption abound, but focus on formulaic services based on simple business rules. No studies on significantly complex e-government services were found at the time of the original literature review. The importance of understanding the factors and activities that impact e-government service adoption, in all scenarios, in the context of the continued push to local and central government financial efficiencies through the use of e-government services, is highlighted. A study looking to present a combination of the two research traditions to facilitate understanding of a complex e-government scenario was proposed and five research questions relevant to a complex e-government scenario were presented.

Chapter Three now presents the background context to the e-government services selected for study and defines the methodology selected for the research.

Chapter Three: Methodology and case study selection

The purpose of the research presented in this thesis was to explore aspects of the perceptions and experiences of different user communities in a complex multi-stakeholder e-government service. The research questions posed are based upon both omissions in the descriptive stakeholder literature, and unexplored aspects of the technology adoption literature. This chapter starts with a brief review of research methods used in both of these areas, before it discusses the justification for the selection of an exploratory case study methodology, and states the epistemological and ontological perspectives employed.

Yin (2009, p.18) identifies case study research as an empirical investigation where the case under study is viewed "within its real-life context" and "the boundaries between phenomenon and context are not clearly evident". The ultimate design of the research presented here is closely bound with the real-life context and hence the chapter continues with a description of the selected case study environment as a prelude to discussion and development of the detailed research design.

In later sections of the chapter, aspects of relevant qualitative and quantitative data collection and analysis are discussed before presenting a justification of the chosen embedded and emerging mixed methods design. Practicalities and limitations of the chosen method are discussed, along with a consideration of the ethical issues involved in the research. The chapter concludes with a presentation of the overall research design.

3.1 Methodology in the e-government field

Table 7 in Chapter Two illustrates the methodologies used in a selection of the technology adoption literature. It can be seen that the use of a self-administered survey to review specific applications of a selected model(s) is a commonly practiced and accepted mode of investigation. These are primarily deductive studies using quantitative data from survey instruments to test existing theories or proposed developments to them.

For stakeholder theory, what is considered to be acceptable methodology is less clear, and the literature review revealed the debate around the applicability of stakeholder theory to not-for-profit and public sector organisations. Donaldson and Preston (1995) indicate three aspects of stakeholder theory research – normative, descriptive and instrumental. Normative and descriptive aspects are concerned with *how* and *why* an

organisation behaves as it does and so have an inherently qualitative aspect to them, although specialist quantitative studies are not impossible. Instrumental aspects are possibly more aligned to quantitative studies with its focus on measuring an organisation's success. Donaldson and Preston also explicitly state however, that they are unconvinced of the applicability of a commercially-based stakeholder theory to public sector organisations. Nonetheless, some studies of stakeholder theory in e-government scenarios do exist. Scholl (2001) used a case study of a large-scale government ICT replacement project to demonstrate the usefulness of an instrumental stakeholder approach. Flak *et al.* (2008) conversely use a descriptive approach to identify conflicts between government agencies in strategic requirement definition and implementation planning activities for a shared system. Jones *et al.* (2006) used an "interpretive, in-depth case study" to investigate the effectiveness of e-government evaluation. Thus, case study is also a common methodology in studies of the application of stakeholder theory. Flak and Rose (2005), although they recommend theoretical thinking about the e-government case studies already published, also highlight the need for "improving descriptive stakeholder models so that they reflect a richer understanding of relationship between technology and stakeholder relationships".

In summary, case studies are common in both stakeholder research where the emphasis is qualitative and in technology adoption literature where the tradition of testing existing adoption factors is more quantitative.

3.2 Development of the research questions in context

Five research questions were presented in Chapter Two in the light of the literature available at the time of the research design. These questions were not all developed simultaneously.

An initial literature review had highlighted the gaps in the knowledge addressed by RQs1-3. A proposal to conduct a comparative study of different e-government services based on these questions initiated a search for collaborating agencies with which to conduct live environment aspects of the study via the UK Government IT Profession (of which the researcher is a member) and the now defunct Public Sector Forums website (a commercial venture which provided both formal and informal communication routes between government agencies embarking on e-government services). A small number of institutions responded including the Planning Portal. Initial discussions with the Planning Portal highlighted both a

synergy with the research questions already identified and a suitable timescale in which to start a research relationship. A preliminary research phase was conducted (Cheriton & Kneller, 2009). Whilst it became clear that the research was useful in itself for the Planning Portal, it was also an experience which both parties used to explore the potential of the research relationship and potential new areas of research, As a result of background gathered in this preliminary study, it became clear that the Planning Portal not only supported RQs 1-3, but also provided an unusual opportunity for the study of other aspects identified as missing in the published literature to be included (as discussed in Section 3.4.3). Thus the research direction was changed and RQs 4-5 were added at the time of formalising the detailed research design. The five questions to be addressed are;

RQ1: Can a single online service successfully provide a service to a wide range of different stakeholders?

RQ2: How does an organisation manage relationships with stakeholders to ensure the service supports the needs of all the different groups?

RQ3: What are the factors that affect uptake of an online service in different user communities with different levels of experience of the same process on conventional channels?

RQ4: How does an online service support a human-made decision that is essentially both subjective and visual?

RQ5: What issues arise from the provision of inputs to Local Government functions from a central government agency?

3.3 Research philosophy and strategy

3.3.1 Research Philosophy

In response to the research questions presented above, the rationale for this research is to present an in-depth analysis of a single complex e-government service with both features and a stakeholder environment that can provide evidence to address the research questions.

The research is based partially upon a constructivist worldview that the experiences and attitudes of people and organisations that are involved as stakeholders can provide direct and meaningful evidence to understanding the case under study. However, the

research questions require an analysis of a scenario involving multiple stakeholder communities and the relationships between them, that is directly, and only, observable in real-world practice. Creswell (2014, p.11) discusses the pragmatic approach that "research always occurs in social, historical, political and other contexts". This is clearly relevant to the field of e-government research and hence a more pragmatic research philosophy was considered appropriate for this research.

A subjectivist ontology was selected for this research. Whilst the research questions inevitably require some objective understanding of the real-world scenario under investigation, the primary focus of the research questions is on the actions, perceptions and interactions of stakeholders. Saunders *et al.* posit that subjectivism allows the researcher to "understand the subjective reality" of actors in the field of study, to enable reflection on them "in a way that is meaningful" (2009, p.111). This may be seen as, to some extent, contradictory to many of the previous e-government adoption research articles identified in Chapter Two which test existing theories of technology adoption in multiple different services in both public and private sectors. Rather it is more akin to the descriptive aspects of stakeholder theory than normative or instrumental aspects. However, as the research presented in this thesis is focussed on exploring novel aspects missing in the underpinning literature and also is set in a more complex scenario than most published articles on e-government services, this subjective approach is considered to be appropriate. More objective research phases might be appropriate at a later stage. Similarly, the interpretivist epistemology adopted emphasises an understanding of the differences between people in an organisational system as "social actors" (Saunders *et al.*, 2009, p.116) as this again will be critical to an understanding of the issues raised by the research questions. However, it also embeds the researcher in the research scenario in order to understand the subjects' feelings and actions. This raises the issue of axiology. For this research, whilst interpretation of, particularly, the qualitative findings is a subjective process, the researcher has taken an independent stance and has applied no particular position on the conceptual benefits or otherwise of online services.

3.3.2 Research Strategy: a case study approach

A review of the literature in stakeholder theory and technology adoption reveals that the use of case studies of particular applications, or particular public administrations, is common in both traditions.

Bryman (2012, p.66) defines a basic case study as "the detailed and intensive analysis of a single case", where a case may be a specific, person, place, organisation etc. Yin (2009, p.18) expands this, defining a case study as "an empirical enquiry that investigates a contemporary phenomenon in depth and within its real-life context". He also states that the case study strategy can include both single-and multiple-case studies and suggests the use of a case study is appropriate for the in-depth study of a real-life phenomenon, but where "such understanding encompassed important contextual conditions" and "the boundaries between phenomenon and context are not clearly evident".

The Research Questions (RQs) posed above clearly seek to explore an online service in relation to its users and to the stakeholder context that lies around it, each of which may constitute a separate case or sub-case.

Yin (2009, p.27) also suggests that case study research is particularly applicable to answering inductive questions of "how" and "why" as represented by some of the RQs. He also states that case studies allow the collection and analysis of both qualitative and quantitative data, including using multiple methods, to allow more deductive types of enquiry seeking to test existing theory. Babbie (2013, p.338) indicates that case studies can be descriptive, or explanatory, both of which purposes are required by the RQs. These features give a preliminary indication that case study methods may be considered appropriate in the design of this research which has questions apparently rooted in both approaches.

However, there are limitations to the case study methodology. Bryman (2012, p.71) and Saunders *et al.* (2009, p.158) both question the ability of researchers to generalise case study findings to a wider theory. This issue indicates that case studies are generally, but not exclusively in an inductive tradition, building theory from collected data. Saunders *et al.* go on to say, however, that where the case study scenario is "markedly 'different' in some way" then the ability to generalise across multiple populations is not the research purpose. Rather this is to explore and explain the phenomenon under consideration. He goes to say that later phases may consider how such findings, and any developing theory, can be tested in other scenarios (p.158). Yin (2009, pp.19-20) also emphasises the importance of understanding

the purpose of a case study. For this research, the above research questions form a framework against which to develop an understanding of novel features of online services to facilitate development of improved applications for real-world practitioners in both the public and private sectors. Thus the research questions again support the use of a case study, exploring new features of e-government services, starting with the information gathered in relation to these questions and identifying features and themes that are applicable in both the research and practitioner contexts.

3.4 Selection of the context for this research

This section presents the justification for the case study organisation selected in the light of the RQs proposed from issues identified from previous research.

3.4.1 A complex multi-stakeholder e-government service: The UK Planning Portal

Various e-government services have been studied world-wide (e.g. Carter & Bélanger, 2005; Economides & Terzis, 2008; Fu *et al.*, 2006). However, these services tend to be very rigid and formulaic in nature. For example in the UK, the DVLA provide an online facility with which to purchase or renew the vehicle tax for their vehicle. Essentially this service looks for three pieces of information: what is the unique registration number of the vehicle, is the legally required motor insurance in place, does the vehicle have (or is exempt from) a current MOT certificate of roadworthiness. If the vehicle can be identified and the answers to the other two questions are 'yes', then the requester can purchase the required tax, subject to suitable payment. The business rules are very clear.

Applying for planning permission in the UK is not so simple. There are a multitude of different application forms from which to select, and more than one may be required for any given application. There are around 360 potential target organisations (Local Planning Authorities, LPAs) in England and Wales, each of which may have different application requirements, in addition to those national mandatory requirements laid out in Town and Country Planning Act(s) and Orders (e.g. *The Town and Country Planning (Development Management Procedure) (England) Order 2015*). Furthermore, the information provided is then assessed by humans in a manner that, while supported by guidelines and technical rules relating to size and volume of developments, is essentially both subjective and visual,

relying heavily on supporting plans and drawings of the proposed development. Cullingworth and Nadin (2006, p.1) state this explicitly:

"A notable feature of the UK system is the unusual extent to which it embraces discretion. This allows for flexibility in interpreting the public interest."

In addition, for the online functionality provided for planning applications (as opposed to the paper method) the organisation collecting the information is not the entity that will use the information to make a decision. The former is provided by the Planning Portal team, a central government team working as part of the Department for Communities and Local Government, whilst the information is used, analysed and applications decided upon by Planning Officers in multiple different local government organisations (providing evidence for RQ5).

The visual, interpretive aspect of the application is also unusual. Many online e-government services do have a visual, and in particular a map-based element, for example, where a citizen might indicate the position of a pothole that is in need of repair. However, the visual element of online planning applications is different. Almost all applications have to be supported with plans and/or drawings of the proposed development. For some applications this will be multiple architectural drawings, whilst for tree works, a sketch plan to identify the tree in question will be sufficient. So rather than being reactive to a graphical interface element presented by the service, the visual element in planning applications is pro-actively created and submitted by the user of the service. These plans and drawings may be produced via Computer-Aided Design packages, by hand-drawn plans from draughtsmen or architects or by a more 'artistic' medium such as watercolour illustrations.

These visual elements are used, along with other technical information, to assess the planning application and allow the Planning Officer to make a recommendation on whether or not to give permission for the development. This visually expressive content provides a novel aspect to the study context (to be studied under RQ4). No studies of similar e-government services have yet been identified.

Approaching the study from the literature viewpoint, the published academic studies use a range of definitions of e-planning. Silva (2010) defines e-planning as the use of "information and communicating technologies in all phases of the urban planning process". The e-planning literature focuses either on use of ICT as a means of visualising the impact of

proposed developments (Abdullah *et al.*, 2010; Jobst *et al.*, 2010) or on encouraging public participation on consultations on planning policy (Conroy & Evans-Cowley, 2010; Wessels, 2010)

The main body of this research takes a narrower sense, limiting its scope to describe the range of online informational and transactional facilities used to support the planning application and development control process for specific planning applications, and excluding the wider regional development aspects. No widely-cited literature on this area of e-planning has been identified. However, in order to put some of the findings in this research in context, it is necessary to present a short overview of planning in the UK, as the geographic study area. This is presented in the following section.

3.4.2 The Planning Portal in context: the planning system in England and Wales

The planning system in England and Wales is designed to provide a degree of control over developments in order that the needs of citizens and businesses are balanced with those of the urban and rural environments. This is done via a plan-led system.

In England, different levels of plans are set out to provide guidelines on what types of developments will be permitted in which types of locations. The National Planning Policy Framework sets out strategic government-level plans, whilst Local Plans (post 2011; from 2004-2011 Local Development Frameworks (LDFs)) set out plans on a Local Authority level over a 15 year period. Community-scale consideration is given in Neighbourhood Plans. Responsibility for legislation in town and country planning related to Wales is generally devolved to the Welsh Assembly (Cave *et al.*, 2013). In Wales, there was no statutory level plan from devolution until Planning Policy Wales was published in 2014 (Welsh Government, 2014). This requires every Welsh local authority to create a Local Development Plan for LPA areas. The Local Plans in England and Wales both set out a strategy and policy against which proposed developments can be assessed.

In both England and Wales, many types of development including the creation of single dwellings or whole housing estates, changes to existing buildings, mining and extraction work and engineering works, require planning permission, under a process known as development control. However, the information required and the application forms used will vary both between types of development and between LPAs. Common types of planning application are:

- Full planning application
- Outline planning application
- Householder application
- Change of use (e.g. from a retail shop to residential use)
- Tree Works

It should be noted that the online forms do not currently support the full range of forms involved in the planning process, and furthermore some Local Authorities will require additional information in order to assess the application.

In addition, there are also some minor developments that will be automatically permitted under the LDF without the need to apply for permission, but developers will often apply for a Certificate of Lawful Development to formalise this. Conversely, developments on historic buildings which would normally be permitted automatically will often require Listed Building Consent, designed to ensure the continued historical value of the site.

Individuals or companies wishing to apply for planning permission are required to make an application to their LPA (usually the relevant Local Authority), which is initiated by the submission of a planning application form by the proposer of the development, or alternatively a planning professional working on their behalf, for example, planning agents, surveyors, builders etc. This can be done via paper-based forms (available from the LPA or often downloadable from the LPA website) or online via the Planning Portal (www.planningportal.gov.uk).

However, the transaction represented by the submission of an online planning application is more complex than a simple numerical one. The application forms are designed to extract required factual information to allow assessment of the planning applications. This information is both quantitative – dimensions of proposed new building for example, and qualitative, such as a description of the building materials to be used, or the proposed remedial arboriculture work. However, for most applications, some form of diagram, plan or drawing is required as described above, whether this be complex architectural drawings or a sketch plan to identify the tree involved in the application. This visual element introduces a more subjective element into the e-planning arena and into the research topic.

However an application is received, LPAs will then consider whether the development can be permitted. Depending on the type of application, decision can be made by an individual Planning Officer, or have to go before the local Planning Committee for deliberation. Often, the decision process will involve a visit to the physical site involved. If the proposed development falls within the guidelines of the LDF, the permission will probably be granted, although frequently conditions (such as pre-approval of the materials to be used) are often applied. If the planning application is rejected, then the developer can appeal against the decision.

LPAs charge fees for these development control services.

In addition, building projects will frequently be subject to Building Regulations which set standards for the design and construction of both new buildings and changes to the construction of existing ones.

Figure 8 shows a simplified diagram of the planning application process in England and Wales.

The Planning Portal was set-up by the Department for Communities and Local Government in 2002 with the aim of being a "one-stop shop" for planning information and services online for applications to LPAs in England and Wales. (The planning system in Scotland has similar features but is managed via the ePlanning Scotland website (ePlanning Scotland, 2015). The Planning Portal website (Planning Portal, 2015e) provides both information resources and a variety of different online planning application forms (designed to replicate the content of existing paper forms) which are integrated with systems within the LPAs. In terms of the United Nations e-government report, (United Nations, 2012) the Planning Portal offers a range of facilities from Emerging Information Services (links to policy documents etc) through Transactional (submission of applications) to Connected Services (integration with back-end system in LPAs) (see Table 2).

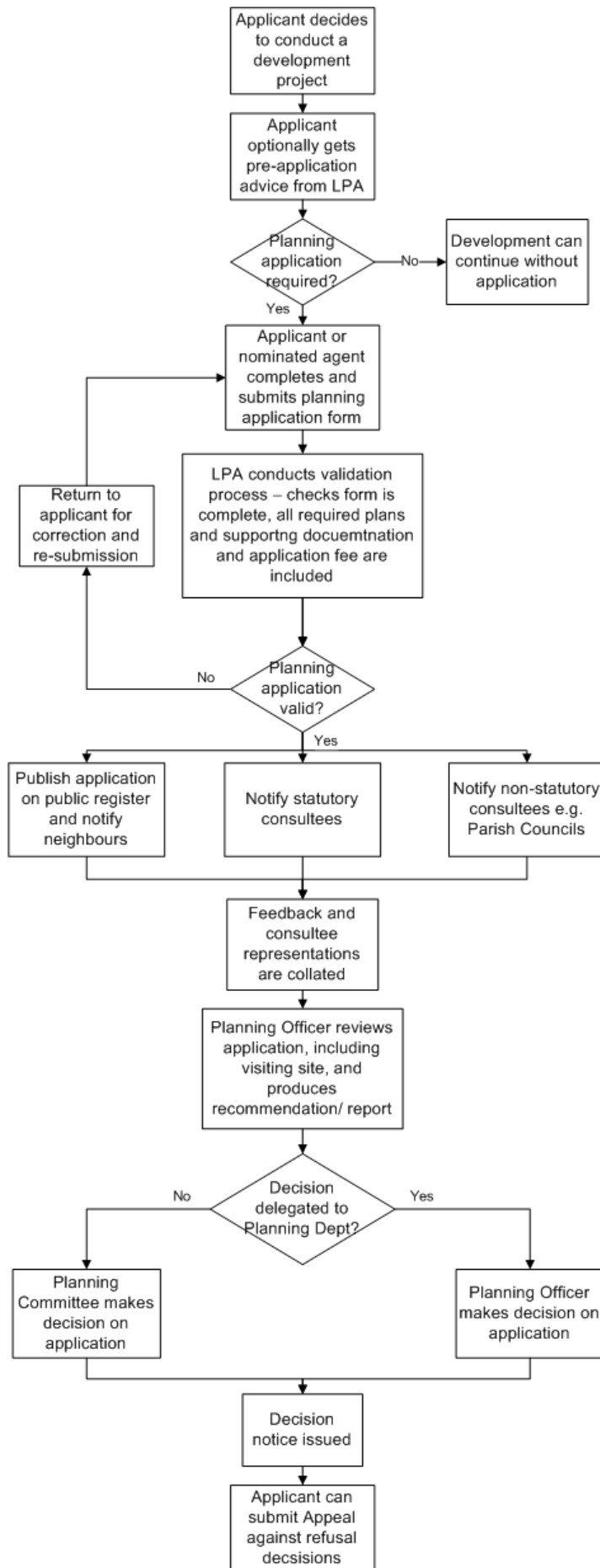


Figure 8: A simplified view of the planning application process

The Planning Portal is somewhat unusual in the realm of e-government services in that it acknowledges three primary market groups all using the same core range of information and functionality but with different experiences of the development control process and hence different needs of the application service: Citizens, Professionals, Government users. More details of each of these stakeholder groups is given in Table 8.

Market group	
Citizens (G2C)	Individual members of the public submitting a planning application for their own personal planning project. It is expected that citizens will only submit planning applications a very small number of times in their life and hence are generally unfamiliar with the planning application process.
Professionals (G2B)	These are individuals or organisations creating and submitting planning applications on behalf of a client (either another organisation or an individual). Planning professionals cover a range of professional roles: surveyors, architects, planning agents, tree surgeons etc. The Planning Portal recognises that there may be differences between large professional organisations who submit tens or hundreds of applications per year and smaller businesses who submit applications much less frequently.
Government (G2G)	This group represents primarily Local Planning Authority (LPA) staff such as planning officers or planning administration, IT or Support who are recipients of applications data submitted via the Planning Portal website.

Table 8: Market groups for the Planning Portal website

3.4.3 Suitability of a Planning Portal case study in relation to Research Questions

To recap the research questions to be addressed in this research programme:

- RQ1: Can a single online service successfully provide a service to a wide range of different stakeholders?
- RQ2: How does an organisation manage relationships with stakeholders to ensure the service supports the needs of all the different groups?
- RQ3: What are the factors that affect uptake of an online service in different user communities with different levels of experience of the same process on conventional channels?
- RQ4: How does an online service support a human-made decision that is essentially both subjective and visual?
- RQ5: What issues arise from the provision of inputs to Local Government functions from a central government agency?

The Planning Portal provides a number of unusual aspects which combine to provide a unique case study:

- No previous case study of the UK Planning Portal has been identified in the previous literature;
- No previous study of online planning application (development control applications) has been found in the literature;
- The use of a single portal to provide functionality covering Government –to-Citizen (G2C), Government-to-Business (G2B) and Government–to-Government (G2G) requirements is unusual (RQ1, RQ2, RQ4, RQ5);
- The use of an online government service to provide input to a human-made, highly visually-dependent and subjective decision is very unusual in the realms of e-government services (RQ4);
- The provision of an online government service from central government to support a local government function is also highly unusual in the UK (RQ5).

Yin (2009, p.8-13) identifies three facets of research scope that may make research questions about a real world scenario suitable for case studies: an "explanatory" focus seeking to answer "how" and "why" questions rather than a "predictive" objective; a focus on current/contemporary events rather than historical ones and the inability of the researcher to control the environment or behaviour of the population or area of interest.

All three aspects are reflected in the selected Planning Portal context: the research questions focus on an exploratory/explanatory focus, the research wished to study contemporary activity amongst Planning Portal stakeholders, and the researcher is certainly unable to influence the real-world behaviour of any stakeholder or research participant. All these aspects support Yin's (2009, p.8-13) criteria in the selection of a case for study.

Creswell (2013, p.99-100) identifies three purposes for case studies – an instrumental study focusing on a single issue and using one illustrative case; a collective case study which uses multiple cases selected to present different aspects of a single issue; an intrinsic case study in which the case is unusual and the focus here is on the case itself. In a different categorisation, Bryman (2012, p.70-71) and Yin (2009, p.47-50) identify five types of case which provide justification of use of a case study: a "critical" case that can be used to test a common, well-understood theory; an "extreme" or "unique" case which provides an unusual or unique interest; "representative" or "typical" cases which provide the opposite – a normal or commonplace example; "revelatory" cases which provide an

opportunity to research a novel phenomenon; and finally a "longitudinal" case study looking at the same case at different times.

The unusually complex and visual elements of the e-planning service provided by the Planning Portal suggest that this should be treated as a revelatory case (for Yin and Bryman) and hence justifies the use of an intrinsic case study (for Creswell) in this research.

Yin presents a rationale for sampling strategies in multiple-case studies – to either predict similar results (literal replication) or to predict contrasting results (theoretical replication) (2009, p.54). Three key stakeholder groups are identified in the discussion above: citizens, professionals, LPA staff and additionally the understanding and reflections of Planning Portal staff themselves are vital to the understanding of stakeholder relationships (RQs 2,4,5). These form the primary stakeholder groups that would be explored in a Planning Portal case study as shown in Figure 9.

Anecdotal evidence suggests that the perceptions and requirements of users is different in each of these groups. In order to more fully understand and compare the perceptions and opinions of stakeholders in each of the multiple stakeholder groups, a separate analysis of each group must be undertaken. Hence using a theoretical replication sampling strategy, each of these stakeholder groups represents a comparative "unique" cases as identified by Yin (2009, p.47) or multiple cases in a collective case study for Creswell (2013, p.99). Essentially each stakeholder group will be treated as sub-cases (or phases) of the main Planning Portal case study.

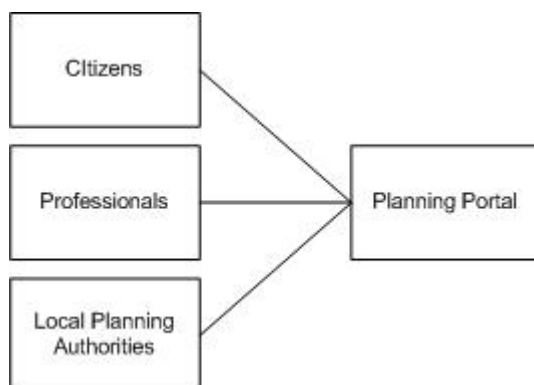


Figure 9: A simplified context of the Planning Portal case study

However this study has a further level of complexity: it is considered unlikely that a single representative would adequately capture the variety of views in each stakeholder group. Multiple units of analysis (in this case planning applicants) must be selected in each

group (sub-case) allow comparison of results within each sub-case (theoretical replication sampling strategy). Therefore each stakeholder group sub-case will involve multiple contributors as units of analysis. The overall case study design used for the research reported in this thesis is shown in Figure 10. This complex design combines multiple case studies (taking each stakeholder group as a separate sub-case) combined into a single embedded case-study design of the Planning Portal (Yin, 2009, p.46).

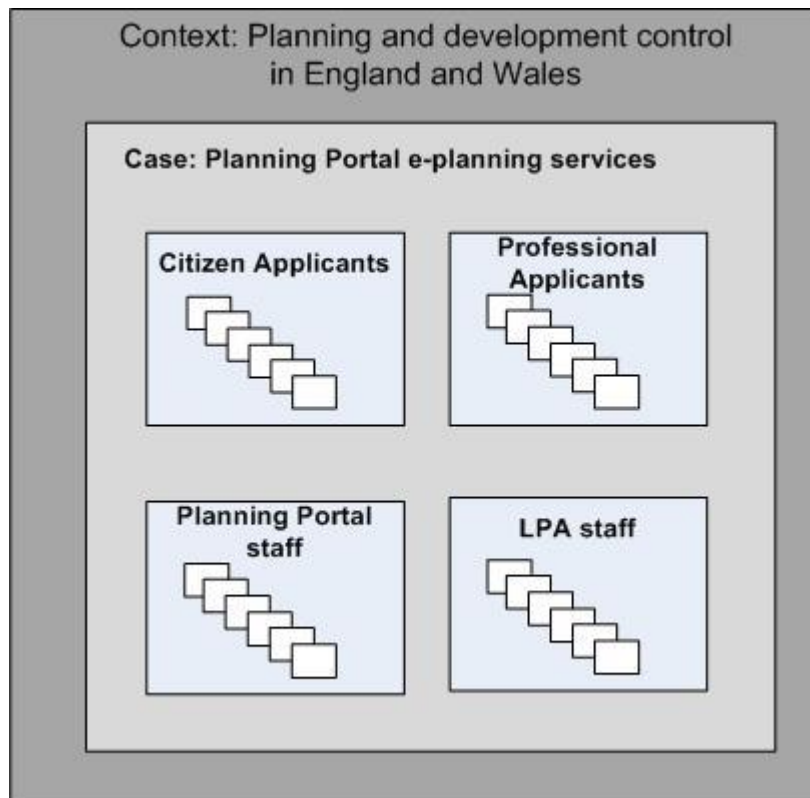


Figure 10: Embedded case study design for the Planning Portal study

3.5 Selecting a research approach

Deductive research approaches use existing theory to create testable propositions about "the relationship between two or more concepts or variables" which are then tested via data collection and analysis, the theory modified if necessary and then new propositions re-tested (Saunders et al., 2009, p.124-125). The alternative, inductive research approach seeks to understand an unstudied phenomenon through data collection and analysis, and to potentially develop a theory related to the research questions from the findings.

The purpose of the research study in this thesis was to explore the research questions presented above in the previously unstudied context of the online application service provided by the Planning Portal. Many of the research questions focus on previously

unstudied aspects of online government services: in particular how an online service can support the visual-subjective nature of the human-made planning decision, and linking central and local government agencies to supply the same e-government service. As no underpinning theory has been identified against which to design a deductive study, an inductive approach is specifically indicated for these components of the study – RQs 4 and 5.

For the other research questions RQ1, 2 and 3, there is underpinning theory in the areas of stakeholder theory and technology adoption models as illustrated in Chapter Two, against which research findings could be validated. However, as stated above, the chosen case study context is a novel one, and more complex than that studied in much of the previous literature. Thus whilst a deductive approach may be possible to allow narrowly-focussed testing of some findings against existing theory, it is also expected that an inductive approach might reveal novel aspects for consideration in future theory development.

It is proposed that a mixture of deductive and inductive approaches will provide the best basis on which to answer the Research Questions.

3.6 Selecting a research methodology

Quantitative methodologies involve the collection of essentially numeric data, and the associated use of numeric or statistical analysis through rigorous and repeatable procedures to test proposed hypotheses. Qualitative methodologies "tends to be concerned with words rather than numbers" (Bryman, 2012, p.380) and uses theoretical frameworks to explore particular aspects or facets of the study focus.

Mixed methodologies use a structured mixture of qualitative and quantitative data collection, and analysis, techniques to address research questions. Johnson *et al.* (2007) analysed a wide range of definitions from the literature and propose the following as a general definition:

"Mixed methods research is the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration."

The same authors distinguish between a mixed methods study (where mixing occurs in a single study) and a mixed method program which uses mixing within a program of related studies.

Many authors (Bryman, 2012; Johnson *et al.*, 2007; Tashakkori & Teddlie, 1998) describe a spectrum of mixed method types from predominantly quantitative with a little qualitative to predominantly qualitative with a little quantitative, with equal status mixed methods in the middle. The two extremes are known as dominant-less dominant designs (Tashakkori & Teddlie, 1998, p.44).

Creswell and Plano Clark (2011, p.108-110) describe a notation system to aid researchers in reporting their design. The use "quan" and "qual" to describe the two methods to be mixed. A dominant method is indicated by the use of upper case letters (i.e. QUAN or QUAL). Other symbology is used to indicate sequencing: + indicates concurrent phases; → indicate sequential phases. An equals sign, =, is used to indicate the purpose of mixing methods. These symbols are used in later sections to describe the research design adopted. Other notation symbology exists in the same scheme.

Creswell and Plano Clark (2011, p.44-46) discuss using mixed methods studies in research devised under different worldviews/paradigms. Whilst they do not disagree with the use of mixed methods in any particular paradigm, they do identify a pragmatic worldview as being particularly suitable as it is so closely tied with the definition of the research questions. They go so far as to indicate that the worldview may shift between phases of a mixed methods study in reaction to the type of research question being studied.

Yin (2009, p.19) confirms that mixed methods are compatible with case study research: "Some case study research goes beyond being a type of qualitative research, by using a mix of quantitative and qualitative evidence".

The section below describes the design developed, and the rationale behind it, for the Planning Portal research reported in this thesis.

3.7 Mixed Methods Design for the Planning Portal case study

As described above, different research questions lend themselves to the collection of different types of data collection and analysis.

The Research Questions (RQs) for this study were taken as a starting point for the design and the questions mapped to the stakeholder groups that might be involved and the types of information that might be required, and available, to answer the RQs. Table 9 indicates the output from this mapping activity. It highlights the need for both qualitative and quantitative data collection and analysis. Creswell identifies using mixed method studies in two ways, both directly applicable to this research – "comparing different perspectives drawn from quantitative and qualitative data" and "understanding experimental results by incorporating the perspectives of individuals" (Creswell, 2014, p.218). Thus a mixed method design was considered appropriate for this research. Both of these techniques will be used in the proposed mixed method program described below.

3.7.1 Detailed study phase designs

As can be seen from Table 9, responses to the RQ require evidence from multiple stakeholder groups. Two approaches were available: using research phases based directly upon the RQs, involving stakeholder groups in multiple phases; or phasing studies to minimise the number of times each stakeholder group is approached and collecting information to support multiple RQs in one data collection event. Difficulties in accessing significant numbers of citizens and professionals (see 3.8.2.2 below) meant that the first option was less attractive, and so a research design of sequential phases based on stakeholder groups was used. This also fitted well with the needs of the Planning Portal as a collaborating body in this research. Figure 11 shows the research design that was developed, where studies are phased according to stakeholder group, but related to RQs. It also indicates how data from different phases are compared and combined to create an interpretation that answers the RQs but also feeds into future phases. In Creswell's categorisation, this forms a multi-phase mixed methods study, but also has emergent elements where finding from one phase feeds-forward to inform future phases.

Research Question	Stakeholders to be involved	Information to be gathered	Information sources	Proposed data collection technique
RQ1: Can a single online service successfully provide a service to a wide range of different stakeholders?	Planning Portal, Citizens, Professionals, LPAs	Quantitative measures of success Qualitative data on have you/would you re-use the service Qualitative assessment of success from users. Possible quantitative analysis of this data	Published target data Actual and potential re-use rates from service users Assessment of benefits/barriers from user	Document analysis Self-administered survey Semi-structured interviews with stakeholders
RQ2: How does an organisation manage relationships with stakeholders to ensure the service supports the needs of all the different groups?	Planning Portal, Citizens, Professionals, LPAs	Qualitative information on stakeholder relationships from Planning Portal viewpoint Qualitative information on stakeholder relationships from stakeholder viewpoints	Perceptions of Planning Portal staff Perceptions and information from representatives of stakeholder communities	Semi-structured interviews with stakeholders Self-administered survey
RQ3: What are the factors that affect uptake of an online service in different user communities with different levels of experience of the same process on conventional channels?	Planning Portal, Citizens, Professionals	Quantitative information from service users to test selected elements from existing adoption theory Qualitative information from service users on perceptions of benefits and barriers Qualitative and quantitative data on user demographics	Perceptions of Planning Portal staff Perceptions and information from representatives of stakeholder communities Factual information about study participants	Self-administered survey with service users (and non-users) to test existing adoption theory and identify additional factors Semi-structured interviews with stakeholders to identify and clarify other factors Semi-structured interviews with Planning Portal to triangulate with user
RQ4: How does an online service support a human-made decision that is essentially both subjective and visual?	Planning Portal, Citizens, Professionals, LPAs	Qualitative information on e-government service from Planning Portal viewpoint Qualitative information on e-government service from applicant stakeholder viewpoints Qualitative information on e-government service from LPA viewpoint	Perceptions of Planning Portal staff Perceptions and information from representatives of stakeholder communities	Semi-structured interviews with service user stakeholders to identify and clarify other factors Self-administered survey with LPA stakeholders Semi-structured interviews with LPA stakeholders to identify and clarify other factors

Table 9: Data collection plan for Planning Portal case study

<p>RQ5: What issues arise from the provision of inputs to Local Government functions from a central government agency?</p>	<p>Planning Portal, LPAs</p>	<p>Qualitative information on e-government service from Planning Portal viewpoint Qualitative information on e-government service from LPA viewpoint</p>	<p>Perceptions of Planning Portal staff Perceptions and information from LPA stakeholder community</p>	<p>Self-administered survey with LPA stakeholders Semi-structured interviews with LPA stakeholders to identify and clarify other factors Semi-structured interviews with Planning Portal to triangulate with LPA perceptions</p>
--	------------------------------	--	--	--

Table 9 continued: Data collection for Planning Portal case study

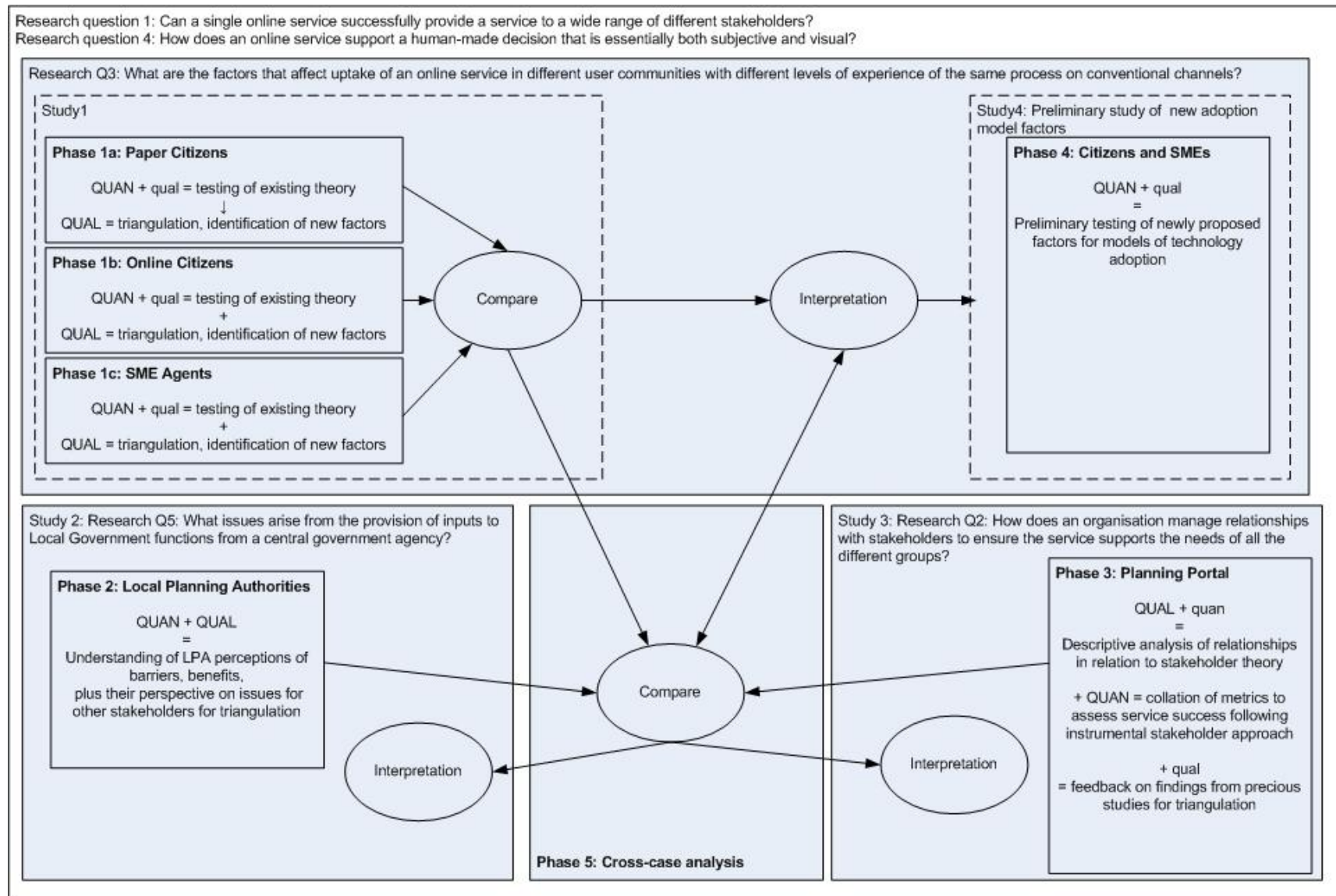


Figure 11: Multi-phase case study design

The sequencing and timing of the study phases shown in Figure 11 were to some extent driven by the needs of the Planning Portal. Table 10 cross-references the involvement of different stakeholder groups/research phases in answering Research Questions. The original design started with a simple study with citizen applicants (paper), and concluded with the study with Planning Portal staff with other stakeholder studies in between. This sequence would allow the Planning Portal to provide their feedback on findings from all the previous studies.

Stakeholder Group/Research Phase	Research Questions
Citizens	1,2,3,4
Professionals	1,2,3,4
Local Planning Authorities	1,2,4,5
Planning Portal staff	1,2,3,4,5

Table 10: Stakeholder groups involvement in relation to research questions

However, as the study period drew to a close, the political situation at the Planning Portal changed and it was subject to a commercialisation project by which it would move from being a purely government agency to a public-private partnership. On the advice of the Planning Portal Deputy Director (who was concerned about the potential impact of this on the organisation and its staff, the service and the potential that access to participants for this research would be refused) this Planning Portal study was brought forward to become the penultimate study as shown in Figure 11.

In summary, the proposed research design was a multi-phase mixed methods study which sought to explore and understand how e-government services can support a complex environment with multiple stakeholders, each with different needs and experiences, and complex transactional interconnections. This was done through an embedded case study of the Planning Portal and its user communities as stakeholders. Theoretical aspects of stakeholder theory and models of technology adoption were used as a lens through which to study the perceptions and attitudes of different stakeholders in the Planning Portal environment. A multi-phase design was used where each stakeholder community was studied in a separate study phase conducted over a period of time and the information gathered consolidated to enable triangulation between methods and stakeholder groups. The phases were: Citizens (paper and online applicants in separate sub-phases), Professionals, Local Planning Authorities, Planning Portal staff. Within each phase both quantitative and qualitative data were to be collected primarily from self-administered surveys and semi-structured interviews. In all but the first paper citizen study, data was

collected and analysed from the two data sources concurrently so that early findings could be used to steer future questioning, particularly in the interview sessions. The data was then analysed and compared to identify both commonalities with existing theory and new observations to contribute to the body of knowledge. A final data collection phase to review data from the Citizen and Professionals phases and propose new factors for consideration in models of technology adoption concluded the data collection phases. A final phase to use integrated analysis methods to review the data from all phases in a cross-case analysis was also included in the design.

3.7.2 Potential issues with the research design

Potential issues for the chosen research design come from both the choice of case study and mixed methods elements.

Yin (2009, p.14-15) describes a number of criticisms traditionally levelled at the use of case studies. These include "lack of rigour" resulting from a lack of "systematic procedures", and the use of subjective or "equivocal evidence", and "biased views". In response to these criticisms, as stated earlier in this chapter, the researcher for this study has consciously adopted a neutral stance in relation to e-government services. Also data collection and analysis have been controlled to maintain a "chain of evidence" (Yin, 2009, p.122) from data collection, through attribution in reporting the study to discussion of the evidence in relation to the RQs. This technique helps support the reliability of the study presented. The use of mixed methods also helps in this aspect by allowing different forms of triangulation to create "converging lines of enquiry" (Yin, 2009, p.115). Specifically the design presented in Figure 11 allows triangulation of data between data sources by using multiple contributors in each research phase, triangulation of methods (qualitative and quantitative) in the same research phase and triangulation of perspectives to the same data set through different research phases (either from different stakeholder groups, or within citizens and professional groups at different points in time, introducing a longitudinal element to the design). Yin also claims that use of multiple data sources can be used to reduce issues of construct validity by creating many measures of the same phenomenon.

A second criticism is that case studies cannot reliably be generalised to other scenarios, posing a threat to external validity. Both Yin and Saunders *et al.* respond to this. Yin (2009, p.15) indicates his belief that case studies can be used to create theoretical

propositions in an inductive manner. He states "the short answer is, that case studies, like experiments are generalizable to theoretical propositions and not to populations or universes." Saunders *et al.* take a different approach. If the selected case is "different" (as in the case of the Planning Portal) then they say the purpose of the case study is not to generalise but merely to "explain what is going on in your particular research setting" (2009, p.158). This thesis, therefore, takes a generally descriptive stakeholder approach, but uses inductive elements to develop evidence from study phases into propositions for new areas of theory to be tested in potential future research.

The selection of a mixed methods approach creates more practical issues. Both case studies and mixed methods are noted for taking longer than other research methods (Creswell & Plano Clark, 2011, p.14; Yin, 2009, p.15). Furthermore, mixed methods requires the researcher to be familiar with data collection and analysis procedures from both qualitative and quantitative traditions. Skills allowing integration of findings from both traditions in different ways are also required. Thus the skill set of the mixed methods researcher is required to be much broader and more complex than for those following a mono-method approach.

3.8 Data collection methodology

This section describes procedural aspects of the data collection methodology that are either essential to an understanding of the research methodology or which are common to several phases. Where there are differences in individual research phases, these are described in the relevant thesis chapters.

3.8.1 Documentary evidence

Documentary sources of evidence were used to support findings from other sources, particularly in relation to RQ1. Information sources used were:

- planning application metrics from the Planning Portal website, (www.planningportal.gov.uk),
- information on developments of the website and online application service from the same source;
- information on UK Government digital strategies from government websites including gov.uk and older reports on website archives at The National Archives.

3.8.2 Negotiating access to participants

Saunders *et al.* (2009) emphasise the importance of appropriately negotiating access with potential participants. Various methods, appropriate to the participant groups to be studied, were used during the course of this research.

3.8.2.1 Initiating a research relationship with the Planning Portal

Initial contact was made with the Planning Portal via the Government IT Profession (of which the researcher is a member) and the Public Sector Forums website as a result of a request for help from the researcher. After a preliminary study (Cheriton & Kneller, 2009), a research relationship was established and a number of research phases were proposed by the researcher and tentatively agreed by the Planning Portal. Each subsequent phase (other than the final phase on new model factors, which was conducted independently) was planned and agreed with the Planning Portal before commencement of the study.

3.8.2.2 Preliminary identification of LPAs for survey involvement

The first phase planned was to study citizen applicants who had applied on paper. It was not considered practical to simply use a sample of the general population as the numbers fulfilling the criteria of a recent planning applicant would be too small. For this reason, the results of the study are generally reported in terms of "actual usage" of the service (rather than "intention to use" as employed in many of the technology adoption models). Instead, a way of identifying recent applicants was required. Access to suitable participants was initially difficult.

To identify a suitable study population for the pilot phase of the citizen paper applicant study, the researcher initially contacted all LPAs (Local Planning Authorities) in England and Wales for preliminary help in identifying paper-based applicants. Very few were willing to assist, many citing Data Protection issues and it was decided that an alternative sampling strategy would have to be used (although all the information required was already in the public domain from the online planning register). A small number of LPAs who had said that the researcher could and should make use of the publicly available information from their websites were used to issue invitations to take part in the pilot study.

An alternative convenience sampling approach was devised to identify potential applicants using this public register. Many public planning registers show similar information about each application including contact details of the applicant and contact details of the

agent if applicable, and also copies of the planning application documents are also available. LPAs fall into a number of categories according to their status in the UK governmental hierarchy: District or Borough Authorities, Metropolitan Boroughs, Unitary Authorities, County Authorities, London Boroughs, National Park Authorities. It was considered important that all types of LPA were covered in the study sample.

An online sample size calculator (Creative Research Systems, c. 2010) was used to estimate a suitable sample size. With an estimated population of 9000 and a required confidence level of 95%, confidence levels of +/- 5 and +/- 10 were investigated. These gave desired sample sizes of 368 and 95 respectively. Anticipating a usual response rate for postal surveys of 5-30% (Alreck & Settle, 1995, p.45) it was decided that around 800 surveys should be issued initially and a further sample considered if the response rate was very low.

All applications made to a number of LPAs (selected at random from an alphabetised list of all Local Planning Authorities in England and Wales) were then analysed and applicants meeting the study criteria were added to a sample population. Once the required sample size was reached, the coverage across geographical areas and Local Authority types was reviewed and a lack of coverage in the Welsh Unitary group and in East Anglia were identified and the following two LPAs which fortunately included authorities in appropriate categories were added. In total 103 LPA websites contributed to the survey sample and these are listed in Appendix A. Thus, although formally a convenience sampling strategy was used, the approach combined both stratified and random elements to try to reduce bias in the results.

Once identified for the initial paper citizen survey, the same Local Planning Authorities were used in the 2015 citizen and both 2013 and 2015 professional survey phases for consistency and to eliminate as far as possible other factors such as local, LPA-specific or geographical effects (internal validity). The main phase sampling methodology for these was rather more robust. All applications made to the selected LPAs during a defined period were viewed and categorised according to the method of application, and the type of applicant. Potential participants meeting the criteria for the relevant phase were identified and collated to create a potential pool of participants, removing duplicates in the process. The list was then alphabetised and participants selected at random to give the required number of invitations according to the resources, both time and cost, allocated to the project phase.

In the citizen online phase, due to time constraints in the planning phase, a different sampling methodology was adopted using a list of recent applicants provided by the Planning Portal . More detail is given in Chapter Five.

All English LPAs were invited to participate in the 2014 LPA study..

3.8.3 Initial Survey Design for paper applicants

This survey was the basis for many of the following phases. It was designed to gather information useful to both the researcher and the Planning Portal as sponsoring body, and was developed by the researcher in negotiation with, and approved by the Planning Portal. It consisted of five sections. The final survey is shown in Appendix B, but a summary for the content is given in Table 11.

A number of design principles were considered to have maximum effect on reliability and consistency. The survey was designed to physically fit on four sides of A4 paper, deliberately keeping the survey relatively short to encourage participation (Fink, 2006, p.32). A significant amount of white space was included to increase the visual appeal of the survey instrument. Instructions for completion and information sections were presented in a different font to questions to highlight them. The Planning Portal was also credited along with the researcher's institution to increase credibility with the recipient.

A number of different question styles were used to elicit different types of data. Closed forced-choice questions were used to categorise respondents according to different attributes (e.g. Internet usage) and/or to allow them to skip non-relevant sections of the form. Five-point Likert scales were used to quickly gather quantitative information on respondents' opinions and feelings (De Vaus, 2014, p.101). Open-ended questions were used to gather a mix of quantitative and qualitative information about respondents' planning application history, and experiences. All surveys ended with an open text question which allowed users to add any further comments.

Later survey instruments were designed to build on this design to provide some direct comparison, but additional elements were added that were phase-specific or sought to further explore concepts that had been identified in previous studies.

Section	Section title	Purpose	Question type
Section 1	Your experience of the Internet	To enable the researcher to distinguish responses from Internet users and non-users	<ul style="list-style-type: none"> Forced-choice questions with categories around Internet use
Section 2	Your experience of online government services	To allow an analysis of awareness and usage of other online government services in comparison with Planning Portal usage.	<ul style="list-style-type: none"> 5-point Likert-scale to investigate usage and awareness of other services Forced-choice questions with categories around awareness of Planning Portal
Section 3	Your experience of the planning application process	To gather respondents' experiences and perceptions of their most recent planning applications	<ul style="list-style-type: none"> Open-ended question about recent planning application history Forced-choice questions about most recent planning application (categorical data) Open-ended questions to gather qualitative data on encouragement factors
Section 4	Attitudes to using the Internet for planning information and planning applications	To allow an analysis of the perceptions of the respondents to planning online as a concept	<ul style="list-style-type: none"> 5-point Likert-scale to investigate attitudes to e-planning using 21 statements as in Appendix C
Section 5	About you	Demographic of the respondents and free comments	<ul style="list-style-type: none"> Mixture of Open-ended and categorical forced-choice question on respondent demographics (not mandatory) Free-text space for comments

Table 11: Structure of the initial survey for paper citizens

3.8.4 Development of survey constructs

Following the literature review of models of technology adoption, a number of constructs were selected for review in the Planning Portal and e-planning scenario. 21 statements covering the following factors were adapted directly from the literature identified, in order to introduce as little change as possible, and maintain construct validity. The statements reflected a number of models – Diffusion of Innovation (DOI), Perceived Characteristics of Innovation (PCI), Technology Adoption Model (TAM), Unified Theory for Acceptance and Use of Technology (UTAUT), risk and trust models. The revised statements and their sources are given in Appendix C.

The factors used were:

- Behavioural Intention/Intention to Use
- Intention to Use
- Compatibility
- Facilitating Conditions
- Image
- Perceived Risk
- Perceived Usefulness
- Relative Advantage
- Trust In Government
- Trust in Internet

3.8.5 Testing of surveys

Surveys were all reviewed for clarity in understanding, design and question flow by Planning Portal staff before issue and were pre-tested for face validity by friends and colleagues of the researcher. Each Citizen and Professional phase used pilot testing of the survey amongst applicants from the same 5 LPAs used in the initial paper citizen survey. Results were reviewed and changes made as appropriate before issuing a main phase survey to the selected sample.

Online Surveys were developed using the SurveyMonkey online survey system (www.surveymonkey.com). A mix of question types were used to replicate the styles of questions on the paper surveys. Testing was carried in the same way as for paper surveys.

3.8.6 Administration of surveys

3.8.6.1 Paper surveys

A paper version of the survey was posted to each potential participant with a cover letter, including additional information on the purpose and procedures of the research (Appendix D). Each pack also contained a postage-paid return envelope and a reply slip by which participants could indicate if they were willing to be further involved in the research in future potential survey or interviews.

Respondents were given a clear deadline for return of the surveys and returns made significantly after this date were not included in the analysis phase. No reminders were sent, primarily to keep the direct postal costs of the research down. Respondents were allowed to respond anonymously and targeting of non-respondents was not possible under the protocols adopted. The use of incentives was not seen as appropriate, particularly as the collaborating body was a public sector organisation.

3.8.6.2 Online surveys

Invitations to online surveys were issued by direct email to the potential participant (Appendix E). The invitation provided some basic information about the survey and a link to the SurveyMonkey survey. Early pages of the survey gave the option for participants to view the same additional information as provided on the Participant Information Sheets for paper surveys. Options were selected so that respondents could part-complete the survey and return to it until the point that they closed the final page. Respondents were asked to supply the last four-figures of their telephone number for use as an identifier in the event of them wishing to withdraw their response prior to the analysis phase.

3.8.6.3 LPAs surveys

In order to promote the survey with the aim of confirming its authenticity and thus increasing response rates, the invitation to participate was composed by the researcher but issued on their behalf by the Head of LPA Engagement at the Planning Portal who already had a professional relationship with the invitees.

The LPA survey was the only phase where non-respondents could be identified and a reminder was sent a week before the original deadline which was also extended to allow for later responses.

3.8.7 Semi-structured interviews

Telephone interviews were held in both paper and online citizens' phases, and with SME Professionals, and LPAs. Telephone interviews were used because the interviewees were potentially geographically dispersed across England and Wales. The interviews were generally conducted using the same protocols. Where there are differences these are identified here, and discussed in more detail in the relevant study chapter.

Interview participants were selected from those who had indicated in a survey response that they were willing to be involved further. In the SME and LPA studies, a stratified random sampling methodology (Saunders *et al.*, 2009, p.228) was used to categorise the potential interviewees to ensure that a range of views and participant attributes were represented.

Participants were invited by email where possible (for reasons of cost and time) (Appendix F), or by post where only postal contact details were available. Appointments were made to conduct interviews at a mutually convenient time. Participants were provided, at the time of invitation, with a Participant Information sheet and Interview Consent Form (Appendix G) which they were generally asked to return prior to interview.

At the agreed time of interview, participants were contacted and given an opportunity to refuse the interview or to ask additional questions prior to commencement of the interview questions. Once participants were content to continue, the interview proper was started and the interview itself recorded via a digital voice recorder. Following conclusion of the interview proper, the recorder was switched off and the participants debriefed on the next stage of the process including creation and approval of an interview transcript as below.

After interview, verbatim transcripts were created from the interview recordings and sent to participants for review and further comment. Participants were also sent a Transcript Receipt Form (Appendix H) which gave them the opportunity to correct or add to the information provided in the interview or to embargo particular sections if they no longer wished them to be used. Participants were asked to confirm by returning a completed transcript form that they were still happy for their input to be used, noting that since permission had already been given, that this would be assumed if no response was received.

Face-to-face interviews were held, by appointment, with Planning Portal staff at Planning Portal premises. Before the interviews a briefing pack was prepared by the

researcher and distributed, along with a Participant Information Sheet to interviewees via a Planning Portal administrator. Part of the purpose of the interviews was to get feedback on the findings of studies over the previous five years, and, as a reminder, a summary of headline findings was supplied to interviewees as part of the briefing pack (Appendix I). Interviews were recorded and transcripts made and approved as for the telephone interviews.

3.9 Analysis of results

Yin (2009, p.130-135) describes four strategies to assist in the fair and robust analysis of case study data – focussing on the underlying theory that led to the research questions, creating a detailed description of the case under study, using both qualitative and quantitative data to provide different aspects of the case study, examining rival theoretical explanations.

Several of these strategies were used in the analysis of information gathered through the surveys and interviews. A detailed description of the Planning Portal stakeholder network was presented by reviewing evidence from several research phases, including the Planning Portal staff interviews through the lens of descriptive and instrumental stakeholder theory. A mixture of qualitative and quantitative data was used to explore the factors that affected adoption of the online planning application service in different stakeholder groups, and to examine factors previously identified in the technology adoption literature in the Planning Portal case scenario.

Mixed methods study requires the use not only of mixed method data collection but also mixed analysis methods (Onwuegbuzie, Johnson & Collins, 2009). Onwuegbuzie *et al.*, (2009) identify a wide variety of techniques for the integration of qualitative and quantitative analysis techniques, categorised as case-oriented or variable-oriented, and including a time element and focussed on the type of generalization that was expected from a study. As stated above the purpose of the research presented in this thesis was not to generalize to a wider theory or population, but to explore what was happening in the Planning Portal and stakeholder cases and to propose areas for future study.

Saunders *et al.* (2009, p.154) identify seven reasons for using mixed-method design. Three are particularly relevant for this thesis: *triangulation* of data as described above, *facilitation* (using one method to aid a future phase using another method e.g. in providing

propositions to be tested) and complementarity, using different research methods to "dovetail" different aspects of an investigation. The priority for this research was then three-fold: to use mixed analysis methods to:

- provide triangulation of data between participants within phases and also between stakeholder groups (cross-phases),
- identify themes in perceived adoption barriers and benefits to facilitate the investigation of new factors for inclusion in adoption models;
- using a mix of qualitative and quantitative methods to combine complementary stakeholder and technology adoption focussed data collection into a single case study.

The following sections describe qualitative and quantitative approaches used in the mixed methods analysis and then how these were combined to provide triangulation and also complementarity of studies.

3.9.1 Qualitative analysis

Babbie (2013, p.396) describes the aim of data analysis in qualitative studies as "the discovery of patterns among the data, patterns that point to theoretical understandings of social life". The purpose of the analysis of the collected qualitative data in the Planning Portal is to identify patterns in the responses that relate to the RQs as illustrated in Table 9.

Qualitative analysis was carried out for both interview transcripts and for qualitative survey questions. Interview transcripts and results from substantive qualitative survey questions were analysed using NVivo qualitative data analysis software. Bazeley and Jackson (2013, p.7) highlight concerns that the use of software to support "code-and-retrieve methods" does so to the "exclusion of other analytic activities". However, the planned use of mixed method analysis to triangulate between qualitative and quantitative data and the re-presentation of qualitative data in a quantitative fashion addresses some of these concerns.

Source documents were initially loaded into the software in separate projects according to the research phase under study. The use of separate NVivo projects came from three routes; partly a reflection of the inexperience of the researcher in this area, partly a result of the emergent nature of the multi-phase research design in which stakeholder studies were conducted as separate phases in a sequence convenient to both the researcher and the Planning Portal's focus of interest and partly an artefact of the long time

duration of the research program over which software versions changed. In a final stage of analysis, an integrative NVivo project was created to pull together relevant evidence from different research phases.

Analysis within each research phase was done on a staged process. Firstly open coding was used to identify concepts contained in the source data. Sources were "marked up" via the software to highlight relevant passages. Axial coding was then used to identify core themes emerging from the data. Some codes will have been suggested by the theoretical lenses, but others will emerge from the descriptive style and inductive approach to the research. These themes were then used either to prompt further qualitative analysis or to lead into simple quantitative analysis of the qualitative data collated into specific themes. Areas of commonality between participants and areas of disagreement were used to propose new factors for inclusion in models of technology adoption and also as a focus for proposing future research. Grounded theory requires a third phase of selective coding to identify a central theme (Babbie, 2013; Charmaz, 2004). In this research, stages of further selective coding were used to identify concepts related to each of the two theoretical approaches – stakeholder theory and technology adoption, and areas where the two concepts converged.

Care was taken during the qualitative analysis not to bias the findings through the impact of either the researcher's own stance in relation to e-government services, or through subconscious bias created through working with the Planning Portal. It was partly for this reason that the interviews with Planning Portal staff were planned to be the final stage of data collection, so not to create pre-conceptions in dealing with other stakeholder groups. However, the use of the Planning Portal "brand" in inviting stakeholder participation in survey phases might be a source of some bias (in either a positive or negative direction) as survey participants were self-selecting and were probably then dominated by those who had something specific to say.

3.9.2 Statistical analysis techniques used

Datasets were prepared for analysis in a multi-step process. Cases were validated to ensure that they met the criteria for the relevant study. They were also reviewed (in a somewhat subjective decision) to ensure that they answered sufficient questions to make a useful contribution to the analysis (i.e. that there were not large numbers of missing

responses). Missing data values were then handled. In most cases where simple descriptive statistical techniques were used, a decision was made to simply omit the case from the analysis of that particular question. However for the study of new model factors a more robust method was used to ensure sufficient cases remained in the analysis. This is discussed in more detail in Chapter 9

Statistical tests were conducted using SPSS statistical software. Graphical elements presented in this thesis were produced in Microsoft Excel.

Three statistical tests were used:

- Chi-squared tests to analyse independence of sets of categorical data,
- Cronbach's alpha to test internal reliability of new scale constructs,
- A comparison of means using an independent t-test.

Much of the analysis in this research involved the study of categorical data e.g. for responses grouped by application method (paper vs online) or between applicant groups (professionals vs citizens). Pearson chi-squared tests were used to assess whether perceived differences were likely to have happened by chance or were a real attribute of the data, by comparing observed and expected values across a contingency table. These tests have two assumptions: that each case or data point only contributes to one cell in the contingency table (which will have been the case for this research), and that no more than 20% of cells in the contingency table have values less than 5 (Field, 2005, p.686). Cramer's V was used to indicate the strength of association. Some studies had low numbers of responses and chi-squared testing resulted in the second assumption being broken. These tests are reported as being invalid.

The internal consistency reliability of the model constructs used in the surveys (Chapter Nine) were assessed using the Cronbach's alpha statistic (Field, 2005, p.667). This provides an assessment of how well each of the individual items that are used to measure a construct measure different aspects of the same concept, by calculating a value between 0 and 1. Higher values indicate a greater level of reliability. However, the literature presents no definitive consensus on a target value.

Gliem and Gliem (2003) cite George and Mallery (2003) positing that values greater than 0.7 are acceptable and greater than 0.8 as good. De Vaus (2014, p.184) states that 'as a rule of thumb alpha should be at least 0.7 before we say the scale is reliable'. A value of 0.7 has therefore been used as a target for this study.

Difference between observed means on the scale items for user and non-users of the application service were tested using a t-test (Field, 2005). As each individual data point was only used in either the user or non-user groups an independent t-test was used. These are parametric tests and assume: that the data is measured at the interval level, at least, and that the variances of the two groups were roughly equal. Levene's test was used to test equality of variances. Using a significance value of $p > 0.05$, factors with $p > 0.05$ were assumed to have equal variances, the remainder were not assumed to have equal variances. The independent t-test was then performed: where an assumption had been made about the direction of effect a one-tailed t-test was used; where no assumption was made a two-tailed test was used. A significance level of $p > 0.05$ was used. An effect size was also calculated with a value of 0.5 considered to represent a large effect (Field, 2005, p.294)

3.9.3 Combining qualitative and quantitative analysis techniques

Use of a mixed methodology requires the use of mixed data analysis techniques. The purposes of mixed methods in this study were: within- and cross-phase triangulation, facilitation of future phases and complementarity. Onwuegbuzie, Johnson & Collins (2009) identify a timeline element to the combination of analysis methods – parallel analysis where findings are analysed separately, concurrent where there is no informing of one phase from another and sequential where analysis happens in a phased way, but results can be fed-forward to inform future analysis phases. Table 12 indicates how these three authors align purpose and analysis methods for mixed-method studies.

Mixed methods purpose	Appropriate analysis type
Triangulation	Parallel, Concurrent,
Facilitation (Development)	Concurrent, Sequential
Complementarity	Parallel, Concurrent, Sequential

Table 12: Aligning purpose and analysis type in mixed methods studies

For the research presented here, primarily parallel qualitative and quantitative analysis was conducted within-phase to triangulate between survey and interview data. Data from the citizens and SME professionals surveys was used sequentially cross-case to facilitate the final factors study. Parallel and concurrent approaches were taken in applying the complementarity purpose to the combination of stakeholder and technology adoption aspects.

3.10 Ethical considerations

A number of ethical considerations had to be handled as part of the research methodology.

Primary amongst these concerns was maintaining the confidentiality of the participants. For individual respondents, this covered two aspects: the secure handling of personal contact details of participants and ensuring that contributions were not attributable to individuals.

To maintain confidentiality, aliases are used to attribute direct quotations and paraphrased information to individuals. More details of this are given in section 3.11 below.

For contributors from SME Professionals, and LPAs there is also an issue of confidentiality for the organisation involved. No references are made to the name of such organisations represented in this thesis. However, some LPAs specifically requested that their comments were directly attributable (as a way of providing feedback) in the confidential stage report presented to the Planning Portal. This request was respected except where it would compromise the anonymity of another agency.

Personal contact details returned with surveys were removed and stored separately from the survey responses, although they were coded to ensure that responses could be attributed during the research phase by the researcher. This was to allow stratified selection of potential participants for interview phases. Personal details stored on paper were destroyed after the research phase. Personal details stored electronically were encrypted, and deleted after the research as appropriate.

All phases of study were approved by the Faculty Ethics Committee. For all phases a lower age limit was imposed. For the paper citizen study, this was 16 years of age, imposed at the data analysis phase. For other phases, this was raised to 18 years of age at the request of the Ethics Committee and explicitly stated in the survey instruments.

All study phases other than the final additional factors study were subject to limited period Non-Disclosure Agreements between Plymouth University and the Planning Portal.

3.11 Presentation of results

In order to preserve anonymity of study participants, quotations and other qualitative evidence from participants have been presented using a coding system as shown Table 13.

Study	Data Collection phase	Respondent IDs
Citizen paper 2010	Survey	Cit_P_S
Citizen paper 2010	Interview	Cit_P_I_x
Citizen online 2011	Survey	Cit_O_S
Citizen online 2011	Interview	Cit_O_I_x
SME Professional 2013	Survey	SME_S
SME Professional 2013	Interview	SME_I_x
LPA 2013	Survey	LPA_S
LPA 2013	Interview	LPA_I_x
Planning Portal staff 2014	Interview	PP_I_x
Citizen 2015	Survey	Cit15_S
SME Professional 2015	Survey	SME15_S

Table 13: Reference scheme for participant quotations

3.12 Limitations of the research design

The pragmatic elements of the selected research design mean that care has to be taken to consider the impact of the values of the researcher. Whilst the researcher is a member of the UK Government IT Profession, care has been taken to take a neutral stance regarding the benefits or otherwise of e-government services.

However, this is not the only source of potential bias in the study. The surveys have all been administered on a self-selection bias, and hence there is the potential that the results are biased to the extremes, where people have something specific they wish to air, rather than being representative of the target population generally. Nonetheless, all these views represent valid cases, although the weighting implied to the extreme views may be exaggerated in the results found. Triangulation of this information over several studies and across several groups –e.g. by getting feedback on the user study results from Planning Portal staff to confirm the results tally with their views can at least help to identify any areas which may be suspect. Specific limitations of individual study phases are reported in the relevant chapter,

The result was undertaken over a period of time introducing a longitudinal element to the study. Robson (2011, p.37) confirms that in researching in open systems – "people, information and all other aspects of the situation are likely to change" in ways either directly or indirectly related to the area under study. This is certainly true of this research. The original design proposed that the study should take place over a period of a few years, to make use of the part-time mode of study to introduce some elements of longitudinal study.

However, ultimately the study period was almost 6 years between 2009 and 2015 during which time a range of factors both internal and external to the study environment had changed. There were changes to the constantly developing Planning Portal website and online service and some of these are discussed in Chapter Four. There have also been changes in the global and UK financial and political environments which influenced the UK Government's financial approach (particularly in financial restraint in relation to Local Authorities) and in the increased drive towards e-government services becoming "digital by default". User stakeholder communities may also have been impacted by financial considerations, but also by practical changes such as increased availability of (high-speed) broadband as a facilitator to e-service use. Thus care must be taken not to attribute unwarranted and unjustifiable causality to aspects of the case study without due consideration to factors outside the direct scope of the research.

Finally, the research presented focuses on one service, provided by one public agency in a western administration. How generalisable the findings are to other social environments is unclear. However, this was not the primary purpose of the study, which was instead to explore the activities in the Planning Portal as the chosen case study, through the lens of existing theory.

3.13 Chapter Summary

This chapter has presented the development of the research design and methodology for the study reported in this thesis. The chapter starts by looking at how previous studies in similar research areas have been tackled in previously published literature. It then discusses the rationale for the pragmatist research philosophy and case study strategy adopted. The selected case study context of the Planning Portal online e-planning service is then described, in order that the detailed case study design can then be presented in its real-life context. The research questions are then reviewed to identify the type and source of information that will be collected. This leads onto a discussion of why a mixed methods study is considered appropriate for this study and a presentation of a more detailed design.

The chapter then discusses theoretical and practical aspects of the survey and semi-structured interview data collection methods selected and how the resulting data was

analysed and presented. The chapter concludes with a discussion of the ethical considerations required in the research proposed and the limitations of the study.

The proposed research design was a multi-phase mixed methods study which sought to explore and understand how e-government services can support a complex environment with multiple stakeholders, each with different needs and experiences, and complex transactional interconnections. This was to be done through an embedded case study of the Planning Portal and its user communities as stakeholders. Theoretical aspects of stakeholder theory and models of technology adoption were to be used as a lens through which to study the perceptions and attitudes of different stakeholders in the Planning Portal environment. A multi-phase design was used where each stakeholder community was studied in a separate study phase conducted over a period of time and the information gathered consolidated to enable triangulation between methods and stakeholder groups. The phases were: Citizens (paper and online applicants in separate sub-phases), Professionals, Local Planning Authorities, Planning Portal staff. Within each phase both quantitative and qualitative data were to be collected primarily from self-administered surveys and semi-structured interviews. In all but the first paper citizen study, data was collected and analysed from the two data sources concurrently so that early findings can be used to steer future questioning, particularly in the interview sessions. The data was then analysed and compared to identify both commonalities with existing theory and new observations to contribute to the body of knowledge. A further study phase to review data from the Citizen and Professionals phases and propose new factors for consideration in models of technology adoption concluded the data collection phases. A final phase to use integrated analysis methods to review the data from all phases in a cross-case analysis is also included in the design. In practice, the opportunities, focus and timing for the phases were to some extent led by the access that collaborating with the Planning Portal allowed to users and information, so that there were also design elements that emerged through the six-year duration of the study and so the research can also be seen to be of both multi-phase and emergent mixed methods design.

Chapters Four to Nine now present findings from each of the study phases.

Chapter 4: The Planning Portal Context

Semi-structured interviews with Planning Portal staff

The previous chapter presented the methodology used in this research. This chapter presents the first of the findings and reports both qualitative and quantitative information about the organisation, stakeholder environment and activities of the Planning Portal. This information was gathered primarily through targeted interviews with Planning Portal staff but is supported and contrasted with information gathered from other sources such as documentary analysis. This research phase was planned to occur late in the research programme to allow comparison and feedback with findings from stakeholder studies. However, it is presented here to provide context and understanding for the rest of the thesis. Discussion and comparison with findings from other research phases are given in Chapter Nine.

4.1 Methodology

Information for the case study was gathered in a number of ways:

- Face-to-face interviews
- Personal, follow-up communications with interviewees
- Analysis of the Planning Portal website (www.planningportal.gov.uk)
- Analysis of other documentary evidence.

4.1.1 Face-to-face semi-structured interviews

Face-to-face semi-structured interviews were held with six Planning Portal staff over a two day period in December 2014. The general focus had been proposed to, and agreed with, the Planning Portal Deputy Director prior to arranging the interview sessions. The proposed initial questions are given in Appendix I. In addition, the researcher proposed the job roles/responsibilities that were to be covered by the interviews and the Deputy Director identified staff who might be appropriate. It was felt necessary to agree in advance the scope of the interviews with the Planning Portal management due the difficult political situation that the Planning Portal staff were in at the time of interviews – it was known that an in-house Planning Portal bid to continue the service on a more commercial basis had been unsuccessful, but the successful bidder had not been announced (see Section 4.8 below).

This inevitably put a level of concern and guardedness within the organisation, and taking a pragmatic approach, it was felt that it was better to limit, and agree, the interview scope to essentially factual information about the Planning Portal and to feedback on the previous study phases in order that the interviews could continue, rather than to cancel the study phase altogether.

All but one of the interviewees were individuals who had previously been in the audience for presentations of the research described in Chapters Five to Seven, and so were already known in this capacity to the researcher.

Interviews were recorded. A transcript of each interview was created and sent to each participant for approval. In some cases, further specific questions were added in the transcript, and these became the subject of further personal communications between the interviewee and the researcher.

4.1.2 Roles and responsibilities of interview participants

The six Planning Portal staff who were interviewed held the following roles at the time of interview:

- Deputy Director
- Head of Products, Publishing and Communications
- Head of Corporate Engagement
- Head of LPA Engagement
- Account Manager
- Technical Operations Manager.

In order to provide some confidentiality for staff, discussions and quotations are reported anonymously using codes as "PP_Int_A" for Planning Portal Interviewee A etc and these aliases have not been allocated in the order listed above.

4.1.2.1 Deputy Director

This interview participant is one of two Deputy Directors reporting to the Planning Portal Director. This individual has responsibility for the customer-facing aspects of the Planning Portal business, whilst the other is responsible for operational and technical aspects. It should be noted, however, that the Customer Service Desk forms part of the Technical/Operational area, rather than coming under the remit of the interview participant.

4.1.2.2 Head of Products, Publishing and Communications

This role covers managing the development of the Planning Portal website offerings, both informational and transactional; also managing internal and external communications strategies.

4.1.2.3 Head of Corporate Engagement

This participant is responsible for the relationship between the Planning Portal and corporate users which the Portal define as professional planning organisations which submit more than ten applications per month. This role is also line manager for three of the four Account Managers (and acts as Account Manager for selected customers.)

4.1.2.4 Head of LPA Engagement

This interview participant is responsible for the relationship between the Planning Portal and Local Planning Authorities. Their scope will include direct relationships with Planning Officers and planning administrators, but also indirect relationships with LPA consultees such as Parish Councils. This role is line manager for one Account Manager and also acts as an Account Manager themselves.

4.1.2.5 Account Manager

There are four Account Managers (plus the Heads of Corporate Engagement and LPA Engagement who also act as Account Managers). Each Account Manager is responsible for the direct day-to-day contact with both Local Planning Authorities (allocated on a geographical basis) and Corporate users, including working with relevant professional bodies.

4.1.2.6 Technical Operations Manager

At the time of interview, this individual was responsible for both the line management of three Service Desk staff and was the lead for User Acceptance Testing of new website developments (possibly due to a staff vacancy). The individual interviewed was also responsible for reviewing issues reported to the Service Desk and identifying bugs to be fixed via a Service Incident Report.

4.1.3 Analysis of the Planning Portal website

The content and structure of the Planning Portal website was analysed and this final report describes the site as at March 2015 to provide context to the findings of both the

qualitative and quantitative phases of the research. However, it should be remembered that the wider research has been undertaken between 2008 and 2015 and as a live, developing website, there have been a number of changes through that period (see Section 4.12).

However, the underlying IT infrastructure which supports the Portal has been static since 2010 (see Section 4.9.9).

4.1.4 Other sources of documentary evidence

Other, publicly available documentary evidence has been used to supplement the understanding of the Planning Portal from other sources. Primarily these sources have covered information about planning policy and procedures and how this will be supported digitally, including the UK Government's Digital Strategies.

It is worth noting that the Planning Portal is a very small team within the Department for Communities and Local Government, with 24 staff in Planning Portal against 2328 staff in the Core Group of DCLG (Department for Communities and Local Government, 2014a). As the Planning Portal is such a small team, public reporting of metrics relating specifically to the Planning Portal is very limited and most of the information reported here has been released by Planning Portal staff in response to specific (post-) interview questions.

Information gathered during this research phase are detailed in the remainder of the chapter which is structured as follows:

- an overview of the structure of the Planning Portal website to enable readers to understand participants' comments about particular features of the site,
- a discussion of the Planning Portal as an organisation - its mission organisational structure, internal and external projects influencing the Portal, funding and monitoring metrics,
- a discussion of the Planning Portal stakeholders and the inter-relationships,
- a review of how the stakeholder strategy is linked with targets in channel shift and changes to the website.

4.2 Research Findings

4.2.1 Structure of the Planning Portal website

Figure 12 shows a simplified version of the Planning Portal website as at March 2015 (Planning Portal, 2015e). It should be noted that there are multiple links from different points in the site to allow users to access specific pages, but for clarity, Figure 12 does not show all of these links.

The website provides a mixture of information and transactional services, and on submission of an online application form, it provides data transfers to LPA back-end planning systems.

The primary information sections are:

- Planning
- Building Regulations
- Mini Guides
- Interactive Guides (Interactive House, Interactive Terrace).

The primary transactional services are:

- Apply Online, which links to the main 1App online application form (see Section 4.5.3),
- Appeal(s)
- Useful Tools – Fee Calculator, Buy a Plan/Plan Creator

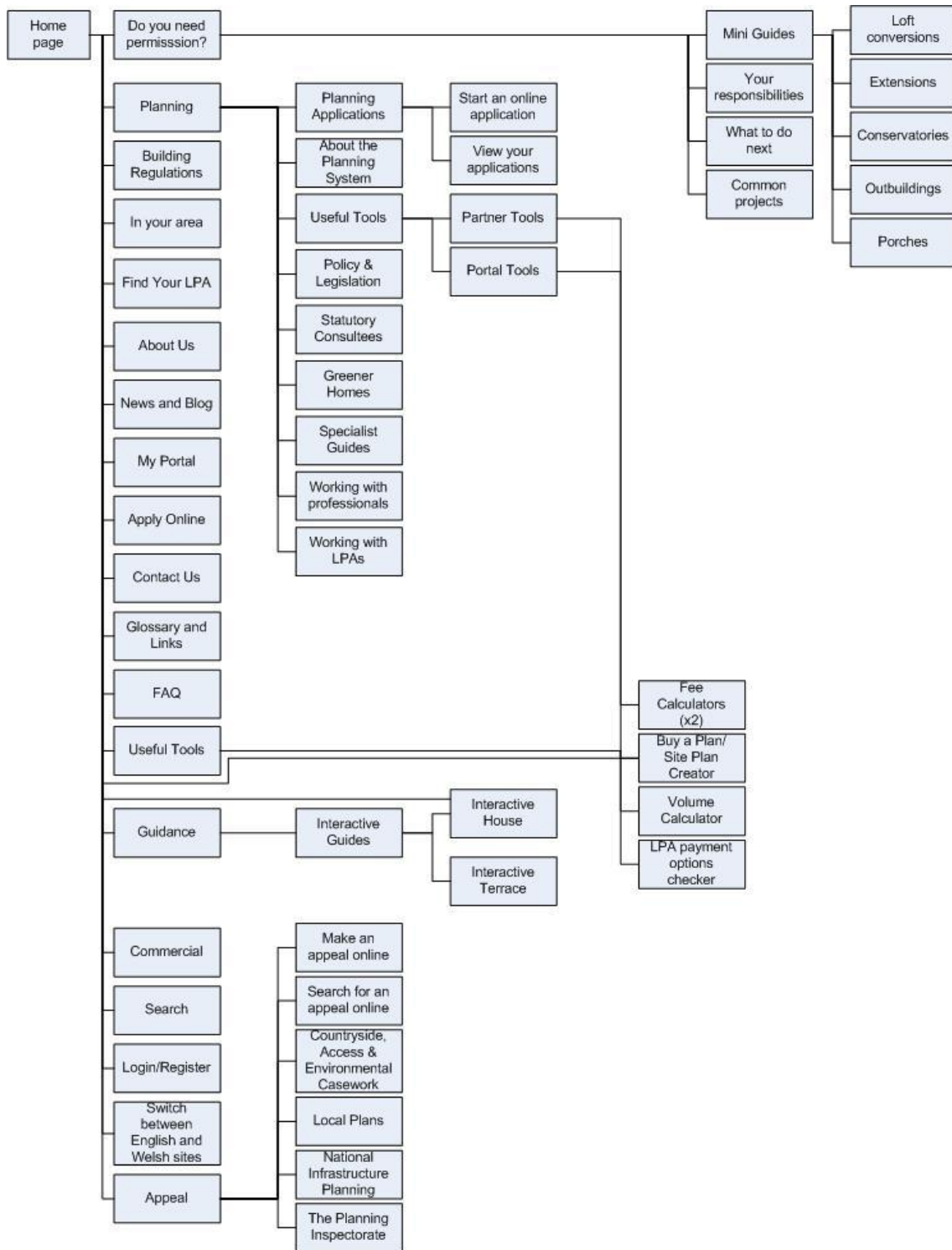


Figure 12: Simplified structure of the Planning Portal website (as at March 2015)

4.3 The Planning Portal as an organisation

4.3.1 Mission and purpose

The stated aim of the Planning Portal at the time of this report is

"Our aim is to provide a one-stop-shop supplying answers, services and information to anyone involved in the planning process - from home owners and businesses to planning professionals and Government officials."

(Planning Portal, 2015f)

This is the closest to a "mission statement", or in Freeman's terms an "Enterprise Level Strategy"(Freeman, 1984, p.90) that has been identified during the research. The intention is to provide both information and transactional services to a range of stakeholders including citizens, professionals and organisations involved in the planning process and also Connected Services to link to LPAs .

Information from staff stakeholder interviews suggests that whilst the intention of the Portal has always been to support a wide range of stakeholders in both the citizen and professional stakeholder groups, the focus of the push to increase uptake has changed over the Portal's lifetime, resulting in projects to target specific stakeholder groups. This is described more fully in Section 4.11.

4.3.2 Organisational structure

At the time of stakeholder interviews with Planning Portal staff, the organisation had 24 staff, all but one of whom were Civil Service employees. One interviewee stated that this was around half the number of staff that there had been around 5 years previously and identified that this was primarily due to pressures in funding leading to staff not being replaced as they left. Figure 13 indicates the organisation of the Planning Portal at the time of the structured interviews.

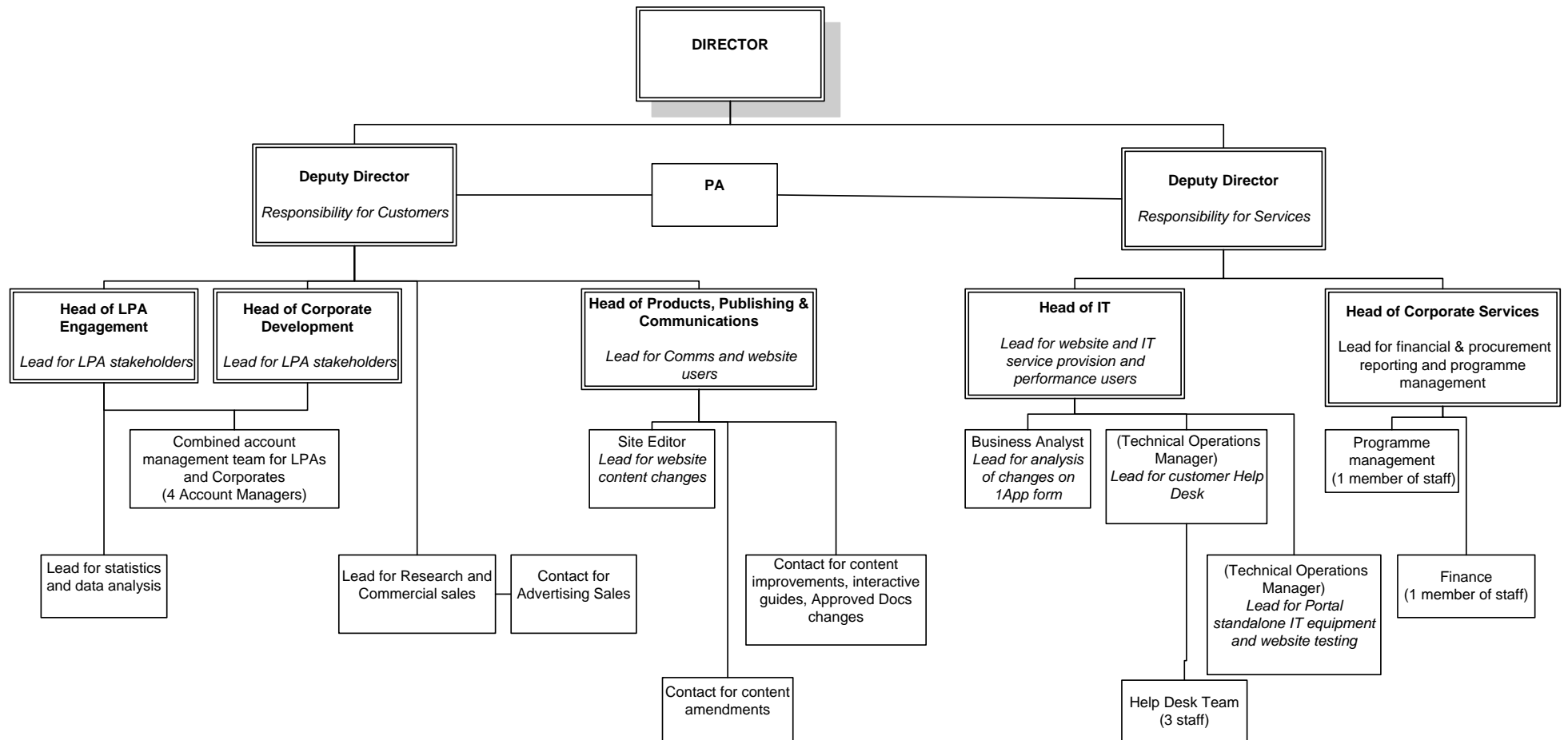


Figure 13: Planning Portal organisation chart (as at January 2015, adapted from Chilcott (2015a)).

4.4 Impact of Government initiatives

Over the study period (i.e. since late 2008), there have been a number of UK Government initiatives which have sought to improve either the planning process or the Government's digital offerings. This sections looks at some of those initiatives in relation to the Planning Portal case study.

4.4.1 Killian Pretty Review

In 2008, DCLG published the Killian Pretty Report entitled "*Planning applications: A faster more responsive system*" (Killian & Pretty, 2008) which proposed 17 recommendations to improve the planning application and determination processes, with a focus on (but not exclusively related to) major planning applications. These recommendations were developed following engagement with a large number of stakeholders in the planning process. A number of the recommendations were particularly relevant to the work of the Planning Portal and online planning:

- Expanding the scope of Permitted Development for non-householder applications
- Reducing the information and validation requirements required for householder applications
- Improvement of statutory consultees
- Implementation of an "accredited agent" scheme (Killian & Pretty, 2008).

The Government's response to these proposals was published in March 2009 (Communities and Local Government, 2009a) and contained a statement of current position and future plans against the recommendations in the original report. Several of these related directly to the work of the Planning Portal including:

- Improving communication links and sharing best practice with the Planning Portal as an intermediary
- Improving the quality of information available to potential applicants in the area of "do I need to apply for planning permission?"
- Driving LPAs towards take-up of the e-Consultation Hub (see Section 4.5.1 below)

- The introduction of an "accredited agents" scheme by LPAs to improve the quality of applications from professionals.

Progress reports have been published and the second of these, published in December 2009, has an Annex dedicated to the progress made by the Planning Portal (Communities and Local Government, 2009b) on three specific recommendations on which it was leading:

"Recommendation 3 – Government, local planning authorities and others should take steps to improve the quality of advice available for all users of the planning system"

"Recommendation 5(a) – Government should continue to invest in facilitating and encouraging improvements in the processing of applications – specifically greater consultation electronically"

"Recommendation 13(b) – Local planning authorities and other bodies should provide greater encouragement and recognition to those agents who prepare good quality applications on behalf their clients... by encouraging the introduction of 'accredited agent schemes' " (Communities and Local Government, 2009b)

These recommendations are still reflected in the direction and day-to-day work of the Planning Portal, as described in the remainder of this chapter.

4.4.2 Permitted Development

Permitted Development (PD) rights allow householders to make minor changes to homes without having to apply for planning permission. Following an announcement in the UK Spring Budget statement, the range of developments to be allowed under PD rights was significantly expanded (UK Government, 2014). It was expected that removing such a large number of potential applications from the process would impact on the take-up of online application, but this seems not to have been the case:

"the other thing is with Permitted Development allowing you to add on bigger and bigger extension, we were expecting it to have a very, very negative effect on application numbers but application numbers continue to rise despite Permitted Development... So it really is quite remarkable how, how doing things online has taken off." (PP_Int_F)

4.4.3 Government Digital Strategy

The UK Government has publicly stated its commitment to both increasing the range and quality of UK e-government services in its 2012 and 2013 Government Digital Strategy documents (Cabinet Office, 2012; Cabinet Office, 2013). This supported on a practical level by the Government Digital Service and its published Digital By Default Service Standard (gov.uk, c.2012). However, the Digital Strategy as it currently stands does not include DCLG and, hence the Planning Portal. Nonetheless, the spirit of these statements and in particular the Digital Inclusion Strategy (Cabinet Office, 2014) to include a greater proportion of the population in e-government services remain relevant to the Planning Portal,

4.5 Major Planning Portal projects

Over the study period, the Planning Portal undertook a number of major development projects, many directed at specific stakeholder groups. This section gives a brief introduction to a selection of those projects.

4.5.1 E-Consultation Hub

Even before the recommendations on increased online consultation in the Killian Pretty report (Killian & Pretty, 2008), the Planning Portal had instigated a pilot e-Consultation Hub to allow online consultations on received applications by major Statutory Consultees and by community consultees such as Parish Councils (Planning Portal, 2009b; Planning Portal, 2009a). The concept was that applications and supporting documents would be transferred manually from the LPA to a central database. Consultees would then be alerted to new consultations via email and they could self-serve the documents that were of relevance to them, rather than being supplied with a full set of paper documentation for each application they were to be consulted upon. Alternatively in a more technically advanced scenario, information could be transferred from LPA back-office systems to the central database via a third-party software connector (Communities and Local Government, 2009a).

Although pilot systems were successful and the principle was mandated by the Killian Pretty review, in practice there were issues. Conflicts of timing and priorities with some major Statutory Consultees meant that they could not commit to the project on appropriate timescales (PP_Int_F). However the primary issues seemed to be caused by the need, in order for LPAs to get significant benefit from the e-Consultation Hub, to invest in the

third-party software connector, and many could not produce a viable business case to do this:

"So, take-up was difficult. Whilst, in principle,... there was great demand for the Hub from LPAs, in practice it was difficult to turn that into commitment... largely it was to do with how easy it was for them to use it and how easy the integration with their back office... the LPAs needed connectors for it to be an automated process and it was much more difficult for them to make the case to purchase a connector for the consultation element" (PP_Int_A).

Consequently, despite some LPAs making great progress using the Hub, the decision was reluctantly taken within the Planning Portal not to continue with the project at the end of 2010 (Kendall, 2010):

"I can understand it was a shame and for those particular LPAs where it was well-used and well-liked, it was obviously a huge, a huge shame. Um, but the business case just didn't stack up unfortunately." (PP_Int_A).

4.5.2 Portal 2.0

From 2009-2010 the Planning Portal undertook a major project to refresh and design the Planning Portal website to "improve the customer experience" which became known as Portal 2.0 (Kendall, 2009a). The revised site built on a linked Infrastructure Refreshment Project (Kendall, 2009b) which enabled the redesign of the front end, and provided hosting of the new service by a third-party multinational Information and Communication Technology (ICT) supplier.

4.5.3 1App form

In 2008, the Planning Portal released the first version of its Standard Planning Application Form otherwise known as the 1App form (Planning Portal, 2009c). This single electronic form (which covers a wide range of different application types) also replaced the multitude of different application forms used until then by Local Planning Authorities. Its introduction required significant collaboration and interaction with LPAs at all levels to ensure the technical integration between the Planning Portal and the variety of LPA ICT systems functioned appropriately.

The form has been developed and adapted since, including changes to handle further application types, bug fixes and changes in response to planning policy. All LPAs now require online applicants to use the 1App form, essentially creating a state monopoly for the Planning Portal, although LPAs are still required by law to accept paper-based applications.

4.5.4 Non-Material Amendment forms

Non-Material Amendment (NMA) applications are not considered to be planning applications; instead they request an amendment to a previously granted planning permission. However, the definition of what constitutes a NMA is not defined as it is context-dependent (Department for Communities and Local Government, 2014b). Although downloadable versions of the forms were available from earlier versions of the Portal, online versions of the NMA forms were not made available until 2014. Feedback from both LPAs and planning professionals had indicated (including in the research reported in this thesis) that the lack of online NMA forms was a barrier to full adoption of online application.

4.5.5 Smarter Planning

In 2012, the Planning Portal announced an initiative to encourage both planning professionals and English Local Planning Authorities (LPAs) to adopt electronic working practices in submission and handling of electronic planning applications (Kendall, 2012). Agents and LPAs were to be assessed by the Planning Portal against a set of published criteria (Planning Portal, undated-b),(Planning Portal, undated-a) and those fully meeting the criteria at the time of assessment would be granted Smarter Planning Champion status. As at February 2015, around 250 professionals (Planning Portal, 2015a) (described by one interviewee as "most" of those recognised as Corporate users), and over 60 of the 334 (18%) English LPAs had been identified as Smarter Planning Champions with a further 70 (21%) having submitted applications for review (Planning Portal, 2015c).

4.5.5.1 Smarter Planning for Local Planning Authorities

The criteria for LPAs (Planning Portal, undated-a) concentrate on making the planning application and decision process more efficient. The focus is on increasing the percentage of applications received online by the LPA to at least 70% and increasing the use of electronic working practices and communication with all parties throughout the planning application, consultation and assessment processes. It explicitly requires engagement of consultees electronically "to realise a full end-to-end e-planning process." It also requires Local Planning Authorities to participate in a "communications campaign" and to provide metrics on applicant type to allow targeted communications. (Planning Portal, undated-a). Where applying LPAs do not quite reach the required standards, the Planning Portal Account Managers work with them and provide advice to help that attainment:

" we do like a, a mini-consultancy on their approach. We look at how we can change some of the ways they do things, ...we also look at how they communicate with their agents, we look at how they display information on their websites, ... and is it geared up for encouraging channel shift to encourage people to use electronically" (PP_Int_C)

The benefits to the LPA are presented as a more efficient and cost-effective development control process.

4.5.5.2 Smarter Planning for planning professionals

The criteria for planning professionals are prefaced with the same statement as the LPA criteria. The Professionals' criteria cover such aspects as: using the Planning Portal online application service on every available application, submitting all supporting documentation electronically and using standard naming conventions for them, good practice in creating plans and drawings, and naming them, using online payment wherever possible etc. (Planning Portal, undated-b)

The Professionals' scheme is actively targeted at and promoted to Corporate users, but smaller professional users who meet all the criteria are also awarded planning status.

The perceived benefits to Professionals are currently limited, essentially to being listed on the Planning Portal website as having achieved Smarter Planning status, but one interviewee suggested that the commercialisation of the Planning Portal service (described in Section 4.8) may allow a more substantive benefit in the future:

"what I wanted Smarter Planning to evolve into, for agents particularly or for corporates, was that they would see it as beneficial to them as ... some sort of recognition for doing things in a certain way that would differentiate them from people who don't have that recognition... that aren't Smarter Planning Champions. of course, that goes against everything that is to do with public service. You should not do that. You cannot set aside one set of users and, and extol their virtues over and above anybody else. So, when we become a commercial outfit, then that problem goes away" (PP_Int_F)

4.5.5.3 Benefits of the Smarter Planning schemes to Planning Portal

Wider adoption of the Smarter Planning scheme in LPAs will have benefits for the Planning Portal in that it can provide a more consistent way of working, making supporting LPA users easier (and potentially cheaper). It also mandates LPAs to promote online methods of working to their applicants – potentially increasing the KPI1 percentage further.

Wider adoption of the Smarter Planning scheme in the Professionals community again has the potential benefit of raising the KPI1 ratio, but in the light of the commercialisation exercise, and the possible loss of the government monopoly on online application methods, there are other potential benefits:

"The benefits to us are that we are building a market place if you like of users or ... a user database that we, we could market other things to later. That's the primary benefit. And the spin-off benefit is that if they think that they're getting specialist support from us, they are less likely to drift away and start submitting applications in another way...So it's retaining them as users, and so therefore boosting our KPI1 and also building a... potential marketplace for the future. " (PP_Int_F)

"but in the future when we become more commercial, depending on who our business partners are, we're hoping to be able to offer them special services, discounts and stuff like that. So, we're building up a relationship with a user base, a large user base." (PP_Int_F)

4.6 Changes in funding for the Planning Portal

This research study (2008-2015) covered a period of global economic downturn and, in response, a period of government "austerity" in the UK. This resulted in significant cuts in the centrally allocated budgets for many UK Government departments. The Department for Communities and Local Government (DCLG) reported a 40% cut in its administrative budget and an anticipated 63% staff reduction between 2010 and 2015 (Department for Communities and Local Government, 2014c). For the Planning Portal, the changes in expenditure were as shown in Table 14, indicating a smaller proportional reduction than for DCLG over the same period, but with a much larger change over the whole period of the study. The Planning Portal expenditure in FY13-14 was £1.56 Million (Davies, 2015).

	Change in expenditure	Change in headcount
Financial year 2008/9 – 2013/14	68% reduction	49% reduction
Financial year 2010/11 – 2013/14	29% reduction	20% reduction

Table 14: Changes in Planning Portal funding over study period

These reductions in expenditure have had impacts in how the Planning Portal has been able to interact with its stakeholders and these impacts are discussed in later sections of this chapter.

However, the Planning Portal has had other sources of income. This has included the sale of advertising space on its website, a practice that has caused some disquiet

amongst professional users, who have found that the Portal information pages, to which they have previously directed clients, are now hosting advertisements for their competitors. In addition, the Portal site provides, on a commission basis, links to online mapping providers who can supply maps and plans appropriate for submission with an online application. A further revenue stream has been the licensing of interactive tools, such as the Interactive House to other organisations. The revenues from these streams has not been static and in the months leading to the 2014 commercialisation activity has been limited to mapping and advertising:

"Typically our, our main, main revenue products if you like, commercial products, have been advertising and mapping so commissions that we would derive from the maps that are sold through the Planning Portal ... with our partners....But we have over the years offered other alternative commercial products. For example, a commercial empty version of the Interactive House which has been sold to other governments around the world and other UK administrations, for them to put planning and other information into. The Police, for example, bought it to use a crime prevention house" (PP_Int_A)

4.7 Assessing the effectiveness of the Planning Portal

4.7.1 The KPI1 statistic

Initially the primary success indicator for the Planning Portal was the number of LPAs "onboard" (Chilcott, 2015a). However, the primary published measure of the effectiveness of the Planning Portal over the last 5 years has been the KPI1 statistic - the proportion of all applications made online. It has been impossible to find a published definition of this, but personal communications with Planning Portal staff indicate that this is the ratio of the number of applications submitted via the Portal against the application numbers for the same period as provided by LPAs to DCLG and referred to as PS1/2 statistics (Planning Portal, 2015d). However, although the method of calculating the KPI1 value is consistently applied, there is not an exact comparison in the calculation, due to the nature of the metrics captured and reported by LPAs:- the LPA PS1 data counts registered applications, whilst the Planning Portal data counts submitted applications. Furthermore the Portal submission figures also include some application types that are not included in the PS1 data and so the calculation may "slightly inflate" the calculated KPI1 figure. (Alford, 2014)

This Key Performance Indicator 1 (KPI) is a primary driver for the Planning Portal and appears to have led changes in the stakeholder focus for the Planning Portal as described in Section 4.11 below.

Figure 14 shows the achievement of KPI1 percentages against the stated targets over the period of this study. The calculated value for KPI1 at December 2014 was 81.6% of all applications were made online. Figure 14 shows the number of total applications made in the same period showing a relatively steady rate of applications. Information from the same source (Alton, 2015) indicates that there has been an increase in the number of online applications (versus paper applications) both in percentage terms and absolute numbers over the period of this study.

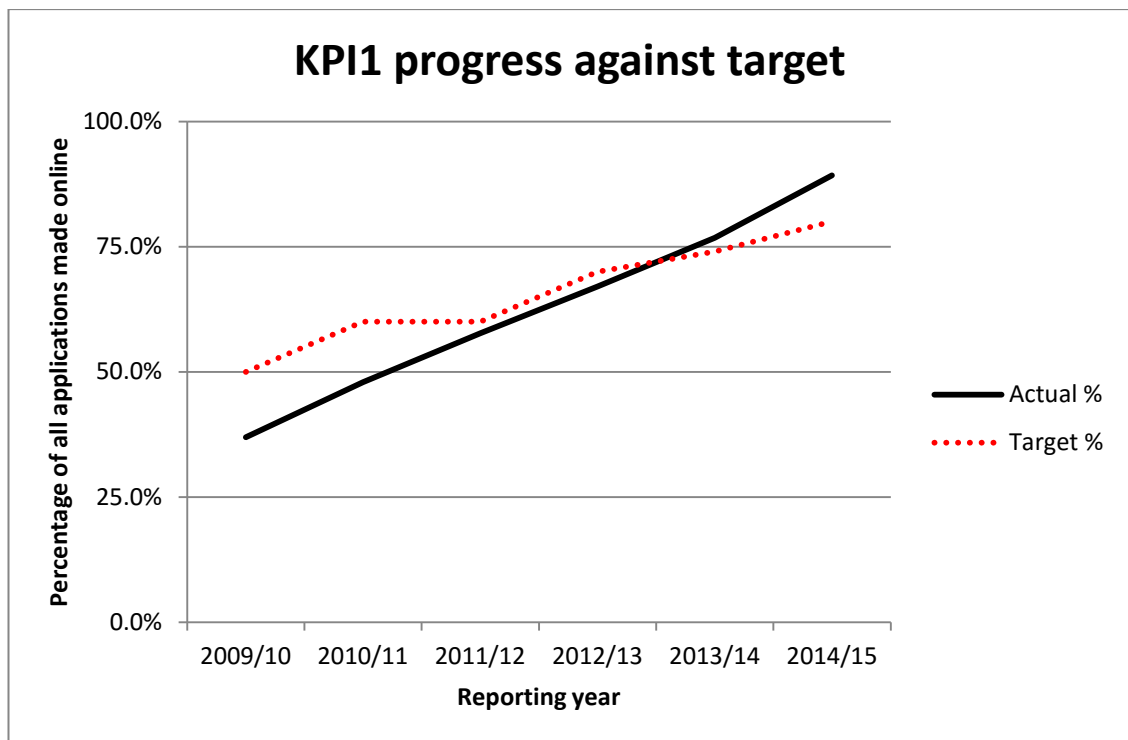


Figure 14: KPI1 achieved progress against target made (data source: Alton, 2015)

Reporting year	Total Applications made
2009/10	483390
2010/11	506050
2011/12	500133
2012/13	476833
2013/14	494780
2014/15	376451 (partial year to date) 502219 (estimated full year)

Table 15: Total number of applications made (data source: Alton, 2015)

4.7.2 User Research - getting feedback from stakeholders

The Planning Portal has a number of feedback mechanisms from its users - in particular via Account Managers and the Service Desk. However, the amount of directed user research being done has declined, again due to limitations on resources:

"We don't do anything structured...and haven't done for a while. You'll also be aware that we used to have a research team. We were, we were doing quite a lot of external research using agencies and directly. But, we're not in a position where we can do that really at the moment. Um, most of what we do is anecdotal." (PP_Int_A)

But there are other sources of information that can be gleaned more easily and these are used by the Portal:

"earlier usability studies...stats like website traffic... keyword referral from Google" (PP_Int_D)

It is also known that phases of this research detailed in Chapters Five to Seven have also been used to confirm anecdotal evidence and findings from other sources, and to support decisions around stakeholder management and strategy, although the financial limitations have limited progress:

"I just want to say thank you for doing this because this has been incredibly useful.....And it is... satisfying to find... .that our, not assumptions but, you know, the knowledge that [we] have within the team, and the insight [we] have in the team, is backed up in what you find" (PP_Int_D)

*"you'll see stuff on there that we have spoken about, maybe a couple of years ago, that are still, still in the system, they just haven't been resolved".
(PP_Int_C)*

4.8 The future of the Planning Portal

In June 2014 DCLG announced that the UK Government was looking for a commercial partner to invest in and contribute to the future development of the Planning Portal website. (Communities and Local Government, 2015)

"The reason for commercialisation of the Portal really was government's recognition that the system needed... a huge amount of investment to move it off of its current platform and onto a new platform, ... and actually it felt that it was the right time for the private sector to make that investment." (PP_Int_A).

An in-house team was set-up to respond to the opportunity and staff were taken both logically and physically away from the Business-As-Usual running of the Planning Portal service, to ensure, as far as possible, a "level playing field" with other potential bidders.

In November 2014, shortly before the stakeholder interviews reported in this chapter, it was announced that the in-house Planning Portal bid had been unsuccessful, but the successful bidder was not announced, creating an indefinite period of uncertainty on the future of the service and the staff (Kendall, 2014).

Different staff had different perspectives on the opportunities and threats that the commercialisation process presented. Some identified potential benefits in a new funding model should the existing service be maintained, and that there might be a clearer focus on the online planning service, rather than the apparent current perception of the Portal website as a convenient location on which to publish a variety of environmental information:

"one of the reasons that I'm so pleased that we're going commercial is every time we wanted to make a relatively small change ... we had to put a business case together for it, what the justification was, what potential savings it would give us, you know, how it would affect KPI1 which of course is very, very difficult to predict. So, it was always a little bit 'well I don't know...'it's not really convincing enough for us to spend the money on that. (PP_Int_F)

"If we moved to a more commercial future then perhaps DCLG becomes less of a, um, major partner. ...They'll be a obviously a stakeholder and as I say, the owners of the policy that we're translating into transactions, that'll be a key relationship to manage. But I think there'll probably be more focus on just managing the application side of things" (PP_Int_D)

However staff also recognised that continuation of the current service as-is might not be the preferred strategy of the new owners:

"there are potential risks that the people we become business partners with may have a solution of their own that they want to put into place." (PP_Int_F)

The loss of the government monopoly and government "branding" was also seen as a potential threat to hard-won relationships with LPA stakeholders:

"the biggest fear that I think we have, is because ... our whole ethos is about providing customer service and you know, public service and stuff and that's what civil servants are supposed to do. ... but the disadvantage of it, its that it could be broken up with competitive solutions being made available now,

because we don't have the monopoly or we won't have the monopoly on it any more" (PP_Int_F)

In March 2015 it was announced that the service had been "transferred to a private sector, joint venture" between DCLG and a third-party company involved in land referencing and planning application (Chilcott, 2015b). Interestingly, as at January 2015, the new investor has a real interest in the Planning Portal as the organisation that had submitted the most planning applications over the previous five years (Mockford, 2015). From public statements (Chilcott, 2015b) there appears to be a commitment to continue and extend the service provided by the Planning Portal, but what form that will take remains to be seen.

4.9 Managing stakeholder relationships

4.9.1 Identifying the Planning Portal stakeholders

The Planning Portal has a diverse range of stakeholder groups, both internal and external, and in governance, supplier and customer roles. These are illustrated in Figure 15. A description of each stakeholder group and a discussion of how the Planning Portal manages its relationships with the primary external stakeholder groups follows.



Figure 15: Preliminary Planning Portal stakeholder map

4.9.2 Planning Portal staff

The 24 Planning Portal staff are primarily housed in a single location in south-west England, but there are four Account Managers who work from home and are geographically dispersed, in order to support Portal users in different parts of England and Wales. Care is taken to ensure that these remote staff consider themselves to be part of the team and interviewees describe weekly conference calls where progress towards targets and barriers in the relationships with LPAs and Corporate users are discussed.

Speaking to staff both in the semi-structured interviews and more informally over the research period, it appears that the staff have, in general, a pride and fondness for the organisation and frequently refer to it as simply "the Portal". However, many express

frustrations that resource constraints mean they cannot make as much progress towards corporate goals, such as the KPI1 target, as they would like. Examples are given in the following sections. An organisation chart is given in Figure 13 above.

4.9.3 Relationship with central government

Planning policy is documented and promulgated by the Department for Communities and Local Government (DCLG) for areas in England, and in Wales by the National Assembly for Wales and changes will generally require to be enacted in law. Such policy changes may require amendments to information presented on the Planning Portal website, but may also require changes to more complex features such as the Useful Tools or Interactive Guides, and/or the interactive 1APP application form.

At the time of research interviews, the Planning Portal was part of the Planning Directorate in DCLG and Portal management report to DCLG's Development Management Deputy Director. Funding was also primarily via DCLG.

The Planning Portal was previously part of The Planning Inspectorate (PINS), itself an Executive Agency of the Department for Communities and Local Government (DCLG). PINS is generally responsible for national infrastructure planning and handling the planning Appeals process (gov.uk, undated). Citizens or Professionals wishing to appeal against an LPA's refusal of a planning application can do so by submitting an Appeal application through the Planning Portal website. PINS can also act as a proxy LPA where an LPA has been designated under the Growth and Infrastructure Act 2013 as performing poorly on major applications (Cullingworth *et al.*, 2015. pp.51). Hence PINS is a recipient of data on both initial applications and appeal submissions made via the Planning Portal website. The Planning Portal website also hosts some PINS web pages which are managed directly by PINS staff.

It should be noted that the Planning Portal has almost no direct contact with Members of Parliament or Members of the National Assembly for Wales.

One issue highlighted by a number of interviewees was that, whilst the Planning Portal has good inter-personal relationships with staff in both PINS and DCLG, the procedural and political requirement for some policy changes to be declared very shortly before implementation means that sometimes changes were imposed at short notice,

leading to frustrations that the Planning Portal cannot offer the service they would like to support these changes.

Thus central government has both owner/funder/governance and customer roles in its dealings with the Planning Portal.

4.9.4 Local Planning Authorities

There are around 360 Local Planning Authorities in England and Wales responsible for managing and determining the outcome of applications for planning permission. These will be the relevant District, Unitary, Borough or National Park Authority in each geographical area. The range of individual stakeholders in each LPA are likely to comprise primarily the Planning Department (Planning Officers, Planning Technicians and/or Administrators), but Council Members, particularly those involved in the Planning Committee, may also be viewed to have a stake in the planning process.

Local Planning Authorities receive online planning applications from the Planning Portal into back-office Document Management Systems and Development Control Systems via a series of software "connectors" supplied by a number of third-party software/solution vendors (Cheriton & Kneller, 2009).

Account Managers interact in a variety of ways with LPA staff at different levels from Heads of planning departments to individual Planning Officers. The purpose is generally to promote the online application functions provided by the Planning Portal, but also support Local Planning Authorities encourage their applicants to also work electronically.

Communication is via a range of channels including:

- site visits to individual LPAs,
- attendance and presentation at relevant conferences,
- direct communications to LPA staff,
- the Director's Blog on the Planning Portal website,
- technical advice and assistance in moving towards electronic working.

Account Managers have had to work hard to change attitudes in Local Authorities. Several interviewees reported that there had been originally been some resistance to promoting online planning, with this resistance being attributed to both personal concerns over loss of employment, and also organisational concerns that they might be charged for using Planning Portal functionality.

"We did, at one time, have a big anti-electronic attitude from Local Authorities it was 'cause ... they thought their jobs were at risk. 'If we do this much more efficiently, we're going to need fewer of us, to do it". (PP_Int_F)

One aspect of the organisational environment that has helped overcome this resistance is the understanding that both organisations are public sector bodies and so have the public good at heart, but there is concern that the feeling of disquiet may return when the Portal is managed as a public-private sector joint venture:

"...because they feel that we're part of Government. We are part of Government, but they, the important thing is that Local Planning Authorities have seen us as that, as being on the same side as them... but when we become a commercial outfit... that air of suspicion is going to creep back in, " (PP_Int_F)

Another way of helping is to aid LPAs in understanding that online application management and determination may provide cost-savings:

"it's all about that engagement, but equally at the same time, Local Authorities are sometimes reluctant to do it because they haven't got the resources to manage the ship as it is now, but they have to have the foresight to see 'If we do all of this then it could realise savings and efficiencies further down that will help us to re-engineer our process'." (PP_Int_C)

Over the last two years, much of the focus of relationships with LPAs has been in using the Smarter Planning initiative to help LPAs achieve and promote a more thorough and efficient electronic way of working in the development control arena:

"how are they coping with online applications coming through the Portal? How are they processing them? Are they encouraging their local agents and citizens to submit online? Are they, are they happy with it? Are they confident with it? Um, any issues, you know, can we help with any issues? Can we help to promote further? But really finding out about how they actually physically process those applications" (PP_Int_B)

However, Account Managers are finding that whilst LPAs may understand the potential benefits that may be achieved by further embracing online planning practices, there are currently practical issues limiting full e-planning. The primary two areas of difficulty discussed by interviewees reflect the findings in the LPA study (Chapter Seven): Planning Officers feel more at home using paper plans and drawings when out on site visits, and hence require there to be at least one paper copy of each document; and secondly, a similar

issue of paper copies for Parish Council consultees. This requirement for LPAs to provide printed copies involves the use of resources, both consumables and staff time, and has to be borne either by the applicant, or more likely in the case of online applications, by the LPA itself.

"what's frustrating is that we need to get them to work totally electronic but they just can't seem to get there because the Planning Officers want paper copies and there's still the issue with the Parish Councils" (PP_Int_B)

Financial constraints within the Portal have also changed the way Account Managers interact with their LPA (and Professional) customers. Reduced funding, and in particular staff time, have reduced the capability of the team to conduct face-to-face site visits or attend user fora and much more work is now done by telephone. One interviewee felt that this potentially impacted the effectiveness of the relationship, at least from the stakeholder side:

" We've done a lot more work by phone. Personally I, I think they've got equal value... I do see the value in doing work by phone, because you can get a lot more done. but I do... think Authorities miss you going out to see them. They like to get in front of you, or like us to get in front of them. And one thing that all of them keep asking about, us to do, is the LPA workshops. We used to do... probably on a quarterly basis, we'd go and talk to them about all things Portal. ...It was an opportunity for LPAs to network with each other, during the breaks and during, we did ... table discussions, you know, group sessions....And um, all the authorities continually ask when we're going to do that again. It's a very, very valuable thing" (PP_Int_B)

4.9.5 Consultees

LPAs are required to provide a period of public consultation on planning applications, but have discretion on how they publicise applications.

Under conditions defined in planning law, LPAs are also required to consult with appropriate statutory or non-statutory consultees (Department for Communities and Local Government, 2014a). The Statutory Consultees are 23 public bodies who have a specialist interest in different aspects of development control and, who when consulted, have a legal obligation to provide advice. (Planning Portal, undated-c). They include such bodies as English Heritage, Department for Environment, Food and Rural Affairs, Forestry Commission, Theatres Trust etc.

Parish Councils are not statutory consultees and have no formal power in the planning process but have an important role in representing the community, both in the setting of neighbourhood planning policy and, more importantly for this research, in consultation on all relevant planning applications (where they have asked to be informed). Any representations from the Parish Council, relevant to the planning application, must be taken into consideration by the LPA in deciding the outcome of the application (National Association of Local Councils, 2013).

Planning Portal staff had substantial direct contact with Statutory Consultees during the e-Consultation Hub project but other stakeholders seem now to be higher priority.

Planning Portal staff no longer have regular direct contact with Parish Councils, but instead the relationship is managed via the LPAs. Events have previously been run to promote online consultation activities to Parish Councils within a geographic area. There has also been promotional activity, including workshops, held via the National Association of Local Councils and Society of Local Council Clerks:

" so I went with their regional managers, I built relationships with them. They got me to their regional Parish gatherings so I'd go and talk about the Planning Portal and submitting online and the benefits of it, to fifty or sixty Parishes at a time." (PP_Int_B)

However, many Parish Councils still perceive a barrier to their consulting electronically, due to the lack of ICT facilities at Parish Council meetings, and in many rural areas, the lack of reliable broadband Internet connections to allow download of application documents for discussion. This creates a knock-on effect to LPAs by which they need to provide the Parishes with paper copies of all applications to be consulted upon. Planning Portal staff express some frustration at this apparent stalemate and have suggested alternatives. Suggestions have included ways of working by downloading application documents so that they can be used "offline", particularly to overcome the broadband issue; or getting funding to purchase ICT equipment to allow projection of application details at Parish Council meetings (from National Lottery funding, for example). Portal Staff have even suggested that working electronically in this more presentation-based style has benefits to the consultation process.

"I have debates with people about some of the Parish Councils and the broadband access. I do think that is a particular issue, in certain areas, but not in all areas. And I don't think it's a good enough excuse to say that is the

reason, because you can get information through to people and if they're having their Parish Council meeting in, in a local venue that doesn't have wi-fi, you just have to be organised and download it, take, take an electronic copy on a USB, put it up on the screen. And then the whole session is interactive, people feel more engaged, they can see it." (PP_Int_C)

4.9.6 Professional Users

The stakeholders in the professional users group comprise individuals or organisations working in planning in a professional capacity, on behalf of fee-paying clients: planning agents and consultants, architects, surveyors, builders, tree surgeons and arboriculturist/arboriculturalist, sign manufacturers etc. One Planning Portal staff interviewee described the range of organisations covered in the Professional Users group:

"there are literally thousands of people who ... submit between one and five applications per month. And as you go up in numbers of applications, they decrease... in quantity quite dramatically." (PP_Int_F)

To help manage this diverse range, within the Planning Portal stakeholder environment, these are split into Corporate Users and other (SME) Professional users.

Corporate users are defined as those submitting more than 10 applications per month, some significantly more than that. At the time of interview, 2 organisations had submitted more than 5000 applications in the previous 5 years (Mockford, 2015). In the same communication, a list of the top 20 applying organisations showed the range being from 90 applications per month for the most frequent applicant down to 17 per month for the organisation ranked 20th in terms of application numbers over the same 5 year period. The organisations covered a mixture of trades and skills including planning agents and consultants, home improvement companies, tree surgeons, and advertising companies.

(SME) Professional Users – The Planning Portal defines this group as professional organisations which submit fewer than ten applications per month. Many of these are sole traders, particularly in professions such as surveyor, architect or tree surgeon. In many ways, these have attributes from both the corporate and citizen user groups: they will have a professional understanding of the planning process akin to the corporate group, but many will not submit sufficient applications to be intimately familiar with the Planning Portal online offerings, in a similar way to Citizen applicants.

4.9.6.1 Working with Corporate Users

Corporate Professional users of the Planning Portal are supported by a nominated Account Manager who works in their geographic area. Whilst nominally an Account Manager is responsible for a whole Corporate organisation and hence there is an opportunity for developing professional inter-personal relationships between the two organisations, where the company has multiple offices, they may, pragmatically be supported by more than one Portal Account Manager.

It is the responsibility of the Account Manager to make regular contact with an organisation, promote the benefits of online planning and the Portal offerings to Corporate staff at all levels, and provide a central point of contact for enquiries and issues. On a practical level, this has previously taken the form of site visits for both promotional and training activities, meeting planning staff within the organisations etc.

"I spend a lot of time working with, training, I do a lot of customer support and quite often, instead of ringing our support line, they'll ring me, because they have a specific problem they want an answer to straight away....And that's part of our customer service if you like, they feel that I, I am able to answer their specific questions, which sometimes can be quite complex" (PP_Int_F)

However, reductions in staff levels generally in the Planning Portal mean that the number of staff acting as Account Managers has reduced from 8 to 5. Furthermore, the available budget for travel has reduced. This combination of factors means that the Account Managers time can be limited:

"they are pretty well stretched at the moment, they are quite, quite over-worked..."
(PP_Int_F)

In addition to pro-active promotional activities, some Account Managers have become a point of contact for their Corporate Users when they experience technical issues. In general, the issues reported tend to be known issues, with documented workarounds and Account Managers can provide such assistance. However, more technical issues are still handed across to the Service Desk:

"because all of the big corporates that we've got using the Portal now, all of the problems that they had have been sorted out, so it's only the small, niggly things that pop to the surface now, because we've done, I think, a pretty good job...so it's only the little things that pop up occasionally that we have to deal to with so the number of enquiries or the number of issues we have to

resolve has dramatically decreased, thank goodness because we wouldn't be able to handle them otherwise." (PP_Int_F)

In recent months, Account Manager work has included promotion of the Smarter Planning initiative and supporting corporate organisations in reaching the necessary criteria to be awarded Smarter Planning status. However, even then the effort has had to be targeted to those organisations that are likely to give most benefit:

"The general approach has been to get to the...Head of Planning and to try and sell them on our Smarter Planning principles. And then ... arrange sessions where we go in and do a presentation with their people who are actually submitting applications" (PP_Int_B)

"Purely and simply because there aren't enough of us and there aren't enough hours in the day to do it all, you know, to, to do it all as well as we'd like to. So we've had to cherry-pick basically. So what I've done, I've cherry-picked some of the bigger ones that, and try and get them on board" (PP_Int_F)

A further issue that Account Managers have been working on recently is the management of corporate Intellectual Property Rights when, in particular, Corporate staff move from one organisation to another. If an individual user moves between employers and asks for their Planning Portal account to be transferred, then they retain access to the historical applications, and associated documents, that they used when with their previous employer. Such information can have significant commercial value and the churn of individual between large corporate organisations is an area of risk to both the users and the Portal. Account Managers are currently working with Corporates on the best way to handle this issue.

4.9.6.2 Working with other professional users

Whilst the larger Corporate users have dedicated contacts within the Planning Portal, and can expect personal contact with their Account Managers, organisations submitting fewer than 10 applications per month are handled as a community by Account Managers, allocated on geographical basis. There are substantial numbers of smaller professional applicants - one interviewee suggested that each authority would yield 100-200 SME applicants for whom support is required.

Previously, there has been direct contact between the Planning Portal and smaller professional users as Account Managers have run regional Agent Forums, including some primarily focussed on smaller corporate users:

"going back some time, our work ... was with Local Authorities so we'd get them to sponsor local agent workshops. So we'd get local agents in and tell them about the Portal, tell them how to submit applications online um, and get the Authorities to really drive agents to use it. " (PP_Int_B)

However, due to the impact of reduced resources, the interaction between Account Managers and smaller professional organisations has been reduced – both a direct consequence of the reduction in numbers of Account Managers and reduced funding available for site visits.

Whilst the larger Corporate users tend to contact their dedicated Account Manager for support, smaller organisations need to contact the central Support Desk.

Account Managers can, however, still use existing networks amongst professionals to spread the experience and benefits of the Planning Portal:

" [the] most notable one was a lady in the New Forest, one-man band. And I went to see her...and I took her through the process and she had a network of three or four other independent agents and she got them all to submit online after I met with her...I've heard them even at agent forums in the coffee breaks, they'll stand with their mates and I've heard them "you know, I've tried it online. It's worth giving it a go and it'll save you a lot of money". So, yeah, it does work." (PP_Int_B)

4.9.7 Professional Bodies and Trades Associations

Account Managers also make use of the communication channels that trades bodies and professional /standards organisations provide to both professionals and LPA staff.

Interviewees mentioned having connections with the following:

- Royal Town Planning Institute (RTPI)
- Royal Institute of British Architects (RIBA)
- Royal Institution of Chartered Surveyors (RICS)
- Chartered Institute of Architectural Technologists (CIAT)
- British Sign and Graphics Association (BSGA)

Also there are professional bodies for Local Authorities and their staff and interviewees mentioned having had contact with the following organisations:

- Society of Local Council Clerks (SLCC)
- National Association of Local Councils (NALC)
- Association of London Borough Planning Officers (ALBPO)

These relationships work both by Planning Portal presentations and workshops to interested groups and on a one-to-one level with influential individuals within professions, who can then promulgate the message to their user community.

"I also attend some of the association group meetings ...where all the technical planning managers, and planning admin managers meet on a bimonthly basis...they may ask me questions about 'Well how are we going to deal with this?' And if we are making any particular changes to Planning Portal functionality, I'll inform them of that and I can also advise on, you know, looking at business processes to make them smarter. ... With LPAs we try to get in to build relationships and have appropriate contacts at both a strategic and an operational level." (PP_Int_C)

One interviewee also commented that by selecting carefully the organisations to deal with, then the influence may spread wider than might be expected...

"part of our job is to establish relations with ... trade associations that are in vertical markets like...the advertising world. Whilst they are not particularly high-volume submitters, they are quite influential in the industry. So we did some work to get associations with the top directors of those companies, because they are quite big influencers." (PP_Int_B)

4.9.8 Citizen Users

The Citizen stakeholder group primarily consists of individual members of the public who wish to get information about planning and the planning process and potentially to submit a planning application themselves for their own personal planning project. The expectation is that citizens will normally only submit a very small number of planning applications in their lifetime and so will have little or no familiarity with either the process or the application form whether it be on paper or online. The Planning Portal also use the term "Citizen" to cover the small number of non-planning related organisations that submit applications - clubs, religious groups etc. (Note that the studies reported in Chapter Five use the narrower definition covering just individual members of the public.)

Citizen users currently have no direct representation as a stakeholder group with the Planning Portal. Their views are currently best represented indirectly either through LPAs or through evidence collated by the Portal Service Desk. Previously there have been

promotional activities aimed at citizens but their low rate of repeat application has meant that focus has moved away from this group:

"Going back seven or eight years ago, we did do work with citizens going to Grand Designs exhibitions...and... double-decker bus tours of the country, talking to the public. But because they are generally one-off submitters, the concentration was on the professionals." (PP_Int_B)

4.9.9 ICT Suppliers

The ICT environment of the Planning Portal is complex. There are three separate development routes for changes to the Planning Portal website:

- i. The main Planning Portal site is "*developed, hosted and supported by*" a large multi-national IT supplier, and changes to the main site have to be made by their teams (Proctor, 2015).
- ii. Changes to the online application forms and the Fees Calculator tool are made by a different supplier who also provides e-government forms as part of the UK Government Digital Service (Digital by Default). These changes are then provided to the hosting supplier, a release package is created and the returned to the Test Manager/Technical Operations Manager for testing.
- iii. Planning Portal website content is managed by an in-house Planning Portal team who have also developed some of the other "Useful Tools".

Furthermore, as collator of the application information, the Planning Portal then has to pass this on, via software connectors, to the relevant LPAs who use a variety of different back-office systems including both Document Management and Development Control systems, as well as public-facing application search and view services.

There are clearly contractual relationships with the suppliers in i) and ii) but there are also relationships which revolve around the requirement for changes to the Planning Portal website either as mandated by policy changes, or identified as desirable by Planning Portal management. Following supply of requirements by the Portal to the relevant supplier, an estimate of effort/cost is supplied. The Change Requests, including business cases based on the estimates, are reviewed by the Planning Portal management. If development is approved, this is done by the supplier, changes sent to the hosting company, where there are packages and sent back to the Portal technical team for User Acceptance Testing. Following approval, the packages are released into the live environment by the hosting

company. Section 4.12.2 provides more information on how the Planning Portal change management process works.

Relationships with "connector" suppliers are more difficult, as there is no direct contractual Planning Portal involvement; rather this is between the LPAs and the software supplier. However, there is clearly a need for liaison so that both the Portal and connector developers understand what changes the others are proposing to ensure that there are no issues to the service to their common LPA customer caused by unilateral changes. This is done through supplier user groups in some cases. The Portal also informs suppliers of any future changes that are required at the Portal end and involve them in testing changes that will affect the transfer schema (Chilcott, 2015a):

"we work with them... to make sure that we understand any, any changes we make to the system aren't going to prevent the LPAs from getting the applications. We have had a different kind of relationship in the past particularly when we have the e-Consultation Hub, we were working ... hard to try and influence them to, to support that project and to provide the interface... But now it's much more a technical relationship. It's managed through the technical team. We go to their user group meetings, quite often. ... we tend to go to those just to make sure that we understand ...to make sure that any changes that they're planning, we're aware of, and we can, we can make sure that it's not going to impact our service." (PP_Int_A)

4.10 Supporting Planning Portal users

The Planning Portal Service Desk operates 9 a.m. to 5 p.m. Monday-Friday and is staffed by three individuals (approximately half its previous staffing levels). The Service Desk is available to support all types of user, however, some groups, particularly the Corporate professionals, tend to make initial contact with their Account Managers. The Portal website includes a set of Frequently Asked Questions (FAQ) pages (Planning Portal, 2015b).

One issue that became clear from the results presented in Chapters Five and Six from Citizen and SME professionals was that many Portal users did not understand which parts of the planning application and determination process were provided by the Planning Portal and which by the Local Planning Authorities.

"Researcher: One of the things that we found when we looked at, particularly the citizens is they didn't understand where the Planning Portal facilities stopped and the LPA facilities started, is that...?"

Interviewee: Yeah, completely... I don't think the LPAs know as well, which doesn't help. ...So someone will phone up an LPA for a genuine issue on their site... and as soon as you say online planning, they think it's all us...So yeah I think online planning, the general public get directed to us incorrectly." (PP_Int_E)

This finding was supported by comments from other Planning Portal staff and a Help Centre has been included on the FAQ pages to help direct users in difficulty to the right agency to answers their questions.

When pushed, the interviewee suggested that dealing with general public (citizen) enquiries took more time than supporting the other groups, but that no metrics were kept on this, as their telephone system and Incident Management/call-logging systems are not integrated. The Service Desk receives around 1000 calls per month. The interviewee suggested that the types of calls from the different users groups were different. Professionals and LPAs understood what the problem they were experiencing was and were generally calling for help in identifying a specific workaround. Citizens, however, are more unfamiliar with both the system and the process and so need wider and more explicit assistance.

There is a feedback from the issue/problem management records kept by the Service Desk into the Change Request mechanism, into Problem Resolution by the hosting company or into the generation of more FAQ/workaround documentation. However, it is unclear how the balance between resolving the backlog of bug fixes and provision of new functionality in the Change Management process is resolved.

No priority is given at the Service Desk to any particular stakeholder group, but staff dealing with Corporates and LPAs might request urgent assistance for their clientele. One interesting further aspect is that Service Desk staff are not currently invited to take part in user fora either for LPAs or professionals, although this had been done in the past. It was unclear whether this change was primarily because of staffing pressures on the Service Desk or other reasons, but there did seem to be acknowledgement that it might be appropriate again:

"it probably just wasn't seen as important to take someone away for the day when they could just be doing their day job and getting that done. But it probably does need it. But I think, people might be worried as well that if they go to one of those events that they'll just get ambushed by someone and shouted at for all the problems of the site when it's not their fault. But, it should, it could and it probably should be done." (PP_Int_E)

4.10.1 Inter-stakeholder relationships

In addition to working with individual stakeholders, the Planning Portal has also made use of its central position to act as an intermediary between stakeholders. Of particular note are the interactions that the Planning Portal facilitates:

- between multiple LPAs,
- between LPAs and professionals,
- LPAs and their consultees,
- and as a pivotal link in the Central-to-Local government planning chain.

4.10.1.1 LPA groups

The Planning Portal sees its role here in helping to promote the sharing of good practice between LPAs. Initially, LPAs seemed to be a little wary of this, but as financial constraints have tightened, and more Local Authorities are sharing services, it is now seen as a way of exploiting the expertise of early adopter Local Planning Authorities:

"whereas when we started out ... they wouldn't share any ideas ... So then we kind of, pulled down all those barriers and said back to the guys 'It's really about you talking to each other. Because now you don't have the resources to do everything by yourself and by sharing it, it'll make sure we're we're introducing more standard processes'. ...We can share stories on, you know, there's agents that we think are good, agents that we think are bad, we can tackle them together and tackle some of the major issues that they face together. ... They have more meetings as, across like on a county basis or as part of planning groups... which has been good, you know, it's been more of a united approach." (PP_Int_F)

However, the idea of competition between LPAs is not entirely seen as a bad thing and has previously been seen as a way of helping to drive up the KPI1 scores, and there is still an echo of this in the Smarter Planning initiative:

"I used to do a monthly update to all the LPAs in my region that I looked after, and they quite liked that. ... I used to get a lot of them wanting to know how many um, how many applications, they were receiving online a month, just to compare with their figures and to compare other LPAs in their county were doing....That peer pressure was very, very good ammunition....So I used to send them the table of all the Authorities in their county and that was really powerful." (PP_Int_B)

However, this type of inter-LPA interaction is not only driven by the Planning Portal. LPAs have found ways of doing this for themselves, by exploiting features of other projects in rather unexpected ways. One interviewee described such a scenario: in 2006, the Planning Portal instigated an "Unlawful Advertising and Fly-posting database" to allow Local Authorities to exchange information on persistent illegal advertisers. Indications are that the database itself was not as successful as hoped, but another feature of the system had more take-up:

" so we put up, like 140 cases and went live with it. About six months later we still had 140 cases, 'cause they hadn't really added many but we also had quite a thriving community because they'd discovered that the site had a forum functionality and they were chatting about things and said 'well have you ever, you know, had a situation where an advertiser's done so-and-so? And what did you do to resolve it?' And they were just talking and this was before Facebook actually, so it was probably about 2006, 2007. So people are happy to talk and happy to share and collaborate online" (PP_Int_D)

4.10.1.2 LPAs vs agents

Interviewees indicated that the relationship between LPAs and agents could sometimes be viewed as adversarial, with very much the potential for a "them-and-us" attitude, on both sides. The Portal interviewees saw that they had a role in helping to ease this situation and described two ways that they provided links between LPA and professional (agent) stakeholders. The first of these was in helping Professionals understand what LPAs did with their applications and how they could help LPAs in working more effectively. Anecdotal evidence from PP_Int_F describes differences in LPA-Corporate relationships at different levels in the organisations e.g. differences in the relationships between Senior Professionals in an organisation and their local LPA Head of Planning, and the professionals actually designing and submitting applications and the planning administrators and officers having to handle applications. In one story he described a Senior Professional wanting to bind applications in leather folders and hand-present them to the Head of Planning: whilst the submission was sent down to the Planning administrators and immediately broken apart for scanning and copying, making significantly more work for the planning department:

"he thought he was doing the best thing because he was having such a fantastic relationship with ... the planners that he dealt with but beneath that, that relationship if you like, there were, the administration staff were having to work double time dealing with all this ... paper" (PP_Int_F)

The second scenario is in conflict-resolution around online applications. In particular Corporate professionals can come to their Account Managers and discuss issues they have and Portal staff may then act as mediator to overcome the issues:

"We get ... agents coming to us and to the Support Desk, and to me if they are big corporates, saying 'such-and-such an Authority has invalidated an application of mine because I did x, y and z' so they complain about what Local Authorities do. So there's still that adversarial them-and-us thing that we try and, you know, paper over the cracks and try and say 'oh right, we'll tell them, tell us who the Authority is and we'll go and sort it out'. So there's that sort of relationship as well." (PP_Int_F)

4.10.1.3 LPAs and consultees

The Planning Portal can provide an independent advisory link between LPAs and their consultees, particularly in the area of encouraging channel shift to more electronic working. Major projects such as the e-Consultation hub provided direct contact between the Planning Portal and consultees, but in most cases contact is via the LPA through LPA sponsored workshops. Topics tend to revolve around how LPAs and Parish Councils can work together to resolve the practical difficulties of making the consultation more of an electronic process, despite technological constraints that might be experienced:

"because these Parishes are so reluctant to change and they really do raise it with the Council Members, who ...can be on the Board in Councils. So it's very, very hard to get away from that, and can cause a real stink when that's mentioned by Authorities. Because what we tell Authorities is "Set a date, six months or twelve months in advance when you say we're not going to send you paper any more" and some Authorities are brave enough to do that, but it does cause outcry.[sic]" (PP_Int_B)

Several interviewees who have had direct contact with LPAs and Parish Councils described the contradiction they perceived in individuals being prepared to work electronically for administrative purposes e.g. by email, but not to engage in planning consultation in the same way.

"And we can talk to people, we can show them how the systems work and overcome any barriers. And sell the benefits...at these Parish Council events where, back in [2007], they didn't have the technology and then we were going to events in 2009 and they had IT breakout zones with wi-fi... and as soon as there was a break in the session, they would run over, log on, pick up all their emails, work electronically you know. And that, and then on the other hand they said, 'No I can't look at a planning application ... Which is

pretty odd....But. again it's about educating, providing the appropriate training and support." (PP_Int_C)

4.10.1.4 Central – Local Government

As the primary link between the policy makers in central government and the recipients of the resulting applications in the LPAs, the Planning Portal feel that they have responsibility for making the process as efficient as possible: "*we're that conduit*" (PP_Int_C). One interviewee expressed frustration that sometimes, either due to lack of budget or to short lead times, they are unable to provide online functionality in a timely way. This both reflects poorly on them and also presents a barrier to the general uptake of online applications. He used the example of a recently introduced suite of Prior Approvals forms, which at the time of interview were only available as downloadable forms:

"...we can only deliver... as a paper copy because ... the... Change Management wasn't notified to us upfront to provide us, with the budget, to e-enable them. You know, Government wanted those out there because they see ... the construction industry as getting us out of this economic ... But what that does is, it then creates a barrier then because the agents are still doing most of it electronically and then they have to access these other Prior Approvals over here doing a paper copy... so it can harm our credibility"
(PP_Int_C)

4.11 Changing the focus in stakeholder relationships

This section looks at how internal and external factors have affected the relationships that the Planning Portal has with its stakeholders.

4.11.1 Encouraging Channel Shift

Encouraging a channel shift of planning application from paper-based application to online application is clearly important to the perceived success of the Planning Portal via the KPI1 score and it is this focus on channel shift that is behind much of the Planning Portal stakeholder engagement. There is also an understanding that along with the Planning Portal, Local Planning Authorities form a crucial link between applicants and consultees and hence are crucial in encouraging channel shift:

" you can't get away from the fact that LPAs are, you know, fundamental to the Planning Portal and applicants are fundamental to the, to the Portal 'Cause they are, we enable both sides of the transaction to take place."
(PP_Int_D)

Whilst the KPI1 can be seen as a measure of channel shift amongst applicants, there is also potential for channel shift towards e-planning along the whole LPA process. This is reflected in some of the recent major Planning Portal projects: e-Consultation Hub, Smarter Planning, etc which may provide additional metrics for reviewing the effectiveness of channel shift.

Thus a lot of focus in Planning Portal stakeholder management is in encouraging LPAs to be pro-active in encouraging holistic end-to-end online planning processes both internally with their own staff and internal processes, but also with their applicants and consultees.

"So we're doing a lot of channel shift stuff, making sure that they do work electronically where possible. And trialling and testing how we can get their Officers to work electronically as well where there is still some resistance. Looking at the different technologies that can help them to do that...we've enabled the end-to-end process so by getting the information into their back office systems ...I'd say, the overwhelming majority [of] Local Authorities I know, have an online public register so that's got all of their current planning applications on and what e-planning has brought is electronic consultation as well... So there are several steps within the determination process and I think e-planning is about all of it not just about the Officer's assessment of a planning application so... there is technology to help them with that, but it's on a slower take-up than I think we would have expected." (PP_Int_C)

However, in encouraging channel shift amongst applicants, efforts are not just in big projects, but about helping LPAs use subtle changes to create changes in user behaviour. Small changes like advertising how many applications are now made online in their authority to promote online planning as a "normal" approach, or making the downloadable/printable forms harder to find than the link to the Planning Portal are all seen as small but effective ways of driving changes in users.

Initial LPA contact with potential applicants and pre-applicant advice is another area where the Planning Portal work with LPAs to promote online applications. So that, in giving formal or informal pre-application advice, potential applicants are directed to the online forms and told about the benefits of this approach, rather than automatically being sent paper copies of the form.

"So if you get a phone call, you know, you don't want to be saying to 'We'll send you out an application pack'. ... it's about saying 'OK what is it you want to do?', doing that initial assessment, 'OK I'll send all that information out to

you electronically with a link where you can do it, submit your application online' and again immediately that customer, the majority of customers will put the phone down thinking 'when I get home tonight, that's going to be in my inbox, I'll have a look at it, I can have a play around with it and I'll attempt [it]." (PP_Int_C)

Channel shift to online planning as a service does not just benefit the Planning Portal and a final tactic that the Account Managers use will be to review previous LPA success stories and attempt to quantify the saving in time or money that have been made. This approach can be taken to review different stages and stakeholder interactions throughout the planning application, consultation and determination process:

" we'll share best practice from other Authorities if their Parishes aren't online... we'll circulate business cases of savings from where Local Authorities are doing things electronically and have saved, saved time left, right and centre. We'll also work with them on invalidation and look at those areas for invalidation and say ...' Can we assess that and see what improvements we can make so that we resolve those invalidations?' Yeah we do a whole range of stuff, still, to overcome those barriers, to help them realise those efficiencies, to help them working more electronically and meeting the demands of today's customer that has a higher expectation that they're going to get electronic information." (PP_Int_C)

However, there are inevitably barriers to channel shift. Of these the two most commonly cited are financial restrictions in the LPA and the issues with perceived suitability of electronic devices (as against paper plans) for Planning Officer's site visits and for local consultations. Some Planning Portal staff do see the reluctance of individuals to use electronic devices to review plans as a generational issue, and expect that as a new cohort of planners and consultees arrives, then there will be more familiarity with working electronically and less reluctance to do so in the planning context. However, there remains a funding issue:

"I think it's a bit the culture of it. I think if you spoke to, say, younger people within the departments, you'll find that they'll use social media and technology in different ways to more senior Officers, um, and will be more open and willing to look at stuff electronically. And I think lots of them are doing it, they're just not doing the total assessment electronically. ...There's also that investment in technology at Local Authorities, so getting the right mobile devices to take onsite which comes at a cost. And of course at the moment

Local Authorities don't have money lying around, certainly for going out and buying more mobile devices..." (PP_Int_C)

86% of planning applications are now being made online via the Planning Portal (Chilcott, 2014b). Clearly this represents significant success in achieving channel shift. However, there is now some concern that eventually such growth will plateau and there will be some applicants who will never apply online, unless they are forced to:

"growth is still increasing but ... we are going to get to the point where it is really the paper citizen applicants, the ones that we've highlighted are pretty much never going to change their ways that we're left with." (PP_Int_A)

4.11.2 Channel shift and Stakeholder management in relation to KPI1 statistics

Whilst all stakeholder groups remain important to the Planning Portal staff, as a corporate strategy priorities have changed over the years as more challenging KPI1 targets have put more pressure on the Planning Portal to increase adoption rates in terms of the proportion of all applications made online.

The Portal strategy has been to focus communications, marketing and promotion activities to different stakeholder groups at different periods of time in order to increase adoption rates in those groups:

"my first job was to go round and recruit all the Local Planning Authorities to, you know, to accept applications from us... we really did focus a lot on Local Planning Authorities ... doing agent forums with them and things to try and promote online submission to their customers or their agents. And it was only latterly in the last three-and-a-half, let's say four years, that where we're actually said 'well wait a minute, we could push this so much more if we could start working with some of the larger corporates ... who are really quite important to us long-term" (PP_Int_F)

So the KPI1 targets are used in conjunction with an overall worldview assessment of the political, economic and social environment and seeing where the largest gains can be made to decide which markets or stakeholder groups to prioritise communications to over the next reporting period.

"we know what our target is in terms of our, in terms of our percentage of online applications and we would typically look at what we have, what we've done that works, what we've done that hasn't worked. But also you know, once a year usually, look at how the market has changed, what the external pressures are, so there's a big pressure on local authorities in terms of funding at the moment, and resources. So we've looked at elements like that,

we've thought about also looking at the applications statistics that we have. Looking at where potential growth is. So that now that we're so far up, if you like, in terms of the numbers, we're a long way on that curve if you like, we're trying to think about where the growth's going to come from. And sort of, a combination of all those things has led to um, to a revised strategy"
(PP_Int_A)

However, even within a stakeholder group there are opportunities for targeting effort. This has been especially important when finances are tight, both within the Planning Portal and in stakeholder groups, to allow maximum potential return from communications and marketing efforts. One interviewee described such an approach within the Smarter Planning project:

"with LPAs what we did was target the bigger ones ... try to encourage them to be pushing out messages about you know, about achieving Smarter Planning status with us. So we focussed on the top 50 LPAs...because ... we didn't have the resource to offer a service to everybody. But in the last 6 months, what we've done is to work with whoever wants to work with us..... and that's mainly because we did exhaust the top 50 you know, we've built up relationships with them, we were going in doing what we could possibly. If we didn't achieve something with them, then nine times out of ten it was down to their, the resource implications at their end you know, if they didn't, you know, they're very tight on staff at the moment..." (PP_Int_C)

However, all the staff interviewed expressed the understanding that all stakeholder groups were of importance to the Planning Portal from organisational point of view:

"our customers are our customers and they should all be treated... as equally important in terms of the customer relationship... and by customers I mean not only the applicants and agents but also the Local Authorities ... we shouldn't do anything to our service which makes it more difficult for any one customer group... it's important that the service works as best as it can for all of those different groups." (PP_Int_A)

The same interviewee expressed the understanding that the Government stakeholders – DCLG, PINS and the Welsh Assembly all want the planning process to work as quickly and simply as possible for applicants in order to support economic development.

Despite this strategic approach that all stakeholders are equal, from a personal role, interviewees were expected by Planning Portal management to have their own priorities:

"Researcher: Is there any feeling that some are more important than others?"
[laughter]

Interviewee: [laughter] I think it depends who you ask....So, we have people around the business who 'own' in inverted commas.....the relationship with different stakeholder groups. And for them, correctly, as, you know, as far as their role is concerned, they are the most important stakeholders for the business". (PP_Int_A)

4.12 Developing the Planning Portal website

4.12.1 Website developments over study period

The Planning Portal, and indeed the 1App form, are developing entities and there have been significant changes over the study period. Interestingly though, it has been difficult to produce a guide to the changes that have been made to them over the period of study as the Planning Portal website does not generally indicate the publication date of each page, and no central record of changes has been available from the Planning Portal. The table of developments given in Table 16 indicates major changes to the Planning Portal and online application forms over the period of study. It has been generated using the announcements made in the "News" (www.planningportal.gov.uk/news) and "Director's Blog" (<https://portaldirector.wordpress.com/>) sections of the Planning Portal website.

Blog date	Development/announcement
12 Nov 2014	Improvements to selection of address data
10 Nov 2014	2 millionth online application received on 5 November 2014
8 Oct 2014	86% of planning applications were submitted via the Portal in Q1 2014/15.
9 Sep 2014	Welsh Non-Material Amendments form goes live
19 June 2014	New LPA payment tool goes live
5 Mar 2013	English Non-Material Amendments form goes live
24 Oct 2012	Smarter Planning Initiative announced
19 Apr 2012	Functionality added 1App form allow upload of multiple documents simultaneously
1 Oct 2010	Closure of E-consultation hub
22 Oct 2010	Portal 2.0 developments
6 Apr 2009	1-Application forms first anniversary

Table 16: Selected developments to the Planning Portal online offering since 2009 as reported on Planning Portal Directors' Blog (<https://portaldirector.wordpress.com/>)

4.12.2 Change Management process

As described in Section 4.9.9, the Planning Portal website is hosted, developed, supported and managed in a complex IT environment, with different organisations being responsible for changes to different component. Funding for changes comes from different sources. There is some central funding from DCLG and spend is controlled by a Change

Management process. In addition some specific changes driven by changes in policy will be directly funded either by DCLG/PINS or by the Welsh Assembly according to the source.

Although a number of interviewees described a Change Management process within the Planning Portal, no documentation of that process has been identified and so Figure 16 is based on the descriptions provided by interviewees and is summarised below.

Planning Portal website changes may be prompted by:

- Policy changes
- Ideas for development from internal or external stakeholders
- Fixes required for identified bugs.

Each route will generally involve the creation of a Change Request, including a business case, which will be reviewed by Planning Portal senior management.

Requirements driven by policy changes are analysed by a Planning Portal Business Analyst who then raises a Change Request. "Recently there has been an expectation" (Chilcott, 2015a) that changes required due to policy changes will also be funded by central policy units such as PINS.

Ideas for development that come from internal or external stakeholders such as Local Planning Authorities or Corporate users, or via the Service Desk are written up by the Head of LPA Engagement or Head of Corporate Engagement as appropriate and sent to the relevant third-party software supplier for estimation of development costs. This information is included in a business case which forms part of a new Change Request. Bug-fixes for frequently occurring issues identified by the Service Desk are also handled in a similar way.

The Planning Portal management team review the relevant Change Request business cases and where they are approved, are returned to the suppliers for development and packaging. User Acceptance Testing is carried out by Planning Portal technical team staff.

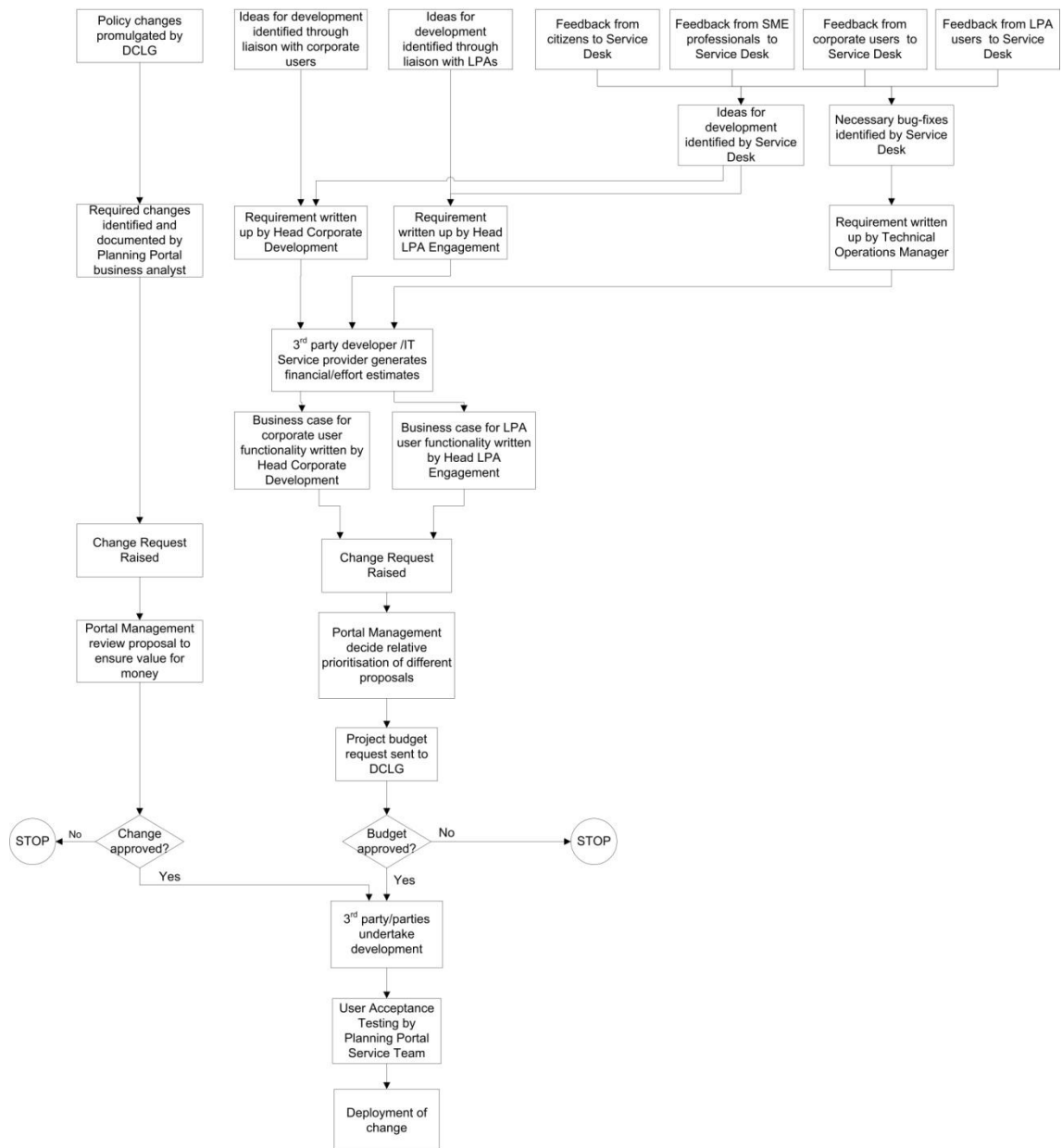


Figure 16: Change approval process derived from staff stakeholder interviews

4.12.3 Barriers to developing the Planning Portal website

There is a significant feeling with the Planning Portal staff that were interviewed that they understand the needs of their users, the issues that users face and what would make applying online easier for them. However the interviewees identified three primary barriers to introducing website changes to support these requirements: resourcing issues particularly financial; technical and support issues given the site is hosted by a third-party IT supplier; staff skills to make changes.

Whilst the staff interviewed were generally proud of the Portal and the success they had achieved over its lifetime, several expressed, often explicitly and certainly in tone of

voice, frustration and embarrassment that they were not able to address the concerns and issues of their users because of the barriers imposed on them.

"one of the, one of the major disappointments really... is that we haven't had the budget to develop the product like it should have developed to meet the customer needs. And I say that, it might sound silly because we're still, we've increased take-up every year. So there are obviously key benefits in the product... but at the same time, the team that we've got are very innovative and we, we're very customer led. It's how we work, that's how we've been successful. And that lack of budget has prevented us" (PP_Int_C)

"we tend to have the same stuff coming back again and again. And the frustration has been I guess, that we haven't had, haven't really had the time or the money or the technology to develop some of the stuff that we want to do." (PP_Int_D)

Staff are also aware that changes could help boost the KPI1 scores:

"We kept on saying 'look if you can upload more than one document at a time, that'll save an awful lot of people, an awful lot of people an awful lot of time and it'll make life easier for us and that will help boost the KPI1', you know, 'get more people to submit online' And it took us probably about three years to get the funding necessary out of the Government to do it." (PP_Int_F)

However, several interviewees mentioned that there was a significant back-log of items that they would wish to do but that the financial and political situation around ownership of the Portal meant that they had been unable to undertake as much development as they would have hoped. In fact one interviewee went as far as saying that they are deliberately not encouraging suggestions from users because they knew they were unlikely to be able to fulfil them:

"we're not really trying to encourage too much, too many development requests because we're just fed up with having to say 'No'. ...And so rather than risk alerting them to the fact that we can't make any changes, we keep schtum basically and that, that's putting in crudely but that's what we do." (PP_Int_F)

Technical and support issues have also been highlighted as an area preventing Planning Portal development. As described above, forms have been developed by, and have to be amended by third-party suppliers. Routine Planning Portal access to source code has not been allowed. Currently Support Desk staff are also fully occupied with user support

rather than developing/bug-fixing, as staff numbers have been reduced. However, although some of the staff have technical backgrounds, the current skills set required in their role is primarily in "soft skills" especially customer management and communication skills (although there is some need for understanding of XML, and Service Desk staff have started amending pdf forms themselves). Consequently, Planning Portal staff have neither the technical tools nor the specialist skills to make changes to the main website or online forms. This means that all changes to the main website and online forms have to be made by third-parties.

4.13 Chapter Summary

This chapter presented information gathered through semi-structured interviews with selected Planning Portal staff and from other public documents. It provides a wide-ranging review of the status of the Planning Portal at the time of the interviews (December 2014) and a brief update to significant changes in the four months between then and completion of this thesis.

Evidence is presented that the Planning Portal represents a very complex and unusual e-government case study – the Portal uses a single portal website to support a wide range of stakeholders with a variety of different experiences. These stakeholders cover Government-to-Government (G2G), Government-to-Business (G2B) and Government-to-Citizen (G2C) relationships, which are handled and promoted using different methods. The information provided and collated by the Portal is also highly unusual – it is very visual, involving the creation and submission of plans or drawings with almost all applications. These visual elements, collated by the Planning Portal as part of central government, go onto provide the basis of a highly visual and subjective human-made decision in a local government organisation.

Quantitative monitoring of the effectiveness of the Planning Portal service is via the KPI1 metric (percentage of all applications that are made online), and with a score of 86% in December 2014 it is clear that the Portal has been very successful. Continued growth over a lifetime of 14 years indicates that both strategic management, and service improvement, have generally been appropriate, despite challenges from reducing resources both staff and financial. However, with the announcement of a new public-private ownership of the Planning Portal it is unclear what the future will bring.

Chapter Five: Citizen Applicant Studies

This chapter reports the findings of two research phases focussed on the experiences and perceptions of citizens making planning applications in England and Wales. The first concentrated on citizens applying on paper, during spring-summer 2010, the second on citizens applying online via the Planning Portal a year later. The full results of these research phases were reported in unpublished reports for the Planning Portal: paper study: (Kneller, 2010), online study:(Kneller, 2012).

5.1 Purpose of the studies

The purpose of this phase of research was two-fold:

- To get feedback from recent citizen planning applicants on their experiences of, and feelings about, planning application methods, and to explore the factors that affect their choice of application method. The two studies are designed to provide direct comparison of paper and citizen applicants to answer the research questions 1 and 3:

RQ1: Can a single online service successfully provide a service to a wide range of different stakeholders?

RQ3: What are the factors that affect uptake of an online service in different user communities with different levels of experience of the same process on conventional channels?

- To understand the benefits and barriers that citizen applicants perceive of end-to-end online planning processes to provide evidence for Research Question RQ4, and to provide relevant advice for real-world practitioners:

RQ4: How does an online service support a human-made decision that is essentially both subjective and visual?

At the time of these research phases, the Planning Portal had particular interest in understanding the perceptions of citizens applicants in order to encourage uptake amongst non-users in this group and to improve the service for existing users. This interest provided a pragmatic opportunity for the researcher to study this user group, whilst using the support of the Planning Portal to potentially bolster response rates. Ideally the two phases would have

undertaken together, but as financial support was only available for the paper applicant elements of the survey initially, this was considered to be inappropriate at the time

5.1.1 Data scope of the studies

The scope of the paper applicants phase came from three particular sources, based around the Research Questions above:

- To collect both quantitative and qualitative data on the experiences of citizens applying for planning permission on paper
- To use additional qualitative data to provide further understanding of the choices such applicants make in developing and submitting applications to help explain the factors that impact on the choice of application method
- To use primarily quantitative data to analyse differences in usage, attitudes and perceptions between citizens of different groups – e.g. demographic characteristics or local authority type.

A mix of postal survey and semi-structured interview methods were proposed to provide the opportunity to collect this range of information. As the potential participants were all postal applicants and no electronic contact details were available, the only option was to use a postal survey.

The scope of the online applicants phase came from three particular sources, based around the Research Questions above:

- To collect both quantitative and qualitative data on the experiences of citizens applying for planning permission online using the Planning Portal application forms, both for academic purposes and for the Planning Portal practitioners to identify potential improvements and changes to the form for future development,
- To use additional quantitative and qualitative data to compare the perceptions and experiences of citizens who have made planning applications online with those who have applied on paper (using data gathered during the previous study in 2010),

A mix of survey and semi-structured interview methods were used to collect this range of information.

5.2 Methodology

5.2.1 Selection of the study population and methodology – paper applicants

The qualifying criteria were:

- individuals, over 18 years,
- who had recently submitted a planning application for a personal planning project.

The method of identifying a pool of potential study participants from those who had recently submitted a planning application is discussed in Chapter Three.

5.2.2 Selection of the study population and methodology – online applicants

The surveys were hosted on the SurveyMonkey survey website (www.surveymonkey.com). Three different surveys were issued, aimed at different audiences and with invitations to participate issued in different ways. Table 17 gives details.

Survey Name	Purpose	Audience	Invitation method
Online Applicants Survey	To investigate drivers for citizens to apply online. Provides a direct comparison to the 2010 paper-based applicants survey. Primarily for the purposes of this research.	Citizens who had made a recent, personal online planning application	By direct email to citizens on the Planning Portal mailing list
1App (Online Application) Form survey	To gather more detailed information on users' attitudes to the 1App form. Additional questions for Planning Portal purposes.	Citizens who had made a recent, personal online planning application	By direct email to citizens on the Planning Portal mailing list
Website Visitors survey	To gather information on the perceived usefulness of the information facilities provided on the Planning Portal website. Separate survey for Planning Portal purposes.	Website visitors – the primary area of interest was for citizens, but it was not possible to tell which category visitors fell into until they had completed the survey	Via a hyperlink on a news article on the Planning Portal website.

Table 17: Online citizens' surveys 2011

The surveys comprise a number of independent questions, together with a number of questions that either match the 2010 paper citizens survey (to allow comparison of responses between paper-based and online citizen applicants) or are common to surveys in this research phase to allow collection of information from a wider cohort.

Many questions were common to both the Online Applicants and 1App (Online Application form survey) surveys and these are reported here in an aggregated form. Responses from the website survey are not included unless specifically identified as such.

5.2.2.1 Online applicants survey:

A link to the survey webpage was emailed directly to recent applicants selected at random from a list provided by the Planning Portal of applicants who had agreed to be contacted further as part of the application process. The final survey questions are shown in Appendix J.

A pilot survey was issued to 191 participants. Following analysis of surveys returned from the pilot phase, the survey was issued essentially unchanged to a larger main phase group (270 participants).

Strict criteria were laid down to identify appropriate applications. The target participant group were individual citizens who had made personal planning applications via the 1App form on the Planning Portal website. Thus applications were analysed and the following groups were rejected:

- applications made on behalf of a business or other organisation (local authority, religious group, charity);
- applications made by a planning agent on behalf of a citizen;
- applications not made by citizens online via the Planning Portal 1App forms (identified during the analysis phase).

5.2.2.2 Website survey

The research comprised an online survey (via SurveyMonkey) run in two phases and attached to two different locations on the Planning Portal website. The link location was changed at the Planning Portal's request.

The survey was primarily aimed at citizens but there was no way of distinguishing this group from other communities through the survey invitation hence the survey included questions to allow the researcher to categorise respondents. This also allowed an additional opportunity for the research to look at differences between community groups. A copy of the survey questions is given in Appendix K. 162 valid responses were received (including responses from both citizen and professional groups) of which only 125 were sufficiently complete to be useful.

5.2.2.3 Detailed 1APP applicants survey:

The research comprised an online survey (via SurveyMonkey) for a two week period in August 2011. It was aimed at citizens who had recently submitted a personal planning application online via the Planning Portal and was designed to extract additional information on their opinions about the 1App form itself. However, there were a significant number of questions that were repeated from the general Online Applicants survey. The survey questions are given in Appendix L.

Potential survey respondents were identified from two sources:

- respondents to the Website Visitors survey who had said they were likely to submit an application soon and who were willing to complete another survey (13 invitations, 8 responses);
- a (further) list of online citizen applicants provided by the Planning Portal. All had also indicated that they were also content to receive additional mailings from the Planning Portal.

There were a total of 296 entries in the list provided for the study period. Once duplicate names (within the survey period) and names of individuals who had previously been invited to complete other surveys within this study had been removed, there were 256 potential participants in the study period. Of these, 186 were chosen at random and were emailed directly to take part in the survey. Only 32 responses (20%) were received from the two groups combined. After invalid responses were removed, 19 responses fell completely into the target audience of citizens who had made a recent online planning application, for themselves, for a personal planning project.

However, due to small response numbers, care should also be taken in assuming that this small group of respondents is truly representative of the population as a whole.

5.2.3 Telephone interview methodology – paper and online applicants

2010 Paper Applicants survey: Included in the survey pack issued to potential respondents was a reply slip inviting respondents to indicate whether they were willing to participate further in the study.

Semi-structured interviews were held with 12 participants to elicit more details about how and why participants behaved during the application process. The base questions are given in Appendix M.

Participants were chosen using a stratified sampling method to include both Internet user and non-user groups, and were selected at random from those who had made significant comments on the survey form (and had indicated that they were willing to participate further). It must therefore be noted that there will be some self-selection bias in the results. Semi-structured interviews were held with 2 participants in the pilot phase and 10 in the main phase. The interviews were designed to elicit more details about how and why participants behaved during the application process.

2011 Online Applicants survey: The Online Applicants survey also included a question asking for participants to include their email address if they were happy to participate in a follow-up telephone interview. Semi-structured interviews were held with 2 participants from the Online Applicants survey cohort and 2 from the 1App Survey. These numbers are disappointing given the numbers invited for interview (10 from the online applicants survey and 3 from the 1App survey). The interviews were designed to elicit more details about how participants behaved, and why, during the application process. The base questions are given in Appendix N. Participants were selected using the same stratified sampling method as above.

5.2.3.1 Reporting of findings

The remainder of this chapter discusses the results from the data collection and analysis. Responses to questions are aggregated and presented in summary form. These are supported by direct quotations from both survey and interview participants. Substantial additional information is reported in unpublished reports for the Planning Portal: paper study:(Kneller, 2010) online study: (Kneller, 2013a)

As stated above, questions common to both the Online Applicants and 1App (Online Application form) surveys are reported in a consolidated form and referred to as "combined online/1App surveys". Responses from the website survey are not included unless specifically identified as such.

5.3 Study findings

5.3.1 Survey response rates

Response rates for the four surveys are given in Table 18. Demographic details of the survey respondents and interviewees are given in Appendix O.

Survey type/date	Study Population	Invitations issued	Valid responses received
2010 Paper Citizens	50 (Pilot) 799 (Main phase)	50 (Pilot) 799 (Main phase)	123 (14.5%)
2011 Online Citizen Applicants	1153	461	75 (16.2%)
2011 1App form (Citizens)	-	199	19 (9.5%)
2011 Website visitors	Not applicable	Not applicable	162

Table 18: Citizen survey response rates

5.3.2 Respondents' Internet usage

For paper applicants, 95% of respondents were current Internet users (and hence were potential users of the Planning Portal online application service) but all had made their most recent planning application on paper. All respondents in the Online applicants and 1App surveys were known to be Internet users. However there were differences in the distribution of weekly usage. The modal category for the paper applicants who were Internet users was 1-5 hours Internet usage per week. For the combined online/1App surveys, the modal category was 16-20 hours per week.

5.3.3 Encouraging online applications

The 2010 survey for paper applicants asked what would encourage respondents to apply online. The responses were categorised into recurring themes as shown in Table 19.

Theme	Factor
Awareness	
	Awareness of the option to apply online
	Knowledge of how to apply online
Contact with LPA	
	Clearer application process
	Better council handling
	Faster responses/cheaper applications
Practicalities /1App form factors	
	Better template/clearer which template to use
	Ability to attach documents
	Improve handling of drawings/plans
	Make software available to help with plans
	Ability to Save application mid-way and return to it later
Information Resources	
	Better info/guidance
	Better links to LPA specific guidance
	Plain English/less jargon
	Live planning officer assistance
Ease of Use	
Other Responses	
	I can't due to Council demands
	If advised to...
	If I had a computer
	If unable to visit Council in person
	If no other alternative
	Nothing would encourage me
	I will try it next time

Table 19: Factors to encourage citizen paper applicants to apply online

The occurrence frequency of these responses are shown in Figure 17 ordered by factor as above. The four most common themes were “*improved handling of drawings and plans*”, “*ease of use*”, “*nothing would encourage me*” and “*awareness of the option to apply online*”.

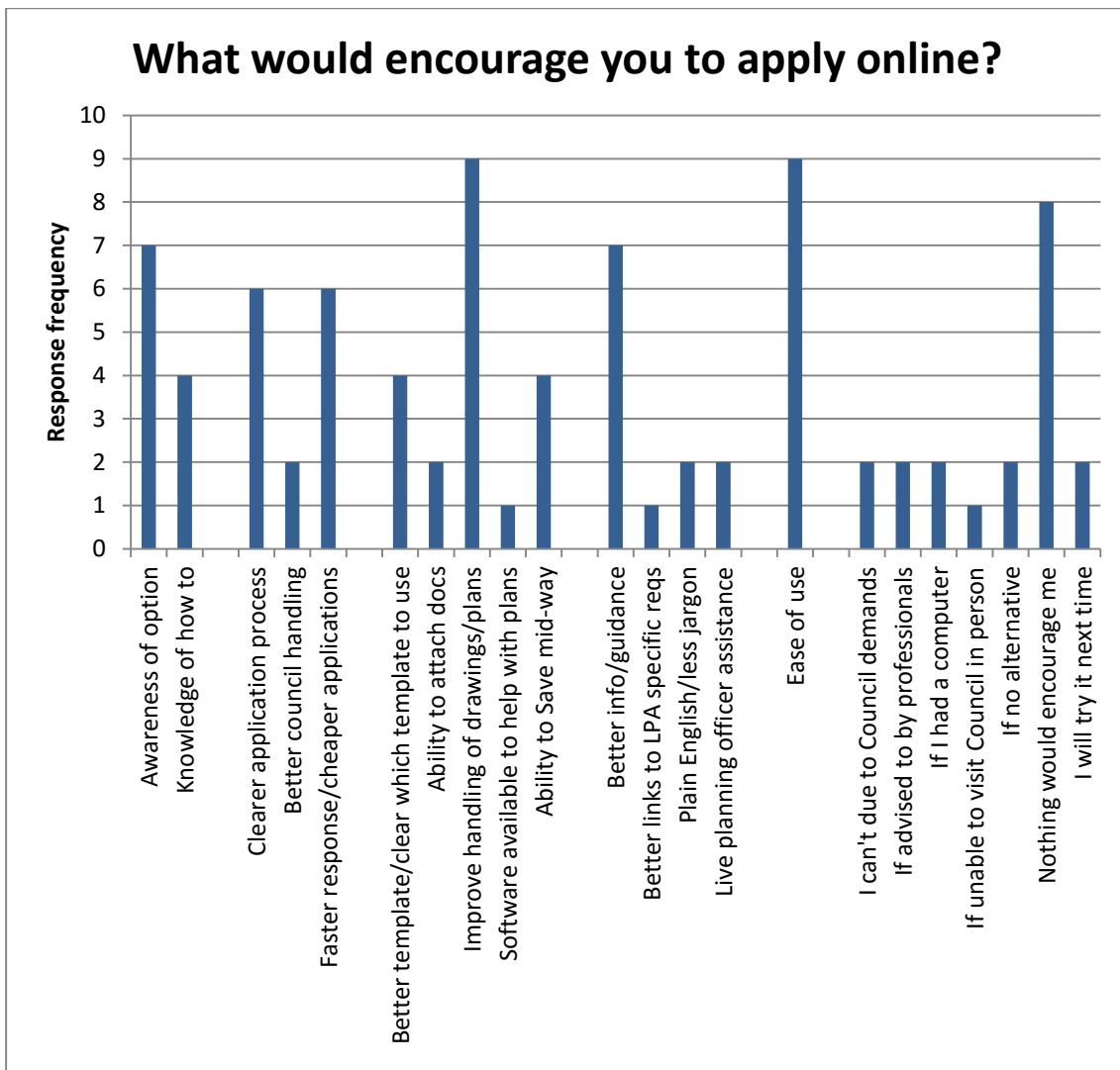


Figure 17: Encouraging citizen applicants to apply online

The responses suggest that many citizens do not perceive the online application process as easy to use. The processes around handling drawings and plans seem to be of particular concern. However many respondents simply replied “*Ease of use/easier to use*” without specifying what this meant or how improvements could be made. The next most frequent response was that nothing would convince respondents to apply online indicating that there is a significant number of citizens who will continue to use paper-based applications irrespective of any Planning Portal or LPA initiatives to increase engagement. On a more positive note, the fourth most frequent response was awareness of the ability to apply online, suggesting that increasing the visibility of the online applications may increase take up.

It should be noted that other comments below indicate that some LPAs are encouraging the use of paper forms over online applications. This may be the place for an increased visibility initiative to start.

The next three most common themes are: clearer application process, better information and guidance and faster response/cheaper application. This indicates that citizens may be feeling somewhat lost in the process and in need of more help. At this point, evidence presented in later sections suggests that they seem to turn to their local LPA for help rather than the Planning Portal, emphasising the key role that LPA staff have in promoting use of the online application service. It also became clear that respondents did not recognise that different parts of the application, submission and determination process are provided by different agencies:

"...a pack sent though from Gedling Borough, and they give you, sort of, the Planning Portal website... I can't remember... it's just, um, sort of, a link to it and you get sent to, I don't know if it's Gedling's own site, or whether it's sort of a joint site" (Cit_P_I_G)

However, some respondents indicate that some form of increased benefit either by fast-tracking online applications or via a reduction in application fees might increase take-up of online applications.

Themed sample comments from respondents are given below. It includes some detailed examples of how users feel the online process could be improved.

Awareness

"Being aware - would prefer to do online but not aware that this facility existed" (Cit_P_S)

"Knowledge of how to apply online" (Cit_P_S)

Clearer application process

"An easier to understand process" (Cit_P_S)

*"Reduce confusion between local authority link and planning portal - explain the link - how it works - how do LPAs know about the applications?"
(Cit_P_S)*

*"The planning process is too complicated. It's not suited to being put online."
(Cit_P_S)*

Faster responses/cheaper applications

"faster process time" (Cit_P_S)

"reduced costs/fees" (Cit_P_S)

Practicalities /1App form factors

"A faultless application template that would accept answers" (Cit_P_S)

"If all could be submitted online including payment" (Cit_P_S)

Improve handling of drawings/plans

"Ability to scan drawings" (Cit_P_S)

"CAD software not compatible to upload" (Cit_P_S)

"Make software available to help with plans" (Cit_P_S)

Better information / guidance

"Advice from Professional who uses internet/online service" (Cit_P_S)

"Live advice. More instructions, help icons next to each choice. Maybe decisions via a decision diagram." (Cit_P_S)

Ease of Use

"The process would need to be very clear along the way. No need to navigate away for help. Steps should be able to be completed in any order and process saved at any time. And 1-point contact - e.g. no need to then send a copy anywhere else." (Cit_P_S)

"User friendly forms, ability to save docs before submission, available software to upload photos and draw plans" (Cit_P_S)

41 respondents provided answers to the question "If you started to use the Planning Portal for information online but then submitted your planning application on paper, at what point did you change to paper and why?". This suggested that a significant number of citizens were prepared to use the Planning Portal for informational e-government services, but that they did not then carry this on to using the transactional services. Most of the responses were unique and did not fall into general categories, but there were five themes that received more than two responses: "Issues with drawings/plans" (9 responses), "Visit to council required" (5 responses), "No save feature available" (5 responses), "Couldn't find the right document" (4 responses), "Too difficult" (3 responses).

A similar question appeared in all three 2011 surveys (online applicants, 1App survey, website visitors). The results are shown in Figure 18. For citizens who were known to have applied online (the online applicants and 1App groups) the most common specific answer was "I would use it anyway". Of those who specified a change, the most common categories identified referred to "better plan drawing facilities" and "improved planning process". It should be noted that the website visitors group will include both citizen and professional users.

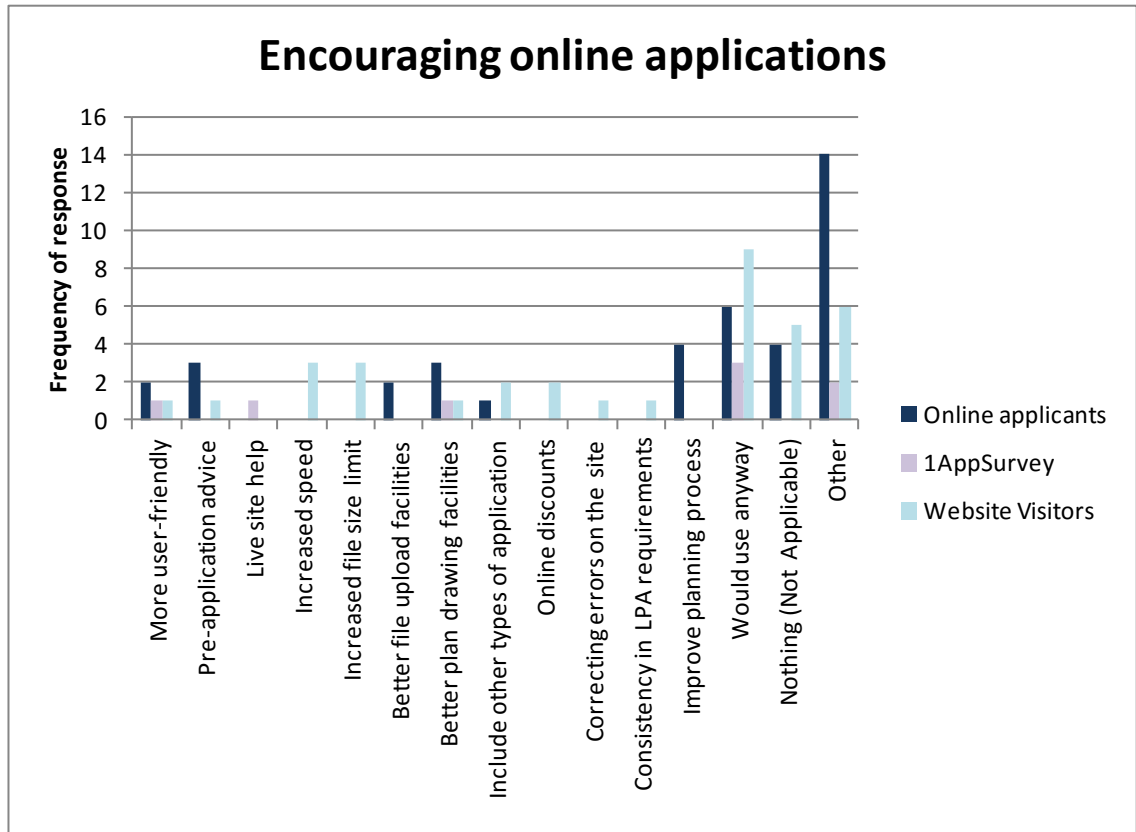


Figure 18: Encouraging online applications - 2011 surveys

5.3.4 Re-using online applications

All three 2011 surveys asked individuals who had previously applied online, if they would do so again. Figure 19 shows that the positive responses range from 80-94% of responses.

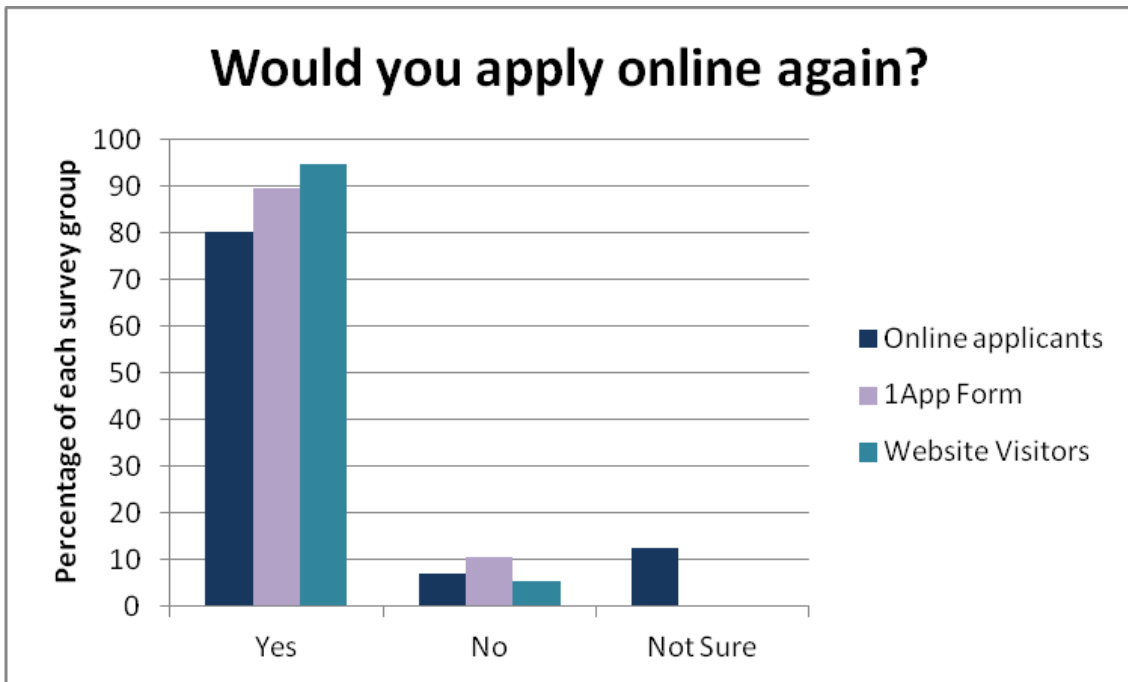


Figure 19: Online citizens - would you apply online again?

Respondents were then asked about the reasons they would (or would not) apply online again. This question was asked in all three surveys. The results are shown in Figure 20. Positive comments are shown above the axis; negative comments below. It can clearly be seen that there were many more positive comments than negative. Interestingly, there were frequently pairs of comments: Quick/too slow, LPA insisted/LPA won't accept online applications, Successful previous submission/ application failure.

A selection of comments is included below: The findings highlight the impact the LPAs and Planning Officers can have on the perception that citizens have of the online application service, and the important role that they have in influencing adoption.

"I'd have a better idea of the information required" (Cit_O_S)

"save paying an architect" (Cit_O_S)

"i was told i had too , then sent paper copies, so it doesnt seem to be my choice as to if I use online forms again. i have to do what i'n infomred even though its probably wrong" (Cit_O_S)

"Because it seems that Bromsgrove DC are not capable of receiving such plans" (Cit_O_S)

"I don't like having the application split, it has caused our documentation not to be matched to the application. Hand delivered documents not received by department" (Cit_O_S)

"It's a step in the right direction. But not sure we're confident enough to do so by ourselves if the application was a completely new one. Not Planning Portal's fault; Planning Officers are unwilling to speak English and always opt for legal and/or technical jargon". (Cit_O_S)

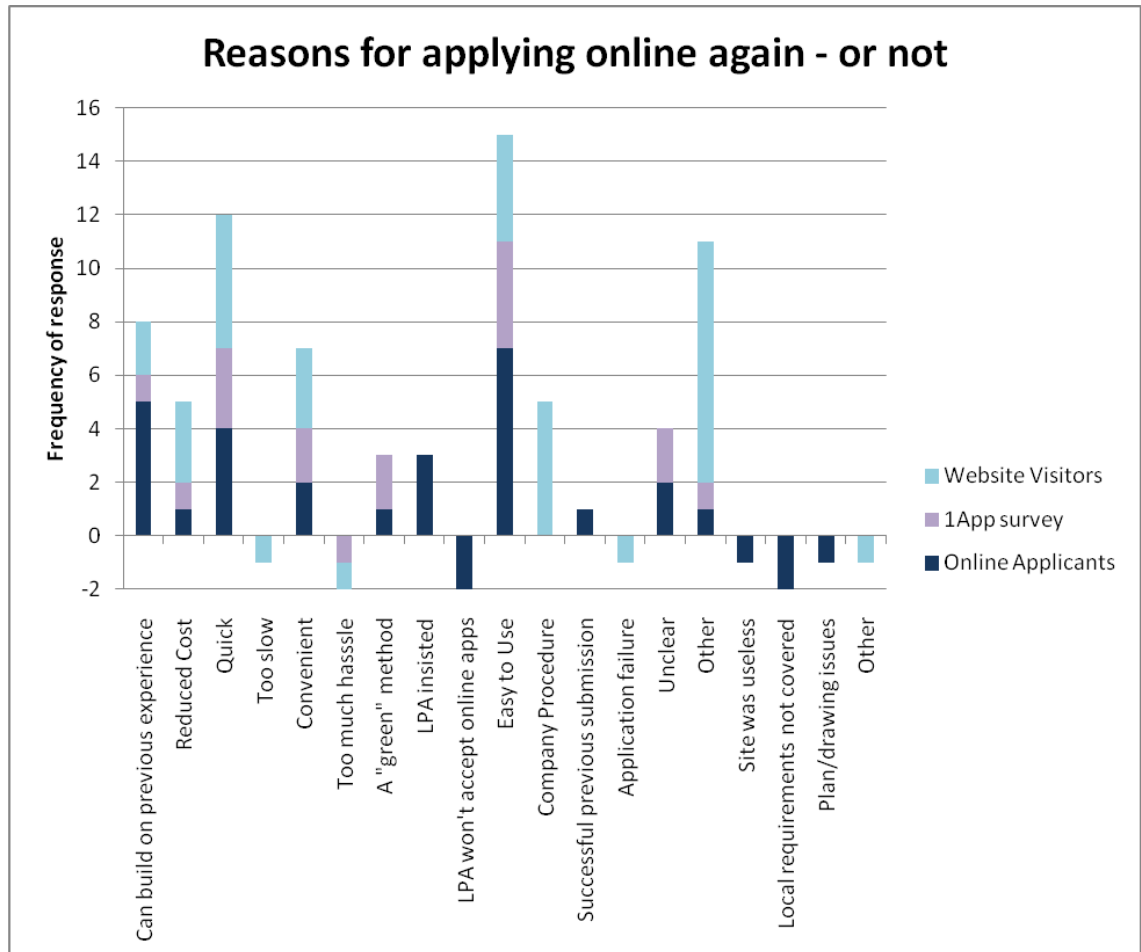


Figure 20: 2011 surveys - Reasons for (not) applying online again

5.3.5 Issues with the online application form (1App survey only)

In one of the additional questions asked of the 1App survey respondents (19 responses), online citizen applicants were asked what difficulties they had experienced with the 1App online application form. Respondents were permitted to provide as many responses as they wished and responses can be used to identify issues that could be managed through stakeholder engagement, and/or technical development of the service. 42% said they had no problems. 37% said they had issues with plans and drawings; 21% had issues with local LPA process issues. A selection of the comments is given below, presented verbatim (with spelling mistakes as submitted). It is clear that respondents have taken the opportunity to expand their interpretation of the question to cover issues around the planning process as well. All quotes below are taken just from the 1App survey.

"Floor plan was sent as a GIF but [LPA] only take PDFs Portal implied any were fine. Maybe its for many councils and others accept it, but if thats the case it sould advise you to check" (Cit_O_S)

"foms to fill even if I thought that have no relevance" (Cit_O_S)

"I had no difficulty at all, the procedure for application was very clear. I was careless about checking what I had submitted when I returned to the site a second time as it took 2 days to assemble all I needed" (Cit_O_S)

"I had not realised that change of use required full planning consent with plans etc. (my own fault for not reading the instructions fully)" (Cit_O_S)

"It was straight forward once you know what to do, but the system is typically bureaucratic and ponderous" (Cit_O_S)

"Knowing the details of the drawings required. The planning portal did not state that the site plan needed to be outlined in red. It did not state how detailed the location plans needed to be. What elevations were required, what scales are acceptable, what technical information is needed." (Cit_O_S)

"Providing plans. To the uninitiated, it's difficult to find information/examples for the layout of plans..in particular site/block/area plans. Information as to exactly what is needed of these plans is very ambiguous. I'm still not clear! As far as the 'written' part of the application is concerned...again, I didn't really understand how much detail is required" (Cit_O_S)

"Site plan and location plan. Hard to understand what is exactly required. Poorly explained on the website and the explanation notice is not helpful." (Cit_O_S)

"The application form seemed self explanatory, and was apparently completed in a relatively short time. However, I was then written to by the [LPA] requesting more information. Firstly the coloured outline of the plot owned and the 'development site' - this was not made clear on-line and for a small project involving internal alterations to a listed building was difficult to differentiate. Secondly the [LPA] requested a Heritage statement about the 'heritage asset' and the impact of the development upon it. This was not mentioned on-line and the [LPA] did not supply a pro-forma or model example. This therefore required additional correspondence with the [LPA] and further delay." (Cit_O_S)

"uploading plans, not right format" (Cit_O_S)

5.4 Attitudes to e-planning as a concept

This section of the paper and online surveys was used to investigate respondents' attitudes to online planning facilities as a concept. Respondents were asked to indicate how strongly they agreed or disagreed with a number of statements (1=Agree Strongly to 5=Disagree Strongly). A list of statements used in the survey is given in Appendix C. The statements are based on previous academic studies which investigate the uptake of other e-government services in the light of academic theories of technology adoption. These typically consider themes such as perceived ease of use, perceived usefulness, trust, image etc.

5.4.1.1 Results from paper applicants

Appendix P.1 details the means and modal responses for each statement for paper applicants; Appendix P.2 details the descriptive statistics for online citizen applicants. Figure 21 illustrates the responses graphically. It should be noted that the three statements shown in italics (and in red on the graphs) are negatively worded, so that higher scores are more favourable to online applications and/or the Planning Portal. The "reversed" mean scores are also shown in the table for more ready comparison.

2010 Paper applicants:

The statements that received the most positive responses were generally concerned with using online resources for gathering information about planning (mean: 1.85-2.28). The response to statements regarding online planning applications received more neutral responses (mean: 2.61-2.81). However, it should be noted that almost all responses fall to the positive side of neutral.

Indeed, after reversing scores for the three negatively worded statements, the only two statements that have an overall negative response are the two that refer to image:

- "People who use the Internet to gather information from the Planning Portal have more prestige than those who do not."
- "Interacting with the Planning Portal over the Internet enhances a person's social status"

This strongly suggests that there is a positive reaction to the idea of online planning facilities in principle, even from this cohort of respondents who have all applied on paper, but that the current facilities may not be converting this attitude into reality.

Due to very small number of non-Internet users in the survey sample, it is not possible to carry out a statistically meaningful analysis of differences in attitudes between Internet users and non-users.

2011 Online applicants:

For this cohort, there seems to be little distinction in the level of positive response between statements relating to using the Internet for gathering information and those relating to online planning applications. Almost all responses fall to the positive side of neutral (i.e. mean less than 3).

Indeed, after reversing scores for the three negatively worded statements, the only two statements that have an overall negative response (mean greater than 3) are the two that refer to image.

In comparing the results from this survey of online applicants with those from the 2010 survey of paper applicants, there appears to be a relatively consistent pattern, with almost all statements receiving a less positive response (i.e. a higher score) from the paper applicants. Indeed allowing for the reverse wording, only one statement receives more agreement from the paper applicants: "The content of the Planning Portal website would be useless for me" although the difference between the two years is small.

There is a further contrast with the results from the 2010 survey: the largest differences between the 2010 and 2011 surveys (with the paper applicants being less positive) are those which refer to online applications:

- "I think online planning application forms would provide a valuable service for me"
- "I would use an online planning application service"
- "The online planning application forms would enable me to complete applications more quickly"

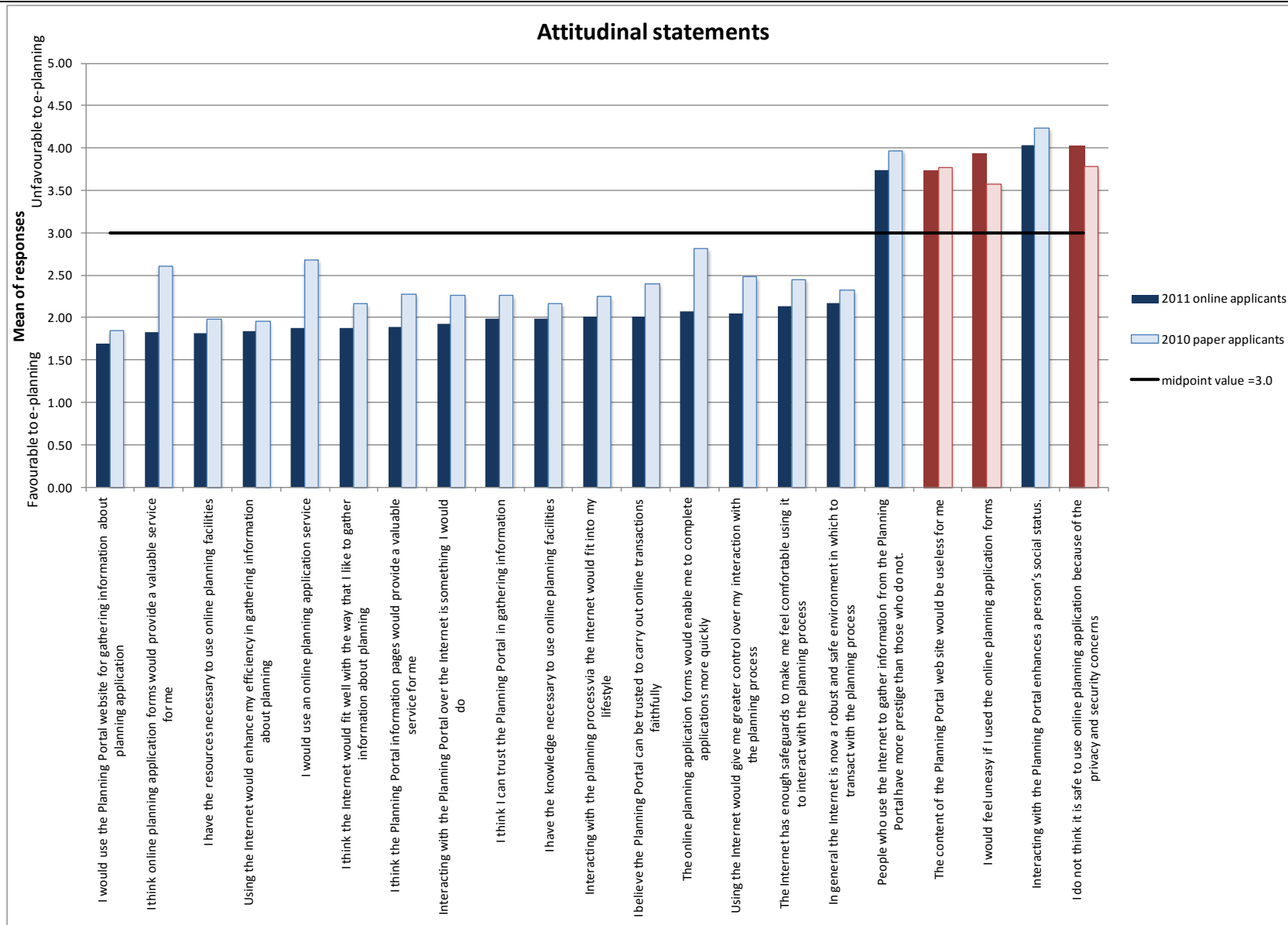


Figure 21: Comparing attitudes of paper and online citizen applicants to e-planning

5.5 Themes from telephone interviews

Telephone interviews were conducted with survey respondents in both paper and online applicant phases. The base questions for these interviews are given in Appendices M and N respectively. Similar themes were elicited from the two sets of interviews, and these are reflected in both the survey responses and the anecdotal evidence from Planning Portal staff reported in Chapter Four.

Both sets of interviewees valued an opportunity to get pre-application advice from the LPA. This is understandable as citizens generally have less experience of the planning application process, and potentially need more assistance and support in the application process than other user groups. However, the local application requirements mean that the advice given on the Planning Portal can only be generic. This is a source of frustration for potential applicants:

"I decided that it would be appropriate to just get in touch with the Council to find out whether planning permission or, you know, the relevant permission was required....So I then got in contact with the Arboricultural Officer...who I had a long discussion with over the phone about the principle you know what I was trying to do and why." (Cit_P_I_J)

"But they all say that you need to check your local council website and so there's not really a lot of point in doing anything" (Cit_O_I_B)

"I think the problem really was that all the, all the queries that I made of the Interactive House, said "Seek advice". So it wasn't enormously helpful. But I could see if, if you were coming in at a lower level and saying "I want to put a radiator in", it might have answered those questions." (Cit_O_I_D)

Many respondents felt that as they were unfamiliar with the application process and/or the form they needed to use, they wanted more thinking time and felt that they could not complete the online application form in one sitting. Many were simply unaware that this facility already existed and defaulted to applying on paper. Two interviewees talked about “decoupling” completion of the application form from the process of collating all the associated materials.

"there's no element of techno-fear here, it's just that ... putting pen to paper has a certain deliberation element about it that perhaps doing something on screen doesn't." (Cit_O_I_B)

“but being able to, kind of, have it all in front of me, prepare it all and if I can do it on paper, I can be, kind of, I can go through it ten times, know that I’ve got three copies sat there, and feel very happy that I’ve completed it ... so that I’m happy with it... there’s several threads that need to go together ... I really wanted it to be done offline....decouples the process being able to print it out, means you’ve no longer got, kind of, a cumbersome file that someone’s going to have a problem with on their computer that you haven’t had on yours, if you see what I mean.” (Cit_O_I_D)

*“You know, it’s comforting knowing that I’ve filled in the form. It’s got my signature on it. I’ve put the drawings together, I know that nothing is missing.”
– (Cit_P_I_C)*

The plans and drawings required for applications caused issues, particularly for online applicants:

"And then I had to get the drawings, I had to go online and make drawings using an online system which is so crude" (Cit_O_I_A)

*"I'm not sure if it was misunderstanding on my part or again the clarity of what's required. I had, it says on there about, you've got to provide the work you're having done, the site, and then you've got to outline the property, and all sorts of things... I can't remember, if that's the name of it, a location plan, but it says what I required was, I had to get a surveyor to do a special drawing which wasn't made clear within the process or by the contractor."
(Cit_O_I_B)*

"I was a bit sort of, disappointed that I had to submit these drawings and things it was very, very well, in fact I sent, sent them by Royal post because I couldn't get I couldn't send any further information online because of course the thing had gone in." (Cit_O_I_C)

Some interviewees felt that they needed some help in completing the forms but that this could have been done online and might have encouraged them to apply that way:

"I think if there was some fairly straight-forward explanatory links to, so that you know if you had any questions about a particular question that you had a link to a page that would tell you in straightforward terms the answers they were

"...a tick-list would be great, and then if you build a tick-list with hyperlinks... it's auto-linked and you know, you just Ctrl click and bang it takes you straight there." (Cit_P_I_K)

5.6 Limitations of the study

Firstly, the two citizen research phases were undertaken a year apart in 2010 and 2011. As the Planning Portal online service is an operational service under continuous development, there were changes in the website during this period and hence differences in results from the two study groups cannot be definitely attributed to differences in those groups. There may be influences from changes in the website.

The data collection phase of the online applicants research was tightly time-bound due to pressures from the Planning Portal and so only one main phase data collection period was possible. Consequently, the numbers of responses to the 1App survey in particular were small – only 19 valid responses (9.5% of sample). The numbers for the other two surveys were 75 (16.2%) and 162 (self-selecting sample). Thus the validity of these is potentially limited.

The key limitation of the studies though was the self-selecting nature of the surveys and interviews, which threatened the external validity of the studies. However, triangulation within and between the two citizen studies and with the anecdotal evidence from the Planning Portal interviews provides some confidence that the findings are relevant.

5.7 Chapter Summary

Findings from this study indicate that for those citizens that do apply online, the service is successful with at least an 80% re-use intention. However, of the paper applicants, 85% were Internet users and so potential online applicants, but they had all applied on paper. (RQ1). Whilst there was no direct evidence for engagement of citizen stakeholders from the Planning Portal, the potential importance of engaging with LPA Planning Officers to promote the service highlighted the need that citizens felt to contact their LPA before application. (In fact at the time of the study the Planning Portal had identified this lack of engagement and was planning to use the result of the study phase to inform promotional and engagement activities) (RQ2,3).

The difficulty that citizen applicants found in identifying, creating and submitting plans and drawings meant that they considered this to be a significant area in which improvement would encourage online application. However, simple lack of awareness of the service was also identified as something that had stopped citizens applying online.

Chapter Six now presents a comparative study into the perceptions and experiences of a group of Professional planning applicants.

Chapter Six: SME Professional Applicant Study

This chapter reports the findings of the research phase focussed on planning professionals working in Small-Medium Enterprises (SMEs) in England and Wales, conducted during Spring 2013. The aim of the phase was to investigate opinions and experiences, with regard to e-planning from professional agents working for small businesses involved in the planning application process. The research was designed primarily to provide a direct comparison with the Citizens' studies reported in Chapter Five, although it did include a small number of additional questions at the request of the Planning Portal. The research phase and methodology was approved by the Plymouth Business School Ethics Committee. A preliminary analysis of the results is reported in a paper presented at the European, Mediterranean & Middle Eastern Conference on Information Systems 2013 conference (Kneller, 2013b). The full results of this research phase were reported in an unpublished report for the Planning Portal (Kneller, 2013a).

6.1 Purpose of this study phase

The purpose of this phase of research was two-fold:

- To get feedback from recent planning applicants working as professionals in the planning arena on their experiences of and feelings about planning application methods, and to explore the factors that affect the choice of application method.

This provides direct comparison with the citizen data reported in Chapter Five to answer the research questions 1 and 3:

RQ1: Can a single online service successfully provide a service to a wide range of different stakeholders?

RQ3: What are the factors that affect uptake of an online service in different user communities with different levels of experience of the same process on conventional channels?

- To understand the benefits and barriers that SME agents perceive of end-to-end online planning processes to provide evidence for Research Question RQ4, RQ4: How does an online service support a human-made decision that is essentially both subjective and visual? and to provide relevant advice for real-world practitioners:

As described in Chapter Four, the Planning Portal have direct professional relationships with the larger corporate planning organisations through the Account Managers and this provides a feedback channel for such users to raise issues and concerns about the service. However, there is no analogous relationship with the large number of smaller professional applicant organisations. Instead this has been handled via workshops and agent fora, although as reported in Chapter Four these have recently been less frequent due to resource limitations. As a consequence at the time of this research phase, the Planning Portal had a particular interest in the opinions of professional working in such smaller organisations and in particular in sole practitioners. This interest provided a pragmatic opportunity for the researcher to study this user group, whilst using the support of the Planning Portal to potentially bolster response rates.

6.2 Methodology

6.2.1 Scope of the research

The scope of the research phase came from three particular sources, based around the Research Questions above:

- To collect both quantitative and qualitative data on the experiences of SME professionals to provide direct comparison with results from the previous citizens studies (reported in Chapter Five),
- To use additional qualitative data to provide further understanding of the choices SME professionals make in developing and submitting applications, both paper and online. This data was gathered to help explain the factors that impact on the choice of application method,
- To use qualitative data to provide understanding of how SME professionals see their relationship with other stakeholders in the Planning application and determination process – particularly the Planning Portal and LPAs.

A mix of postal/online survey and semi-structured interview methods were proposed to provide the opportunity to collect this range of information.

6.2.1.1 Definition of SME organisations

The European Commission (European Commission (EC), undated), referring to a definition which took effect at the beginning of 2005, divides organisations into three

categories: micro, small and medium enterprises based on three criteria: number of employees, annual turnover and annual balance sheet total. As no information was gathered about the financial circumstances of the participants' organisations, they are categorized here by workforce size alone. The EC uses the following criteria:

Staff headcount	Organisation category
<10	Micro
<50	Small
<250	Medium

Table 20: European Commission definitions of SME organisations

Thus technically the EC defines SME organisations as those with fewer than 250 employees. This encompassed rather larger organisations than the researcher and the Planning Portal wished to involve in the study, the primary focus being on very small organisations and sole practitioners. Thus a choice was made to use just the Micro and Small definitions in this study, covering organisation with less than 50 employees. For convenience, in this thesis these will continue to be referred to as SME organisations.

6.2.1.2 Selection of the study population and methodology

As with the citizens survey, the most effective way of identifying potential study participants was to identify those who had recently submitted a planning application. Thus the qualifying criteria were:

- individuals, over 18 years,
- who were working in a professional capacity for an organisation, of fewer than 50 employees, in the planning area,
- and who had recently submitted a planning application on behalf of a client.

To identify such individuals, all planning applications made in a single week in February 2013 to the same 101 LPAs chosen at random for the citizens' study were analysed (see Appendix A). The same LPAs were used for multiple studies in order to provide some consistency of study environment between phases, to help reduce impact from other unknown factors outside the control of the researcher. The applications were viewed using the information published on the public planning register on each LPA website and each application was categorised in two ways:

- who was making the application
- how the application was made.

Applications to 11 LPAs could not be analysed either to there being insufficient information available on the register to classify the applications, or because the terms and conditions of use of the website explicitly excluded use for research purposes. A total of 2795 applications were analysed and the summary results are shown below.

Agent for citizen client	Agent for business client	Agent for other /unknown client	Citizen	Organisation/ business/ charity etc	Unknown	TOTAL
1373	562	125	462	224	49	2795

Online	Paper	Other/ unknown	TOTAL
1228	1277	290	2795

Table 21: Results of analysis of all applications to target LPAs in a single week (2013)

A more detailed analysis of these results is given in Section 6.3.1 below

6.2.1.3 Sampling methodology

The 2795 applications identified in the target week were then reviewed and applications not meeting the criteria as listed above were rejected (i.e. those made by citizens, by organisations/businesses/charities etc and by applicants who could not be classified). Applications were also filtered so that where an applicant had submitted multiple applications in the study week, the applicant was only included once in the target study population. This process left a potential study population of:

- 821 online applicants, and
- 812 paper or unknown method applicants.

Note at this stage it was generally not possible to identify the size of organisation represented by the applicant and so this filtering had to be done once survey responses had been received.

6.2.1.4 Survey methodology

A pilot survey instrument was designed to collate a range of both qualitative information around professionals' perceptions and experiences of e-planning, and quantitative information on the same attitude statements as used in the citizens' survey. A mix of qualitative and quantitative demographic questions were also included.

The research phase was under both time and cost limitations and so where an email contact address for a potential participant was available, an online survey was used. Where

this was not available, a paper version of the same survey was posted to the potential participant with a cover letter and postage-paid return envelope.

Pilot surveys were issued to around 50 applicants in each of the paper and online applicant groups (from the 5 Local Planning Authorities selected at random for the Citizens' pilot surveys). Following analysis of the pilot responses, four additional attitude statements relevant to the application environment of professional applicants were added to the paper survey, and one removed ("*Interacting with the Planning Portal over the Internet is something I would do*").

New attitude statement	Source:
I understand what information each question on the planning application form requires	New statement based on (Goodhue & Thompson, 1995)
The decision whether to use the online planning application forms is entirely within my control	Adapted from Hung <i>et al.</i> , (2006)
I would be able to use online planning applications even if there was no one around to help me	Adapted from Hung <i>et al.</i> , (2006)
I frequently deal with unusual or non-routine planning applications	New statement based on (Goodhue & Thompson, 1995)

Table 22: Additional statements for main phase SME survey

However, due to an oversight, these changes were not included in the online version of the main phase survey. A copy of the paper version of the main phase survey is available at Appendix Q.

Anticipating a return rate of approximately 10%, main phase surveys were issued to further applicants selected at random from the sample populations (excluding the pilot LPAs) to give a total of 500 in each of the paper and online survey groups. Invitees were allowed approximately 3 weeks to return their surveys to the researcher. Direct postage costs of the survey were funded by the Planning Portal.

6.2.1.5 Interview Methodology

In addition to the surveys, a number of interviews with survey respondents were proposed in the research design. Participants were selected from those who had indicated in their survey response that they were willing to be involved further. A stratified random sampling methodology (Saunders *et al.*, 2009, p.240) was used: potential interviewees were first categorised according to a number of attributes: professional role, number and method of application, business size. Ten potential interviewees were then selected at random to cover a broad range of the categories. As individuals had been selected from a group that had volunteered to be further involved in the research, there will inevitably be some (self-

)selection bias in the results. The number of invitations issued was limited by time available in the research period. These interviews were designed to elicit more details about how and why participants behaved as they did during the application process. The base questions are given in Appendix R. As with interviews in previously reported phases, verbatim transcripts were created and sent to participants for review and further comment. Consent forms had been sent with interview invitations and post-interview, but participants were asked to confirm that they were still happy for their input to be used, noting that since permission had already been given, that this would be assumed if no response was received.

6.2.1.6 Reporting of findings

The remainder of this chapter discusses the results from the data collection and analysis. Responses to questions are presented in summary form. These are supported by direct quotations from both survey and interview participants. Substantial additional information is reported in Kneller (2013a).

6.3 Study findings

6.3.1 Full application analysis

In order to identify a potential population of research participants, all applications made to 90 LPAs in a single week were analysed. It was not possible to include the information from the remaining 11 LPAs from the citizens' study. Table 21 shows the results of categorising all the applications according to applicant type and application method.

Agents made nearly 74% of the 2795 applications analysed, with agent applications on behalf of citizens (49%) being over twice as common as any other type. Citizens submitted just 16.5% of the applications. Figure 22 illustrates the differences between applicant type groups.

The overall split between applications methods was much more even (including all applicant categories) – with 44% being made online and 46% on paper in total. In relation to RQ1, the Planning Portal online service is used by all identified stakeholder groups. However, the relative percentages were less than those quoted by the Planning Portal at the time of study – 60.7% for 2012-13 (Kendall, 2013b).

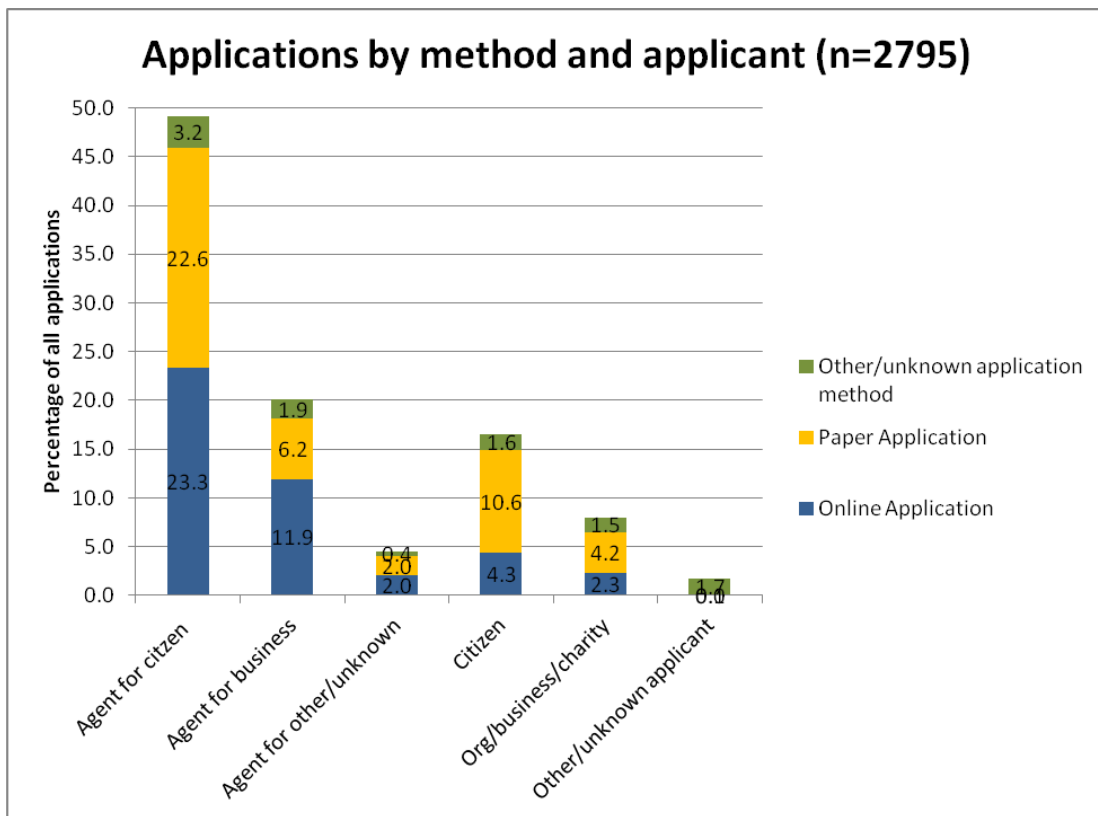


Figure 22: Applications to 90 LPAs categorised by application method and applicant type

Removing the applications in the unknown method and unknown applicant leaves 2503 applications. When the percentages of each applicant group using each method are analysed for these remaining applications (see Figure 23), overall the split between paper and online applications is very close to being 50%-50% (as in the TOTAL columns). However, there are clear differences between groups. Citizens and those in the organisation/business/charity group both submit much more than 50% of their applications on paper. For agents' applications, for applications made on behalf of citizens and the other/unknown group, the results are again close to a 50-50 split. However, the online application method is much more common for applications by agents on behalf of business clients.

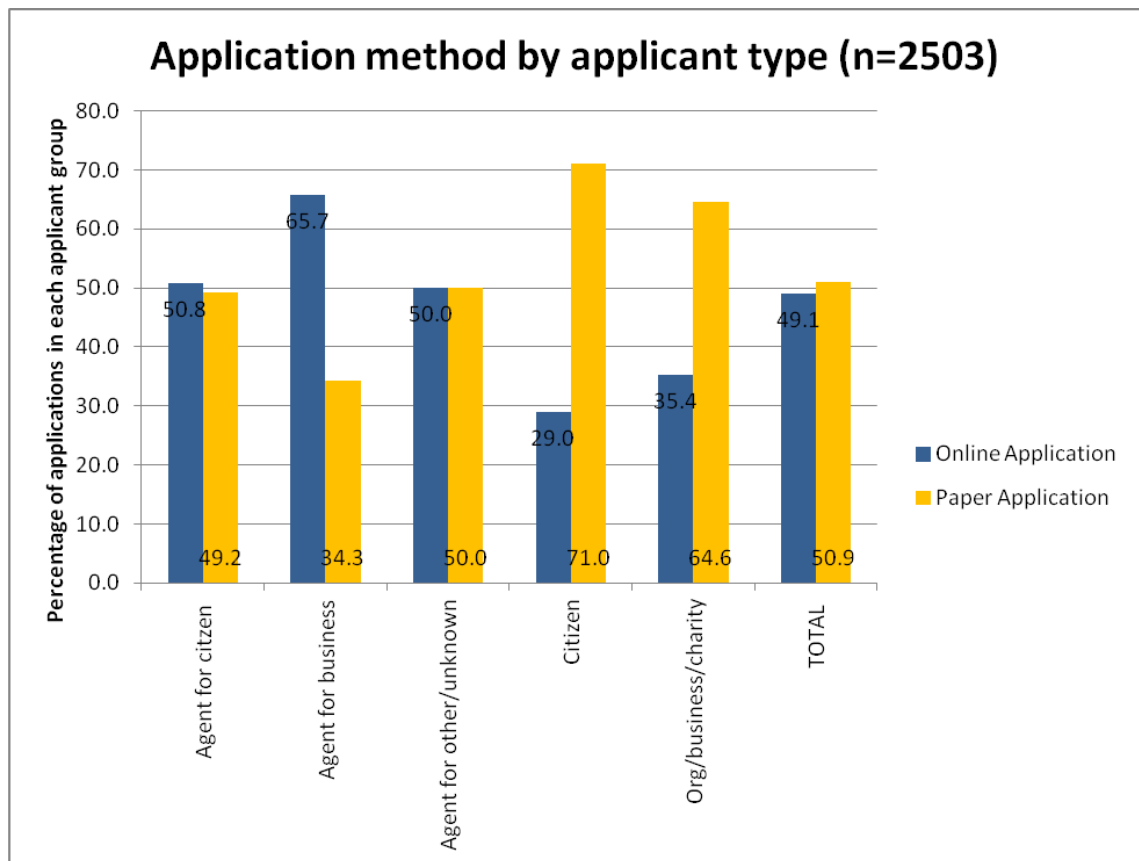


Figure 23: Application method by applicant type

RQ3 investigates the factors that affect uptake of the online services in different user communities. In response to this, two statistical analyses (chi-squared tests) were undertaken. The first looked at differences between the three main applicant groups i.e. between all agent applications (as a whole) and the citizen and the organisation/business/charity categories.

Proposition SME₁: The application method used is affected by the user's stakeholder group.

The second looked at the significance of the differences within the agents group, varied by client type (citizen, business, other/unknown).

Proposition SME₂: The application method used by agents is affected by the client's stakeholder group.

The first analysis (between agents, citizens and organisations) shows a statistically significant result indicating that there is a moderate association between the application method and applicant type so that differences between the groups were unlikely to have occurred by chance. The cross-tab table is given below.

The Chi-square analysis shows a statistically highly significant result ($\chi^2(2) = 105.31$, $p = 0.000$, Cramer's $V = 0.205$) indicating that there is a moderate association between the variable and the differences between the groups was unlikely to have occurred by chance.

ApplicationMethod * ApplicantType Crosstabulation Count

	ApplicationMethod	ApplicantType			Total
		Agent	Citizen	Org/business/charity	
	Online	1043	121	64	1228
	Paper	862	296	117	1275
	Total	1905	417	181	2503

Table 23: Cross-tab table for Application Method and Applicant Type

For the second analysis, looking at closer at the differences within the agents group, although the results indicated that there is a significant statistical relationship between the client type and the application method used, the relationship is less strong (lesser effect size) than for the first analysis ($\chi^2(2) = 33.85$, $p = 0.000$, Cramer's $V = 0.133$).

ApplicationMethod * ApplicantType Crosstabulation Count

	ApplicationMethod	ApplicantType			Total
		Agent for Business	Agent for Citizen	Agent for other/unknown	
	Online	334	652	57	1043
	Paper	174	631	57	862
	Total	508	1283	114	1905

Table 24: Cross-tab table for Application Method and Agent Application type

Thus at the time of the study, the Planning Portal online service supported all types of users but was particularly well used in the Professionals (agents) Stakeholder group (RQ1).

6.3.2 Main phase survey response rate

Following removal from the target population of applicants that were not confirmed as agents and duplicate applications by the same agent, a total of 1633 individual agents were included in the target population. As project resources were limited, a limit of 500 paper and 500 email survey invitations was set. 500 email invitations (to an online survey hosted on SurveyMonkey www.surveymonkey.com) were sent to agents who it was known had

applied online and for whom an email address was available. 500 postal invitations and paper surveys were sent to agents who it was known had applied on paper. (Note that although individuals had been identified as using a particular method in this stage, this did not necessarily represent their usual method of application, simply that this was how they had applied on the first application found in the analysis of applications). Invitees were selected from the two categories at random from an alphabetised list.

The responses rates for this survey were less than 12% overall, low but typical of the surveys in this study. They are detailed in Table 25 below.

Application Method	Unique Population	Invitations Issued	Valid Surveys Returned	% valid response	% of population
Paper/Unknown	812	500	59	11.8%	7.27%
Online	821	500	59	11.8%	7.19%
TOTAL	1633	1000	118	11.8%	7.22%

Table 25: SME Agent survey response rates

6.3.3 Interview responses

Ten invitations for interview were issued in total, with only five resulting in successful surveys. This number was limited by time available in the research period. However, further invitations would only have resulted in duplication of response in categories already covered and would not have widened the research scope.

Table 26 shows the details of those individuals who participated in the interviews, and illustrates that of the five interviewees, 2 applied 100% on paper, two 100% online, and one using both methods. Telephone interviews lasting 23-36 minutes were held by appointment as arranged with these participants. The base questions for these interviews are given in Appendix R.

Participant ID	Role	Business size (employees)	Applications in previous year	Applic'n method	Age range
SME interviewee A	Architect, Planning agent	1	5	100% paper	45-54
SME interviewee B	Planning agent, planning consultancy	20-49	50	100% online	25-34
SME interviewee C	Surveyor	1	24	100% online	35-44
SME interviewee D	Planning Agent	10-19	8	15% paper, 85% online	55-64
SME interviewee E	Planning Agent	1	50	100% paper	45-54

Table 26: Details of interview participants

6.3.4 Pen Pictures of interviewees

Pen pictures of the five interviewees are given below to illustrate the range of experiences and applications processes that can be used by SME agents.

6.3.4.1 Participant A (SME_I_A)

Participant A is a female architect, working as a sole practitioner. She has approximately 20 years experience, including about ten years for a larger architectural company in London working "in a more typical way", but for the last ten years has worked as a sole practitioner on specialist, bespoke projects.

She always submits planning applications on paper, with approximately 5 submitted in the last year. These are predominantly full and householder applications for domestic projects, often also involving listed building consents. She predominantly submits to just two LPAs.

Although she has previously worked with Computer Aided Design (CAD) software and often conducts other business electronically by email and social media, she prefers to conduct her current projects on paper. This is partly due to concerns about how scale drawings are handled at the LPA but also about the visceral reaction to her specialist work. She feels that where projects are more specialist or more contentious, supplementing hand-drawn plans with sketches and illustrations of a more artistic nature help both clients and planners understand the context and impact of a proposal. She clearly has strongly held personal beliefs about the values of the artistic side of architecture as well as its more technical nature.

She also believes while most individuals in the LPAs that she deals with are helpful and willing to enter into discussion, that those discussions are hampered by a general lack of interest and understanding of architecture and the built environment as a wider context. She feels that each application is treated as a separate building project rather than considering it in the wider context of the local built environment.

6.3.4.2 Participant B (SME_I_B)

Participant B works as a planning agent and in planning consultancy for a small renewable energy company. She has worked in this capacity for over a year and has submitted around 50 applications in that time. These applications are generally for Solar PV and Biomass projects from domestic to utility scale, across the UK and internationally. All her

applications are done online via the Planning Portal. She considers herself "a child of the digital age" and online application is most natural to her. Although there are issues with the 1App form for her – much of the form is irrelevant due to the nature of the projects she manages, she knows the forms well enough now to manage the application and third-party specialist contractors to work around the issues. She has some feeling that a form more dedicated to the growing renewable type of application would be of benefit. She also expressed the view that there would be little opportunity for her to take advantage of mobile functionality in submitting planning applications. Overall, however, she is a real advocate of the Planning Portal and online planning.

6.3.4.3 Participant C (SME_I_C)

Participant C is a surveyor working as sole practitioner on primarily residential and small commercial projects, submitting approximately 24 applications in the last year, all of which were online. Around 5 LPAs were involved.

Although trained in traditional drawing techniques, following a Planning Portal presentation, he now produces drawings via Computer Aided Design software and finds it easy to submit online. He finds it frustrating if he has to go back to paper for applications types that are not available online.

He recognises the different (sub-conscious) effect that hand-drawn and CAD-produced drawings can have on the viewer and will return to hand-drawing for "tricky" or contentious projects, but will scan them and submit electronically. He prefers to work with third-party specialists who also work electronically to simplify the submission process.

He submits all applications from his home office. He has tried submitting an application from his mobile phone without great satisfaction, and does not feel that submitting via a mobile application would work for him, although he recognises that it might be useful for simpler projects.

He finds the "one-size-fits-all" 1App form a little frustrating in that there can be a lot of questions irrelevant for his type of applications, and would prefer that the online form could adapt itself based on previous answers e.g. by blanking out irrelevant questions.

He does not always contact the relevant LPA prior to submission, but will always contact them as decision day approaches to try and intercept any issues. He notes that some LPAs are now reluctant to reveal direct contact details of their Planning Officers.

6.3.4.4 Participant D (SME_I_D)

Participant D is a partner in a small Planning Consultancy business covering a substantial number of Local Authorities, personally working as a planning agent. He has 26 years experience in planning and now also has responsibility within the business for Professional Standards.

He has submitted around 8 applications in the last 12 months of which he estimates that 15% were on paper and 85% online. It seems he would prefer to always apply online if the facilities were available and is somewhat disparaging of his colleagues who insist on always applying on paper. However, some of the demand for paper application is also client-led.

He is a great advocate of online planning and appreciates the changes and development that the Planning Portal has undergone in recent years. In fact he suggests that the Planning Portal and 1App form are now sufficiently mature. He notes that complaints from his colleagues about the Planning Portal and 1App form have dropped substantially recently. He furthermore suggests that focus should switch to improving the Appeals application facilities and procedures.

However, when pushed, there are still changes to the 1App form that he would like to see, especially the ability to easily omit or to mark irrelevant sections as not applicable. The 5MB file size limit on attached documents is also an issue.

He considers that there may be scope for using mobile devices for applications, but feels that currently the mobile communications technology in his area is not robust enough to support it.

He will often, but not always, have pre-application discussions with the LPA, the decision being based upon LPA charges and personal experience of the attitude of the LPA to pre-application advice, especially how seriously the LPA appears to approach this process.

He suggests that the number of applications that his company are now submitting on behalf clients is decreasing, as they are starting to submit applications for themselves. The focus is now more on the advice and consultancy area. Where they do submit an application on behalf of a client, payment is always the responsibility of the client. It is their company policy never to pay a client's application fees for them.

6.3.4.5 Participant E (SME_I_E)

Participant E is a building technician and planning agent working for the last 20 years as a sole practitioner, covering a large number of LPAs. He has submitted around 50 applications in the last year all of which are on paper. He downloads application forms from the LA websites and then works on paper. He does not have a computer in his business premises, and produces plans and drawings by hand. His applications are predominantly householder with a small number of small commercial projects.

He gains business solely by word-of-mouth and clearly prides himself on the standards of his work and his professional integrity. He greatly values the professional relationships he has developed with many staff in local LPAs and is frustrated by some LPAs moving away from a personal service and making it harder for him to contact planning departments and Planning Officers direct.

He gets information from a number of sources – including the Planning Portal website (at home), from the Local Authority and from technical regulations of which he has paper copies. Completing the applications forms does not seem to present any problems for him, but he is frustrated about the lack of consistency in how Local Authorities handle validation and processing of applications.

The following sections review findings from both qualitative and quantitative sections of the survey, aggregated with comments from the stakeholder interviews.

6.3.5 Size of organisations responding to SME agents survey

This research phase was planned to be focussed on SME agents (defined for this research as employing fewer than 50 employees) who are not currently individually supported by Planning Portal Account Managers, other than via group events such as user fora. However, in general, until the survey responses were returned, it was not possible to identify whether the organisations that the applicants worked for fell in to such a category.

Figure 24 shows the distribution of organisation size from the 118 valid returned surveys. 92.3% are within the SME criteria used for this study and 69% were from companies with 5 or fewer employees.

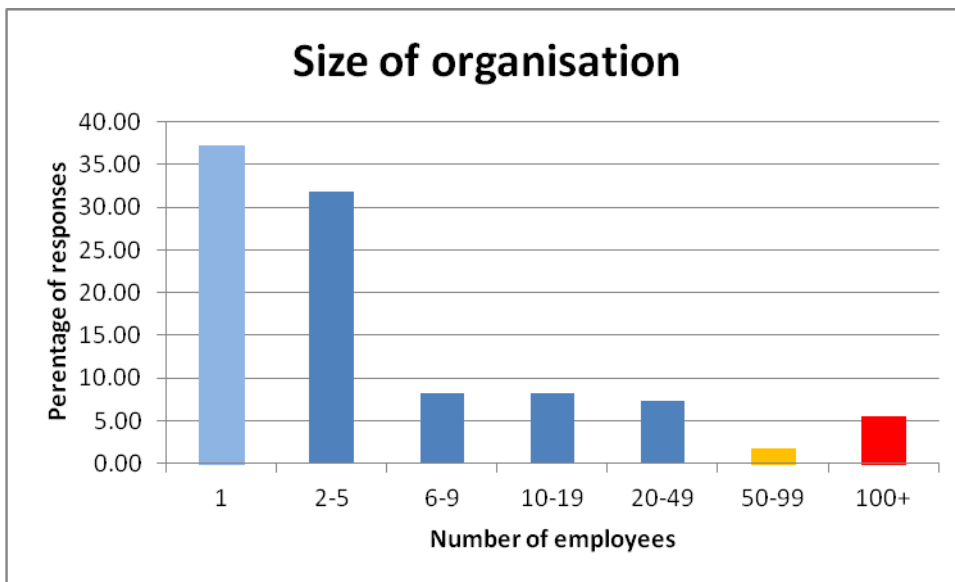


Figure 24: Size of responding agent organisations (by employee)

(Blue = micro-entity, Yellow= Small, Red= Medium enterprises as defined using workforce size in (European Commission, undated))

Responses from the 7.3% of responses outside the validity criteria for this study were then removed from the analysis and the remainder of this chapter refers to responses from the remaining 110 usable responses.

6.3.6 Demographics of SME respondents

A full description of the demographics of the respondents is given in Appendix S.

By far the most common professional role for respondents was architect (48%), with planning agent as the next most common (24%). The group was also overwhelmingly male (73%). The modal age group was 45-54 years (26% of respondents) and a further 36% were in the three categories over 55 years. Figure 25 shows that the most common period of professional engagement in planning was 36-40 years, so this cohort of respondents have significant experience in the planning sector.

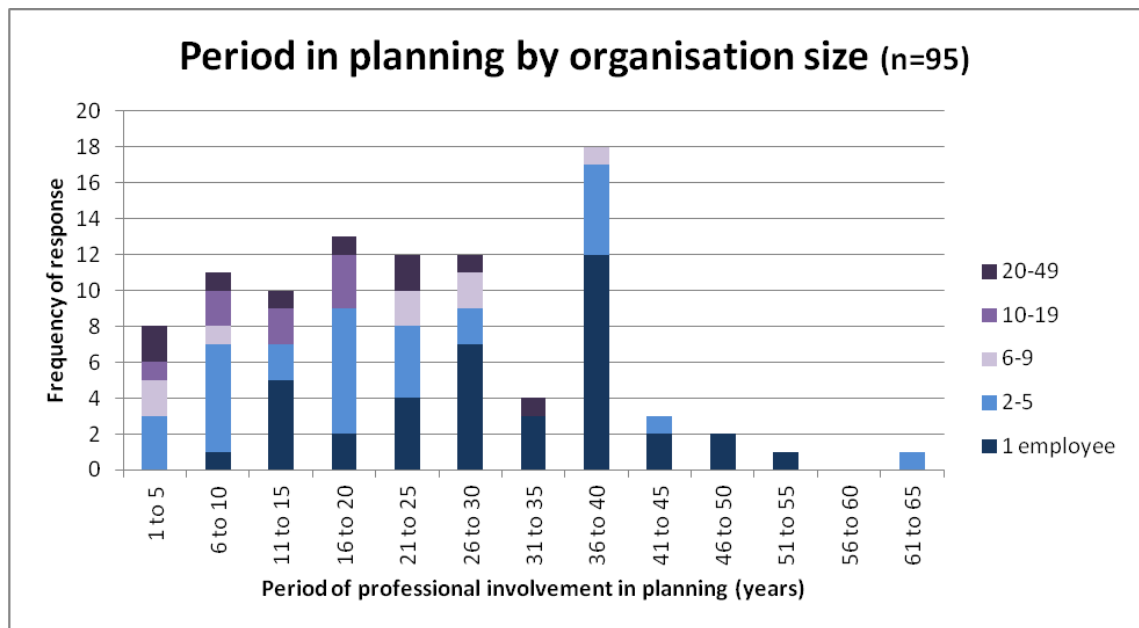


Figure 25: Period of respondents' professional planning involvement by organisation size

It is not possible to tell without further investigation of the professions nationally, across England and Wales, if this demographic distribution is representative of the planning professionals population as a whole. Alternatively it may be a feature caused by the self-selecting nature of the survey respondents: from the age distribution many respondents will be at or nearing retirement age. It is possible that either their years of professional experience have given them stronger feelings about the topic and so are more likely to respond, or possibly they are not working full-time and may therefore feel that they have time to respond. In contrast, those in the younger categories are likely to be in the earlier stages of their career and may feel that they are unable to contribute either through lack of experience or feeling that they are not willing or able to respond "on behalf of" their employer. Nonetheless the responses of this cohort of respondents provide valuable insight into their own personal experiences.

6.3.7 Planning application history of SME respondents

When asked to estimate how many planning applications they had made in the previous 12 months, respondents' replies ranged from 2 (an architectural technician in an organisation of 20-49 employees) to 250+ (a property developer with 40+ years experience working in a company of 2-5 employees).

The distribution of responses is shown in Figure 26 (note that the higher values are shown in larger 5 range bands for convenience).

Over 75% of responses were in the bands covering the range up to 49 applications (approximating to 1 application per working week or fewer) and the highest frequencies are in the lowest categories. The mean value is just over 36 applications in the previous 12 months.

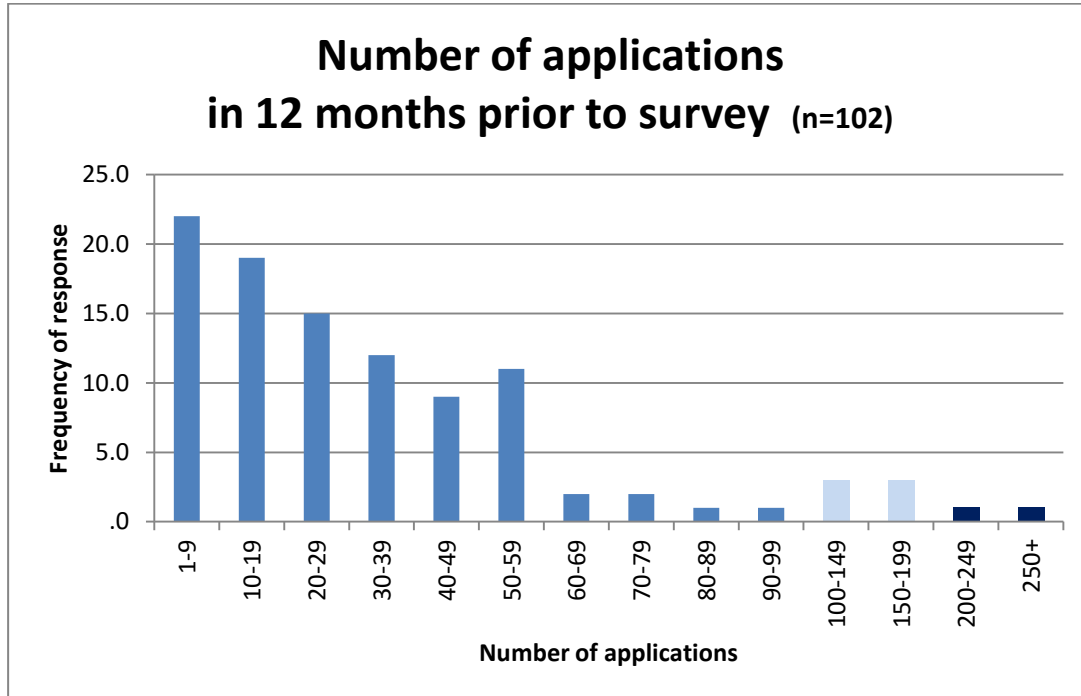


Figure 26: SME respondents' volume of planning applications

6.3.7.1 Applications Methods used by SME respondents

To provide quantitative answers to RQ1, respondents were asked what method(s) they used to submit applications over the previous 12 months by indicating what percentage of their applications they submitted on paper, on downloaded forms, online or by another method.

However, respondents could not be forced to make the values total 100% when completing the survey. A number of respondents had values close to 100% but were either too high or too low. High values often seemed to be "double-counting" full/householder applications with associated listed building or conservation area consents (and using different application methods), but as this assumption could not be made, these cases are not included in the analysis shown below.

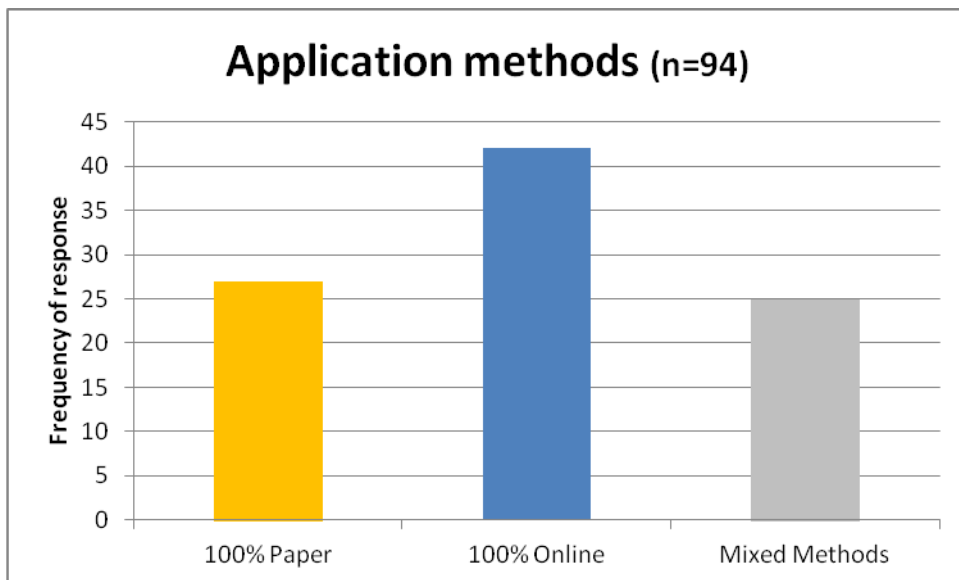


Figure 27: SME Professionals' 12-month application methods

Figure 27 shows the split of application method(s) used by each respondent, where it could be identified – three primary categories were used: 100% online application, 100% paper application, mixed methods (sometimes online, sometime on paper). Note that those who responded "on paper forms downloaded from Internet, then printed" are included in the "Paper" category. There were approximately 1.5 times more "100% online" than either of the other two categories, and those who had ever applied online (either 100% or mixed methods) account for 72% of all respondents. In terms of RQ1, the service is used by a considerable proportion of SME Professional applicant stakeholder group.

It should be noted that for around 13% of the respondents in the "Mixed Methods" group, the respondent submits predominantly online (80%+ of their applications), but also submits a small number of applications on paper. Comments from a later survey question asking why respondents used a mixture of methods indicated two primary reasons: that the application type that they needed to submit was not yet online, and that the Planning Portal services limited supporting documents to be uploaded to 5 Megabytes file size, meaning that applications for larger developments could not be fully submitted online:

"Generally always use the portal. NMA applications to date had to be by paper." (SME_S)

"Certain applications like non material amendments cannot be done on the portal so have no alternative but to use paper." (SME_S)

"All applications submitted via Planning Portal but due to size limit restrictions documents have to be submitted via CD or hard copy"(SME_S)

"Used paper application if the attachments were much too large to upload to the Portal" (SME_S)

The reasons given for using a mixture of application methods were categorised and the full list of categories found was:

- LPA requires paper application
- Application type was not online
- File size restrictions
- Reliability of application method (quoted for both paper and online applications)
- Cost saving
- Desire to speak to LPA pre-application
- Reduced requirement to print application documents
- Personal agent or client choice
- Speed of application (quoted for both online and paper applications)
- Simplicity/convenience of application (quoted for both online and paper applications)

Of these factors, a number relate to constructs identified in the TAM, DOI and UTUAT models, e.g. speed, perceived convenience, perceived simplicity. However, the two pragmatic factors – file size limitations and non-availability of specific online forms are entirely practical considerations and are reflected in the Planning Portal comments in Chapter Nine.

However, it should be noted that actual number of respondents in each group are small and results may not be generalizable for the agents group as a whole.

6.3.7.2 Factors affecting application methods

To further the analysis, Figure 28 illustrates which application methods are used by professional at different stages in their career. For this cohort, no professional with more than 45 years experience had applied online in the 12 months prior to the survey, although this should not be generalized to the SME population as whole without further investigation. This suggests that age and/or years of experience might be factors in determining uptake of the online service (RQ3). Additional survey questions investigating these potential relationships are reported below.

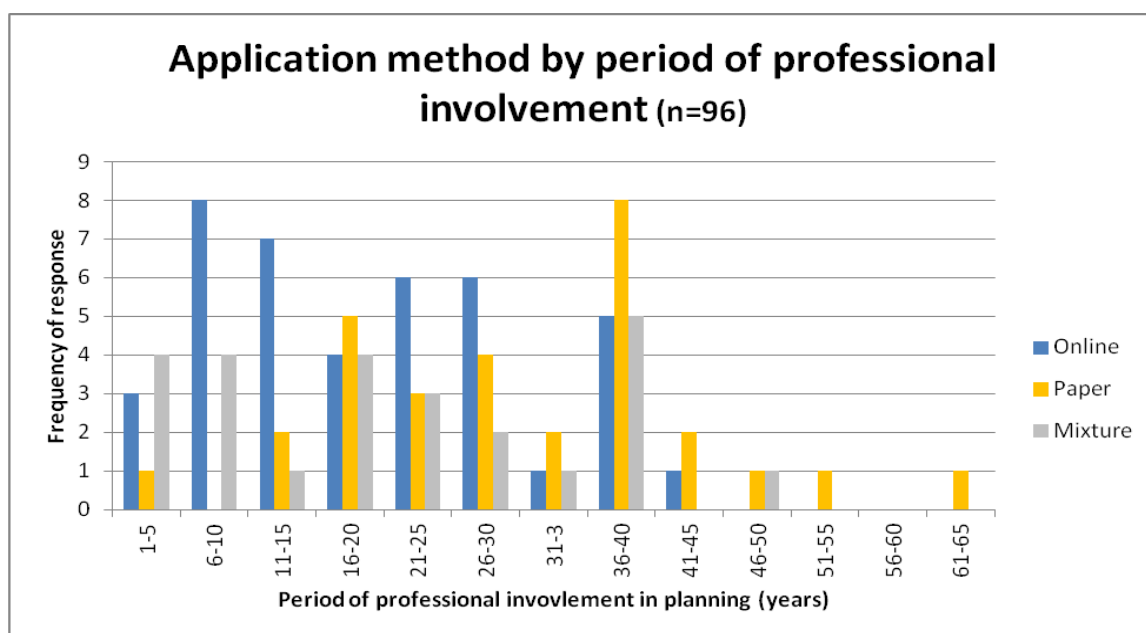


Figure 28: SME application method by period of professional involvement

The survey data was also analysed to review what other factors might influence the application methods used. Figure 29 shows an analysis of applications method by application volume for responses where both pieces of information were available. Paper applications only appear in the first three categories, although the numbers of responses in the higher categories are very small.

Proposition SME₃: The chosen application method is affected by the volume of application a professional applicant makes.

Taking just the first three categories (lowest numbers of applications and where all three application types appear), a statistical analysis (cross-tabulation and Chi-Square analysis) of these results was undertaken (Table 27).

The results indicated that there is a statistically significant relationship between the number of applications made and the application method used, ($\chi^2(4) = 9.659$, $p = 0.047$, Cramer's $V = 0.246$).

		Applications In 12 Months			Total
		1-19	20-39	40-59	
Application Method	Mixed	8	10	1	19
	Online	14	11	9	34
	Paper	17	4	6	27
Total		39	25	17	80

Table 27: Effect of application volume on application method

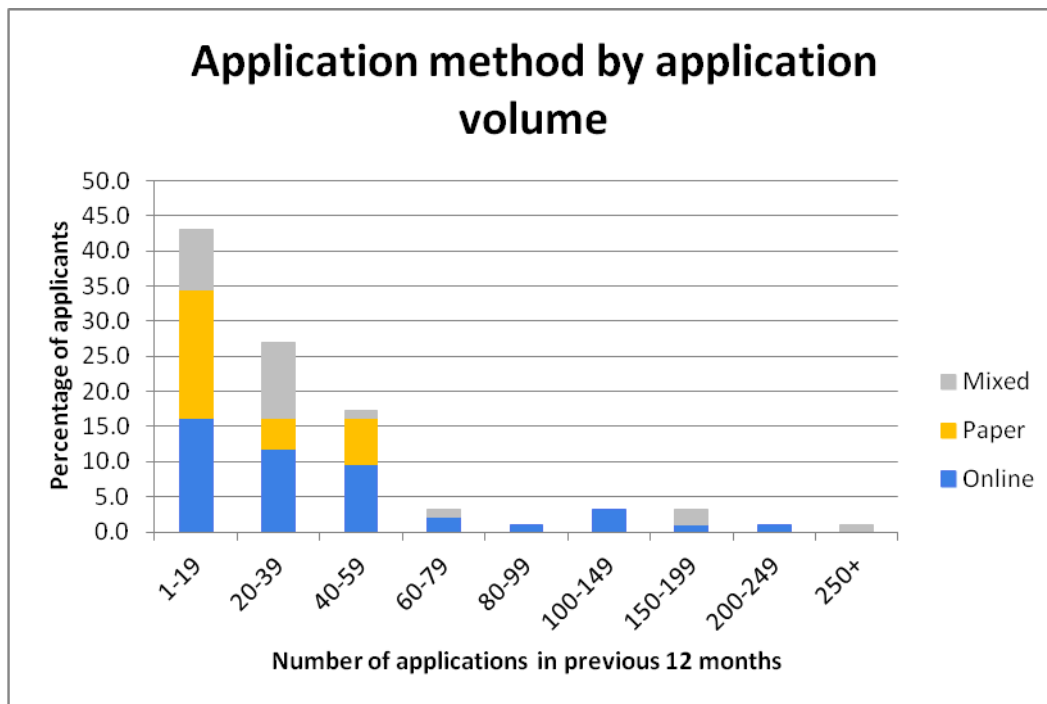


Figure 29: SME application method by application volume

Further tests were undertaken to identify any potential relationships between the application method and a number of other variables:

Proposition SME₄: The chosen application method is affected by Applicant age

Proposition SME₅: The chosen application method is affected by the applicant's length of professional experience (years) in planning

Proposition SME₆: The chosen application method is affected by applicant's gender

Proposition SME₇: The chosen application method is affected by organisation size.

Due to the relatively small sample size, even having re-categorised the results into broader groupings, the assumptions required for validity of the Chi-squared test were not met for the tests against age, experience and organisation size and the results were unreliable. The results obtained are summarised in Appendix T.

However, a strong relationship was found between application method and gender, ($\chi^2(2) = 11.919$, $p = 0.03$, Cramer's $V = 0.352$) with a stronger effect size than identified for either of the applicant type tests.

	Gender		Total
	Female	Male	
Mixed	4	17	21
Application Method Online	12	4	16
Paper	30	29	59
Total	46	50	96

Table 28: Effect of gender on application method

This research can offer no real explanation for this result, or even identify if this is true of the population generally or if it is merely characteristic of this particular cohort.

6.3.8 Benefits and disadvantages of applicants' chosen application methods

Survey participants were asked what they perceived to be the benefits and disadvantages of the planning application methods that they had chosen. This information was requested to help support the analysis around RQ1, RQ2 and RQ3.

Figure 30 and Table 29 show the received responses grouped by application method. Some categories, such as speed, simplicity, and ease of collation and review appear as benefits stated by both online/mixed methods and paper. In Figure 30, responses from paper applicants are shown below the horizontal axis, those from online and mixed method applicants are above the axis.

Overall the responses were dominated by those referring to the speed of online applications and the cost savings in not having to print. Increased speed of application reflects the aspects of Perceived Usefulness (TAM) and Relative Advantage (DOI) via the statement *"The online planning application forms would enable me to complete applications more quickly"*. The relationship of cost savings to theoretical constructs are more difficult to categorize. Possibly this will refer again to DOI's Relative Advantage (RA). The Planning Portal provides both informational and transactional services: the attitude statements used in this study have used RA to look at perceived efficiency gains in gathering information developed for use in this study refer to efficiency in gather information about the planning (application) process. However, it may have been more appropriate to word these attitude statements to look at the impact of RA in terms of submitting transactional applications.

In the light of RQ1 and RQ3, of particular importance is the frequent response from paper applicants who said simply that this is their preferred way of working. There was a feeling from both the survey and, in particular, some telephone interviews that these are

often individuals who feel that there is an art to creating plans and drawings for planning applications and the skill of producing hand-drawn plans and illustrations is of great importance to them. Survey comments included *"They are hand prepared and far more accurate than computer. Gives individual satisfaction. The art is being lost of producing hand design and personal presentation. Computer design is the "same" throughout."* and *"Prefer more tangible media"*. These aspects are not considered by the literature discussed in Chapter Two.

Applicants were also asked about the disadvantages of their chosen application methods. 45% of comments from online applicants and 63% of comments from paper applicants said there were no disadvantages. Only 8% of comments from mixed method applicants said the same. This suggests that regular online and paper applicants are very happy with their chosen methods, and creating channel shift amongst paper applicants may now be a challenge (RQ1). However, some disadvantages were identified, in particular the cost and/or wastage of paper involved in making the required multiple copies of drawings for paper applications (both from paper and mixed method applicants). File size restrictions were also an important factor for online applicants. Mixed Method applicants also mentioned the slowness of paper applications as a disadvantage.

These drawbacks are recognised by the Planning Portal and are used, as described in Chapter Four, to promote the benefits on online planning.

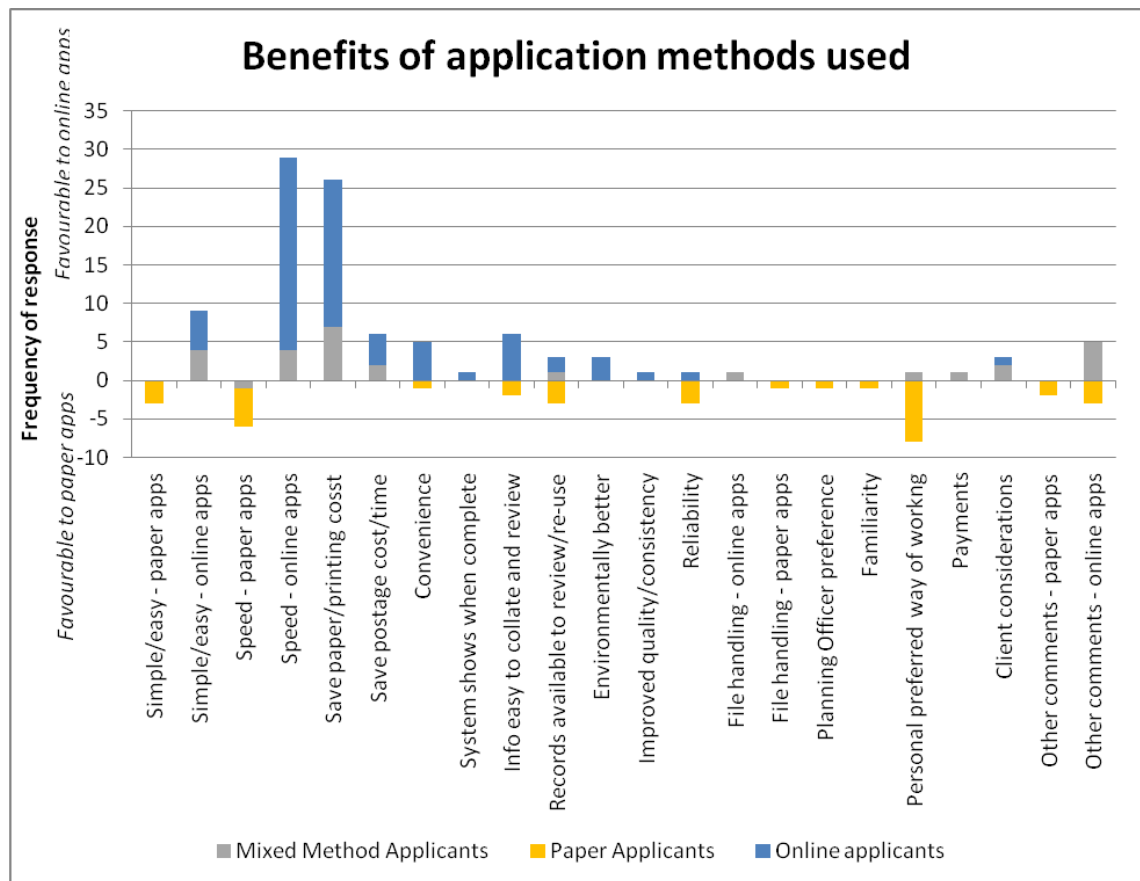


Figure 30: Perceived benefits of application methods used

Disadvantages to chosen method	Online applicants	Paper Applicants	Mixed Method Applicants
Inflexible - one-size-fits-all form	2		
Slower - paper apps		1	4
Slower - online apps	4		1
Technical issues	1		3
Website /form design	2		
Process issues	1		
File size limits	5		4
Paper cost/wastage - paper apps			6
Paper cost/wastage - online apps	1	6	
Application type not available			1
Other		3	5
None	13	17	2

Table 29: Perceived disadvantages to chosen SME application methods

In support of the finding above that most respondents said that there were no disadvantages to their chosen method, the repeat usage for online applicants is very high. Survey respondents who applied online (either 100% online or using a mixture of methods)

were asked, in a separate question, whether they would apply online again. 97% of SME respondents who had applied online said they would do so again, compared with 86% of the citizens from the 2012 online citizen applicant study although the differences between the two survey populations are not statistically significant. This suggests, in answer to RQ1, that the Planning Portal online application service does support the needs of both agent and citizen groups.

6.3.9 Attitudes to e-planning as a concept

This section of the survey sought to help answer RQ3: what are factors that affect uptake in different user communities. It repeated the attitude statements used in the previous citizen studies (with changes as detailed in Section 6.2.1.4 above) to explore the attitudes of respondents to e-planning as a concept, allowing, for the most part a direct comparison of results between the studies.

As in previous surveys, respondents were asked to indicate how strongly they agreed or disagreed with a number of statements (1=Agree Strongly to 5=Disagree Strongly). The statements are based on previous academic studies which investigate the uptake of other e-government services in the light of academic theories of technology adoption (see Section 3.8.3 on survey instrument development in Chapter Three). The mean and modal responses for each statement together with the standard deviations are given in Appendix P.3 in order of ascending mean score. Figure 31 illustrates the responses graphically. In general, the lower the score, the more favourable to e-planning. However, the three statements shown in italics and coloured red on the chart are negatively worded, so that higher scores are more favourable to online applications and/or the Planning Portal. The “reversed” mean scores are also shown in the table for more ready comparison.

Figure 31 in particular highlights that the patterns of response from the three surveys are very similar (and the 2013 and 2012 studies in particular). The same five statements fall on the negative side of neutral in all three surveys. Of the reversed scores for the negatively worded statements, only the two statements referring to image remain with an overall negative response.

However there are other features that are of interest.

Firstly there are only eight statements where the professionals are more positive towards e-planning than both the citizen groups (although the differences between cohort responses are small):

- I have the knowledge necessary to use online planning facilities
- Interacting with the Planning Portal over the Internet is something I would do
- I have the resources necessary to use online planning facilities
- Using the Internet would enhance my efficiency in gathering information about planning
- People who use the Internet to gather information from the Planning Portal have more prestige than those who do not.

and (once scores were reversed) the three negatively worded statements:

- The content of the Planning Portal website would be useless for me
- I do not think it is safe to use online planning application because of the privacy and privacy concerns
- I would feel uneasy if I used the online application forms.

The attitudes towards the usefulness of e-planning were very positive (for information more so than for applying). The most positive score was for the statement "Interacting with the Planning Portal over the Internet is something I would do" (90.6%). Respondents agree that using e-planning would increase their efficiency and control in the planning process but disagree that using e-planning enhances either prestige or social status.

Responses to the statements were all over 75% positive (Strongly Agree/Agree) suggesting that this cohort at least is confident to use online planning facilities.

The Professionals, perhaps unsurprisingly given their frequency of application, were more confident that they had the resources and knowledge to use online planning facilities compared to the responses in the online citizens' responses from 2012:

- Resources : 91% Professional positive, 86% online citizens;
- Knowledge: 93% Professional positive, 76% citizens.

However, the online citizens were more confident about the safety of applying online:

- I would not feel uneasy...: 78% professionals, 84% online citizens;
- I do think it is safe... 81% professionals, 87% citizens.

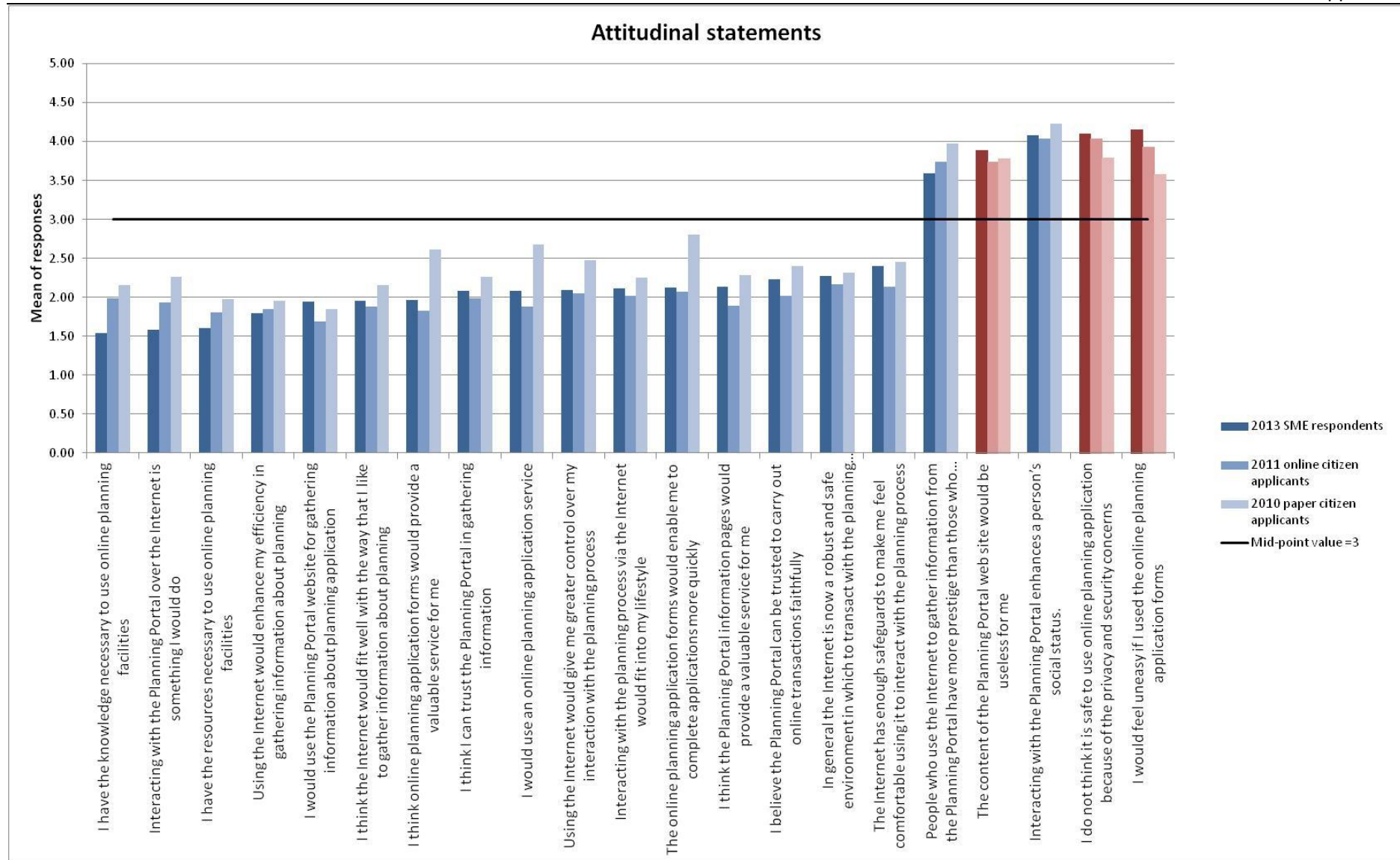


Figure 31: Comparing responses to attitudinal statements from citizen and SME studies
 (Scale 1= Agree strongly; 3= Neither agree nor disagree; 5=Disagree Strongly)

6.4 Limitations of this study

The sample population that met all the study criteria was relatively small (110 valid responses) and so the results may not be generalizable across the target population as a whole. The low numbers did have an impact on the validity of some of the statistical significance tests undertaken.

Whilst sampling techniques are carefully selected to reduce sampling bias, the respondents were free to choose whether or not to participate and so are to some extent self-selecting, and there may be some bias in the results from potential outliers.

The responding group was dominated by architects, males, and more experienced professionals – it is unclear how representative is of the industries concerned, although when presented with these results Planning Portal were not surprised by these demographic characteristics.

6.5 Chapter Summary

Findings from this study phase indicate that the Planning Portal does provide a successful service for SME planning professionals, with 73% of respondents applying online for at least some of their applications and with 97% of those saying they would apply online again. (RQ1)

In looking for answers to RQ3 quantitative data indicated that there were statistically significant relationships between the applicant type and application method (with agents submitting more online applications than citizens) for applications made to the target LPAs in the study week. For agent stakeholders there were also statistical relationships between the application method and both number of applications made, and applicant gender.

However, some Professionals see development of planning applications as an artistic endeavour and will probably never change to applying online (relevant to RQ4). Many see the environmentally-friendly aspect of online planning through reduced printing as a positive benefit. However, others, particularly evidenced in the interviews, had concerns that LPAs were not processing electronic applications in an electronic manner, and hence some of the benefits of planning were not being realised.

This type of response is hard to classify in the theories of technology presented above, and it may be that a new model factor might be appropriate to handle such an area of consideration. This points the way to one aspect of the novel contribution of this study addressed in Chapter Nine.

Chapter Seven: Local Planning Authority Study

This chapter reports the finding of the research phase focussed on Local Planning Authorities (LPAs) in England, conducted during Spring 2014. The aim of the phase was to investigate the opinions and experiences of LPA staff involved in the planning application, consultation and determination processes with regard to e-planning. Whilst no formal funding was provided by the Planning Portal, they had an organisational interest in this study area at the time, and provided access to LPA staff by means of an introductory email to the survey from the Head of LPA Engagement. The survey included some additional questions at the request of the Planning Portal. The research phase and methodology was approved by the Plymouth Business School Ethics Committee. The full results of this research phase were reported in an unpublished report for the Planning Portal (Kneller, 2014).

7.1 Purpose of this study

The purpose of this phase of research was three-fold:

- To get feedback from LPAs on how they thought their applicants felt about planning application methods in the light of previous study phases. This provides some triangulation with the data reported in Chapters Five and Six to answer the research questions 1 and 3:

RQ1: Can a single online service successfully provide a service to a wide range of different stakeholders?

RQ3: What are the factors that affect uptake of an online service in different user communities with different levels of experience of the same process on conventional channels?
- To understand how LPA staff view their relationship with the Planning Portal and others involved in the planning process to help answer Research Question RQ2: How does an organisation manage relationships with stakeholders to ensure the service supports the needs of all the different groups?
- To understand the benefits and barriers that LPA staff perceive of end-to-end online planning processes to provide evidence for Research Questions RQ4 and RQ5, and to provide relevant advice for real-world practitioners:

RQ4: How does an online service support a human-made decision that is

essentially both subjective and visual?

RQ5: What issues arise from the provision of inputs to Local Government functions from a central government agency?

7.2 Methodology

7.2.1 Previous studies

In 2006, Peter Pendleton and Associates (PPA) conducted a survey of English and Welsh LPAs into the use of technology in planning and how "e-applications" are handled within each LPA (Peter Pendleton and Associates, 2006). Some of the questions in this phase of the study were repeated or amended from the PPA survey to provide a direct comparison of how perceptions had changed in the intervening eight years.

7.2.2 Scope of the research

The scope of the research phase came from a number of sources, based around the Research Questions above:

- i. To provide direct comparison with results from the previous citizen and SME studies,
- ii. To provide direct comparison with results from the 2006 Pendleton technology study described above,
- iii. To provide additional understanding of the way LPAs managed and processed applications, both paper and online,
- iv. To provide additional information requested by the Planning Portal around the potential for a more holistic approach to e-planning by linking to pre-application advice and Building Regulations work; and by looking at the potential for using mobile electronic devices within the Planning Officers' assessment processes.

The requirement was to gather both substantial qualitative data about the opinions and perceptions of LPA staff for topics i.–iii. above; but also some quantitative data for both topic iii. and particularly about the potential for a holistic approach in area iv. above. Thus a mix of survey and semi-structured interview methods were proposed to provide the opportunity to collect this range of information.

7.2.3 Selection of the study population and methodology

Given the tightly-defined study population and the direct access that the Planning Portal could provide to known contacts within the LPAs, it was decided to invite all 365 English LPAs to participate in the study. A further consideration here was that LPAs were known to be under considerable pressure due to financial and staff reductions and it was felt that consequently the response rate might be already be expected to be low. The different political governance of Welsh LPAs in relation to the Planning Portal, whereby the Planning Portal is much more of an arms-length supplier than with English LPAs, meant that it was not considered appropriate to include them in a study supported by the Planning Portal.

This research phase had both limited time and budget resources. As the Head of LPA Engagement already had professional relationships with the intended participants, and had email contact details for them, it was felt that an online survey was an appropriate method of preliminary data collection.

7.2.4 Survey methodology

A invitation to complete the pilot online survey was issued, via email, by Head of LPA Engagement of the Planning Portal on behalf of the researcher to one representative in each of 33 English LPAs selected using purposive sampling (Saunders *et al.*, 2009, p.237) to provide a range of different LPA types, and using the knowledge of Planning Portal to identify individuals who might engage in the pilot study. The responses were analysed and following detailed feedback from two LPAs in particular, changes to the scope and content of the survey were agreed between the Planning Portal and the researcher.

A main phase survey was then issued in the same manner to one representative in each of the 365 English LPAs (including those already involved in the pilot survey). A copy of the main survey question set is available at Appendix U.

The online survey was hosted on the SurveyMonkey website (www.surveymonkey.com) and a link to it emailed to the LPA contacts, along with a PDF copy as an alternative completion route. An anonymised copy of the invitation email is given in Appendix V. After a reminder email from the Planning Portal and an extension to the deadline, respondents were given one month to complete the survey.

Survey respondents were asked whether they required their responses to be anonymous when reporting the results to the Planning Portal, or indeed if they actually

wished their responses to be attributable to them directly to provide feedback to the Planning Portal. Requests for anonymity were respected in the report provided to the Planning Portal (Kneller, 2014) but, as declared in the participants' invitation, all participant quotations in this chapter are reported anonymously.

7.2.5 Interview methodology

In addition to the surveys, a number of interviews with survey respondents were proposed in the research design.

Participants were selected from those who had indicated in their survey response that they were willing to be involved further. A stratified critical case sampling methodology (Saunders *et al.*, 2009, p.240) was used: potential interviewees were first categorised according to the LPA/Council types they represented and then a number were selected from survey comments to give a range of views as suggested from their survey responses. As individuals had been selected from a group that had volunteered to be further involved in the research, there will inevitably be some (self-)selection bias in the results. The number of invitations issued was limited by time available in the research period. These interviews were designed to elicit more details about how and why participants behaved as they did during the application handling process. The base questions are given in Appendix W. As with interviews in previously reported phases, verbatim transcripts were created and sent to participants for review and further comment. Consent forms had been sent with interview invitations and post-interview, participants were asked to confirm that they were still happy for their input to be used, noting that as permission had already been given, that this would be assumed if no response was received.

7.2.6 Reporting of findings

Results of this study phase are given below. Responses to questions are combined and presented in summary form. These are supported by direct quotations from both survey and interview participants. Responses derived from surveys are marked as LPA_S; quotations from interviews are referenced as LPA_I_x where x is the identity allocated to the particular respondent.

7.3 Study Findings

7.3.1 Survey Response Rate

The pilot survey was issued to 33 (9%) of the English LPAs. 6 (16.1%) of these returned responses, and there were a further two LPAs that provided substantial feedback but without completing the survey. After some changes, primarily, but not exclusively, in removing questions, the survey was re-issued to all 365 English LPAs, including those that had previously been involved in the pilot. Where survey questions were sufficiently compatible, the main phase and pilot phase cohort responses were combined. This gave 49 valid responses, representing 13.4% of the complete population. However this did cover all types of English LPA as shown in Table 30.

LPA type	Total responding
District or Borough Authority	18
Metropolitan borough	4
Unitary Authority	15
County Authority	2
London Borough	6
National Park Authority	4
TOTAL	49

Table 30: Responding LPA types

Individuals responding on behalf of their LPA identified themselves in a variety of roles in the LPA including: Development Control Manager/Team Leader, Senior Planner/Planner/Planning Technician, Planner Customer Services Team Leader, Business Manager.

7.3.2 Interview Response Rate

Following preliminary analysis of the survey responses, eight respondents, who had previously indicated that they would be willing to be further involved in the research, were invited to participate in a telephone interview to further explore the experiences of LPAs. Ultimately five invitees agreed to be interviewed and interviews lasting between 23-29 minutes were held. Table 31 below indicates the nature of the interview respondents.

Interviewee	LPA type	Role in LPA
LPA_I_A	District/Borough authority	Planning enforcement and dealing with new applications
LPA_I_B	Unitary Authority	Service Development for Development Services
LPA_I_C	Metropolitan Borough	Planning Liaison Participant C also provided significant further information with their approval of the interview transcript. This information is also included in the discussion below
LPA_I_D	County Council Planning Authority	Principal Planner
LPA_I_E	National Park Planning Authority	Planning Administration Manager

Table 31: Details of LPA interviewees

7.3.3 Effect of online planning on application invalidity

Planning applications can be declared invalid for a variety of reasons. Primarily these fall into a variety of categories: incomplete or incorrect form filling; missing site or location plans; missing or incomplete supporting documentation; missing or incorrect application fee etc.

Anecdotal evidence presented to the researcher by both Planning Portal and LPA staff suggested that the use of online applications reduced the percentage of invalid applications received by an LPA (and hence had the downstream benefit of reducing the amount of unproductive contact between LPA and applicants).

Proposition LPA₁ – The overall rate of invalid applications is reduced by the use of online planning application methods.

Survey respondents were asked what percentage of applications that they received online and on paper were considered invalid. Only 18 LPAs were able to provide both pieces of information (as many did not collect such metrics), but the results from these were contradictory to the anecdotal evidence. The difference between paper and online invalid percentages were calculated (as: difference = % of paper applications deemed invalid - % of online apps deemed invalid), for each LPA is shown in Figure 32.

The expected effect of online applications reducing invalidity rates (and Proposition LPA₁ above) was rejected for this group, with almost three times as many LPAs still receiving fewer invalid paper applications.

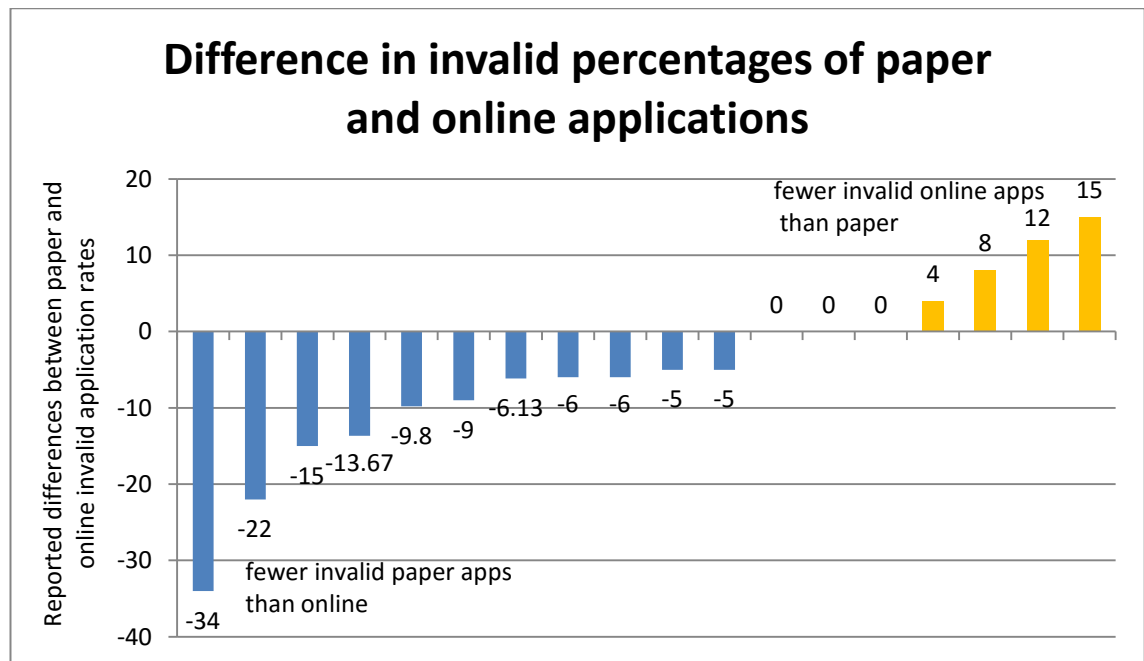


Figure 32: Difference between in invalidity rates (= paper% rate- online % rate)

As a further investigation, LPAs were also asked to rank (for a list of factors, as given below) the most common factors for invalidity in paper and online applications in their LPA. LPAs were also asked to mark a factor as "not applicable" if it did not apply in their LPA and to clarify what their "Other" factors were, if they had used this option. The factors offered were:

- Missing national level requirements
- Missing LPA local level requirements
- Inaccuracy or incomplete plans or drawings
- Issues with or missing site location plans
- Incorrect form filling
- Missing or incorrect Design and Access statements
- Incorrect Fee
- Missing Fee
- Other

The 33 survey responses were analysed by counting the number of LPAs reporting each factor at each ranking level. This was repeated in separate calculations for paper and online applications (only 30 responses gave information about online application invalidity).

This method gives an understanding of the range of factors that affect the responding Local Planning Authorities.

Not all factors affected all Local Planning Authorities: but for paper applications, four factors did appear in all 33 responses:

- "Inaccuracy or incomplete plans or drawings",
- "Issues with or missing site locations plans",
- "Incorrect form filling",
- "Incorrect Certificates"

whilst for online applications the most commonly cited factors were

- "Inaccuracy or incomplete plans or drawings" (all 30 responses),
- "Missing national level requirements" (29 of 30 responses)
- "Missing LPA local level requirements" (29 of 30 responses)
- "Issues with or missing site locations plans".(29 of 30 responses).

Thus issues around the handling of drawings and plans, one of the unique features of the online planning application service, remains a significant factor in online applications as well as in paper applications. It should be noted that "incorrect form filling", which was one of the most common responses for paper applications does not appear in the common factors for online applications. This may be a better description of the effect of online applications that is reported anecdotally, although this would need to be more robustly tested.

As an alternative approach to analysis, the factors most commonly cited in "Top3" factors affecting each LPA were identified. Table 32 shows the percentage of responding LPAs that reported specified factors in the Top3 affecting their validity rates (only the factors with highest Top3 rates are shown). This illustrates that there are both similarities and differences in the most important factors affecting invalidity rates: whilst issues around plans and drawings and missing local level application requirements (i.e. those required as additional information by an LPA on top of the standard national requirements) affect both application methods, the relative importance of these is rather different.

Paper applications		Online applications	
Factor	Percentage of LPAs reporting this in top3 factors	Factor	Percentage of LPAs reporting this in top3 factors
Inaccuracy or incomplete plans or drawings	54.5%	Inaccuracy or incomplete plans or drawings	70.0%
Issues with or missing site locations plans	51.52%	Missing Fee	70.0%
Missing national level requirements	43.75%	Missing national level requirements	40.0%
Missing Fee	36.36%	Missing LPA local level requirements	40.0%

Table 32: Top 3 factors causing invalid paper and online applications

Figure 33 highlights the differences across all factors proposed in the survey question, by illustrating the number of Local Planning Authorities ranking the factor as first, second or third importance as a invalidity factor (for paper and online applications separately). Whilst the responses here only represent 9% of all English LPAs, and so there may be some limitation on how well it represents the LPA population as a whole, for this sample cohort there are some interesting differences.

The factor "*Inaccuracy or incomplete plans or drawings*" occurs as the most commonly cited factor in both paper and online lists, and also has the highest "Top3" percentage in both lists. But the factor appears as a Top3 factor for online applications in a much higher percentage (70%) of LPAs than for paper applicants (54.5%), and is the only factor that is reported by all 30 respondents. "*Issues with or missing site locations plans*" appears as the second most common Top3-ranked for paper applications (51.52%) but is much less common as a top3 factor for online applications (30% of LPAs reported this in their Top3).

There does seem to be some support for the anecdotal claims that the "intelligence" that exists in the 1App form via input validation etc has reduced invalidity rates due to "*incorrect form filling*", for online applications: it appears as the jointly most commonly cited factor for paper applications, in the Top3 for 33% of LPAs for paper, it only occurs in the Top3 for 7% for online applications.

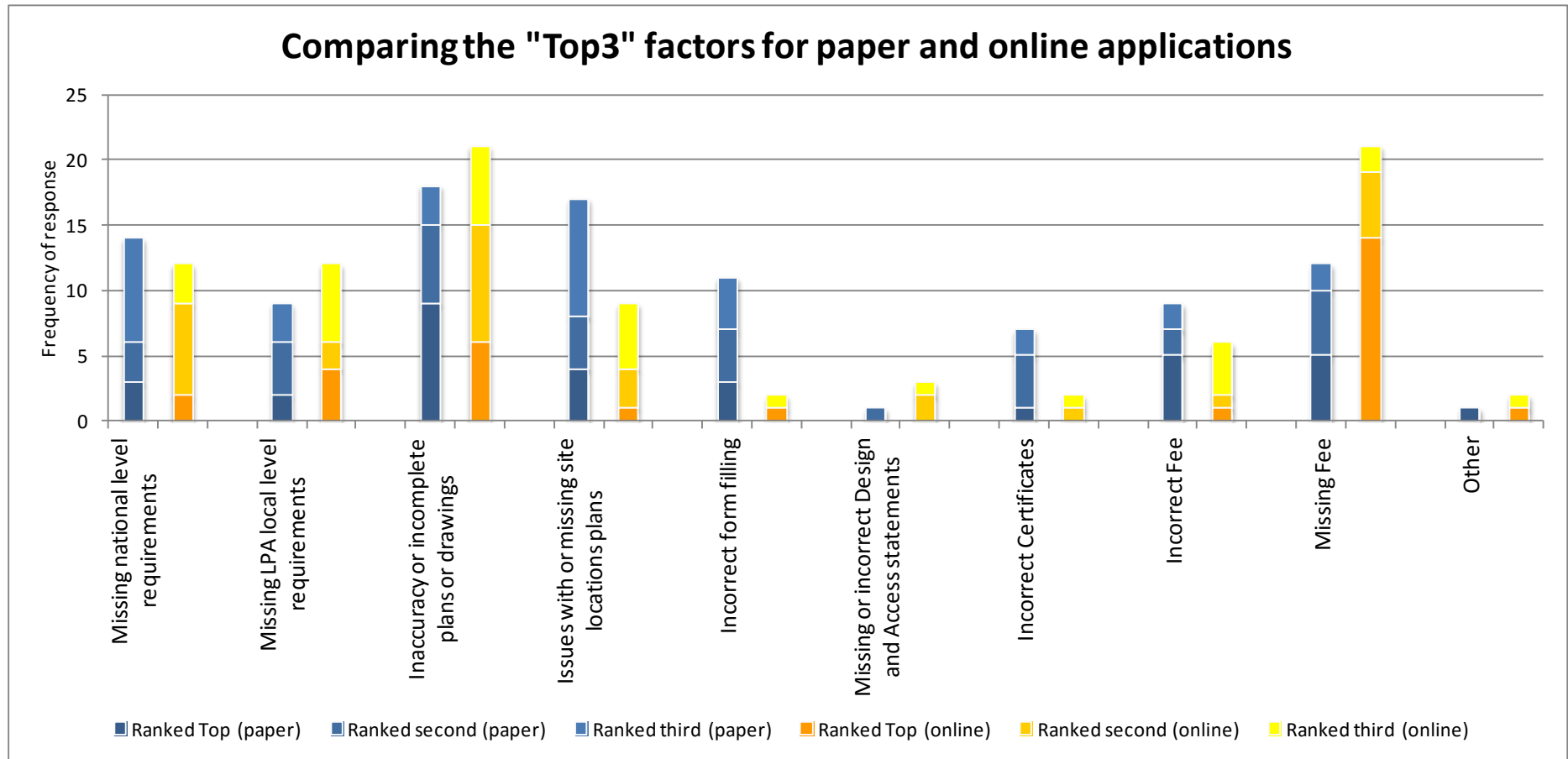


Figure 33: Comparison of the "Top 3" factors causing invalid paper and online applications

There is also support for comments from participants in this research phase, from Planning Portal staff and in the Pendleton Technology survey (Peter Pendleton and Associates, 2006) that online applications suffer from more issues in the handling of specialist local level planning applications requirements (such as the need to include additional supporting information and reports for applications to some LPAs). For this cohort, the factor "*Missing LPA local level requirements*" appears in the Top3 factors for only 28% for paper applications but for 40% of LPAs for online applications.

A further area of interest is in around the handling of planning application fees. The Planning Portal provides a Fee Calculator tool which, given correct inputs from an applicant, should calculate their application fee for them. Figure 33 shows that the Top3-factor percentages For "*Incorrect fees*" were similar: 27% for paper, and 20% for online. However, over the period of the study, there have been problems caused by both by the inability of LPAs to accept online payments via the Planning Portal (although there have since been improvements in this area) and by the unwillingness of planning agents to pay fees to LPAs on behalf of their clients and charge it back as part of the overall invoice, due to concerns about incurring Value Added Tax (VAT). Instead they prefer ask clients to pay by cheque directly to the LPA. For paper applications, this can be included with the application form, but for electronic application the agent submits the application online and then ask client to forward payment to the LPA separately. This means that the LPA then has to undertake additional work to match up payment and application. Consequently, whilst "*Missing fee*" appears as an invalidity factor for a similar number of LPAs - 93% for online and 97% for paper applications. However, the Top3-rated percentages are very different – 70% of LPAs rated it as Top3 factor for online, and only 36% for paper applications. So missing fees are a much more important factor for online applications than for paper.

These results help provide a background understanding of how well the online Planning Portal service supports the information required for human-made planning decisions, in comparison to the paper-based service (RQ4) and the issues that arise from providing inputs to the Local Government LPAs from the central government Planning Portal service (RQ5). The results reported here are reflected in comments from LPA interviewees later in this chapter, and in the Planning Portal and SME Professional phases in Chapters Four and Six . As there does seem to be consensus amongst the different stakeholder

groups that these are areas of concern for the online application service, this should direct investigation and development for practitioners and service providers in real world scenarios.

7.3.4 Impacts, benefits of and barriers to e-planning

The questions reported in this section were included in the survey to explore LPAs perception of the relationships they have, as a unique consumer stakeholder, with e-planning services and the Planning Portal in particular, to provide information to support Research Questions 1 and 2: RQ1: Can a single online service successfully provide a service to a wide range of different stakeholders? RQ2: How does an organisation manage relationships with stakeholders to ensure the service supports the needs of all the different groups?

Respondents to the LPA survey were asked to consider the impacts, benefits and barriers that they thought the LPA had experienced through uptake of online planning. They were also asked to consider any feedback that they had on the experience of some of their stakeholders – applicants and consultees.

7.3.4.1 Benefits of e-planning in LPAs

Survey respondents were asked what benefits their authority had seen through the use of online applications. 40 LPAs provided responses, many indicating multiple benefits. These responses represent a number of themes:

- enabling a faster, more standardised process for validation, consultation and determination of applications,
- reduced errors and better information submitted,
- reduced processing required by LPA staff,
- faster/easier to consult and publish applications to the publicly available register,
- enables electronic/mobile working for LPA staff and consultees,
- reduced costs (both direct, due to reduced printing and postage, and indirect due to reduced space requirements for archiving of paper applications).

The range of benefits identified suggests the online service was at least partially successful for LPA stakeholders (RQ1).

Figure 34 shows the responses received grouped by these specific themes.

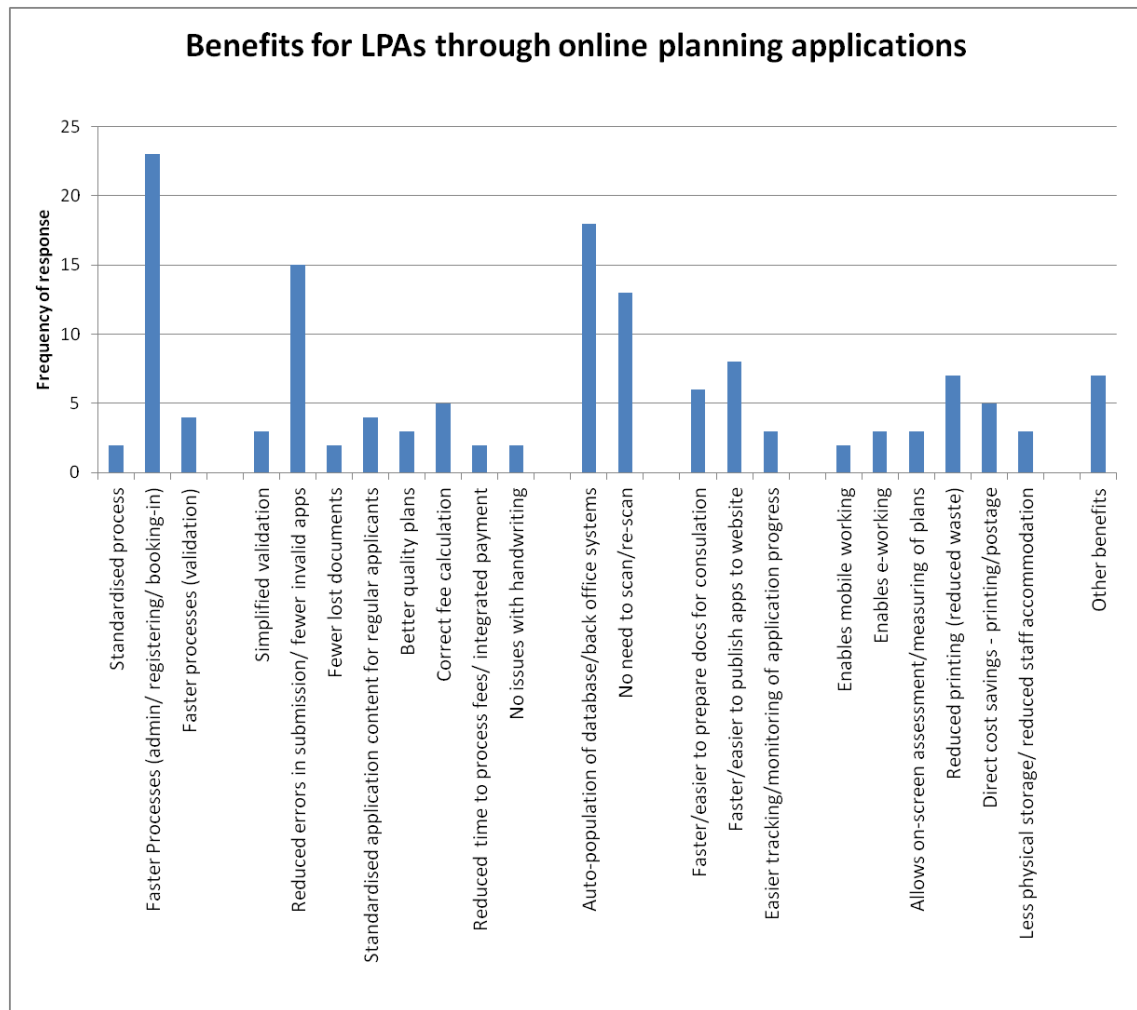


Figure 34: Benefits for LPAs of online planning applications

Three of the four most commonly cited responses were related to the saving of LPA staff time:

- faster processes (for application administration /registering/booking in):
"Faster processing by admin (NO requirement to re-scan/scan submitted documents) - 'Standardises' the process and prevents/reduces errors in the submission process" (LPA_S)
- the auto-population of back office systems and database, allowing savings in staff time:
"Its quicker to receive [sic] applications and must save us time as we don't have to do things like update the back office and upload plans to the web site" (LPA_S)
- the use of electronic documents remove the need to scan applications into Document Management or Development Control Systems.

"It is largely time saving in terms of handling less paperwork and fewer resources needed for scanning documents". (LPA_S)

Other responses indicate the advantages of using electronic working practices (enabled by the online application service) throughout an end-to-end planning consultation and assessment process. In particular, one survey respondent indicated the benefits related to the use of electronic documents in both formal consultation and in publishing information for public viewing:

"Consultees can view planning documents online instantly. We email consultations out [to] most consultees which has greatly increased the length of time they have available to make comments. Local residents can save searches for their area of interest and be notified when applications meeting their criteria are received." (LPA_S).

A reduction in direct printing and postal costs from providing information to consultees electronically was also identified as a potential benefit, although perhaps as Section 7.3.4.2 describes, the situation is not quite that simple. The introduction of native electronic documents is also seen as an enabler for more electronic working and/or working on mobile devices.

These responses strongly reflect the benefits that Planning Portal Account Managers identify in their promotional activities to LPAs.

Interestingly, the responses to this question also reflect the findings reported in Section 7.3.3 above, that online applications appear to reduce invalid applications through reduced errors in information submitted in applications: survey respondents highlighted benefits of this kind both in ensuring completeness of the forms and in quality of the submitted visual elements:

"Forms force customers to complete subsequent questions based on earlier selections in the form - less errors. Prevents customers from leaving questions unanswered." (LPA_S)

"the forms are definitely completed more comprehensively. The quality of plans have also improved and the portal encourages the use of better, more accurate electronic systems to produce them." (LPA_S)

7.3.4.2 Barriers to e-planning in LPAs

Survey respondents were asked: "Please state any barriers that you feel still exist that prevent the increased use of electronic planning services within your council". The many

responses received from 38 LPAs and reviewed in this section provide an understanding of the issues around the central-local government relationship (RQ5) and around supporting the human-based planning decision from online service (RQ4).

Figure 35 shows the responses received grouped by the following common themes, which are discussed below:

- requirements for paper copies, for use by Planning Officers and consultees,
- additional cost of scanning/printing,
- resistance from agents to applying online,
- payment issues, as above,
- issues relating to the quality of submitted application information,
- LPA staff skills/preferences,
- LPA IT systems
- applicant IT systems.

It should be noted that for some factors, survey respondents offered descriptions of the same phenomenon as both a benefit and a barrier e.g. staff time in handling/validating applications, cost of printing, speed of handling applications.

By far the most commonly cited barrier was related to IT systems within LPAs. Respondents felt that their current systems were not compatible with an end-to-end e-planning system: "*outdated and inefficient IT systems*" (LPA_S). This was compounded by a lack of financial resource to invest in new systems: "*The continuous budget pressures to invest in new technologies and to update systems is also an obvious barrier.*" (LPA_S). In a separate question, 65% of responding LPAs stated that they assessed applications submitted online by printing out the documents and carrying out a desktop assessment on paper. Only one LPA stated that they always assessed online applications electronically.

Issues with applicant systems, including the non-ownership of IT equipment for some citizens, and in particular, poor broadband speeds and coverage in rural areas were also indicated as problems.

Thus the potential benefits and hence success of the online service (RQ1) are moderated by environmental factors in the LPA consumer organisation. The Planning Portal cannot rely on its own activities to achieve success.

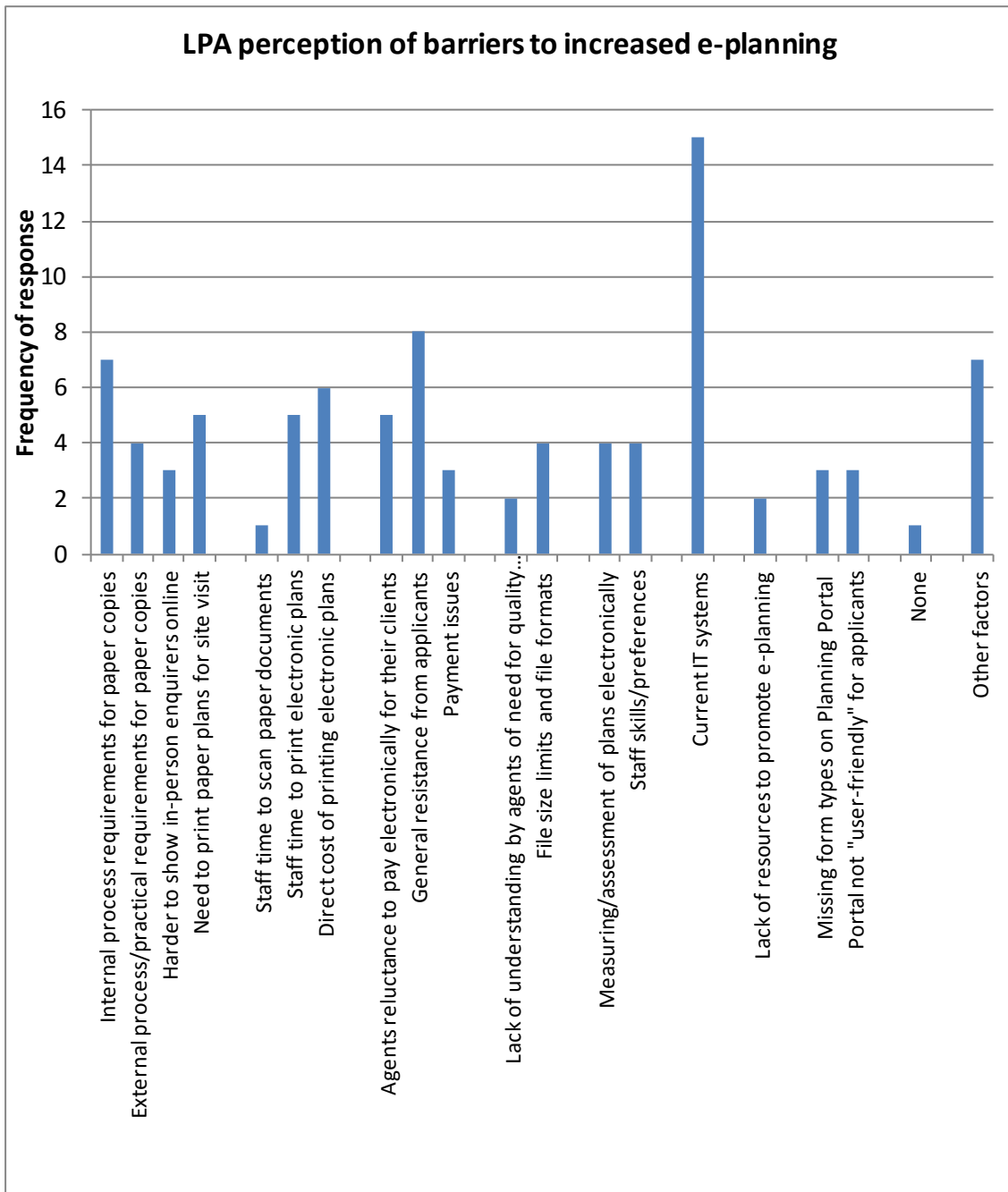


Figure 35: LPAs' Perceived barriers to increased e-planning services

Respondents supported findings reported in Chapter Four (Planning Portal Context) that Local Planning Authority staff felt there were areas of the consultation and determination processes that need to be supported by paper copies. This included the use of paper copies for Planning Officers in on-site or desktop review and assessment processes. There was a more general concern that reviewing and assessing very large and detailed plans on small screens was impractical, although interviewees suggested that there was a move towards assessing smaller applications electronically. There was also an indication that there might be some suggestion of personal preference here:

"Within the Council, some planning officers do not like to view plans online so need printed copies. Also our Transport Development department prefer paper copies because of problems viewing plans." (LPA_S)

"we are trying desperately...to move to sort of, electronic systems and validation through electronic systems but it's desperately hard, with the type of information that we are receiving, we are yet to be convinced that any of the... electronic measuring tools and all the other things are really fit for purpose for what we're trying to do." (LPA_I_C)

The need to provide paper copies to consultees, Parish Councils in particular, due to lack of appropriate technology for electronic consultation was also felt to be a barrier. The lack of staff skills to undertake application assessment electronically was also identified as a barrier, indeed in a later question a third of LPAs stated that they had not invested in staff training to support handling and assessment of applications electronically.

The fact that Local Authorities are required to support both paper-based and online application channels means that they have to run two administrative processes. Where applications are made electronically then paper copies have to be made within the LPA as above; the increased use of online planning means that LPAs have become liable for increased printing costs both in consumables and in staff time, and thus some of the costs of application have moved from the applicant to the determining LPAs. This is seen as a real drawback by LPA staff. In a separate question, a third of the 33 responding Local Planning Authorities stated that they never requested paper copies of documents from applicants, while slightly more (36%) indicated that they did request paper copies, but only for major applications. Where applications are made alternatively on paper, additional LPA staff time is now spent in scanning application documents into systems supporting the public online application registers. This dual system is the cause of some frustration within Local Planning Authorities.

"it's kind of, a double-edged sword. We either download them and have to print them off or we have to take them in and scan them on." (LPA_I_C)

LPA respondents also perceived that there was some general reluctance in the agent community to use online applications, but there were also issues, in particular over the fact that agents were unwilling to submit payment on behalf of their client, even though their fears over VAT charges are unfounded (planning application fees being exempt from VAT).

One survey respondent also mentioned that they were unable to participate in marketing activities to promote awareness of the benefits of online planning, to agents, citing lack of resources as a barrier:

"Resources in terms of money and time to explain benefits of electronic services". (LPA_S)

The quality and completeness of information submitted online also caused concern in LPAs. It was felt that there were a number of issues here. The quality and, in particular accurate scaling of application plans was identified as a particular issue in e-planning, and had also been seen as an important cause of applications being declared invalid as above.

"Poor quality submissions and submissions that are not scanned correctly so we cannot scale from them. A lack of understanding about the reason for needing quality electronic information from agents" (LPA_S)

"Applicants/Agents not using a scale bar or measurements on plans. Also because the applicant/agent aren't printing their plans out they tend to use a lot of colour which increases the size of the files". (LPA_S)

"Lack of standardisation of document (attachment) naming Problems handling revisions / updates to applications - system interfaces treat differently and create duplications" (LPA_S)

"Because anyone can register to submit electronic applications via the Portal we do get computer literate members of the public using the system who will twist through the questions by uploading the same documents more than once, uploading documents in formats [sic] that are not scaleable [sic] etc. because they do not understand the planning system" (LPA_S)

Similarly, whilst the online 1App application form forces applicants to complete all mandatory National Application Requirements, at the time of this survey, the enforcement of local requirements was less rigorous. Applicants not understanding the requirement to meet local requirements or not doing so adequately was cited as a barrier to wider e-planning.

There was also a suggestion that where submissions were made by applicants unfamiliar with online application to a particular LPA (either citizens or agents applying outside their usual geographic area) that the issue of local requirements was even more of an issue:

"members of the public or by agents outside our area do not seem to realise how important the Local Validation list is and this is often missing on portal applications"(LPA_S)

7.3.4.3 Comparing LPA barriers to e-planning 2014 and 2006

The Pendleton Technology report (Peter Pendleton and Associates, 2006) also investigated the barriers that LPAs perceived they had at that time, using a very similar question: (*"If you can, please state 3 key barriers that you feel exist that prevent the increased use of electronic planning systems within your council"*). The responses to the 2006 survey were reported verbatim, but the published report did not categorise these in any way. This research takes those findings and categorises them in the same manner as the 2014 responses to provide a direct comparison.

The volume of responses were very different in the two surveys; whilst the more recent 2014 survey elicited 92 comments from 36 English LPAs; the 2006 survey received 442 responses from 150 LPAs in both England and Wales. Figure 36 uses the percentages within each survey to illustrate the responses, with categories grouped by theme within the graph.

47 response categories were identified (plus generic *"None"* and *"Other"* categories). No categories only appear in the 2014 responses (i.e. no new themes were raised), but there were 27 categories that only appear in 2006. Thus LPAs reported a wider range of barriers influencing the uptake of e-planning systems at the earlier survey. However, this result must be viewed with some caution as some categories that might have been expected from 2014 results reported in earlier chapters such as *"applicants not e-enabled"* and *"consultees not e-enabled"* do not appear in the 2014 responses to this question.

The 2006 responses include a group of categories that appear to refer to the culture in the LPA around e-planning. None of these appear in the 2014 responses:

- Culture /change management within LPA
- Benefits/business need not understood
- Resistance within Council
- Apathy (non-specific)
- No driver from Council management
- Staff time to develop new process
- Staff familiarity - few online apps received

- E-applications take longer to register

Furthermore, of nine 2006 categories that refer to costs, limitations in budget or resources, only one appears in 2014:

- Cost of running dual systems
- Lack of end-to-end online processes
- Lack of resources (non-specific)
- Lack of funding for staff training
- Cost (non-specific)
- Need for extra staff to handle e-apps
- Staff resources (non-specific)
- Lack of budget to upgrade IT systems/software (also appears in the 2014 responses)
- Waiting for corporate IT investment programme

18 categories appear in both 2006 and 2014. Of these, in only three cases does the 2006% response exceed the 2014% response, whilst the 2014% response exceeded the 2006% for 15 categories (See Table 33 and Figure 37). Overall, a smaller range of factors are seen as barriers to e-planning in 2014 and possibly, some of the more significant factors in 2006 have been mitigated.

The large peak shown in Figure 36 highlights the generic "Current IT systems" category as the largest response in both surveys (18.3% of responses in the 2014 survey, 9.1% in 2006 survey). However in 2006, there were a range of responses in the IT area and, if these are combined, the results are very much closer, with a higher 2006 value of 18.5%.

The next largest peaks for 2006 survey were:

- Culture /change management within LPA
- Staff skills
- Measuring/assessment of plans electronically

But for 2014 they were:

- General resistance / no incentive for applicants
- Internal process requirements for paper copies

- Direct cost of printing electronic plans

Overall, in response to RQ3, the empirical evidence from this, albeit small cohort of 2014 responses, is that the issues around organisational culture, skills and wide-ranging technology that were particularly dominant in 2006, have diminished. In 2014 the primary barriers cited relate to process issues (in particular the need to print online applications whilst running dual paper and online assessment systems) and also to specific technical issues in submitting and assessing applications online.

Category	2006 %	2014%	Difference in % responses (2014-2006)
Factors where 2006% > 2014%			
Lack of budget to upgrade IT systems/software	5.0%	1.1%	-3.9%
Staff skills	6.1%	4.3%	-1.8%
Measuring/assessment of plans electronically	5.9%	4.3%	-1.6%
Factors where 2014% > 2006%			
Current IT systems	9.0%	16.3%	7.3%
Internal process requirements for paper copies	1.8%	7.6%	5.8%
Reluctance to pay electronically	0.2%	5.4%	5.2%
General resistance / no incentive for applicants	3.8%	8.7%	4.8%
External process/practical requirements for paper copies	0.2%	4.3%	4.1%
Staff time to print electronic plans	1.4%	5.4%	4.1%
Direct cost of printing electronic plans	2.5%	6.5%	4.0%
Payment issues	0.2%	3.3%	3.0%
Missing form types on Planning Portal	0.5%	3.3%	2.8%
File size limits and file formats	1.6%	4.3%	2.8%
Need for paper inspection copies	0.7%	3.3%	2.6%
Portal not "user-friendly" or reliable for applicants	0.9%	3.3%	2.4%
Lack of understanding by applicants of need for quality electronic information	1.1%	2.2%	1.0%
Lack of resources to promote e-planning	1.6%	2.2%	0.6%
Lack of broadband in rural areas	0.9%	1.1%	0.2%

Table 33: Comparing the 2006 and 2014 barriers to e-planning responses

Comparing perceived barriers in 2006 and 2014 reports

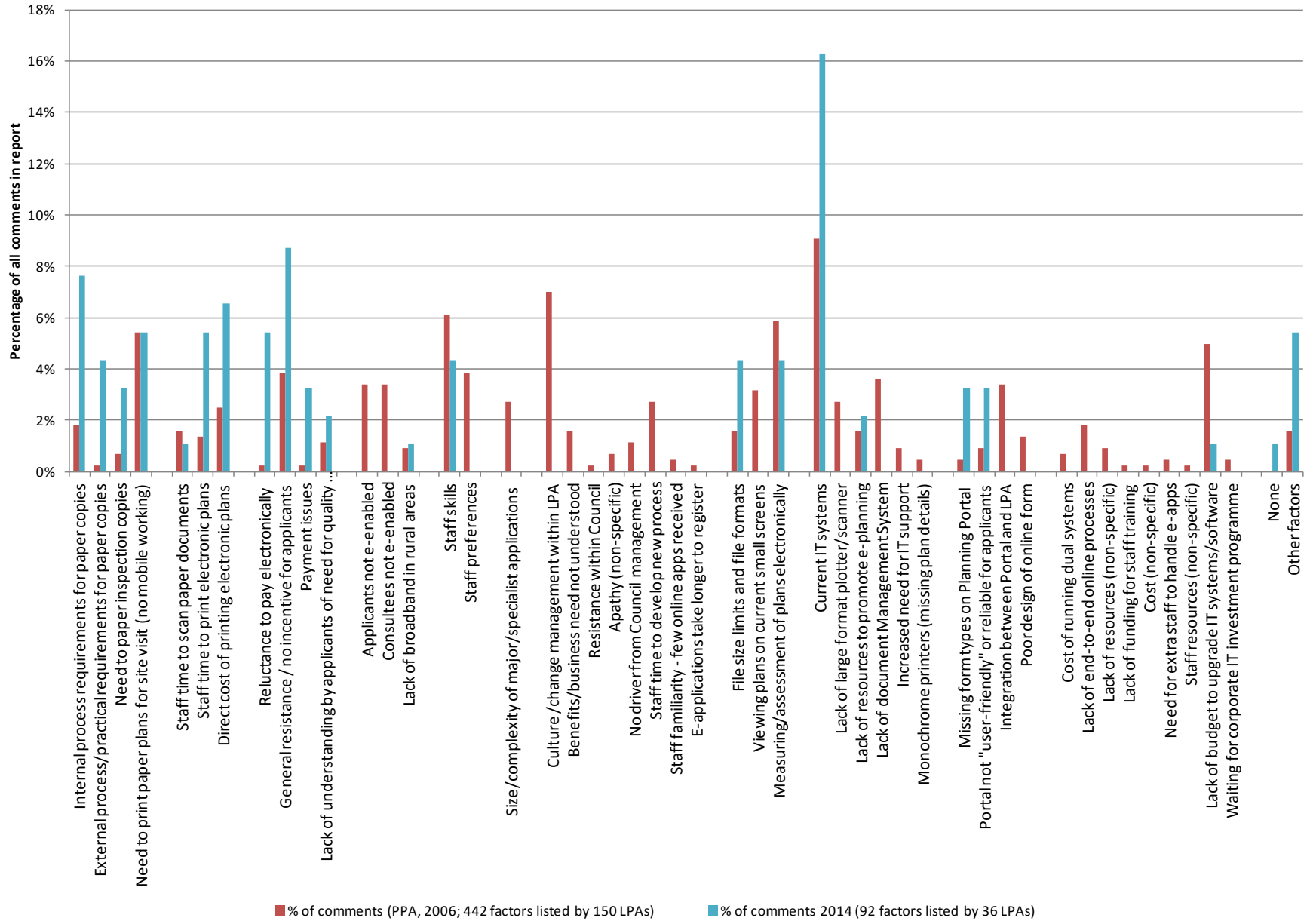


Figure 36: The scope of barriers to e-planning

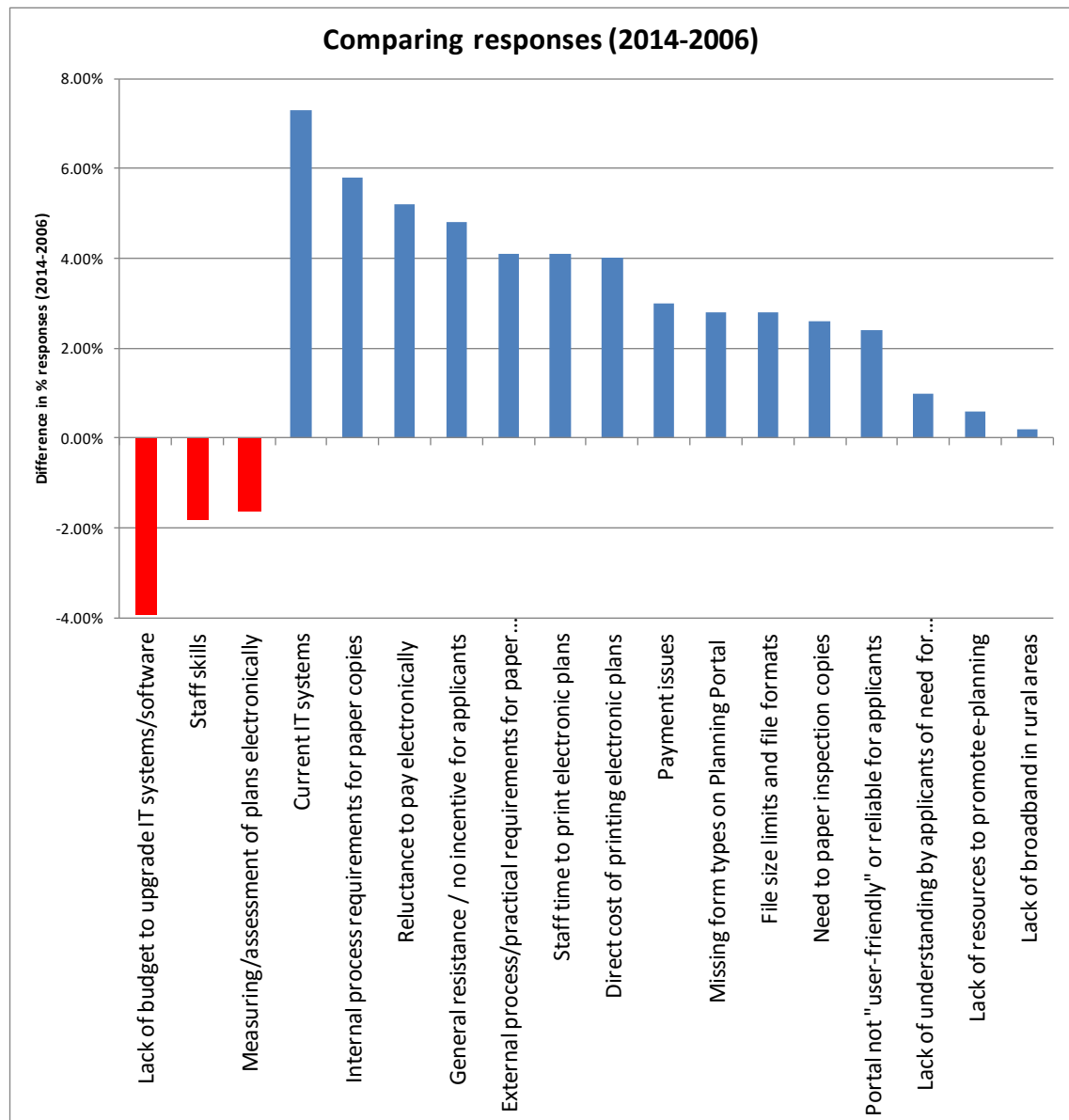


Figure 37: Comparing common LPA-identified barriers to e-planning from 2014 and 2006

7.3.4.4 Perceived LPA attitudes towards the Planning Portal

Although the Planning Portal identify their relationship with LPAs as being a key link in the e-planning chain and provide evidence of direct relationships with many LPA staff, there is very little evidence in the responses to the LPA survey of that relationship, although it must be admitted that no direct questions about the relationship were ultimately presented in the survey. The survey and interviewee responses both indicate a rather ambivalent attitude towards the Planning Portal service with both positive and negative responses. There were no direct references to the nature of inter-personal professional relationships with Planning Portal staff at all, and very little on their joint marketing and promotional activities.

"Portal is still not 'user friendly' - my validation officer gets a lot of calls from customers asking for help." (LPA_S)

"Very pro Portal. We encourage all applicants to use the Planning Portal through Agents Forum and pre planning advice. There is a small percentage of people who prefer paper." (LPA_S)

"I would say that whenever there is a new form, there should be a requirement so it's fully electronically enabled.... that should be standard. I know the Portal will say it takes a long time to develop these things, and partly because there are a number of IT suppliers. ... But I would have thought ... we should be able to have system where these things are done very, very quickly." (LPA_I_B)

"there are limits being a County...That not everything's on the Planning Portal, which wound me up today when you get another five application forms coming through on the Portal, or whatever it is, but there's still no Minerals form or ROMP application form...It just seems really backward that they don't have those." (LPA_I_D)

7.3.4.5 How LPAs view barriers to planning for other stakeholders

The LPAs were asked about what they perceived as being barriers to e-planning and what would increase uptake amongst three specific groups of their stakeholders: consultees, agent applicants and citizen applicants (RQ3). Whilst these are perceptions from within the LPA, there are similarities with the findings reported in earlier chapters.

7.3.4.5.1 Consultees

The most common responses from LPAs when considering their consultees was the need for stakeholders to have suitable ICT and telecoms facilities to enable consultation electronically. 52% of responses indicated that this basic requirement was a barrier, with further comments indicating that also the consultees did not have the necessary ICT skills to work in this way. Some respondents indicated that they had previously been making good use of the e-Consultation hub (see section 4.5.1 in the Planning Portal chapter) and that this had started to make a difference not only in LPA-consultee relations, but also in the way different consultee groups interacted. The withdrawal of the e-Consultation hub in 2010 was seen as a backward step by these respondents.

"and that was the start of it and then you could roll that out locally to your local, ... internal consultees, whatever it may be. ... and they could then I think almost interact with each other and so they became part of almost a

consultation group ... it was starting to build as almost a little community of, of consultation. Certainly locally and it gave residents groups in maybe different parts of the city an understanding that they weren't, you know, the only residents group there and there were other things going on and so on. It was a really nice idea I thought but it, unfortunately, it, it got cut". (LPA_I_C)

7.3.4.5.2 Agents

Figure 38 illustrates the responses received from LPAs on the factors that they thought might increase uptake of e-planning amongst agents. The two most common responses were the promotion of, and training on, the service to agents; and the use of incentives (either time or financial benefits) for online applicants. These support the activities of the Planning Portal in their dealings with both LPAs and agents – in particular, the use of LPA-supported Agent Fora to promote online applications. The issue of incentives is more difficult. As a government body, the Planning Portal cannot be seen to disadvantage different sectors of users. However, this has been identified as a potential benefit in the new commercial management of the Portal, as an extension of the Smarter Planning initiative.

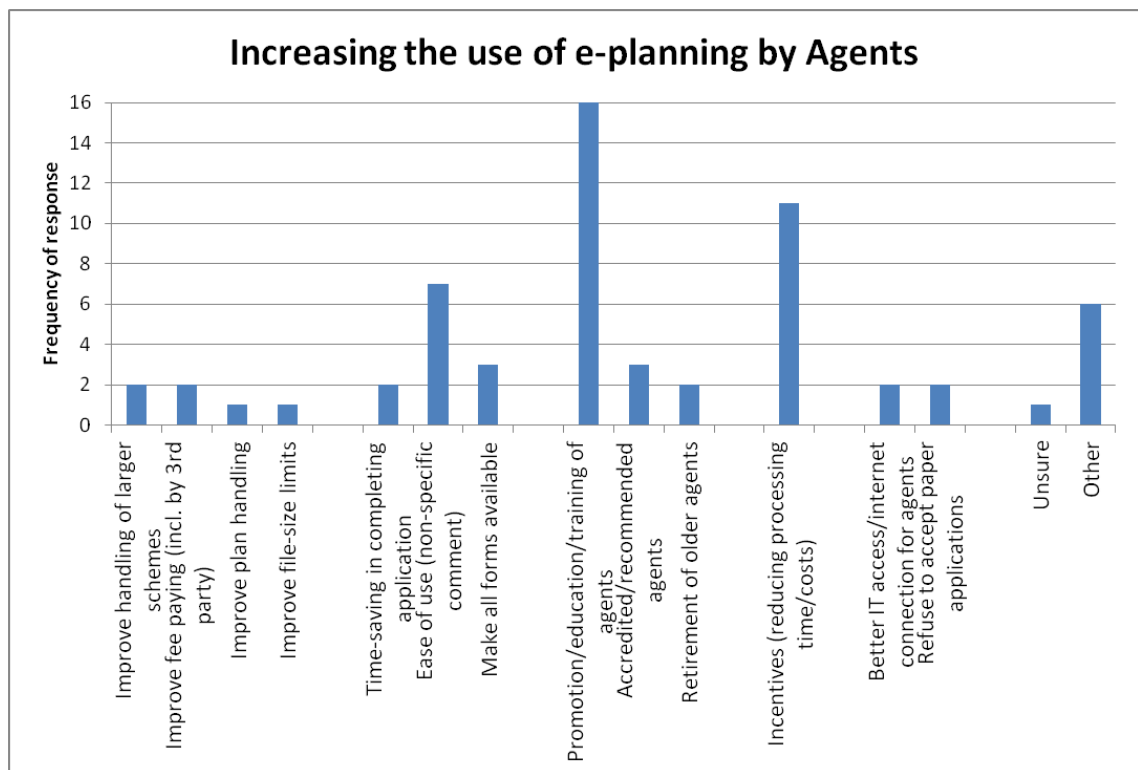


Figure 38: Factors to increase the use of e-planning by agents

7.3.4.5.3 Citizens

Promotion and visibility of the online application service were also flagged as key considerations for citizen users, with a third of the responses falling into these two areas.

The other most significant response was a non-specific "ease of use" phrase; whilst this is difficult for the Planning Portal to act upon, it is important that infrequent users see the service as being user-friendly:

"Its [sic] encouraging the single direct applicant to use the Planning Portal as most of our agents now use the planning portal." (LPA_S)

7.3.4.6 Supporting an end-to-end e-planning process

The survey asked in three separate questions whether respondents felt there were opportunities to create a more holistic e-planning process: by closer links between pre-application advice and the 1App form, services for development control and Building Regulations and in the use of mobile technologies for assessment.

Of the 32 responses, 40% suggested that the Planning Portal should develop web forms to support a standard pre-application service, with a further 20% giving other suggestions about improving linkages. Only 4% indicated that they thought there would be no value in improving such links:

"We would welcome the introduction of a Pre-App/Do I Need planning permission forms and the ability to submit on the portal." (LPA_S)

Of the small number (20 respondents) that gave a direct answer about linking Building Regulations with Development Control (planning application), 55% were positive about the idea, and 30% negative.

LPAs were also asked if they had invested in mobile technology to enable officers to assess applications in a mobile manner. 39 responses were received. 69% had not yet invested in technology, even though this was identified as a barrier to e-planning. Of the remainder who had invested, three-quarters were still in a roll-out or trial phase and one LPA reported a failed initiative:

" we did attempt to make this work some time ago but the system failed so we abandoned it. All our Planning Staff have access to a Citrix based system for remote working but we've not yet got so far as using the system on tablets. " (LPA_S)

7.4 Limitations of this research phase

There are clear limitations to the research reported in this chapter. Due to the different nature of the relationship between the Planning Portal and English and Welsh LPAs, the research covers only England.

The response rate is low: overall 13% of all Local Planning Authorities responded, and this was down to 9% for response to some questions. However, all possible actions were taken to encourage participation, including a reminder and a extension to the response period, and the response rate is probably as high as could be expected given the time and financial pressures that LPAs staff were under at the time.

There is also some self-selection bias in the responses both to the survey and telephone interviews – respondents essentially chose whether to be involved and so responses can be expected from those who have something definite to say – either positive or negative.

7.5 Chapter Summary

This chapter reports the results of the primarily qualitative research phase into the experiences and attitudes of LPAs to online planning services, and the Planning Portal.

RQ1 asks about how successful a single online service can be for a range of stakeholders. LPA contributors identified key benefits of the online planning service as enabling faster and more consistent handling processes and reduced errors in applications. However, the anecdotal evidence that online applications reduce rates of invalid applications was not directly supported by the survey responses, although rates due to incorrect form filling were reduced. Thus there is evidence of success in supporting both LPA and applicant stakeholders. However this success is moderated by a range of barrier factors outside of the Planning Portal control. The range of barriers in LPAs to e-planning seem to have reduced since 2006, with less focus on funding and LPA cultural issues, and more on IT and technical issues, including the perceived need for paper copies for assessment and consultation. These barriers can be lessened by the use of collaborative initiatives such as joint Planning Portal-LPA promotional and educational activities aimed at applicant stakeholders. RQ5 looks at issues around combining central and local government organisations in the same

service. Whilst there is evidence of such issues, these appear to be more generally related to collaborative schemes in general rather than explicitly government organisations.

Chapter Eight: Further stakeholder studies and development of new adoption model factors

This chapter reports the findings of the research phase focussed on the proposition and initial testing of new factors for inclusion in future models of technology adoption. This study was conducted during Spring 2015. The aim of the phase was to use evidence from previous Citizen and SME studies to inform a further investigation into the opinions and experiences of recent citizen and SME applicants (either paper or online). This study phase was conducted entirely independently of the Planning Portal.

8.1 Purpose of this study

The purpose of this phase of research was entirely focussed on Research Question 3: What are the factors that affect uptake of an online service in different user communities with different levels of experience of the same process on conventional channels?

8.2 Methodology

8.2.1 Scope of the research

The scope of the research phase was to provide direct comparison with results from the previous citizen and SME studies (reported in Chapters Five and Six), and to propose and provide initial testing of new factors affecting adoption of e-government services.

The proposed new factors were identified through both qualitative and quantitative aspects of the previous studies which had been analysed using mixed methods to provide some triangulation between the data sources.

The requirement was to gather primarily quantitative data in response to attitudinal statements related to theoretical model constructs, although some qualitative data on perceptions and mixed qualitative/quantitative demographic data were also collected to place users' responses in context. It was proposed that different factors might apply to citizen and SME professional applicants and thus two complementary self-administered surveys were proposed to provide the opportunity to collect this range of information.

Findings have been presented using mixed methods including both qualitative and quantitative methods and also quantitative presentation of qualitative outputs.

8.2.2 Selection of the study population and methodology

As with the previous citizen and SMEs surveys, the most effective way of identifying potential study participants was to identify those who had recently submitted a planning application. Thus the qualifying criteria were:

- individuals, over 18 years,
- who were either:
 - working in a professional capacity for an organisation, of fewer than 50 employees, in the planning area and who had recently submitted a planning application on behalf of a client;
 - or citizens applying in relation to a personal planning project.

To identify such individuals, all planning applications made in a single week in January 2015 to the same 101 LPAs chosen at random for the citizens' study were analysed (see Appendix A). As previously, these same LPAs were used in order to provide some consistency of study environment between phases. The applications were viewed using the information published on the public planning register on each LPA website and each application was categorised in two ways:

- who was making the application
- how the application was made.

Applications to 14 LPAs could not be analysed either to there being insufficient information available on the register to classify the applications, or because the terms and conditions of use of the website explicitly excluded use for research purposes. A total of 2884 applications were analysed and the summary results are shown in Table 34 below, along with the difference from the applications identified in the 2013 survey.

Agent for citizen client	Agent for business client	Agent for other /unknown client	Citizen	Organisation/ business/ charity etc	Unknown	TOTAL
1363 <i>(-10)</i>	556 <i>(-6)</i>	128 <i>(+3)</i>	409 <i>(-53)</i>	282 <i>(+58)</i>	146 <i>(+97)</i>	2884 <i>(+89)</i>

Online	Paper	Other/ unknown	TOTAL
1612 <i>(+384)</i>	952 <i>(-325)</i>	320 <i>(+30)</i>	2884 <i>(+89)</i>

Table 34: Results of analysis of all applications to target LPAs in a single week (2015)
Figure in italics indicate the difference from 2013 survey

8.2.3 Sampling methodology

The 2884 applications identified in the target week were then reviewed and applications not meeting the criteria as listed above were rejected (i.e. those made by organisations/businesses/charities etc and by applicants or using methods which could not be classified). Applications were also filtered so that where an applicant had submitted multiple applications in the study week, the applicant was only included once in the target study population. This process left a potential study population as shown in Table 35.

	Paper applicants	Online applicants	TOTAL
Agents	453	954	1407
Citizens	201	122	323
TOTAL	654	1076	1730

Table 35: Comparing 2015 application method between applicant groups

A chi-squared test of the data shown above was carried out. There is a significant relationship between the applicant type and application method $\chi^2(1)=100.774$, $p<0.001$.

As with the previous SME study, at this stage it was generally not possible to identify the size of organisation represented by the applicant and so this filtering had to be undertaken once survey responses had been received.

8.2.4 Developing new theoretical constructs from previous studies

Previous studies reported in Chapters Five and Six reviewed the attitudes of citizen and SME professional planning applicants using a set of attitude statements based on the constructs offered in previous literature (see Appendix C) An analysis of the descriptive statistics from these responses was undertaken and a simple comparative graph is presented as Figure 31 in Chapter Six.

Qualitative data had also been collected on the applicants' perceptions of benefits and barriers to online planning application. This information was analysed both qualitatively (using open coding to identify themes within the responses) and using simple quantitative analysis techniques of this qualitative data to identify other potential factors that might be considered for inclusion in a new model of technology adoption suited to the complex and visually-dependent service environment of planning applications (RQs 3,4,5).

A number of factors appeared to be important to applicants:

- the ability to work in a "green", environmentally-friendly manner,
- the method of developing plans and drawings for building developments, especially the artistic and creative aspects of this process,

- the trust in the recipient LPA to handle, manage and assess applications in a electronic way,
- the complexity or non-routine nature of application tasks.

The "Green" and LPA trust factors were expected to have a positive impact on adoption rates of the Planning Portal online application service. Application task complexity reflected parallels with similar complexity factors in existing adoption models, and was expected to have a negative effect on adoption rates but the researcher wished to keep this factor separate for this initial study as it was concerned with specific aspects of the Planning Portal case study. No assumption was made on the direction of the effect of the visual aspects of the requirement for plans and drawings, although anecdotal evidence was available for both positive and negative effects.

The new constructs were named: Environmental Impact, Documents, Trust in Local Authority, Complexity of Task. A number of new scale items were developed to represent these constructs. Proposed definitions for the constructs are given in Table 36. The new scale items are given in Table 37, with the full list of scale items given in Appendix C.

Factor	Proposed Definition
Complexity of Task	The extent to which the multiple supporting documents required by the planning application task create complexity in the task itself. This is similar to ideas of complexity in published technology adoption models but focussed on practicalities of the service.
Environmental Impact	The extent to which the user perceives the service as having a reduced environmental impact.
Trust in Local Authority	The extent to which a user trusts the recipient Local Authority to handle their data and application in an appropriate way
Documents	The extent that creative aspects of the method of producing mandatory supporting documents affects and/or is affected by the application method

Table 36: Construct definitions for proposed new constructs

Construct items	Primary Source (& Associated statements)	Statement
Complexity of Task	Goodhue and Thompson (2007) (also used in paper version of 2013 SME survey only)	I frequently deal with unusual or non-routine planning applications (CMPLX1)
Complexity of Task	New statement	The need to include multiple documents with a planning application means it is complex to apply online (CMPLX2)
Complexity of Task	New statement	The complexity of planning applications means that it is not appropriate to apply online (CMPLX3)
Complexity of Task	New statement	The complexity of planning applications means that it easier to apply on paper than online (CMPLX4)
Environmental Impact	New statement	Working in a way that reduces my environmental impact is important to me (ENV1)
Environmental Impact	New statement	Working in a way that reduces my environmental impact is important to my organisation (ENV2)
Environment Impact	New statement	I believe online planning is a more environmentally friendly method of planning application than paper applications (ENV3)
Documents	New statement	The way I prefer to develop supporting documentation for a planning application means it is easier to apply online (DOC1)
Documents	New statement	I prefer to create hand-produced plans and drawings to support a planning application rather than use a computer (DOC2)*
Documents	New statement	I feel that the production of plans and drawings to support a planning application is as much an art of a technical skill (DOC3)
Documents	New statement	The creative element in creating plans and drawings to support a planning application is important to me (DOC4)
Trust in Local Authority	Adapted from Carter & Bélanger (2005) (Bélanger & Carter (2008))	I believe the Local Authority receiving my application can be trusted to carry out online transactions faithfully (TRUST_LA1)
Trust in Local Authority	New statement	I believe the Local Authority receiving my application will handle and manage the application electronically (TRUST_LA2)
Trust in Local Authority	New statement	I believe the Local Authority receiving my application will assess online applications electronically (TRUST_LA3)

Table 37: Scale items for new model constructs

In the earlier Citizen and SME Professional studies the researcher had chosen a number of existing model constructs from the literature to study in the Planning Portal context. These were: Compatibility, Facilitating Conditions, Image, Perceived Risk, Perceived Usefulness, Relative Advantage, Trust in Government, Trust in Internet, Self-efficacy.

The SME study phase had used these constructs to conduct a preliminary investigation into their reliability for online SME applicants (Kneller, 2013b). The test of

reliability using Cronbach's alpha (see Section 3.9.2) produced the results as in Table 38. Taking de Vaus' "rule of thumb" (2014, p.184) that a value of 0.7 value is acceptable for alpha, then all but the Perceived Usefulness constructs were internally reliable. By removing the (negatively worded then reverse-scored) statement "The content of the Planning Portal website would be useless for me", the Cronbach's alpha value in the Perceived Usefulness construct is 0.724 giving the average of the remaining 3 item means as 1.62. With this confidence that the existing constructs were internally consistent, they were used in the final 2015 study reported in this chapter.

Figure 39 shows the constructs proposed to be tested in the SME Professional and Citizen studies.

Constructs	No of items	Average of item means	Cronbach's alpha
Compatibility	2	1.75	0.809
Facilitating conditions	2	1.36	0.983
Image	2	3.73	0.800
Perceived risk	2	1.57	0.753
Perceived Usefulness	4 (3)	1.72 (1.62)	0.642 (0.724)
Relative advantage	2	1.69	0.717
Trust in government	2	1.91	0.771
Trust in Internet	2	2.07	0.813

Table 38: Testing reliability of adoption model constructs (Kneller, 2013b)

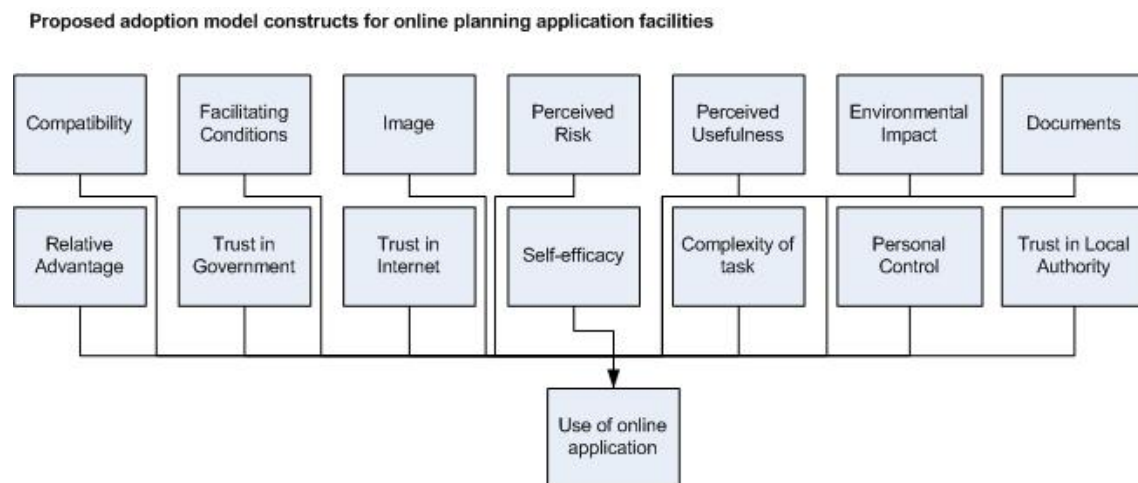


Figure 39: Proposed factors for amended adoption model

To test these new factors, the new constructs and items were tested for face value and the pilot survey issued. The original design of this study phase had been to use outputs from the pilot phase to test the internal validity of the new test items, and refine them for the main phase. However, the number of responses were sufficiently low (8 professionals, 2 citizens) that the researcher had little confidence in the validity of the proposed tests. Strict

constraints imposed as a result of the re-scheduling of the Planning Portal staff interviews mean that no further time was available for additional data extraction. As a result, the study design was revised and the main phase study was re-purposed to provide a larger study population with which to test the validity of the proposed items and to develop a test instrument which could be used in future study of a similar case scenario.

8.2.4.1 Survey methodology

The pilot survey instrument was designed, as above, to collate a range of both quantitative information on a set of attitude statements which included both previously used statements and new ones identified as described above. A mix of qualitative and quantitative demographic questions were also included.

The research phase was under very strict time and cost limitations and so where a email contact address for a potential agent participant was available, an online survey was used. Where this was not available, a paper version of the same survey was posted to the potential participant with a cover letter and postage-paid return envelope. There were so few potential citizen respondents for whom an email address was available, that it was decided to issue all citizen surveys by post, again with a cover letter and postage-paid return envelope.

As it was proposed that different demographic/employment factors might affect application method for citizens and professionals, and also that some factors were only relevant to one population group (e.g. number of adults living in the same home), two different but complementary surveys were developed. One additional attitude statement related to organisational context was intentionally included in the agents survey that was not applicable to the citizens survey. A copy of the citizens' survey is given in Appendix X and the paper version of the professionals' survey in Appendix Y.

Pilot surveys were issued to applicants from the 5 Local Planning Authorities originally selected at random for the 2010 Citizens' paper surveys. Following the change to the research design as described above, the main phase surveys were issued essentially unaltered, with the exception of a randomising of the order of the attitude statements. All three versions of the surveys (Professionals paper survey, Professionals online survey, Citizens paper survey) used the same randomised order.

The small population of citizens identified was of some concern prior to issue of the survey. However, the strict time constraints on this research phase meant that further website application analysis to identify further citizen applicants in particular was not possible. In order to maximize the potential number of responses, it was decided not to sample the citizens group and to issue the survey to all 323 applicants identified. Part of the design for this study was to ensure that the two surveys of the different applicant groups were directly comparable. This meant that to maintain the same sampling strategy all agent applicants also had to be surveyed. Thus surveys were issued to all 1730 unique applicants. Due the high number of invitations that could be sent by email, this just met the financial constraints for the study.

8.3 Research Findings

8.3.1 Survey Response rates

The overall survey response rates are shown in Table 39. 215 responses were received by the deadline. Of the 188 Professionals (agents) surveys returned, three respondents identified themselves as having applied for a personal planning project and so were added to the citizens study responses (as the survey instruments were sufficiently closely matched to allow this, at least in the questions reported here). It is not possible to ascertain whether the applications had initially been incorrectly displayed on the planning register, if a mistake had been made in categorising them, or if they were genuinely professionals applying for a personal project. However, inclusion of appropriate questions on both surveys allowed this issue to be identified, thereby supporting the validity of the findings.

A further 27 responses, once analysed, were identified as having come from larger organisations than the SME criteria specified (i.e. they were from organisations with 50 or more employees, see Figure 40) and these were removed from the overall analysis from this point on.

Survey Phase	Population / Invitations Issued	Surveys Returned	Survey considered valid for this group	% valid response
Agent (SME Profs)	1407	188	158	13%
Citizen	323	27	30	9.3%
TOTAL	1730	215	188	12.4%

Table 39: Response rates for new model factors study

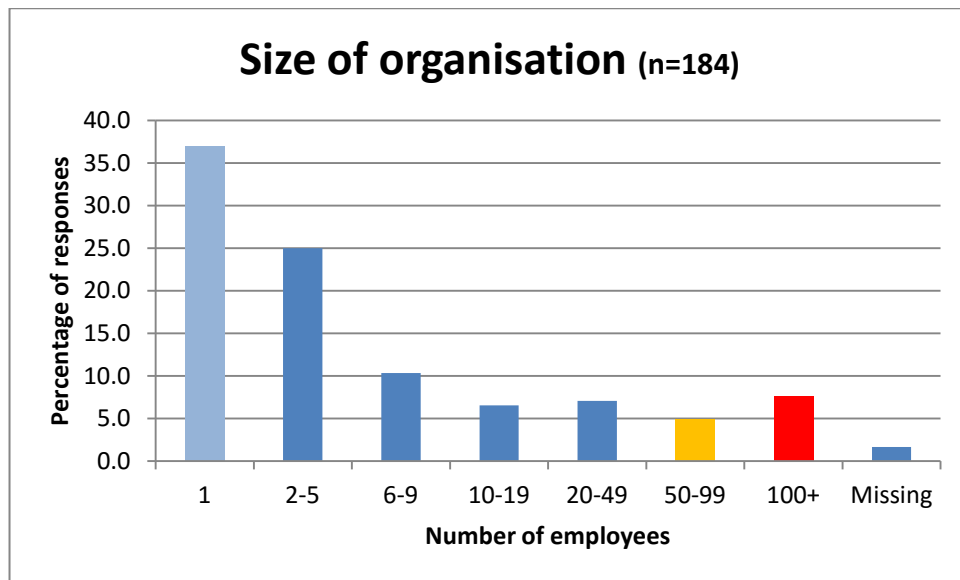


Figure 40: Size of responding agent organisations

The response rate from the citizen survey was particularly low with only 30 responses (9.3%). The consequence is that once the respondents are split in application method categories, the groups are too small to support sophisticated statistical analyses. Consequently a more descriptive approach will be taken in presentation of the citizen findings.

8.4 Demographics of the citizen and SME agent respondent groups

Basic demographic information was collected for both citizen and SME agent groups. The characteristics of the two 2015 groups are presented below.

The ages of citizen respondents are comparatively skewed towards the older end of the range. The SME respondents show the same modal peak in the 45-54 age group as found in the 2013 SME study.

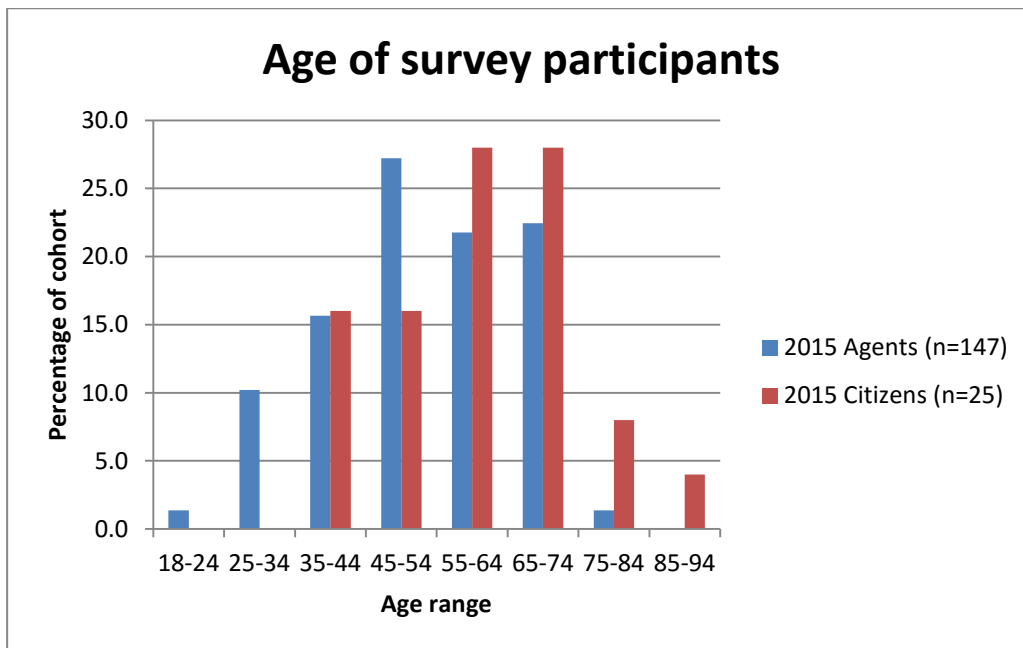


Figure 41: Comparing Ages of 2015 citizen and professional respondents

The graph of respondent gender below shows the same male dominance as found in previous studies. In fact the 2015 SME respondent cohort is even more male dominated (83%) than the 2013 SME group (73%). This triangulation of data provides some validation that this dominance is a true reflection of the real-world applicant population.

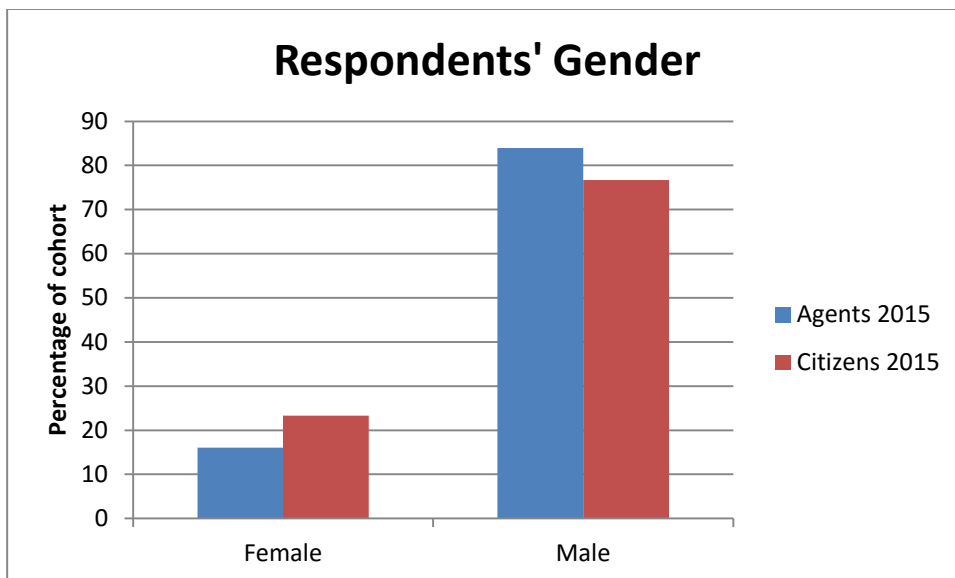


Figure 42: Gender distribution of 2015 survey respondents

8.5 Citizen findings

Citizens were asked about their Internet use and the method of their most recent application. 28 of the 30 respondents were current Internet users and so were potential users of the Planning Portal 1App online application service. However, over half of these

made some type of paper application (8 on forms downloaded from the Internet and then printed; 6 on paper forms obtained in another way).

Application method	On paper forms inc downloaded	Online via the Planning Portal
Current Internet User	14	13
Non-Internet User	1	n/a

Table 40: Citizen application methods (2015)

Familiarity with the application process, as represented by the number of applications made in the most recent 12 month period was anecdotally identified by Planning Portal staff as having an impact on use of online applications (particularly in comparing the professional/citizen differences). However, it was also recognised that citizens are likely to submit only very small numbers of applications in their lifetime. 21 respondents stated how many applications they had made both in the last 12 months and over their lifetime. Of these just over half (52%) had only ever made 1 application, 28% had only made 2 applications. However two (9%) had made 20 applications over their lifetime.

Looking at recent experience, 24 respondents gave both application method and 12-month numbers (see Table 41): 79% had only made one application in the previous 12-months. However, the response rate results in expected frequencies too small for Chi-squared tests of statistical significance to be valid.

Number of applications in last 12-months	On paper forms inc downloaded	Online via the Planning Portal
1	8	11
2	3	1
Greater than 2	0	1

Table 41: Citizen application methods by application volume (2015)

The citizen respondents were asked what factors affected their choice of application method. The qualitative responses were reviewed and have been represented in graphical form in Figure 43. As in previous studies the same factors have been cited as reasons for applying both online and on paper. Several of the stated factors relate directly to factors, in the technology adoption models – cost-saving and speed (Relative Advantage), lack of IT facilities (Facilitating Conditions). However, there were a number of other interesting comments where the LPA has promoted off-line application methods. One respondent said that they had tried to apply online and had "*got stuck*" so the LPA concerned emailed a copy of the relevant form to print out. Two applied on paper on the advice of the Planning department or with help from a Planning Officer. Another comment reflected findings from

the first citizen surveys, and from the Planning Portal interviews that users of the service were not clear that the Planning Portal supports the application form on behalf of the LPA:

"I applied online via the NDDC Website - I have no idea whether this is the same thing as the Planning Portal - the branding is different" (Cit15_S)

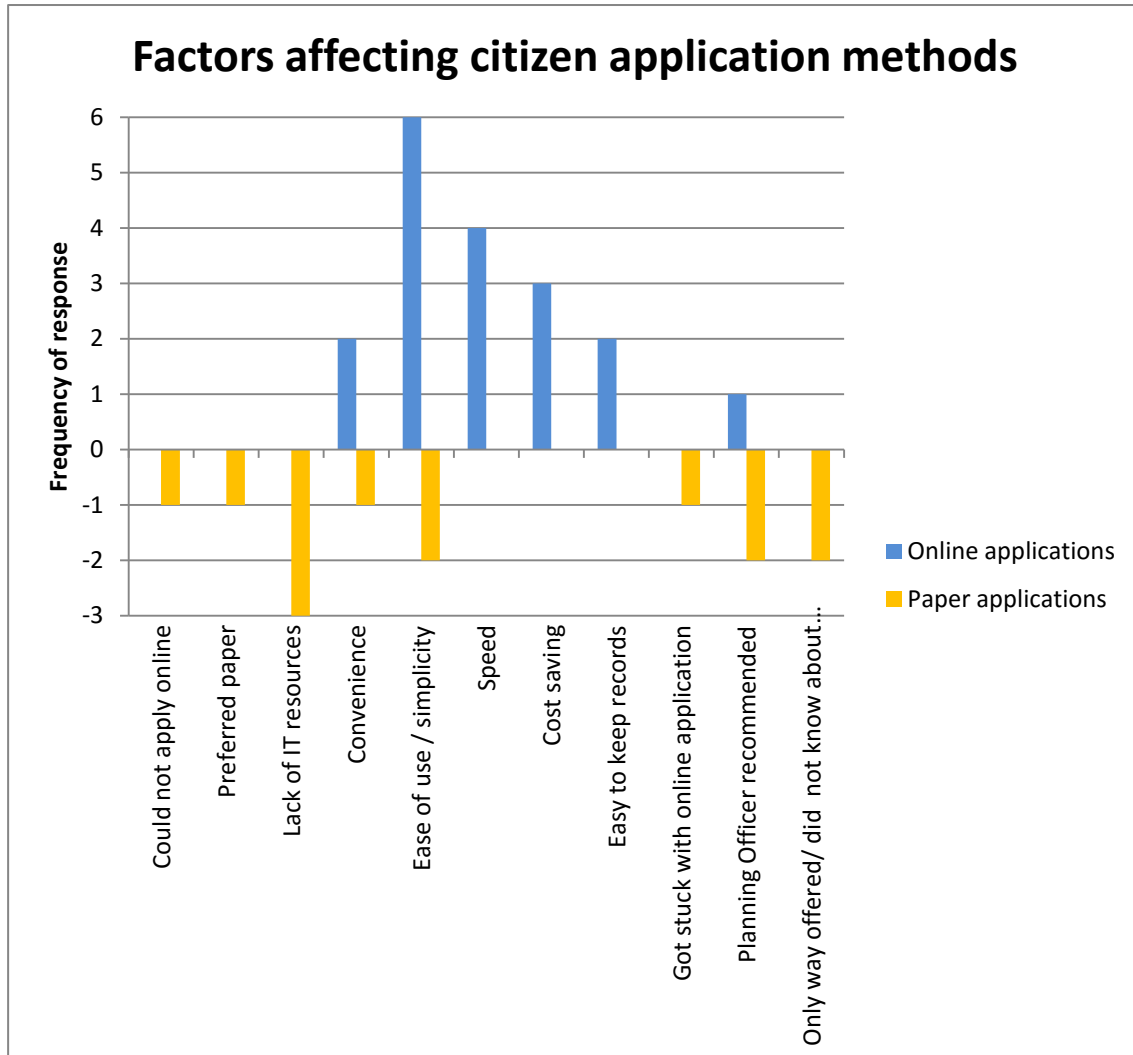


Figure 43: Factors affecting citizen application methods (2015)

One of the factors that is claimed by various of the technology adoption models as affecting take-up of e-government services was that of peer-influence and subjective norms (e.g. Hung *et al.*, 2006). To investigate this respondents were asked if they knew anyone who had recently applied online (without specifying the meaning of "recently"), and if so, how their associate had applied. Of the 30 respondents, only four specified that they knew the application method of an associate: two applied using paper methods, two online. These values are again too low to draw any inference of peer influence on application method.

8.6 SME Professional (agents) findings

The respondents to the 2015 SME survey were again dominated by architects (36%) and planning agents (23%) as they were in the 2013 survey.

Of the 157 respondents who indicated an answer, all but two were Internet users and hence 99% were potential users of the Planning Portal online service.

Professionals were asked to estimate the proportion of their applications that they made: online, on printed forms, on forms downloaded then printed, or using other methods. 43% claim to always apply online, and 23% always on paper. However, in an apparent change from 2013, more respondents indicated that they "almost always" used the same application method. This is especially true for online applicants, where a further 14% of respondents used online applications between 95% and 100% of the time, so 57% of respondents were identified as very regular online applicants. Figure 44 illustrates the SME professional application methods.

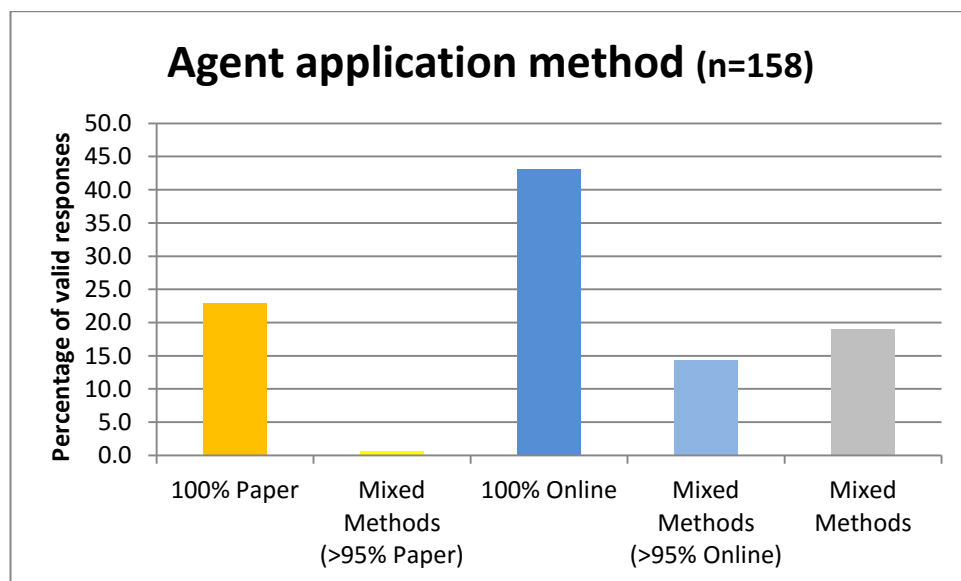


Figure 44: Agent application methods (2015)

The period of professional involvement was identified in 2013 as having a significant factor in determining application method. Figure 45 compares the 2013 and 2015 distributions of professional involvement. The significant peak found in the 2013 responses at the modal 36-40 experience group also appears in 2015. However, the new responses also show large peaks in the 6-10 years and 26-30 years categories.

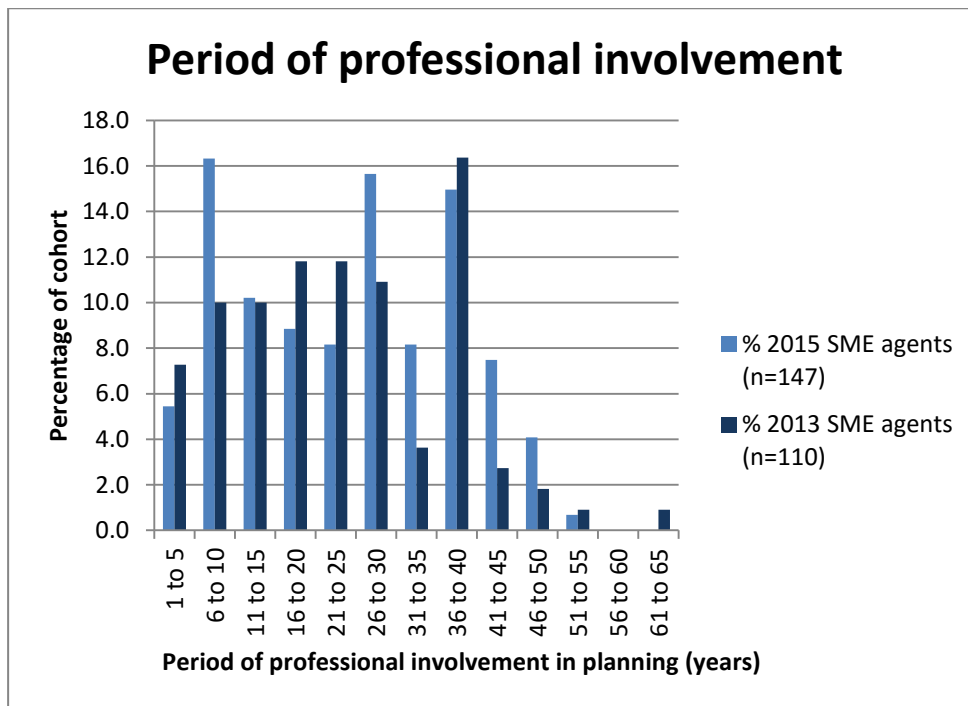


Figure 45: Period of professional involvement from SME2015 study

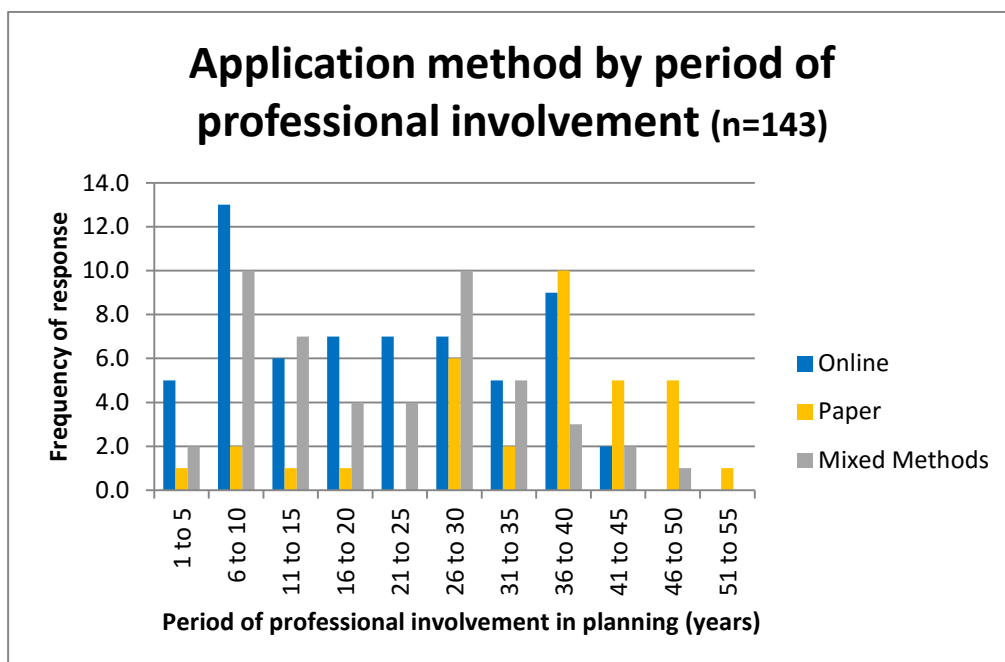


Figure 46: SME2015 application method by period of professional involvement

8.6.1 Impact of application volume on application method

SME survey respondents were asked how many applications they had made in the previous 12 months. This is shown correlated with application method in Figure 47. As with the 2013 survey only the first three bands of application volume contain all three main methods (100% paper, 100% online and Mixed methods).

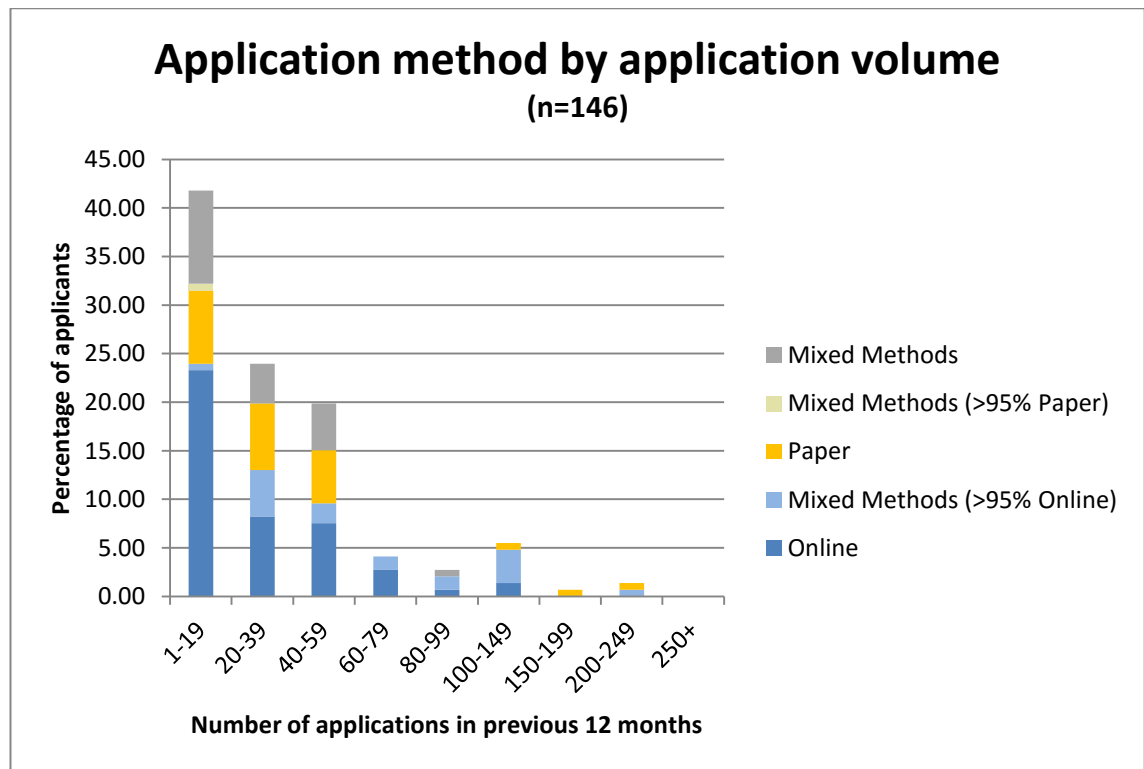


Figure 47: Impact of application method by application volume (SME 2015)

8.6.2 Factors affecting SME choice of application method

SME Professionals answering the survey were asked (qualitatively) what factors affected their choice of application method. Many of the patterns found in the 2013 survey (see Figure 30 in Chapter Six) were repeated in the findings, providing some confidence in the results through triangulation of data. Respondents were permitted to provide more than one reason, and those responses that occurred more than three times are included in the quantitative analysis presented in Figure 48 below. As with the 2013 survey, some generic factors such as ease of use, speed, simplicity (which reflect factors already identified in common technology adoption models) are claimed by users of both paper and online application methods. The factors associated with Relative Advantage (reduced cost, reduced printing) are also common in both surveys.

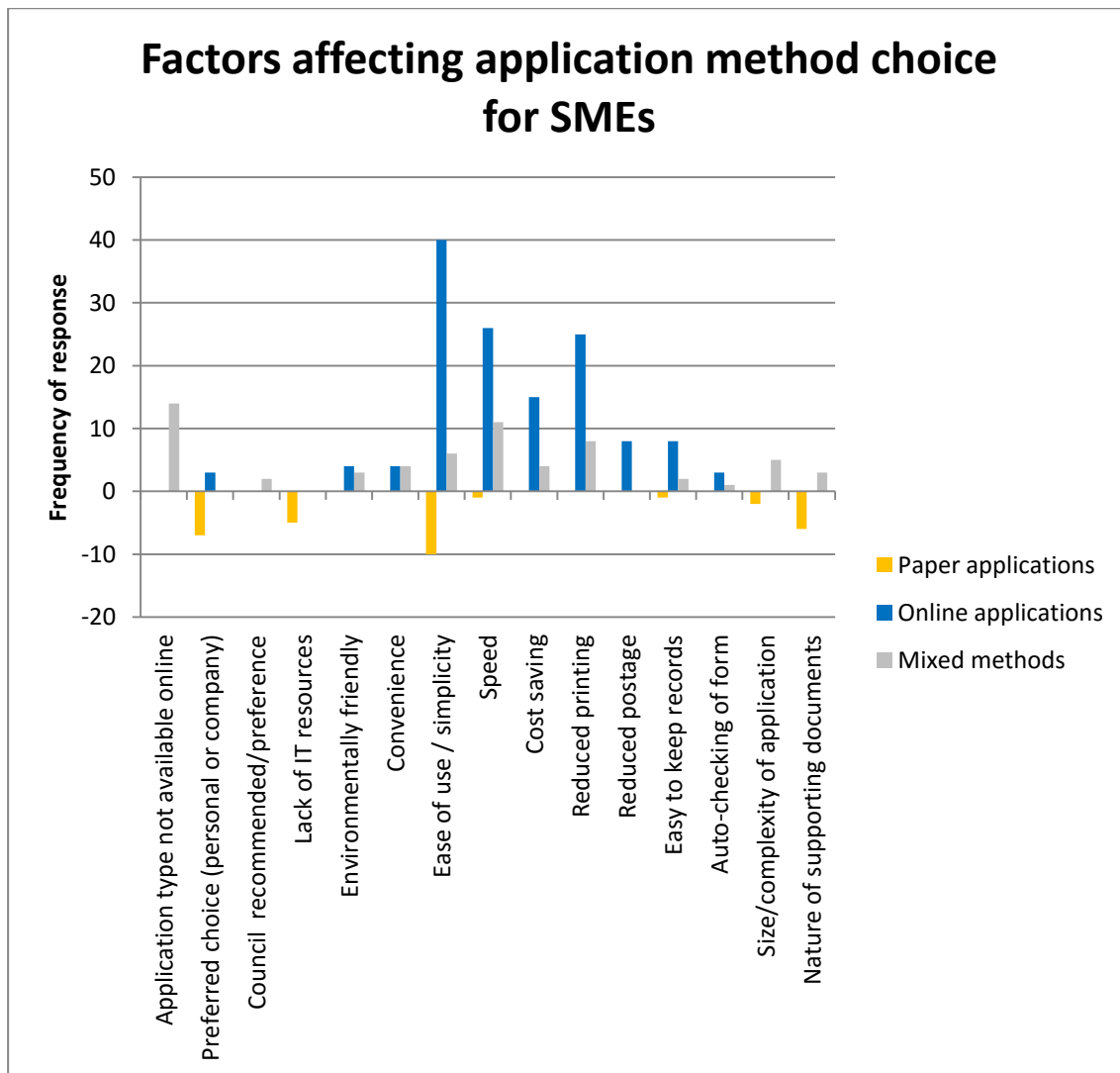


Figure 48: Factors affecting SME application method choice (SME2015)

The pragmatic issue of specific application forms not being available online remains an issue with a number of respondents saying they preferred to apply online, but could not in some cases:

"Always use the Portal unless we can't find the relevant form (which is seldom)." (SME15_S, Mixed Methods Primarily Online)

"The Planning Portal is easy and convenient to use and saves on printing costs for submitted plans. Paper forms are used for Prior Approval applications but it would be simpler if they were included in the above system". (SME15_S, Mixed Methods Primarily Online)

The new factors identified for inclusion in the test items are also represented in the qualitative data – online applications being environmentally friendly, issues associated with the complexity of the application task, and the nature of supporting documents:

"Convenience, avoidance of the need to produce prints, collate & post the application - cheaper, better for the environment" (SME15_S, Online applicant)

"Planning Portal is my preferred choice due to ease of uploading documents. Paper forms take more time and expense to complete due to the amount of printed documents required. Planning Portal also helps you ensure you have checked and completed all sections". (SME15_S, Mixed Methods applicant)

"How complicated the application is. Many of my drawings are hand drawn and don't always reproduce very well when scanned, printed then re-printed!" (SME15_S, Mixed Methods)

"Efficiency. Though for simple applications like tree works applications, the uploading of documents actually is more onerous than posting simple sketches" (SME15_S, Online Applicant)

However, some applicants continue to struggle with the online forms in their own work environment:

" We have tried to use the Portal but have found it extremely difficult", (SME15_S, Paper applicant)

" We find it easier as various people are sometimes involved in a single application. Not everyone is in the office at the same time." (SME15_S, Paper applicant)

Others simply choose not to use them *"Practice used all working life and see no reason to change", (SME15_S, Paper applicant)*

8.7 Proposing new adoption model factors for Professionals

Whilst the original study design for this phase had been both to propose new factors in technology adoption models for both citizen and SME professional groups, and conduct statistical tests on the effectiveness of such model, a severe time constraint caused by the re-scheduling of the Planning Portal interview phase, meant that a large-scale study was not possible. Furthermore, the numbers of responses in the citizen group were so low that substantive quantitative analysis was not possible. Instead the purpose of the study was revised so that the researcher merely proposed and tested new factors for the SME group, which could present opportunities for a more in-depth study in future research.

This section, then, presents the findings of the testing of new model factors for the SME professional cohort.

Appendix C shows all the scale items and constructs used in this survey; new scale items are shown separately in Table 37. Data from the Professionals survey responses were prepared for analysis by reversing the coding for those statements that were negatively worded. 15 responses had values missing in one or more of the scale items. Missing values were replaced with the mean average score of the other responses of that scale items, as recommended by de Vaus (2014, p.174) as a means of keeping as many responses as possible without affecting the overall mean. Two responses were not used in this analysis as their application method could not be determined. 153 valid cases were used in this analysis.

The internal reliability of each of the model constructs selected was tested using Cronbach's alpha and the results are shown in Table 42. Five constructs were identified as not being reliable, with alpha values of less than 0.7 (De Vaus, 2014, p.184). However, this included three constructs that had been identified as reliable in previous studies both in literature and in the SME2013 study (Kneller, 2013b).

Constructs	No of items	Average of item means	Cronbach's alpha
Compatibility	2	3.225	0.722
Facilitating Conditions	2	1.693	0.810
Image	2	3.615	0.719
Perceived Risk	2	1.902	0.460
Perceived Usefulness	3	2.066	0.831
Relative advantage	3	2.211	0.728
Trust in Government	2	1.977	0.764
Trust in Internet	2	2.091	0.891
Self-efficacy	2	1.729	0.328
Personal Control	2	1.7025	0.367
Complexity of Task	4	2.668	0.734
Environmental impact	3	2.219	0.871
Documents	4	2.197	0.197
Trust in Local Authority	3	2.231	0.658

Table 42: 2015 SME study - reliability of constructs

Two of the new constructs also had alpha values of less than 0.7: *Trust in Local Authority* (0.658) and *Documents* (0.197). For *Trust in Local Authority*, removal of the scale item TRUST_LA1 raised the alpha value to 0.747, reducing the number of scale items in that construct to 2.

The *Documents* construct was more complex. Reviewing the statements, two were directly related to the creativity and artistic skill in creating plans and drawings for planning applications:

- DOC3 – "I feel that the production of plans and drawings to support a planning application is as much an art of a technical skill"
- DOC4 – "The creative element in creating plans and drawings to support a planning application is important to me".

Taking these two scale items into a separate *Creativity* construct, the reliability is much greater (0.658) although still a little short of the 0.7 target. The remaining two scale items refer more to the method of creating supporting documents:

- DOC1 - The way I prefer to develop supporting documentation for a planning application means it is easier to apply online
- DOC2 - I prefer to create hand-produced plans and drawings to support a planning application rather than use a computer (reverse-worded).

Combining these two scale items into a *Document Method* construct gives an alpha of 0.736.

The revised new factors are shown in Table 43: all new factors have a reliability of close to or greater than the target for Cronbach's alpha of 0.7. Definition of the new set of constructs is given in Table 44.

Constructs	No of items	Average of item means	Cronbach's alpha
Complexity of Task	4	2.668	0.734
Environmental impact	3	2.219	0.871
Trust in Local Authority	2	2.265	0.747
Creativity	2	1.928	0.658
Document Method	2	2.468	0.736

Table 43: Reliability of revised new factors

Factor	Proposed Definition
Complexity of Task	The extent to which the multiple supporting documents required by the planning application task create complexity in the task itself. This is similar to ideas of complexity in published technology adoption models but focussed on practicalities of the service.
Environmental Impact	The extent to which the user perceives the service as having a reduced environmental impact.
Trust in Local Authority	The extent to which a user trusts the recipient Local Authority to handle their data and application in an appropriate way
Creativity	The extent to which the user sees the activity as having important creative aspects
Document Method	The extent that the method of producing mandatory supporting documents affects and/or is affected by the application method

Table 44: Definitions of revised adoption constructs

8.8 Testing of new adoption model factors

A initial descriptive analysis of the proposed model factors was undertaken to provide an indication of whether such factors might be relevant in adoption models and should therefore be the focus of a more robust investigation in future studies.

Case scores were calculated for each construct by calculating the mean from the two or more scale items that built up the construct scale. This allowed a direct comparison between scale with different numbers of scale items. For each construct, the cases were then split into individuals who had *Ever Applied Online* (100% online and mixed methods applicants) and who had *Never Applied Online*. Descriptive statistics for each construct for both groups are given in Table 45. It should be remembered that scale items were scored on a five-point Likert scale as follows: Agree Strongly =1, Agree=2, Neither agree nor disagree = 3, Disagree =4, Strongly Disagree =5, so that lower values will be considered to be more favourable to online planning.

There do appear to be differences between the Ever Applied Online and Never Applied Online groups. 14 of the 15 groups have lower means (i.e. more positive towards e-planning) in the Ever applied Online group than in the Never Applied Online. The one exception is in the Creativity factor where the group is more positive towards paper application.

As confirmation of the apparent differences between Ever and Never Applied Online groups, the significance of the difference between the means of the groups were tested using a series of independent t-tests. First Levene's test for the equality of variances was applied in order that the test assumption of equal variances could be validated. In only one factor (Facilitating Conditions) was this found not to be the case, and hence Equal variances were assumed for all others, and not assumed for Facilitating Conditions. Independent t-tests were then carried out for each factor. One-tailed tests were required, for all factors except Document Method, as an assumption had been made about the direction of effect for all except this factor. A significant difference between the means (Ever/Never Applied Online) at the $p>0.05$ level was found for all factors. Appendix Z shows the analysis output. An effect size for each factor was also calculated, and any effect size larger than 0.5 was considered to be large (Field, 2005, p.32). Large effect sizes are highlighted in Table 46.

Application Method		Minimum	Maximum	Mean	Std. Deviation
Ever Applied Online (n=118)	Compatibility	1.00	4.00	1.8334	.68159
	Facilitating Conditions	1.00	3.00	1.3771	.53484
	Image	1.00	5.00	3.5085	.79524
	Perceived Risk	1.00	4.00	1.6144	.70835
	Perceived Usefulness	1.00	3.67	1.7119	.57967
	Relative Advantage	1.00	3.33	1.8898	.60081
	Trust In Government	1.00	3.00	1.7076	.58590
	Trust In Internet	1.00	3.50	1.8220	.57929
	Self Efficacy	1.00	4.50	1.5678	.58440
	Complexity Of Task	1.00	4.75	2.3147	.67992
	Personal Control	1.00	3.50	1.5339	.59099
	Environmental Impact	1.00	5.00	1.9322	.84570
	Trust In Local Authority	1.00	5.00	2.1278	.85065
	Creativity	1.00	4.50	2.0291	.82993
	Document Method	1.00	5.00	1.9545	.89167
Never Applied Online (n=35)	Compatibility	2.50	5.00	3.4286	.62004
	Facilitating Conditions	1.00	5.00	2.7571	.95001
	Image	2.00	5.00	3.9714	.84838
	Perceived Risk	1.00	5.00	2.8714	.83440
	Perceived Usefulness	2.33	5.00	3.2591	.67613
	Relative Advantage	2.33	5.00	3.2952	.65565
	Trust In Government	2.00	5.00	2.8857	.69753
	Trust In Internet	2.00	5.00	3.0000	.75732
	Self Efficacy	1.00	3.50	2.2714	.64561
	Complexity Of Task	2.00	5.00	3.8571	.69474
	Personal Control	1.00	4.00	2.2714	.72094
	Environmental Impact	2.00	5.00	3.1856	.82297
	Trust In Local Authority	2.00	4.50	2.7286	.61048
	Creativity	1.00	3.00	1.5857	.60007
	Document Method	2.50	5.00	4.2000	.72963

Table 45: Comparing weighted means for proposed model factors

Factor	Sig. (1-tailed)	t (df)	Effect size (r)
Compatibility	.000	-12.403 (151)	0.710
Facilitating Conditions	.000	-8.216 (40.589)	0.790
Image	.002	-2.979 (151)	0.236
Perceived Risk	.000	-8.842 (151)	0.584
Perceived Usefulness	.000	-13.337 (151)	0.735
Relative Advantage	.000	-11.900 (151)	0.696
Trust In Government	.000	-9.988 (151)	0.631
Trust In Internet	.000	-9.811 (151)	0.624
Self Efficacy	.000	-6.106 (151)	0.445
Personal Control	.000	-11.729 (151)	0.448
Complexity Of Task	.000	-6.154 (151)	0.690
Environmental Impact	.000	-7.747 (151)	0.533
Trust In Local Authority	.000	-3.888 (151)	0.302
Creativity	.002	2.938 (151)	0.233
Document Method	0.000 (2-tailed)	-13.600 (151)	0.742

Table 46: Effect size for proposed model factors

Thus it is proposed that the five new factors identified through the mixed qualitative and quantitative comparative analysis of data from this and previous study phases have a statistically significant effect on the application method, at least for this cohort of SME professionals.

8.9 Limitations of the study

The small population and low response rate in the citizens group meant that more sophisticated analysis techniques were not possible for this group and a descriptive approach was taken.

The time and cost available to this study were very limited and this in turn limited the potential benefits of the study phase. It had been designed to be a more robust exploration of the validity of new construct items for technology adoption models. However the small numbers of responses, particularly in the citizen cohort, meant that more sophisticated statistical techniques were not appropriate. Gomez-Reynoso and Sandoval-Almazan (2013) quote two recommendations for suitability of a study to use formal factors analysis: a sample size of at least 200 observations, and a relationship of at least 10 observations for each

analysed factor. With 153 observations and 15 factors, the dataset available from this study does not meet recommendation one and only just meets recommendation two.

Instead a more exploratory approach was taken, proposing new factors which could be tested at a later date in future studies. A further study with a larger sample size is recommended to conduct a more formal factor analysis. In addition, the study did not look at the effect of the demographic and employment factors identified in previous studies as having statistical significance.

Thus it is recommended that any future research should start by investigation of the factors as shown in Figure 49.

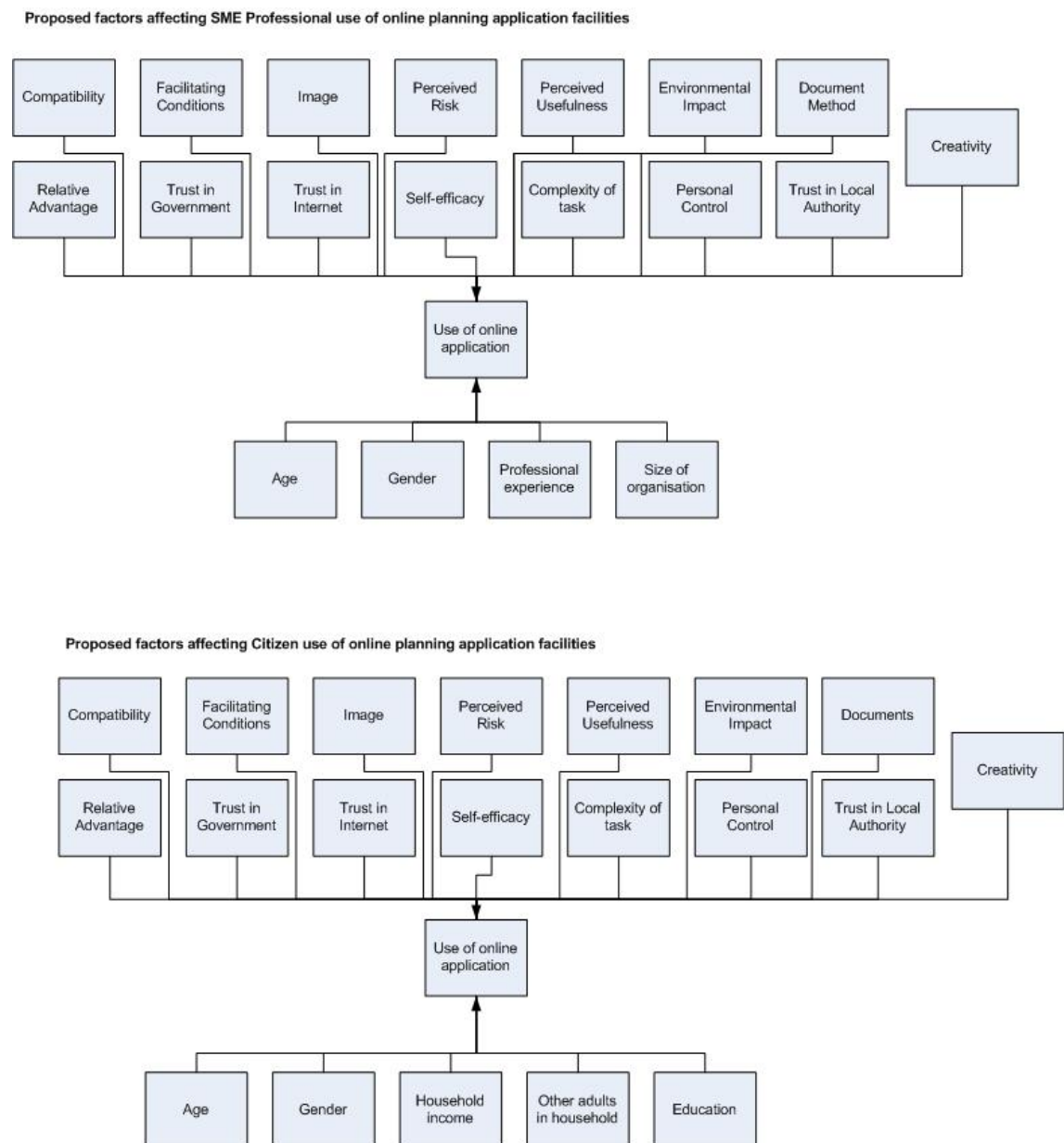


Figure 49: Factors for assessment in future studies

8.10 Chapter Summary

Five new factors were proposed for a model of adoption of e-planning applications. Following some re-structuring of scale items, all new factors had reasonable levels of internal reliability. Simple descriptive statistics were used to test the applicability of the new factors to adoption of e-planning services by SME Professionals in the Planning Portal context. All were found to have a statistically significant difference between Ever/Never Applied Online groups, although the effect sizes varied. The results are specific to this context and no claim is currently made to generalise these findings to other scenarios. The new model will have to be validated using a larger study (to improve model explanation of observed variance) before any attempt to apply it to other scenarios is made.

Chapter Nine: Discussion of results

This chapter discusses the research findings and reviews them in relation to the existing theory, (both descriptive stakeholder theory and models of technology adoption) discussed in Chapter Two and in academic theory and business practitioner guidance that has become available since (and hence was not accounted for in) the original research design. The discussion combines qualitative and quantitative data from the different phases of the study to explore the nature of interactions between the Planning Portal and its stakeholders and to review the nature of factors that promote or provide barriers to adoption for different stakeholder groups.

The five Research Questions that formed the basis for the research and that are addressed in this chapter are:

- RQ1: Can a single online service (such as that provided by the Planning Portal) successfully provide a service to a wide range of different stakeholders?
- RQ2: How does an organisation manage relationships with stakeholders to ensure the service supports the needs of all the different groups?
- RQ3: What are the factors that affect uptake of an online service in different user communities with different levels of experience of the same process on conventional channels?
- RQ4: How does an online service support a human-made decision that is essentially both subjective and visual?
- RQ5: What issues arise from the provision of inputs to Local Government functions from a central government agency?

The research addressed these questions using a multi-phase and emergent mixed methods case study of the Planning Portal, which was at the time of the research, a public sector body providing informative and transactional services around planning application to support multiple stakeholder communities each with different demands of the service encompassing Government-to-Citizen (G2C), Government-to-Business (G2B) and also providing integrated services for Government-to-Government (G2G) interactions with Local Planning Authorities.

In terms of the aspects of stakeholder theory identified by Donaldson and Preston (1995), this chapter reviews the activities of the Planning Portal from primarily descriptive and also instrumental theoretical perspectives. It also uses a variety of modelling techniques as advocated by Flak *et al.* (2008), Axelsson *et al.* (2013) and Solaimani and Bouwman (2012) to illustrate different aspects of the relationships in the Planning Portal stakeholder environment.

This chapter is structured as follows: a review of information from survey, interview and documentary sources to review the success of the Planning Portal online service (RQ1). This is followed by an analysis of the stakeholder environment of the Planning Portal and how stakeholder relationships are managed in relation to the academic literature to answer RQ2. Similar information sources are then used to review how the Planning Portal supports the unusual aspects of online planning services – the subjective and visual nature of the human-made decision-making process and the integrated central-to-local government transactional environment (RQs4 and 5). The factors affecting adoption of the Planning Portal online application service are analysed in relation to the Technology Adoption literature (DOI, TAM, UTAUT) are then reviewed (RQ3).

As an exploratory study, no claims are made for generalizing the findings for other case study scenarios. However, it is known that the findings have already been used by the Planning Portal in supporting stakeholder management decisions.

9.1 Measuring success of the Planning Portal

Freeman (1984, p.80) states that the "reason for being" for organisations is generally that they "serve some need in their external environment" and this applies as much to e-government services as to a conventional for-profit firm. In the light of this, this section seeks to review the research findings around the research question:

RQ1: Can a single online service (such as that provided by the Planning Portal) successfully provide a service to a wide range of different stakeholders?

Success of an online service can be identified in several ways: financial cost-benefit analyses, performance metrics collated by the service supplier (such as the Planning Portal KPI1 target), satisfaction scores from users, re-use or re-visit rates of users, or alternatively more qualitative methods such as the benefits identified by stakeholders or users of the service.

Jones *et al.* (2006) highlights evaluation as an important part of e-government service provision and management. There have previously been staff researchers at the Planning Portal who undertook a variety of user studies, but these activities have been reduced due to efficiency measures as a response to budget cuts (PP_I_C). Quantitative measures of success are routinely produced but much qualitative evaluation is now on an anecdotal basis via Account Managers, supported by some survey results and including qualitative and quantitative evidence from this research:

"we use SurveyMonkey to quickly do polls and so forth... Feedback on the Director's Blog.... I did have a product manager working under me, and we had an extra person working in editorial but they've both left and we haven't been able to replace them. They were responsible for ... doing research and finding new product requirements and so forth." (PP_I_D).

The Planning Portal was, at the time of study, provided by a wholly public sector body and hence profit is not an appropriate measure of success for this case study. Instead, the Planning Portal uses both its publicly reported KPI1 target (proportion of all applications made online) and numeric counts of online applications as visible measures of its success, posted on its Director's Blog. On this assessment, the Planning Portal has been a resounding success. From the first online application being submitted in April 2003 (Kendall, 2013a), ten years later, in April 2013, the monthly number of applications had risen to over 30,000 (Kendall, 2013c) and in 2014 the total online applications reached 438,551 (Kendall, 2015), a monthly average of over 35,500. However, these absolute numbers are subject to other factors, in particular the overall level of activity in the building and development industry. The KPI1 target provides a more robust measure of service uptake, independent of fluctuations in absolute application numbers. Figure 14 in Chapter Four illustrates the growth in the proportion of applications made online, rising from 15.9% in 2007-8 to 86.1% in December 2014. The 2013 SME Professional survey found that 72% of the respondents had applied online (including both mixed-method applicants and 100% online applicants). (As the 2010 and 2011 surveys were explicitly designed to focus on non-users and users respectively, no comparison is possible for these studies.) From Rogers' (2003) categories of users, this means that the reach of the Planning Portal is significantly into the Late Majority category for SME Professionals, This reflects the feeling expressed by some Planning Portal

staff that there is an expectation that adoption rate will start to tail off despite efforts to encourage uptake:

" we are still doing lots of the same stuff, which is effective, but is not as effective, because you're now shooting at a smaller pool of fish, and, and now that when you get into those Late Adopters, there are some that won't change." (PP_I_C)

Re-use rate is also an interesting indicator of service success. This research has found that 97% of SME professionals and 86% of citizens who had previously applied online would do so again.

Applicants, both citizen and professionals have indicated through surveys and telephone interviews that they feel there are benefits to the online application service – in particular, speed of application, and reduced direct costs from reduced printing and postage requirements have been cited. The Head of Corporate Engagement at the Planning Portal estimates that one of the larger Corporate companies has saved over £2.1million by submitting its 5000 applications online rather than on paper (Mockford, 2015).

In Freeman's (1984) terms of success involving meeting users' needs, it does appear that the Planning Portal successfully meets the needs of a large number of its stakeholders. However, there is qualitative evidence from both survey and interview results that there is a group of both citizens and professional applicants that will never submit online applications, in particular those professionals who generate hand-drawn plans and drawings. The implication is that there will eventually be a plateau in the levels of adoption. The Planning Portal have taken this as a driver for promotion of end-to-end planning services to professionals and LPAs to help increase application uptake (PP_I_C and PP_I_F).

9.2 How does the Planning Portal interact with its stakeholders?

This section aims to review the research findings in the light of the research question:

RQ2: How does an organisation manage relationships with stakeholders to ensure the service supports the needs of all the different groups?

The results of the different research phases, particularly information from the Planning Portal staff interviews and qualitative data from the LPA and SME professionals

phases have been combined to produce a descriptive model of how the Planning Portal interacts with its stakeholders.

It should be noted that since the literature review and design of this research, a number of literature sources have been published, at least partially filling the gap identified in the body of literature dealing with complex stakeholder interactions as described in Chapter Two. Discussions of relevant publications are also included in the discussion of the research findings below.

Freeman (1984) indicates that stakeholder mapping is the first in a series of steps to stakeholder management and defines stakeholder as "any group or individual who can affect or is affected by the achievement of an organization's purpose" (p.53), Donaldson and Preston (1995) have a slightly different view of stakeholders from Freeman – that a stakeholder is defined by "*their* legitimate interest in the corporation, rather than simply by the corporation's interest in *them*". Figure 15 in Chapter Four shows a simple "hub and spoke" map of the Planning Portal stakeholders. The stakeholders fall into a number of categories:

- internal staff,
- external stakeholders providing governance and funding,
- suppliers of the planning policy that needs to be supported,
- IT technical suppliers that host and develop the service,
- planning applicants as direct users of the service,
- Local Planning Authorities as consumers of the service outputs; and
- indirect customers including consultee groups and professional and trades bodies.

Each of these groups will have different relationships with the Planning Portal in terms of data or information flows, suppliers or consumers of resources, users of transactional services and support or training services.

However, the stakeholder literature provides a mechanism for a more meaningful analysis based on the findings of the study.

Mitchell *et al.* (1997) propose a typology of stakeholders based on stakeholder salience as a combination of power, legitimacy and urgency attributes. Figure 50 uses this

mapping method to show the typology of Planning Portal stakeholders as interpreted by the researcher from study findings.

The analysis has identified two stakeholder groups as being definitive stakeholders (possessing all three attributes). These are the Local Planning Authorities, as direct consumers of the online application service and Planning Portal staff, particularly those who form the direct links between the Planning Portal and LPAs. These represent primary stakeholders for Clarkson (1995) "one without whose continuing participation the corporation cannot survive as a going concern". Both staff and LPA groups are certainly legitimate stakeholders. These two groups both have urgency – particularly in fulfilling the demands of the Local Planning Authorities, as if the technical, communication and data links forming the service (and supported by the Planning Portal staff) are broken, there is no service. The power aspect is particularly interesting as theoretically, if not practically, LPAs could revert to paper applications and would not need the Portal at all.

Thus, the key relationship that the Planning Portal has to manage effectively is with the Local Planning Authorities. Rather than the Portal—LPA relationship being a somewhat paternalistic/patriarchal central-to-local government supplier-to-consumer relationship, responses from the Planning Portal staff seem to indicate that they view it as much more of a collaborative relationship (PP_I_C and PP_I_B). The risk of Local Planning Authorities not needing the Planning Portal service has come to the front of Portal staff minds with the change of status to a private-public partnership: up until now, whilst there have been other sources of information on the Planning Portal including approved online resources such as Planning Aid (<http://www.rtpi.org.uk/planning-aid/>) and self-help books (Speer and Dade (2011) for example), the Planning Portal has had a monopoly on the online application service. At the time of interviews there was uncertainty about whether this would remain the case as a result of the 2014 Planning Portal commercialisation exercise (PP_I_F).

The fact that the Planning Portal-LPA relationship is central to the success of the LPA explains why such effort has been put into creating an atmosphere of trust between the organisations and Planning Portal staff, putting into practice Frooman's (1999) advice on understanding how stakeholders can impact an organisation.

However, there are limitations of Freeman's (1984) "hub and spoke" modelling technique. Firstly the mapping may be incomplete due to information not available to the

researcher (especially in light of the political environment during the Planning Portal interview period).

Secondly the relative levels of each attribute will vary over time, and it is not possible to capture these on a single diagram. For example, the urgency possessed by third-party IT suppliers is likely to vary over the long-term according to contractual timescale, and over the short-term depending on the operational status of the service. Similarly the power that the governmental stakeholders – DCLG, PINS and the Welsh Assembly (WAG) express is likely to be different on short- and long-time scales. Corporate professionals have also been assessed as sitting on the boundary – technically they do not have significant power over Planning Portal operations, but withdrawal of their use of the service would cause a significant and undesirable reduction in the KPI1 index. Corporates are therefore treated in some respects as definitive stakeholders, with dedicated Account Managers and being particularly targeted by the Smarter Planning campaign.

Finally the relationships between Planning Portal and stakeholder are bi-directional, but may not be balanced or reciprocal. For example, the perception that citizen stakeholders have of the power they have over the Planning Portal may be different from that perceived by the Portal itself. Hence Figure 50 shows the Government and IT stakeholders at the boundary of categories indicating that they may move between categories depending on timing, external environment or even the stake being considered.

Non-statutory consultees have power to promote or disrupt electronic planning process, but are generally indirect (and hence not directly legitimate) Planning Portal stakeholders. SME Professionals and Statutory consultees both have power in their relationship with the Portal, (they have choice over their working methods) and are legitimate stakeholders, but generally have less urgency than some other groups.

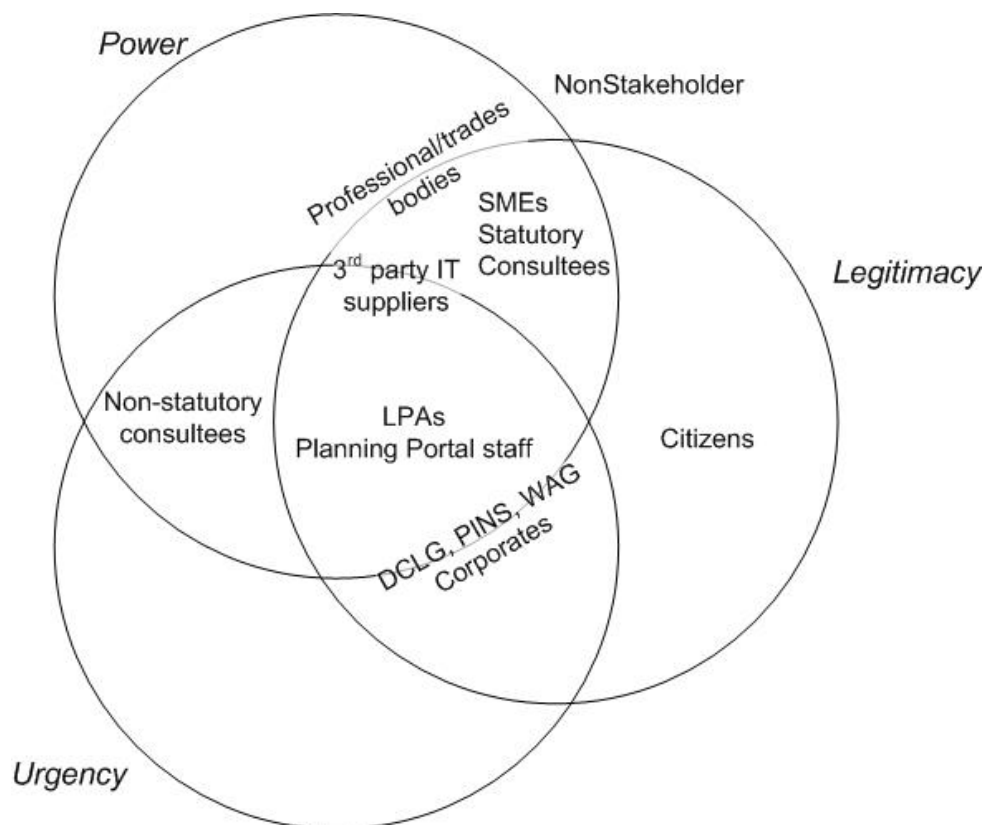


Figure 50: Analysis of PP stakeholder salience (after Mitchell *et al.*, (1997))

In more recently published works, Greger *et al.* (2014) report a literature review in the light of a federal-level e-taxation project shared across several German federal administrations. This is a somewhat different governance situation from the Planning Portal case study in that all the German government stakeholders were at a similar hierarchical level, whilst the Planning Portal is a central government service provided to local level authorities as consumers of the service outputs (RQ5). However, there are sufficient similarities to warrant a more detailed comparison between the two case studies. Greger *et al.* review the stakeholder categories adopted by eight different studies and highlight how few consider the inter-relations between stakeholders. Inter-stakeholder interaction as an intermediary engagement process is a key feature of the case study presented in this research, (for example Planning Portal-LPA-consultees or Planning Portal-profession bodies-professional applicants). It is proposed that the Planning Portal would not have had such success with effective stakeholder engagement, without such active inter-stakeholder activity. Greger *et al.* also noted that stakeholders were generally associated to either demand-side or supply-side in e-government projects. The analysis presented for the Planning Portal above illustrates that whilst stakeholders will tend to sit on supplier- or demand-side for individual transactions, reviewing the service as a holistic process, the

LPAs and the Planning Portal itself sit on respective sides of a more collaborative partnership, at least from a Planning Portal perspective (PP_I_C and PP_I_F). Unfortunately, this research did not explicitly investigate whether this view is reciprocated by LPAs, as the importance of the relationship was not fully recognised until after the LPA study was complete. Greger *et al.* also indicate that issues arise in generalising from categorising stakeholders on a project-specific basis to services, but in the German study they do specifically indicate that the categorising system they propose uses stakeholder categories that can be used throughout the lifecycle of an e-government solution "from the beginning on, over the implementation to the use and application". They have chosen to use the five categories "strategic project owners", "operative project owners", "supporters", "external users" and "internal users". The Planning Portal online application form is an operational service but is under continuous development (PP_I_F) and so the categorization is still relevant. Table 47 illustrates how Planning Portal stakeholders fit into this categorization. Of particular interest is the "Internal user". This has been analysed to include LPAs, as using Greger *et al.*'s categorization, they are internal rather than external users as they receive the outputs of the online application system. It should also be noted that this categorisation does not cover all the types of organisation that the Planning Portal considers to be stakeholders – the consultees and professional bodies that provide indirect links are not included.

Greger <i>et al.</i> (2014) Stakeholder category	Role	Planning Portal stakeholders
Strategic project owners	Commission a project	Planning Portal (DCLG, PINS, Welsh Assembly)
Operative project owners	Implement a project	Planning Portal staff, Third-party IT suppliers
Supporters	Implement and operate a project	Planning Portal staff, Third-party IT suppliers
External users	Users of the solution external to the solution	LPAs Corporates, SME Professionals, Citizens
Internal users	"interact with external users and receive the output of the e-government solution's usage"	Planning Portal, LPAs

Table 47: Planning Portal service stakeholders according to Greger *et al.*, (2014)

9.2.1 Communicating with external stakeholders

Combining findings from all studies in this research reveals that the Planning Portal adopts all three of Freemans' levels of stakeholder management in planning its engagement

with different stakeholder groups: the "rational" level where stakeholders and the nature of the relationship with them is identified (stakeholder mapping) (PP_I_D and PP_I_B), a "process" level where a strategic review process looks at the business and its processes in relation to external factors in the business environment (in an annual strategic planning activity as a minimum, PP_I_A), and a "transactional" level where the practical day-to-day interactions between the organisation and its stakeholders are considered (PP_I_C and PP_I_F).

In addition to formal feedback exercises, the Planning Portal uses multiple channels to communicate and interact with its users. For LPAs and Corporate users the "Director's Blog" and "News" sections of the Planning Portal website are primary communication channels by which information is broadcast, but users also have an opportunity to comment on the posts. Inter-personal methods used to interact with stakeholders include site visits, telephone communications and assistance from Account Managers and Heads of Engagement (PP_I_B and PP_I_C). Previously the professionals' user fora and LPA workshops have been used as promotional activities and training has also been provided to support and encourage new users of the services (PP_I_B). This applies both to direct users – professionals and LPAs, but also to LPA stakeholders, such as consultees, that form indirect stakeholders for the Portal. Professional and trades bodies that represent different occupations are also used as an indirect route for maintaining engagement with stakeholders. "Certification" activities such as the Smarter Planning status for LPAs and Agents are presented as having mutual benefits for both Planning Portal and the stakeholders in these groups in that it promotes the use of e-planning as a concept. However, the Planning Portal also see it as building relationships for the future:

"... we are building a market place if you like ... that we, we could market other things to later. ... And the spin-off benefit is that if they think that they're getting specialist support from us, they are less likely to drift away and start submitting applications in another way...So it's retaining them as users "
(PP_I_F)

Axelsson *et al.* (2013) identify the same gap in the published literature that this author identifies in Chapter Two, that the studies published at that time investigated simple e-government contexts where a service is aimed primarily at one user stakeholder community, but that there was a dearth of more complex case studies (RQs1 and 2). In

response they conducted and published a report of an analysis of an e-government service with multiple diverse stakeholders. The scenario was the examination marking system of a Swedish University, but it covered a similar range of supplier, direct consumer, indirect consumer stakeholders and "impacted others" that the Planning Portal considers. They concluded that their analysis of the case would have been incomplete if they had not considered the full range of stakeholders and that many of the negative stakeholder perceptions held by indirect users would not have been identified. They state explicitly "Increased understanding of this complexity can help us develop public e-services that balance different stakeholders need in a successful way." There are parallels here with the findings of this research particularly in relation to (indirect) Planning Portal stakeholders in later parts of the e-planning process. The issues that consultees, especially Parish Councils, feedback through LPAs and Planning Portal Account Managers seem to indicate that there are both technological and social barriers to an end-to-end e-planning service (PP_I_B and PP_I_C), which are seen as a way of extending the benefits of online planning.

However, whilst there are activities directed at Professionals and LPAs, there is currently little direct promotional activity with citizens. There have been activities such as public events in the past but these have not happened recently as engagement focus has moved to other stakeholder groups (PP_I_B). The rationale from the Portal viewpoint is that as each individual is likely to be a small-volume submitter of applications, and each has little power, and they present little risk over the Portal. Hence, they fall into Mitchell *et al.*'s (1997) discretionary stakeholder group with whom engagement is essentially optional for managers. It must be emphasised that Planning Portal managers do recognise the legitimacy of this group (PP_I_A), but whilst success is measured in increasing KPI1 scores as measure of uptake, and funding for promotional activities is limited, the cost-benefit case does not support actively engaging with citizens.

Responses from Planning Portal staff indicate that they are confident that they understand its stakeholder needs. They have undertaken a number of research activities, although in recent years funding for this has been limited and information sources have been more reliant on anecdotal sources through Account Managers and also have used outputs from this research to confirm the feedback in a more quantitative way (PP_I_D).

9.2.2 Planning Portal interactions with stakeholders

It has been shown that the stakeholder environment of the Planning Portal is complex. There are multiple interactions between Portal staff and its stakeholders and presenting these on a simple map is challenging. As an alternative, Solaimani & Bouwman, (2012) use three aspects of interactions between organisations to create models of operational level processes: Value exchange (tangible or intangible benefits exchanged between stakeholders), Information exchange and Processes to allow such exchange. This VIP framework has been used to model, at a high-level, how the Planning Portal interacts with its stakeholders, following the examples offered in Solaimani *et al.* (2013). Figure 51 shows the "value assets that are exchanged between the Planning Portal and its stakeholders. It is these assets that are at risk if stakeholders are not managed appropriately. The diagram indicates that there are both tangible and intangible assets within the stakeholder network.

Tangible benefits include the IT infrastructure provided by the 3rd party IT suppliers and the reciprocal payment, salary paid to Planning Portal staff, and funding from the government stakeholders (DCLG, PINS and the Welsh Assembly). Intangible benefits include the ability to conduct promotional activities and create the inter-personal relationships with professional and trades bodies, and the access that LPA relationships provide to indirect stakeholders such as consultees and Parish Councils. (PP_I_B and PP_I_C).

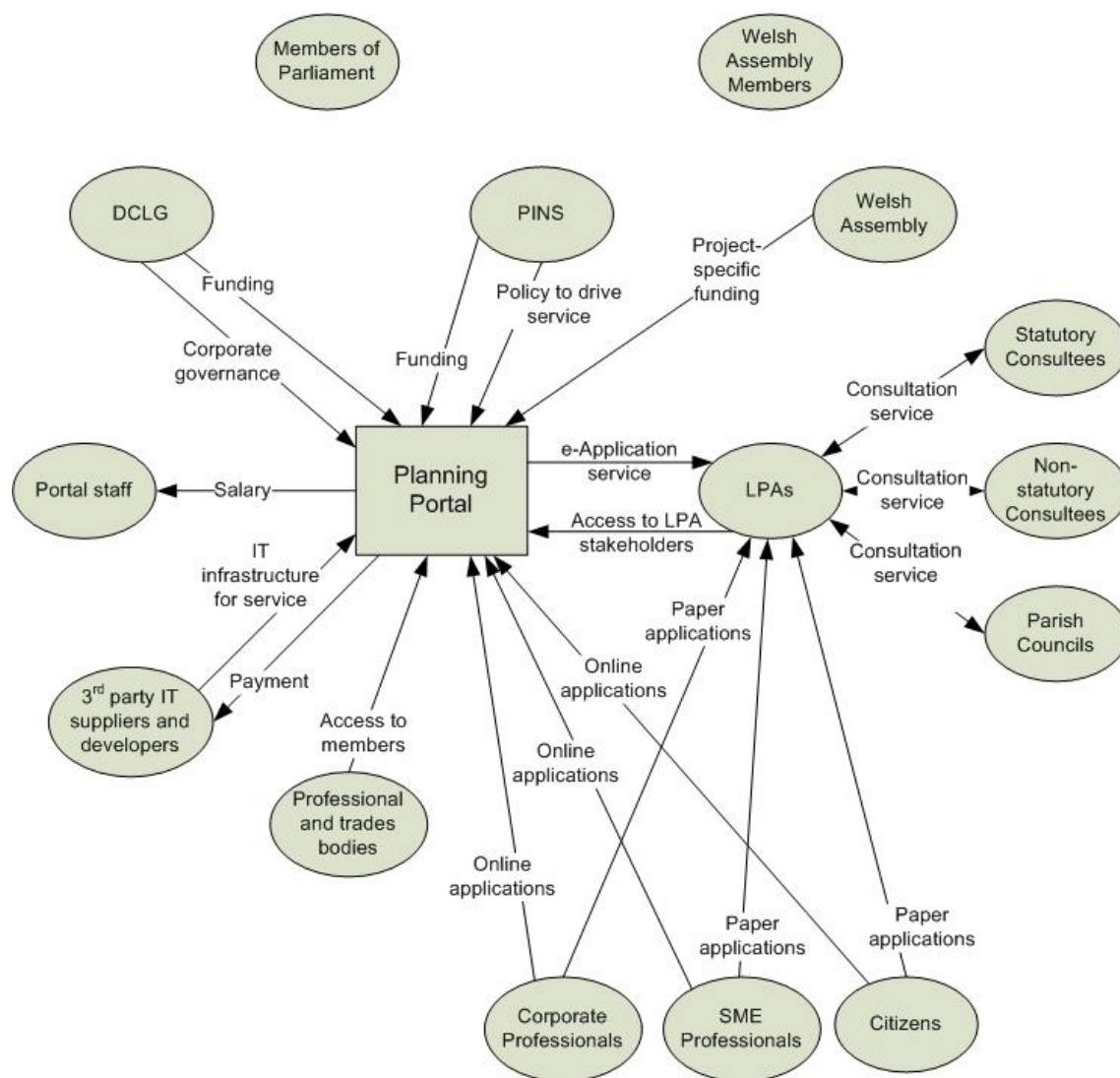


Figure 51: A "Value Assets" view of the Planning Portal stakeholder environment

The information flows that occur in the Planning Portal stakeholder network are shown in Figure 52. Information flows directly related to the online planning service are the application information collated by the Planning Portal and transferred to the Local Planning Authorities. Metrics on application volumes are also collated by LPAs and returned to the Planning Portal for calculation of the KPI1 score. Interactions with third-party IT suppliers include submission of user requirements to the suppliers from the Planning Portal and an estimate of development effort/cost from the suppliers in response. Feedback from consultees etc via the Local Planning Authorities constitute indirect information flows.

There are also information flows that affect the working environment of the Planning Portal but are not directly related to the application service. Typical of these are the generic planning information available on the Planning Portal website, and the department's strategic direction handed down from DCLG as owners of the Planning Portal.

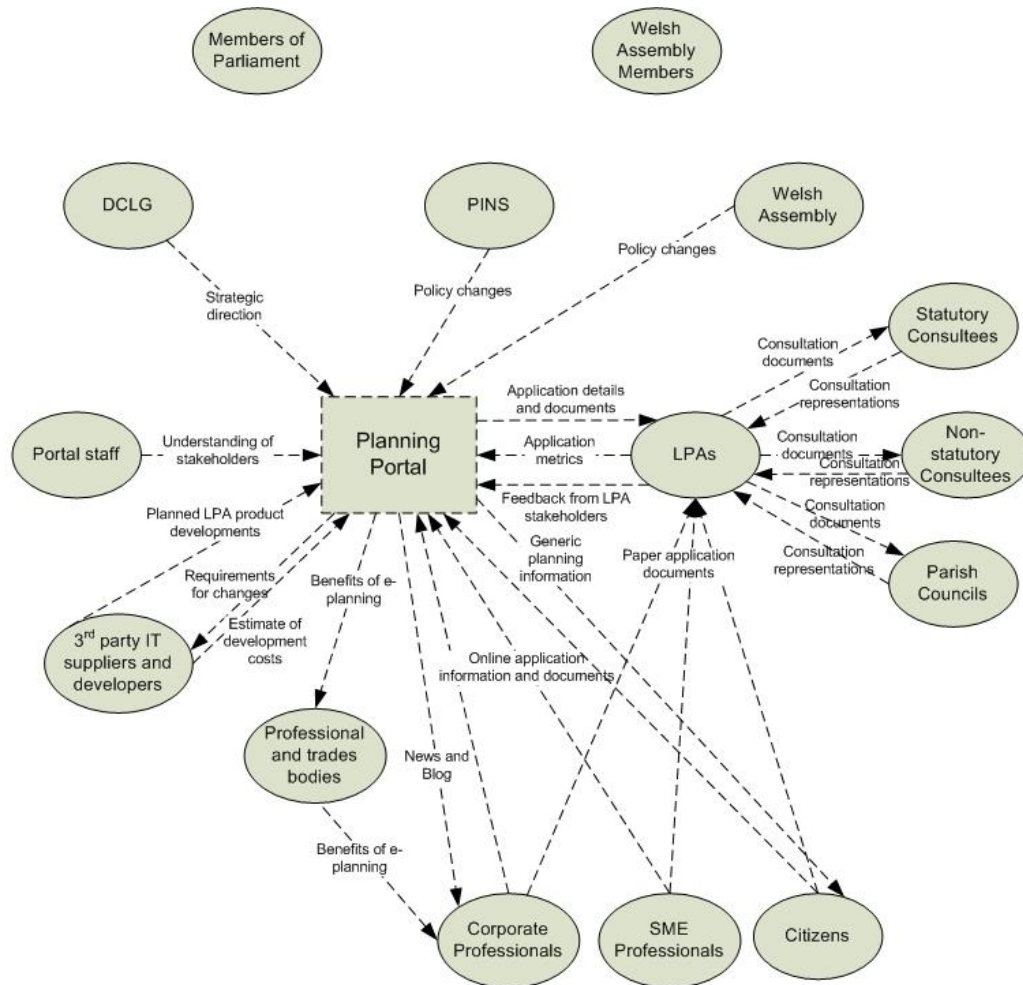


Figure 52: An Information view of the Planning Portal stakeholder environment

Figure 53 illustrates the primary processes within the Planning Portal stakeholder network. It puts the Planning Portal and LPAs at the centre of a network of organisations and processes to support both online planning applications and the developing end-to-end e-planning service.

In the Planning Portal case study, the ICT infrastructure linking the Planning Portal to LPAs to support the online application (1App) service is key to the primary Planning Portal-LPA relationship. The complexity around this technological link is shown in all three of the VIP models above. The success of the Planning Portal is essentially built upon the successful implementation of this ICT and the Portal's relationship with the third-party suppliers who host and support it. Kamal *et al.* (2011) take a step forward to filling some of the gaps in the literature identified in Chapter Two by looking at the role of internal

stakeholders in the decision to adopt large-scale infrastructure Technology Integration Solutions (TIS) in UK Local Authorities (LAs). They identify as one of their key theoretical contributions that ICT "is a critically important area" for LAs in "implementing integrated and 'one stop' electronic government services" and conclude that "there is a limited understanding of the role and impact that diverse stakeholders can have". They focus on the different stages of TIS adoption, but the research presented here represents a contribution to understanding how effective and dynamic stakeholder management has contributed to the success of an operational but continually developing e-government service. (RQs 2,4,5)

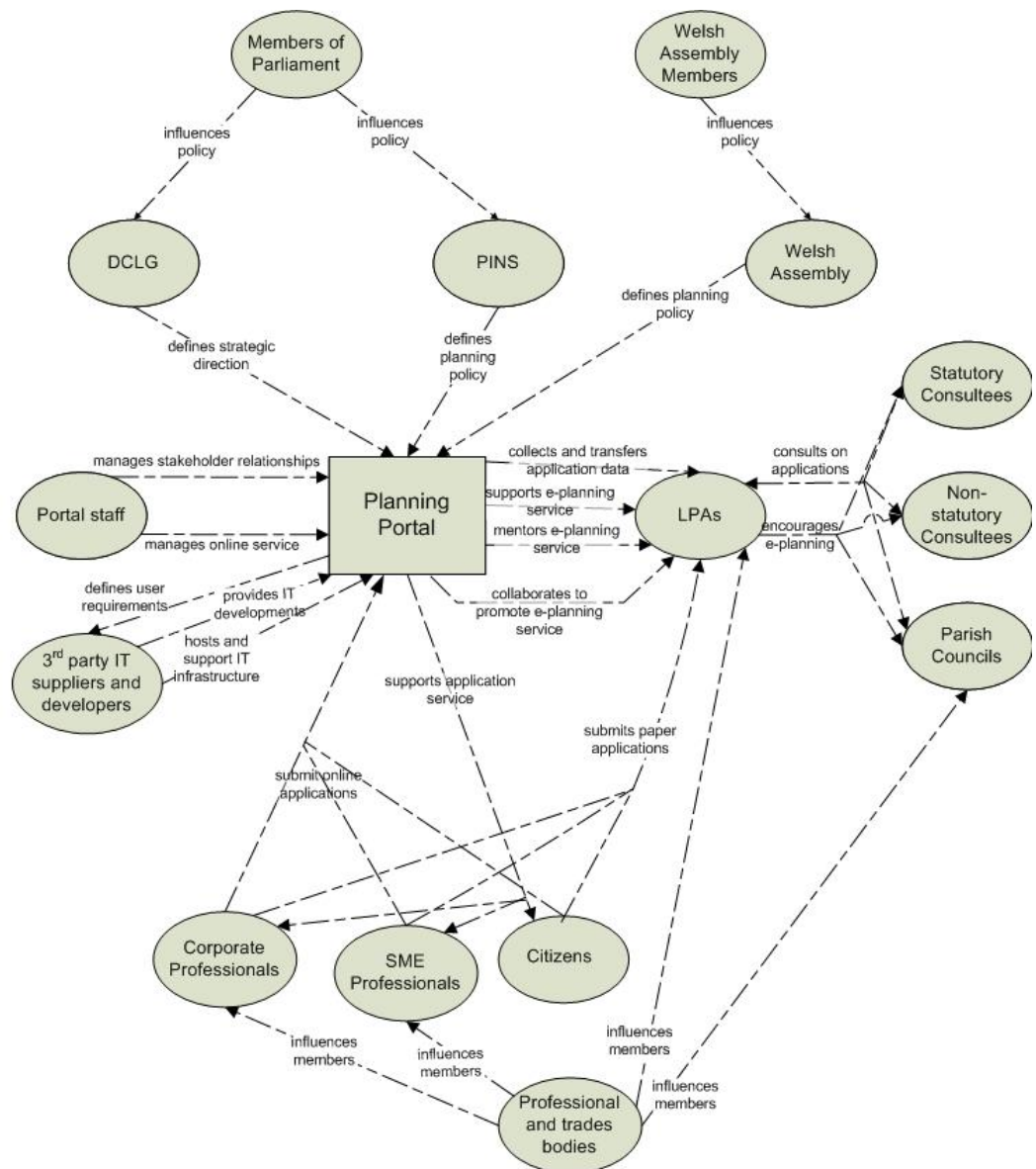


Figure 53: A process view of the stakeholder environment

9.2.3 Types of stakeholder interaction

As the figures above illustrate, there are complex interactions between the Planning Portal and its stakeholders involving value artefacts, information, and processes. All these interactions need to be managed on both a strategic and tactical level by human actors in the stakeholder environment.

Jeffery (2009) differentiates between three approaches to relationships with stakeholders:

- "Crisis management" which he describes as "reactive... episodic, hostile";
- "Stakeholders Management" – "Proactive, regular" but "Defensive",
- "Stakeholders Engagement" – to which he assigns the following attributes: "Interactive, encourage, inclusive, prepared to change" (p8).

Interviews with both Planning Portal staff and external stakeholders have revealed very little need for wholesale "crisis management" although inevitably in IT-dependent organisations there are issues caused by service outages, particularly unplanned, or by software bugs etc. It is generally accepted that these will happen, but it is the organisation's reaction to these that is important. The Planning Portal is pro-active in informing users of maintenance outages. Chilcott (2014a) provides an example.

In his practitioner advice, Jeffery (2009) also presents a recommended seven-stage iterative process for stakeholder engagement as shown in Figure 4. The process stages he recommends are: Plan, Understand, Internal preparation and alignment, Build Trust, Consult, Respond and Implement, Monitor, evaluate and document,

There is substantial evidence from Planning Portal staff of the planning of stakeholder engagement of this kind. Interviewee PP_I_A talks about using KPI1 targets and a business environment analysis to prioritise stakeholder groups and to plan for engagement projects in the coming year (Stage 1: Plan). The Heads of LPA and Corporate Engagement together with the Account Managers, have worked hard to understand (Stage 2) their stakeholders in LPAs, Corporates and Professionals groups and to build trust with them (Stage 5: Build Trust). Jeffery (2009, p.21) stresses the importance of using "shared history to find commonalities", and this has clearly been done in establishing good relationships between the Planning Portal and LPAs. PP_I_F talks about "*...because they feel that we're part of Government. ...the important thing is that Local Planning Authorities have seen us as that, as being on the same side as them*"). There have also been notable activities in

reporting progress and monitoring impacts on performance indicators (Stage 7: Monitor, Evaluate and Document). The Planning Portal appears to monitor their key published performance indicator, KPI1 (proportion of all applications submitted online) on a monthly basis, and changes to their performance and progress on key projects are reported back to stakeholders via the "News" and "Director's Blog" sections of the Planning Portal website. The Account Managers in particular provide a feedback mechanism for LPA and Professional stakeholders for their impressions, concerns and issues with the service, but in recent years there have been financial restrictions which has meant both that the face-to-face opportunities for such discussions have been limited, and also that the pace of service development has been slower than expected, so that Planning Portal management have been unable to prioritise stakeholder concerns as highly as they may have previously. The impression given is that Planning Portal activities as shown in Jeffery's Stage 5: Consult above have recently been rather more a broadcast from the Planning Portal about changes rather than a two-way interaction and that even then, there has been little substantive development to inform stakeholders about (PP_I_A and PP_I_D). Planning Portal Interviewee F (PP_I_F) indicated that such consultation activity was almost being discouraged currently because staff knew that the organisation would not have the resources to implement any significant new changes anyway. The reduction in consultation activity was seen as a way of managing stakeholder expectations.

The discussion above highlights the importance of the LPA-PP relationship and how the Planning Portal sees it as a something of a collaborative relationship. Savage *et al.* (2010) identify two categories of stakeholder strategies: integrative, which are "positive in nature" and involve collaboration to achieve a "win-win" outcome; and distributive (which are negative and lead to a "win-lose" situation). Strategies displayed by the Planning Portal, in interacting with LPAs, to encourage and support channel shifts to electronic working for LPAs, consultees and applicants, through community fora, workshops, training etc all indicate use of integrative strategies (PP_I_C).

Table 48 illustrates the strategies that the Planning Portal uses with different stakeholder groups as identified using Friedman & Miles' (2006, p.162) categorization.

Stakeholder management strategy	Examples of dialogue mechanisms (from Friedman and Miles, 2006)	Planning Portal stakeholder management activities
12 Stakeholder Control	Full involvement in community projects	
11 Delegated Power	Representation on management board	
10 Partnership	Joint Ventures	
9 Collaboration	Strategic alliances	LPAs – working together to organise stakeholder events, advice on end-to-end planning processes
8 Involvement	Constructive dialog	LPAs & Corporate Professionals - Smarter Planning initiative
7 Negotiation	Reactive negotiation. bargaining	Statutory consultees – promotion of end-to-end planning processes LPAs & Corporate Professionals - inter-personal relationships with Account Managers
6 Consultation	Focus groups, interviews, surveys	Professionals – research
5 Placation		SMEs, citizen – feedback surveys and research
4 Explaining	Workshops (two-way dialog)	SMEs, citizens – user workshops and fora
3 Informing	Verified corporate social reports (one-way publication)	Citizens – via publicly issues documents and blog posts.
2 Therapy		
1 Manipulation		

Table 48: Planning Portal stakeholder management and engagement strategies

In summary, in response to RQ2: *how does an organisation manage the relationships with its stakeholders*, the Planning Portal uses positive strategies to try and create win-win situations with its stakeholders.

As a public sector organisation, the Planning Portal cannot use substantive incentives to increase uptake of its services. Strategies therefore focus on promoting the benefits of its service, such as reduced costs, environmentally-friendly processes etc, using persuasion to encourage channel shift. It also uses key stakeholders such as the LPAs to act as intermediaries to give access to indirect stakeholders to continue promotional activities for an end-to-end holistic service. The Planning Portal has also worked hard to encourage trust in its stakeholders, through the use of Account Managers. These staff have been known to act as intermediaries to break down the perceived "them-and-us" relationships between LPA and professional stakeholders (PP_I_F).

The way the relationships with Planning Portal stakeholders have been handled varies between groups. Whilst there is a general indication that all groups of applicant users

are important to the Planning Portal, the demands that supporting them put onto Planning Portal staff are different. This is primarily caused by the different levels of familiarity with the online application functionality in each group. Users in the Corporate Professionals group tend to submit significant numbers of applications creating high levels of familiarity with both the planning process and the Planning Portal online 1App form, whilst citizens probably only apply small number of times during their lifetime. The way the Planning Portal responds to these differ stakeholder groups will depend partly on their salience (as a combination of power, legitimacy and urgency) but also on their familiarity with the service. Citizen stakeholders in particular are more demanding in terms of the support they require, but are of lower salience, in particular power. Thus the risk to the KPI1 score that the organisation runs in not engaging so fully with them is less than a similar course of action with, for example, Corporate users. However, it should be remembered that stakeholder salience will vary over time and hence the perceived importance of stakeholders will also vary over time. The engagement strategies are reviewed regularly to check their suitability under the changing global or business environment.

9.2.4 Impact of external factors

The salience of stakeholders will vary over time. One factor in this may be external influences in the global or business environment of the Planning Portal or its stakeholders. A number of such factors have been identified during the course of this research.

The increase in both availability and speed of broadband Internet connections particularly in rural areas has increased the potential for a channel shift in planning. However, in 2014, several Planning Portal interviewees still highlight low-speed or low-reliability rural broadband connections as barriers to a full end-to-end e-planning system for both applicants and consultees.

Boyne (2002) highlighted the political governance forces and public funding as differentiating public sector from private sector organisations, For e-planning this is reflected in two ways. The UK Government has promoted its "Digital by Default" campaign to create e-government services, from central government departments, that become the default choice, whilst also promoting training and support for those less computer-literate via its Digital Inclusion Strategy (Cabinet Office, 2014). However, at the same time, there has been a period of significant financial restraint in the public sector and there has been little additional

funding (until that announced in the 2015 Spring Budget Statement (HM Treasury, 2015)) to support such changes in Local Authorities. Thus for the Planning Portal e-planning service, LPAs as a key part of the collaborative service have not been centrally funded to make changes necessary to develop the services further than an initial capability.

In the future, a new public-private partnership is to manage the Planning Portal service. At the time of the Planning Portal staff interviews, it was unclear what this new partnership would bring and how much the effective government monopoly would be threatened, potentially bringing new market forces to bear. Jeffery (2009) recommends the use of shared history in building stakeholder relationships. The Planning Portal may now have a shared history with LPAs but may not have a common future and the balance of the relationship may change. Flak and Rose (2005) highlight this increasing "commercialization of public administration" as an issue for normative stakeholder research.

9.3 Supporting a subjective and visual human decision

This section seeks to review the research findings around the research questions:

RQ4: How does an online service support a human-made decision that is essentially both subjective and visual?

No academic publications relevant to this type of question have been identified, and hence this question represents part of the novel contribution of this research.

The research question is addressed by looking at the issues identified during the research in using an e-government service to support such an unusually subjective and visual decision.

At this stage it may be useful to distinguish between the online application and information services provided by the Planning Portal and the generally unstated, but increasingly important, objective of the primary network stakeholders of an end-to-end e-planning service.

Firstly, issues have been identified in the uploading of graphical documents such as planning application plans/drawings and technical reports to the Planning Portal application and the transfer of these to the back-end systems of the recipient Local Planning Authorities. There is a file size limit of 5MB imposed on the system, at the request of LPAs. Professionals claim, supported by Planning Portal staff, that this prevents uploading of detailed plans and drawing of large-scale developments.

" For every page completed the operation took 3-5 attempts and downloading documents is hit/miss. Also the file sizes acceptable limits the submission of required documentation such as technical reports." (SME_S)

Consequently, alternative routes such a submission of these on CD have to be used, creating a barrier to full end-to-end handling of planning applications.

Once applications have successfully reached the LPA, other issues arise. In order to be able to properly assess an application, the plans and drawings must comply to specified standards including marking particular aspects such as site boundaries in colour, and of providing plans that are properly to scale. Applications that do not meet such standards are not validated and are returned to the applicant for correction. Changes to the Planning Portal service during the period of this study have meant that such attachments should be PDFs and a measuring tool has been introduced. However, 70% of responding LPAs still reported issues of incomplete or incorrect plans/drawings as being in the Top 3 factors causing invalidity in online applications.

There is also a practical issue with viewing, in a manner sufficient to enable assessment of planning applications large format (A0 or A1) plans on a standard desktop computer screen.

" it's not always possible to gain a complete understanding of a plan by looking at it on a relatively small screen. You can't easily compare two drawings side by side on a screen ...The general experience of validating on screen is far more constrained than doing so with physical plans" (LPA_S)

"if we were working in, in a system that didn't require drawings or, or kind of, these various sizes of stuff that we seem to have to deal with, then that would be a lot simpler. But we're dealing with anything from a A0 size drawing to an A4... so it's all very, very bitty, and I don't think the, the systems really, really work that well. "(LPA_I_C)

Furthermore, Planning Officers will often need to take such documents out of the office with them to site visits as part of the assessment process and anecdotally many find this impossible. Some LPAs have tried this electronically with some limited success, although broadband access whilst working remotely is also a concern.

"Further development in mobile working is required. Currently back office systems are clunky on mobile devices [sic] so Officers still require hard copy plans for site visits" (LPA_S).

Evidence from LPAs and from Planning Portal Account Managers is that, beyond the practicalities of viewing planning documentation on-screen, some planning staff just simply prefer working with paper. 85% of LPAs responding to the survey agreed with the statement *"Some officers prefer to determine applications using paper copies rather than on screen"*.

"This really depends on the nature and complexity of the application and also the preference of the validating officer. Many of our Officers are not comfortable measuring on plans using the measuring tool available in Adobe Pro and so prefer to use a physical scale rule" (LPA_S).

There is a feeling with Planning Portal staff that perhaps that this is a generational issue, and that as younger staff who have qualified as Planning Officers in an e-planning age start to dominate the work cohort, then perhaps this issue will die out:

"because a lot of these Planning Officers are mature Planning Officers who are used to working with paper. They're not used to working with electronic devices on-site and there's issues with reception, handling a large drawing on a small tablet. ... So it's the technology... clash ... resistance to switching over to that, you know, you'll probably get the younger .. Planning Officers coming through out of uni ...they're used to it, they're going to use it." (PP_I_B)

However personal preference for working on paper is not just true in LPAs, but for many applicants too. Many SME applicants in particular felt that this was their preferred way of working and that they simply did not want to change. The two SME interviewees who hand-draw designs seemed, in particular, to value the artistic nature of their work. This finding fed into the proposal of new technology adoption factors as discussed in Section 9.4 below.

"nothing at all. the day I cannot fill in a set of forms and post them with the drawings to the local authority, I shall stop working", (SME Paper applicant, survey response)

"Nothing as don't do CAD. All drawings have soul and are hand drawn and individual character", (SME_S Mixed Methods Applicant)

" I often do sketches or perspectives as well so... which I couldn't really do on the computer. This is where being [able] to draw on a piece of paper is quite useful ...Recently I did a thing where the approach up the drive you see a lot of different, um, shapes and forms of farm buildings... I did a sketch explaining that ...the thing we were proposing was, in fact, relevant but it might not show on the elevation because it's kind of behind you. So I used a sort of sketch showing that um and that, that actually really helped the

conversation, but I would have really struggled to do that with a computer by any means really." (SME_I_A)

Indeed the SME professionals study indicated that Professionals seem to fall into two categories: dedicated paper applicants who enjoy the more artistic side of the job, especially in creating hand-drawn plans and charts and do not wish to use online applications, and the dedicated online applicants who will often only switch back to paper when they have no alternative. Both groups acknowledge the pros and cons of their chosen methods, but nonetheless feel that their chosen method is the best way for them.

There is also something of the "them-and-us" relationship between LPAs and Professional applicants that Planning Portal staff described (PP_I_B and PP_I_F). Evidence from SME interviews was that some professionals were not convinced that LPAs use an end-to-end e-planning service, that the benefits of e-planning could not be fully realised and therefore they did not feel under pressure to apply online either. However, some LPAs were very keen on using an end-to-end planning service. Indeed one claimed to assess all applications online.

In summary in response to RQ4: *How does an online service support a human-made decision that is essentially both subjective and visual?* the evidence from the research is complex. Many of the practicalities of handling graphical elements for online application have been overcome by the Planning Portal but some, particularly limits of upload file sizes do remain. However, whilst many professional applicants will only apply online (or as much as they can subject to the e-forms being available), there is also a group who value the hand-crafting and artistic methods of creating drawings and plans and who just simply do not wish to apply online and nothing will convince them to do otherwise. Looking at an end-to-end planning service whilst some LPAs can provide a full (or nearly full) end-to-end e-planning service, many find the practicalities of handling large plans and drawings on-screen and particularly on mobile devices difficult and unsatisfactory. Thus there are elements of success in supporting visual and subjective human decisions in the e-planning services provided by the Planning Portal and LPAs, but there are also areas, particularly in the area of current ICT capability that means wide-scale holistic e-planning services are still some way off.

9.4 Factors affecting adoption in different user communities

This section seeks to review the research findings around the question:

- RQ3: What are the factors that affect uptake of an online service in different user communities

Since the original literature review, there have been a substantial number of studies applying the different models of technology adoption (TAM, DOI, PCI, UTAUT etc) to different business processes in different cultural and user environments (e.g. Cegarra *et al.*, (2014), Faaeq *et al.*, (2013), and Lu & Yang, (2014)) and developing new ideas in both variants of existing models (e.g. Al-Qeisi *et al.*, (2014) and Nam, (2014)) and complete new models (e.g. Osman *et al.*, (2014)). There have also been studies of e-government portals (e.g. Fath-Allah *et al.*, (2014)).

However, no widely-cited studies of online planning application services were identified. Turner *et al.* (2010) caution against the use of TAM in un-validated contexts. Time and financial constraints in this study mean that no full-blown test of any particular adoption model has yet been conducted in the Planning Portal context. Thus the direct comparison of the results presented here against other studies is probably premature. However, in this study ten factors were adapted from other models, and five new constructs were identified. The factors reviewed are listed in Table 49. All factors tested were found to have a significant difference between the EverAppliedOnline and NeverAppliedOnline groups in the SME professionals group, although the effect sizes varied.

In summary in response to RQ3 the evidence from this limited study indicates that there are factors related to the complex and visual nature of the planning application task that have an effect on user adoption in the SME group. In particular the complexity of the task itself, and that introduced by the inclusion of mandatory supporting documents have large effect sizes. The effect of the "creativity" element, whilst still a significant factor is not as strong (at least for this cohort) as might have been expected from previous study phases.

Factor	Proposed Definition	Effect size (r)
Compatibility	Existing construct	0.710
Facilitating Conditions	Existing construct	0.790
Image	Existing construct	0.236
Perceived Risk	Existing construct	0.584
Perceived Usefulness	Existing construct	0.735
Relative Advantage	Existing construct	0.696
Trust In Government	Existing construct	0.631
Trust In Internet	Existing construct	0.624
Self Efficacy	Existing construct	0.445
Personal Control	Existing construct	0.448
Complexity of Task	The extent to which the multiple supporting documents required by the planning application task create complexity in the task itself. This is similar to ideas of complexity in published technology adoption models but focussed on practicalities of the service.	0.690
Environmental Impact	The extent to which the user perceives the service as having a reduced environmental impact.	0.533
Trust in Local Authority	The extent to which a user trusts the recipient Local Authority to handle their data and application in an appropriate way	0.302
Creativity	The extent to which the user sees the activity as having important creative aspects	0.233
Document Method	The extent that the method of producing mandatory supporting documents affects and/or is affected by the application method	0.742

Table 49: New constructs affecting adoption rates in the Planning Portal context

9.5 Supporting local government services from a central government application

This section seeks to review the research findings around the research question: RQ5: What issues arise from the provision of inputs to Local Government functions from a central government agency?

Academic publications relevant to this type of service environment are rare. Most articles that describe inter-organisational stakeholder relationships refer to collaborations between private sector organisations (e.g. Hahn, (2015)), public-private partnerships (e.g.

Klievink & Janssen, (2014) or multiple public sector organisations that exist on the same administrative level, (e.g. Fedorowicz *et al.*, (2010)). Greger *et al.*, (2014), present a stakeholder analysis of a tax-filing system in Germany where the filing systems are managed by multiple administrations at a federal state level, but the decision makers exist at federal, state or national levels. No literature was identified that studied an e-government service which explicitly linked central and local government level agencies in a single operational service. Hence this question represents part of the novel contribution of this research.

The research question was be addressed by looking at the issues identified during the research in supporting a shared e-government service between agencies at different levels of the public administration.

Key amongst the findings was that the Planning Portal-Local Planning Authority relationship was essential to the success of the service. This applies on all levels: technical, business process, information flow, and inter-personal. Engagement of stakeholders of both sides of the link is vital and needs to be collaborative. However, it is unclear to many users of the service (including some LPA staff) where the Planning Portal service stops and where it is picked up and used by LPAs, including a public online planning register (which is supported by yet more stakeholders, third-party suppliers of Development Control and Document Management Systems). In some cases this has been a deliberate decision, with the Planning Portal providing, for example, some textual static content for LPA planning websites and with LPA site proving links to informational pages on the Planning Portal website..

Nonetheless, this has caused issues in the support of the service. The citizens' surveys in particular highlighted the fact that applicants did not know where the different parts of the service resided or even that they were different. Many respondents who were asked what would encourage them to apply online responded with comments about LPA elements of the service including handling processes. This seamless service might be seen as a good thing for users, but Interviewee PP_I_E identified problems when LPAs do not understand the boundaries either:

"So someone will phone up an LPA for a genuine issue on their site, so their, Public Access is normally their, the application...?... and as soon as you say online planning, they think it's all us, they we run that for them or, or... So yeah I think online planning, the general public get directed to us incorrectly.

And I think they assume it's us as well. ...they know one of us is wrong and they assume it's us 'cause we said it second... [laughter] " (PP_L_E)

Both Planning Portal and LPAs are reliant on the online application (1App) form and service to help meet their corporate targets and so an "integrative", collaborative relationship is essential (Savage *et al.*, 2010) but neither have formal ownership of the service. In this case, (at least in England) it is technically owned by a third agency, Department for Communities and Local Government who provide corporate governance and funding for the Planning Portal team, adding yet another stakeholder to the environment, although this is rather more of an arms-length relationship. The Planning Portal and LPAs then have to collaborate to create a "win-win" situation for both sides. However each will have their own priorities to meet corporate performance targets, environmental considerations such as funding, which means there can be tensions between the stakeholders.

However, the collaborative environment also has benefits, the two organisations can create strategic alliances to conduct promotional activities to help influence, advise and even train other service stakeholders to the mutual benefit of both Planning Portal and LPA.

In summary in response to RQ5 the evidence from the research primarily comes from descriptive stakeholder theory. The researcher proposes that to provide a successful service the two stakeholder agencies must form an integrative collaboration. This provides a basis on which other stakeholder relationships can be managed for mutual benefit. Challenges based on differing priorities or business environmental factors can also be addressed. Whilst little substantive evidence has been identified in this study, it is proposed that this is a key area for future study, and comparison with stakeholder analyses of shared services in other hierarchical combinations is recommended.

9.6 Issues and Limitations of the research

Heeding Donaldson and Preston's caveats (1995) over generalising from descriptive stakeholder studies, no claim has been made to generalise the findings of this exploratory case study to other scenarios.

Mainardes *et al.* (2011) believe that stakeholder theory has not been subject to rigorous testing and advocate the use of further empirical, and particularly descriptive

stakeholder research in the area of stakeholder theory to aid in the review of stakeholder theory against "organizational reality". In particular they highlight the lack of rigorous testing of Mitchell *et al.*'s (1997) stakeholder salience model. Whilst no form of (semi-)quantitative analysis such as that proposed by Rowley (2011) has been possible in this study, qualitative evidence suggest that the model works well for the Planning Portal case study presented here, given that salience is a dynamic attribute being captured as a "snapshot" in a static model.

Nonetheless, Flak and Rose (2005) indicate that one of the characteristic features of e-government projects and services is the complexity of the stakeholder environment. This exploratory study is the first identified to study the nature of such relationships in a complex G2G, G2B and G2C organisational and process environment, with unusual aspects in the visual subjective use of outputs and the central-local government information link. As such it does offer a basis for complementary analyses of other more complex e-government services to review how such complexity can affect the success of a service, and how using strong stakeholder engagement techniques such challenges may be ameliorated.

Analysis of the stakeholder relations in the penultimate phase of research has highlighted just how important the Planning Portal-LPA link is. However, as the level of importance was not identified at the time of the LPA study, no direct questions were asked about this, although some of the LPA telephone interviewees did provide some anecdotal descriptions of the relationship. This has left the analysis of the Planning Portal-LPA relationship being rather uni-directional with the Planning Portal expressing its view but without giving the LPAs a chance to respond. It is recommended that future studies rectify this omission.

Resource limitations for the final adoption factors study meant that it was not as wide-ranging as had been planned, and statistical analysis was only possible for the SME professional cohort, meaning that the planned direct comparison between citizen and professional stakeholder groups was not possible. In addition, many of the models of technology adoption incorporate a linkage between behavioural intention (BI) and actual usage. Nistor (2014) notes much literature does not study this link, and this is also true of the research presented here. Due to the low numbers of planning applicants in the real world, studying usage intention in the wider population is not possible. The only viable method of generating a study population was to identify recent planning applicants. Results from the

early studies indicated that very few individuals had tried to use the 1App form and then changed to a paper application (i.e. in the vast majority of cases, the intended application method was that eventually used). However, the study surveys did collate information on BI and so further analyses could potentially be undertaken.

9.7 Applicability to practitioners in e-government

Despite the limitations of the study, there are findings that are useful to real-world practitioners. Kijisanayotin *et al.* (2009) reflect that "user acceptance of technology is one of the major determinants of [e-government] project success". The model factors study suggests that task-related factors - complexity, supporting documentation and visual elements all play a part in determining service adoption rates. A positive effect was also found in relation to the "green" aspect of an e-government service.

Rowley (2011) posits that the benefits that might be expected by e-government stakeholders are potential factors affecting technology adoption and she presents an analysis tool to categorise these. She contends that this will help organisations understand "potential synergies and conflicts". This multi-faceted approach as used in this research, using concepts from different theoretical traditions may help practitioners understand what factors are important to the users of their service and hence enable them to more successfully target stakeholder engagement strategies.

Thus an understanding of a particular e-government service environment based on academic principles could help practitioners develop e-services that users will want to use (e.g. Digital-by-Default) and policymakers develop guidelines on how it should be done (e.g. UK Government Digital Strategy). It is known that findings from several phases of this research have already been used by the Planning Portal to understand their stakeholders and contribute to stakeholder engagement planning. The complex and highly unusual aspects of the Planning Portal case study provide the basis for an understanding of such inter-relationships not just in simple services but on a much wider range of applications.

9.8 Chapter Summary

This chapter reviewed the findings of the research in the light of academic and practitioner literature.

The chapter started with a review of the success measures used to indicate the progress of the Planning Portal - now 86.1% of all applications are made via the Planning Portal, with a very high re-use intention rate. Thus the Planning Portal does provide a good example of an online service that is successful in supporting the needs of a wide range of stakeholders (RQ1).

In answering RQ2 an analysis against the presented academic theories of stakeholder salience supports the methods that the Planning Portal has chosen to use to engage with different groups, providing substantial support to stakeholders groups that are likely to be of most benefit to the Planning Portal, and less to those, such as citizens, which whilst legitimate pose less risk, and hence have less power, in the relationships. However, this is both a snapshot of the stakeholder network at the time of data collection, but is also a somewhat subjective analysis on the part of the researcher.

Whilst evidence to answer RQ3 was less robust than hoped, five new factors were proposed as a result of early studies with citizen and SME applicants in particular. All were found to have a significant effect for this cohort. A more robust test in the Planning Portal context in combination with other adoption model constructs is recommended, before any attempt at testing these elements in a new scenario is made.

The chapter then reviewed the qualitative evidence to answer research questions RQ4 and RQ5. These two questions provided much of the unique contribution of this research. Interview data in particular identified that there are practical issues with the use of online service to support visually-dependent services (such as the ability to accurately work with technical plans and drawings on mobile devices). However, a significant group of planning professionals were identified who felt that there was no potential for an online service to support the subjective and visceral impact that they hoped for their applications and therefore this group declared themselves unlikely to use such a service. Whilst no significant issues were identified in the use of central government service to provide input to local government decisions (RQ5), these remain a unique aspect of the study.

The chapter concluded with a review of the limitations of the research and its applicability to practitioners.

Chapter Ten: Summary and Conclusion

This final chapter provides an overview of the research presented in this thesis. Starting with an overview of the study and the key findings, it moves on to review the contribution to knowledge of the work for theories of technology adoption and for stakeholder engagement in the e-government sector. Implications for practitioners are discussed. The chapter then finishes by covering limitations of the study and recommendations for future investigations.

10.1 Overview of the study

The research provided a pragmatic, exploratory study of the perceptions and experiences of different user communities in a complex multi-stakeholder e-government service and the factors that affect adoption rates of such a service. Two strands of literature, stakeholder theory and models of technology adoption were used as alternative lenses through which to study the real-world case eventually selected: the Planning Portal online planning application service.

The research was conducted over a period of six years, providing a longitudinal element to the study but during which time the literature had moved on somewhat. The literature review conducted at the time of the original research design identified both omissions in the stakeholder literature, and unexplored aspects of the technology adoption literature. Both descriptive and instrumental elements of stakeholder theory failed to address the critical role that technology plays as an intermediary between supplier and consumer in e-government services. Existing stakeholder studies of e-government also focussed on a channel shift of simple services based around objective decisions. Studies of services that supported more subjective, human-made decisions were not found. There were also no identified studies covering complex services operating simultaneously in multiple business models (G2G, G2B, G2C) and studies integrating e-government services government agencies in different parts of the administration hierarchy are also unusual.

Literature identified around models of technology also focussed either on e-government services as a concept, or again on simple services where the business rules around the "decisions" made in the service are objective and factual, often numerically-based. Much of the literature used case studies of specific e-government services from

different global scenarios, but involved the provision of a service to a single stakeholder role, and/or a single government agency.

Thus both strands of literature presented voids in the area of more subjective, multi-stakeholder, multi-agency services. However, many real-world online and off-line government services are not simple: some support users with different roles; some involve two or more agencies at different administration levels; some support more complex or subjective decisions. The researcher proposed that in order for the literature to more accurately reflect real-world services some of these more complex applications should be studied. Three research questions were developed (RQ1,2,3) to explore such services.

A research proposal to provide a comparative study of different e-government services was developed and requests for access made to UK government agencies via the Government IT Profession and the Public Sector Forums website. Various contacts were made, but key amongst these was a proposal from the Planning Portal which provides e-planning service in England and Wales. A preliminary study was conducted during which the potential for future study was assessed. During this time, it became clear that not only did the Planning Portal case support RQs1,2,3 but also it gave an opportunity to study other aspects of e-government services that had been identified as unaddressed during the literature review (RQs4 and 5). As a result of this serendipitous contact, the direction of research was changed and an intrinsic single-agency case study of the Planning Portal addressing a wider literature base was designed. The detailed research design presented five research questions to be addressed:

- RQ1: Can a single online service successfully provide a service to a wide range of different stakeholders?
- RQ2: How does an organisation manage relationships with stakeholders to ensure the service supports the needs of all the different groups?
- RQ3: What are the factors that affect uptake of an online service in different user communities with different levels of experience of the same process on conventional channels?
- RQ4: How does an online service support a human-made decision that is essentially both subjective and visual?

- RQ5: What issues arise from the provision of inputs to Local Government functions from a central government agency?

10.1.1 Choice of methodology

As described above, the use of real-world case study research is common in both stakeholder and technology adoption traditions and so was adopted in the proposed research design. The focus of the research questions was on the perceptions, experiences and actions of real-world stakeholders of these services, thus a constructivist-pragmatic approach was adopted. Although the researcher was a member of the Government IT Profession, a deliberately independent stance was taken to the study with no particular position adopted on the benefits of e-government services.

The five different research questions presented an opportunity to work with both qualitative and quantitative data, whilst the Planning Portal scenario presented multiple stakeholder groups. Thus the structure of data to be collected and analysed was complex. A pragmatic decision to conduct primarily one phase per stakeholder group, rather than to keep revisiting them was driven both by the difficulties in accessing potential participants and by the requirements of the Planning Portal acting as collaborating (and to some extent funding) body.

A multi-phase mixed methods design was developed, although in practice there were also emergent elements that were introduced to the design as early stages progressed. Each phase was to address a particular stakeholder group using complementary survey and interview techniques, with two integrative phases towards the end. The final phase was originally planned to be a review of findings with the Planning Portal staff to provide triangulation with the user stakeholder phases, with the penultimate study being the proposition and testing of new factors for a revised technology adoption model. However, changes to the ownership of the Planning Portal as a result of a government commercialisation exercise lead to uncertainties in the agency and threats to the research plan, and on the advice of the Planning Portal, the order of the two final studies were reversed. This had an impact on the time available for the new factors study and ultimately the scope of this was significantly reduced with minimal testing being conducted. Nonetheless, some interesting results were identified and provide rich grounds for potential future study.

10.2 Key findings

10.2.1 Supporting multiple stakeholders in complex e-government scenarios

RQs 1 and 2 sought to understand whether, and how a single e-government service could support the needs of multiple stakeholders with different needs and experiences of the service (both on- and off-line).

Whilst instrumental evidence for successful take-up of the Planning Portal service is limited, at least in the public domain, there was one primary source of evidence available to the researcher. This was the Key Performance Indicator¹ (KPI1) score which the Planning Portal publish on their website and which represents an assessment of the proportion of all planning applications that are made through the Planning Portal 1App online application form. From the first application made in 2003, the KPI1 score reached 81.6% in December 2014, significantly more than many services quoted in the UK Government Digital Strategy of 2013 (Cabinet Office, 2013). The researcher posits that this presents the 1App service as being successful.

As a secondary metric, a vast majority of respondents who had previously applied online said that they would apply online again (97% in the SME 2013 study).

The descriptive stakeholder analysis of the Planning Portal scenario illustrated in Chapter Four presents a very complex network of stakeholder interactions. Key amongst these is the link between the Planning Portal (as a central government agency) and the Local Planning Authorities (LPAs) who are consumers of the information and documentation collated by the 1App service, and who use this information to make subjective, human-made planning decisions at the local government level. The Planning Portal is dependent on the LPAs using its service in order to survive, and whilst up until the time of study the Planning Portal had a government monopoly on the service (G2G), it was unclear whether this would continue or whether the service would be opened to wider market forces. Theoretically the LPAs could move away from e-planning entirely, although this diverges from current UK government policy on development of e-government service. Practical considerations, especially in times of severe financial constraint in Local Authorities also mean that such a move is unlikely and that actually LPAs are inter-dependent on the Planning Portal to help engage with potential users and create financial savings through channel shift to e-planning. Thus the researcher presents the Planning Portal-LPA relationship as being the joint nexus

at the centre of the e-planning network in England and Wales. This relationship operates on many levels: technical, political and inter-personal. It also operates on a collaborative level to influence the perceptions and actions of other stakeholders in the network, such as the Parish Councils and other consultees who act as indirect stakeholders for the Planning Portal but without whose engagement a holistic end-to-end e-planning service is impossible. Joint Planning Portal/LPA workshops, user fora, training and promotional activities are all used to influence these groups.

The other two customer stakeholder groups in the network are individual citizens making applications for planning permission (G2C) and planning professional (architects, builders, tree surgeons etc), making an application on behalf of a client (G2B). Whilst professionals make regular applications, and so are likely to be familiar with both the business processes around planning and the online services provided, citizens will generally only apply a few times over a lifetime and are likely to be less comfortable with the process. This means that they have different demands of the end-to-end process and feel that they need more inter-personal assistance from their LPA. Thus the LPA again adopts a key position in influencing adoption of the e-service.

Given the differences in experiences, it is unsurprising that the research found differences, both qualitative and quantitative, in the adoption of the Planning Portal e-application service between citizens and professionals. Results from the early citizen studies indicated that citizens were much more likely to apply on paper than professionals. Some care must be taken in interpreting these results as changes are likely to have occurred in adoption rates in both groups in the three years between the paper citizen and SME professional studies. However, the findings from the (admittedly small) cohorts in the 2015 study also indicated statistically significant differences in the proportions of online and papers application methods used by citizens and professionals in applying to the study LPAs.

These differences between the citizen and professional groups both permit and drive differences in the way the Planning Portal manages its relationships with them. Early focus for the Planning Portal was in providing informational and transactional services for citizens, but the adoption and increase in KPI targets have resulted in strategic and tactical decisions that prioritise resources in activities directed to a particular stakeholder groups, using methods as described in Jeffery (2009) and Friedman and Miles (2006). The Smarter

Planning initiative which encourages both LPAs and Professionals to work in a more electronic fashion is such an example.

Nonetheless Planning Portal staff are conscious that they provide a public service to all stakeholder groups and do not drive uptake in one stakeholder group to the detriment of the groups. Account Managers form this direct link between the Planning Portal, LPAs and their citizen, professional and consultee stakeholder groups.

10.2.2 Supporting online services across central-local government relationships

RQ5 sought to investigate the issues that arise from the provision of inputs to Local Government functions from a central government agency?

Evidence to answer this question came from analysis of the information from Planning Portal staff interviews in the light of descriptive stakeholder theory. As emphasised above, the key to the success of the Planning Portal service is in the collaborative relationship between the Planning Portal and the LPAs who use the outputs of the service to create a win-win relationship. Each organisation has its own priorities and challenges. However, if the links between the two organisations at levels of technical, inter-personal, business process and information flow can be managed appropriately, and the organisations can work together to influence mutual stakeholders then there are opportunities for mutual benefit, reflecting the views of both Freeman (1984) and Friedman and Miles (2006).

Only one significant issue was identified in the case of the Planning Portal. It became clear that users, in particular citizens did not understand the shared nature of the service and that it was supplied and services by two different organisations. Whilst this has, in many cases, been a deliberate decision to present a integrated service, it has caused issues in the technical and user support of the service where identification of the cause of an issue experienced by a user and therefore routing for resolution has been somewhat unreliable. It should be noted that as the criticality of the Planning Portal-LPA relationship had not been fully identified at the time of the LPA research phase, the LPA viewpoint on this relationship has not explicitly studied. Such a investigation is recommended for future study.

10.2.3 Factors affecting take-up of e-planning services in different stakeholder groups

RQ3 looked to understand what factors affected uptake of the Planning Portal service in different stakeholder groups.

Pragmatic changes to the research design in response to changes in the political environment of the Planning Portal meant that time available for this research phase was severely limited and the analysis was not as wide-ranging or as sophisticated as originally planned.

Following the literature review, a selection of relevant factors from different models of technology adoption were presented as part of complementary surveys to citizens and SME professionals. The responses to these statements were reviewed and compared with qualitative information from questions seeking to investigate users' (and non-users') perceptions of benefits and barriers to use of the online planning service. These findings were used to facilitate the design of new model constructs and scale factors which were then presented to citizens and professionals in complementary studies in the final research phase.

Whilst caution must be exercised in interpreting the results as the numbers of responses were low, there is some evidence for the relevance of a number of new adoption factors relevant to the e-planning scenario. These factors might also be relevant for other complex and visual online services but this would need to be the subject of separate, robust future studies. The proposed factors were as shown in Table 50.

Factor	Proposed Definition
Complexity of Task	The extent to which the multiple supporting documents required by the planning application task create complexity in the task itself. This is similar to ideas of complexity in published technology adoption models but focussed on practicalities of the service.
Environmental Impact	The extent to which the user perceives the service as having a reduced environmental impact.
Trust in Local Authority	The extent to which a user trusts the recipient Local Authority to handle their data and application in an appropriate way
Creativity	The extent to which the user sees the activity as having important creative aspects
Document Method	The extent that the method of producing mandatory supporting documents affects and/or is affected by the application method

Table 50: Proposed new factors for models of technology adoption

All factors were found to have statistically significant differences between citizen and SME Professional groups in the final study. No opportunity was available to test the validity of a consolidated model including factors incorporated from other models. However, it is proposed that these preliminary findings suggest that these factors may usefully form the basis of a new research path for future study.

10.2.4 Using online services to support visual, complex and subjective decisions

RQ4 sought to answer the question: How does an online service support a human-made decision that is essentially both subjective and visual?

No academic publications tackling this aspect had been identified at the time of literature review and so these findings represent a significant part of the contribution to knowledge of this research.

The findings in this area fell into two areas. Firstly there were practical issues with the handling of technical documents such as drawings and plans associated with a planning application. A 5MB limit on the size of files uploaded to the Planning Portal system for onward transmission to LPAs was seen as a considerable barrier to the use of the Planning Portal for applications for large-scale developments, forcing applicants to use alternative methods such as submission on CD. Poor drawings and plans, not complying to the required standards were also found to be a cause of high rates of applications being declared invalid – 70% of responding LPAs reported that issues with plans and drawings were in their top 3 factors causing invalidity. Practical issues for Planning Officers in viewing and assessing electronic documents, particularly on site visits was also seen as creating a barrier to an end-to-end e-planning service.

Secondly amongst the findings related to RQ3 was an emphasis placed by some applicants on the creative, artistic and visual aspects of the development of plans and drawings in the context of, for example, a developing architectural design. Many SME applicants in particular stated simply that this was their preferred way of working. They stated that they got great pleasure from creating the plans and drawings using hand-drawing/artistic techniques. Two paper SME applicants who were interviewed expressed strongly that they felt that such hand-drawn artefacts can have a sub-conscious, visceral impact on the viewer (including the decision-making Planning Officer). Furthermore, they felt that the use of hand-drawn images could have an impact on the outcome of the planning application above and beyond the technical detail of the proposal. As such they felt that online application could not support such a visually-dependent service and so said that they would not apply online until they were given no choice. These very strongly expressed feelings provide triangulation with the findings in the model factors study.

The findings in this area in particular provide a novel contribution to the body of knowledge around online services.

10.3 Contribution to knowledge

The novel contributions to knowledge of this research revolve around the unusual complex and visually dependent nature of the e-planning service as implemented by the Planning Portal in conjunction with Local Planning Authorities in England and Wales. Contributions to knowledge are discussed in terms of the two original theoretical lenses – theories of technology adoption and stakeholder theory.

10.3.1 Technology adoption theory

Conventional models of technology adoption such as Diffusion of Innovation (Rogers, 2003), Technology Adoption Model (Davis, 1980; Davis, 1989), Unified Theory of Acceptance and Use of Technology (Venkatesh & Davis, 2000) have been devised and tested in the context of western business environments. Further literature has tested the models on simple, "factual" e-government services. However, studies of more complex services are rare. This study has taken selected aspects of a number of models and reviewed their applicability in the complex case of the Planning Portal online application service. The case presents unusual aspects of e-government services. Particularly important for the study of technology adoption models, the service is intended for use by multiple stakeholder groups who have different needs of the service and who also have different levels of experience of the off-line process being supported. The visually complex and subjective nature of the information being collected and assessed provides previously unstudied elements. Five new factors for possible inclusion in technology adoption models are proposed, in the light of the more unusual nature of the case study.

10.3.2 Stakeholder engagement

The research presented here generally supports the theoretical processes put forward by multiple authors including Freeman (1984), Friedman and Miles (2006) and the practical considerations proffered by Jeffery (2009) that a detailed understanding of an organisation's stakeholder environment and targeted stakeholder management techniques can increase the success of the organisation. This research provides confirmation of this in a previously unstudied context, considering a more complex and diverse stakeholder environment than previously studied, across different hierarchical layers of administration.

Specific theoretical contributions are highlighted with reference to Flak and Rose (2005) who considered the applicability of stakeholder theory to e-government scenarios. In

particular, they highlighted the lack of literature studying the intermediary nature that technology has in stakeholder relationships in e-government services. This Planning Portal study reveals that technology has a dual role in e-government services. It is clearly a key enabler of the service, which could not exist without it. However, it can also act as a barrier to widespread adoption of the service. Technical issues, whether real or perceived, can prevent users from adopting the e-service and hence preventing end-to-end, holistic online electronic business practices.

To sum up, the theoretical contributions are three-fold. Firstly an analysis of the factors that service (non-)users state influence their (non-)use of the service has led to the identification of potential new factors for consideration in models of technology adoption. Primary amongst these is the new consideration of visual and subjective elements of the business process that the e-service supports. Some elements have been identified very much in the context of the Planning Portal and so are quite service-specific, but are likely to find analogies in other e-services either within the realm of planning and development control or elsewhere. It is proposed that these form the basis of an interesting new path for future research.

Secondly, the complex stakeholder environment of the Planning Portal has provided evidence to support descriptive stakeholder theory and principles of stakeholder management in the context of a multi-stakeholder, multi-agency service.

Thirdly, Flak and Rose (2005) state that literature critical of e-government services is rare. Whilst this research does generally support a positive opinion of the Planning Portal service, it does explicitly highlight a group of SME stakeholders who do not use the service simply because of their personal values around the creative aspects of the business processes supported by the service. These stakeholders generally put value on a previously unstudied aspect of e-government services: how the integral visual input elements are handled. Qualitative and quantitative evidence suggest that these individuals do not feel that an online service can adequately support such a visual element.

10.4 Implications for practitioners

The academic literature takes a stance that the use of e-government services is a dispassionate, mechanistic process. However, it has become clear that this is not the case for many applicants using the planning application system. Individual citizens applying for

planning permission will often have an emotional stake in their personal application – it reflects a change in their life – echoing a change in their life-stage by building a new nursery for a new child or a granny annex for a dependent parent. On top of this, unfamiliarity and concern around the practicalities of the planning process means that planning application can be an emotional activity for citizens and they feel they need more personal help from Planning Officers and LPAs. This has a profound implication for the way that the Planning Portal and LPAs work together to promote the online service to citizens.

Professionals applying for planning permission can also have an emotional, but different attachment to their planning applications. Many feel that there is a "them-and-us", adversarial aspect to the application and decision process which the Planning Portal and LPAs have worked hard to break down through user fora, workshops and inter-personal relationships with the Planning Portal Account Managers, supporting the principles of stakeholder manager espoused by both academic and practitioner literature. But for many professionals, particularly architects there is also an emotional attachment to the creative element of their profession and this seems to be reflected in the way they chose to apply. If practitioners can find ways to help potential applicants exploit the hand-crafted and creative elements of their work, whilst still taking advantage of the online submission service, then there could be a move to engaging with a hitherto detached stakeholder population.

As a more general observation on the interaction between research and practice, it is proposed that combining the findings of the final model factors with principles of stakeholder management in an approach similar to that taken by this research can help identify the issues that a particular stakeholder group experience and hence inform an organisation's stakeholder engagement strategy.

10.5 Limitations of the study

Limitations of the study revolve around three aspects: the limited scope of the case study, the methodology, and time and cost constraints particularly in the final stages of the study.

The research was designed as an exploratory case study of the Planning Portal online planning service. The limitations of case study research are discussed in Chapter Three, in particular the perceived limited potential to generalise from case study to other scenarios and hence threatening the external validity of the study. It was recognised as part

of the research design that the research purpose was not to be able to generalise findings to new theory applicable to a significantly wider population, but rather to investigate the case itself in detail. It should also be borne in mind that the study was conducted in a western administration and cultural, technical and other factors might mean that the findings are not applicable to other contexts. Thus no claims are explicitly made about generalising findings from this study to other real-world or theoretical scenarios. However, the new factors study does raise some interesting new ideas which might be more formally and rigorously tested both in the Planning Portal and wider e-government contexts in future studies.

The use of a complex mixed methods design also created issues and these are also discussed in Chapter Three. In particular the time and skills taken for multiple methods of data collection and analysis were limiting factors in later stages and a pragmatic decision was taken to reduce the scope of the final study whilst still providing an opportunity for valuable investigation. However, the use of a mixed methods approach did allow for triangulation between phases and between study populations so that there is increased confidence in the findings that are replicated across two or more study phases.

The time period over which the research was conducted provided benefits in the form of a longitudinal element to the study, but also issues in that changes identified over a period of time could not reliably attributed to either changes in user perceptions or changes in the service under study.

Finally, gaining access to citizen and professional participants was difficult and time-consuming. The only reliable way of identifying a target study population was to extract information from LPA online planning registers and to select a random sample. As the surveys were self-selecting, and the interviewees taken from a sub-set of survey respondents, there is likely to be some self-selection bias whereby respondents may be "outliers" with a particular stance that they wish to share. However, all these views are valid, although not necessarily representative of the population as a whole, and the use of multiple respondents in each study phase helps provide both some triangulation and comparison between participants.

10.6 Recommendations for future study

The interactions between the Planning Portal and its stakeholder groups have not previously been the subject of academic research. Thus this exploratory study has identified

a number of opportunities for future study.

In particular the nature of the key relationship between the Planning Portal and Local Planning Authorities has only been studied from the Planning Portal viewpoint. Further study into the perceived nature of this relationship from the LPA viewpoint could provide a useful comparative study.

With the recent introduction of the Smarter Planning initiative to increase awareness and uptake of electronic planning processes in both LPAs and Corporate professional groups, a case study into the impact of these specific initiatives on service adoption and efficiencies might provide additional interesting evidence on the nature of these relationships in due course.

The final study of new adoption model factors proposed five new factors that might be considered for inclusion in future studies. Initially more extensive studies should be made of the factors in the Planning Portal scenario, in conjunction with other factors and demographics from published adoption models to investigate whether the new factors present an improvement on existing models in explaining variance in user adoption. The study should then be extended to review any revised model in different real-world e-government service scenarios.

In conclusion, the research documented here is the first of its kind: an exploratory study of the previously unstudied online planning application service provided by the Planning Portal. This is a distinctively complex e-government service with pivotal visual elements which combine to create a unique case study, which both enhances existing literature and broadens understanding of real-world phenomena in the e-government arena. The suggestions above for future research will build on this initial study and help develop the literature both in terms of stakeholder theory in a complex e-government context and in the area of models of technology adoption in the channel shift of more unusual and visually-dependent business processes. In a clear contribution to real-world practice, it is known that results from the research presented here have already been used by the Planning Portal to supplement anecdotal evidence in strategic stakeholder planning activities.

REFERENCES

- Abdullah, M. F., Abdullah, A., & Zahari, R. K. (2010) 'GIS Implementation in Malaysian Statutory Development Plan System'. in Silva, C.N. (ed.) *Handbook of Research on E-Planning: ICTs for Urban Development and Monitoring* Hershey, PA: Information Science Reference.
- Al-Qeisi, K., Dennis, C., Alamanos, E. & Jayawardhena, C. (2014) 'Website design quality and usage behavior: Unified Theory of Acceptance and Use of Technology'. *Journal of Business Research*, 67 (2014). pp 2282-2290.
- Alford, S. (2014) Personal Communication, email to Janet Kneller, 22 April.
- Alreck, P. A. & Settle, R. B. (1995) *The Survey Research Handbook* 2nd edn. Chicago: Irwin.
- Alton, D. (2015) Personal Communication, email to Janet Kneller, 20 January.
- Axelsson, K., Melin, U. & Lindgren, I. (2013) 'Public e-services for agency efficiency and citizen benefit — Findings from a stakeholder centered analysis'. *Government Information Quarterly*, 30 (2013). pp 10-22.
- Babbie, E. (2013) *The Practice of Social Research*. 13th edn. Wadsworth Cengage Learning, .
- Bazeley, P. & Jackson, K. (2013) *Qualitative Data Analysis with NVivo*. 2nd edn. London: Sage.
- Bélanger, F. & Carter, L. (2008) 'Trust and risk in e-government adoption'. *Strategic Information Systems*, 17 (2008). pp 165-176.
- Bélanger, F., Hiller, J. S. & Smith, W. J. (2002) 'Trustworthiness in electronic commerce: the role of privacy, security, and site attributes'. *The Journal of Strategic Information Systems*, 11 (3-4). pp 245-270.
- Bourne, L. & Walker, D. H. T. (2005) 'Visualising and mapping stakeholder influence'. *Management Decision*, 43 (5). pp 649-660.
- Boyne, G. A. (2002) 'Public and Private Management: What's the Difference?'. *Journal of Management Studies*, 39 (1). pp 98-122.
- Bryman, A. (2012) *Social Research Methods*. 4th edn. Oxford University Press, Oxford.
- Bryson, J. M. (2004) 'What to do when stakeholders matter'. *Public Management Review*, 6 (1). pp 21-53.
- Cabinet Office (2000) *e-government: A Strategic Framework For Public Services In The Information Age* Available at: [http://www.e-envoy.gov.uk/resources-pdfs/\\$file/Strategy.pdf](http://www.e-envoy.gov.uk/resources-pdfs/$file/Strategy.pdf) (Accessed: c. February 2010)
- Cabinet Office (2012) *Government Digital Strategy, November 2012*. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/296336/Government_Digital_Strategy_-_November_2012.pdf.(Accessed: 24 March 2015)
- Cabinet Office (2013) *Government Digital Strategy: December 2013*. Available at: <https://www.gov.uk/government/publications/government-digital-strategy/government-digital-strategy> (Accessed: 24 March 2015).
- Cabinet Office (2014) *Government Digital Inclusion Strategy*. Available at: <https://www.gov.uk/government/publications/government-digital-inclusion-strategy/government-digital-inclusion-strategy> (Accessed: 24 March 2015)

- Cabinet Office (2015) *Government Digital Strategy: annual report 2014*.
<https://www.gov.uk/government/publications/government-digital-strategy-annual-report-2014/government-digital-strategy-annual-report-2014> (Accessed: 29 March 2015).
- Carter, L. & Bélanger, F. (2005) 'The utilization of e-government services: citizen trust, innovation and acceptance factors'. *Information Systems Journal*, 2005 (15). pp 5-25.
- Cave, S., Rehfisch, A., Smith, L. & Winter, G. (2013) *Comparison of the planning systems in the four UK countries. Research Paper13/39*. Available. www.parliament.uk/briefing-papers/RP13-39.pdf (Accessed: 29 March 2015)
- Cegarra, J.L.M., Navarro, J.G.C. & Pashón, J.R.C. (2014) 'Applying the Technology Acceptance Model to a Spanish City Hall'. *International Journal of Information Management*, 34 (2014). pp 437-445.
- Charmaz, K. (2004) 'Premises, Principles, and Practices in Qualitative Research: Revisiting the Foundations'. *Qualitative Health Research*, 14 (7). pp 976-993.
- Cheriton, K. & Kneller, J. D. (2009) 'How e-enabled are Local Planning Authorities in England and Wales?'. Planning Portal for DCLG. Unpublished.
- Chilcott, S. (2014a) *Planning Portal outage: Tuesday 16th December (05:00 – 07:00)*. 15 December 2014. Available at: <https://portaldirector.wordpress.com/2014/12/15/planning-portal-outage-tuesday-16th-december-0500-0700/> (Accessed: 30 March 2015)
- Chilcott, S. (2014b) *Planning Portal now processing 86% of applications online*.
<https://portaldirector.wordpress.com/2014/10/08/planning-portal-now-processing-86-of-applications-online/> (Accessed: 1 April 2015).
- Chilcott, S. (2015a) Personal Communication, email to Janet Kneller, 19 January.
- Chilcott, S. (2015b) *Business as usual*.
<https://portaldirector.wordpress.com/2015/03/13/business-as-usual/> (Accessed: 18 March 2015).
- Clarkson, M. B. E. (1995) 'A Stakeholder Framework for Analysing and Evaluating Corporate Social Performance'. *Academy of Management Review*, 20 (1). pp 92-117.
- Communities and Local Government (2008) *Digital Inclusion: An Analysis of Social Disadvantage and the Information Society*. Available at:
<http://www.communities.gov.uk/documents/communities/pdf/digitalinclusionanalysis>
(Accessed: c. February 2010)
- Communities and Local Government (2009a) *Taking forward the Government's response to the Killian Pretty Review: Second Progress Report*. Available at:
<http://webarchive.nationalarchives.gov.uk/20120919132719/http://www.communities.gov.uk/documents/planningandbuilding/pdf/1419562.pdf> (Accessed: 29 March 2015).
- Communities and Local Government (2009b) *Government Response to the Killian Pretty Review*. Available at:
<http://webarchive.nationalarchives.gov.uk/20120919132719/http://www.communities.gov.uk/documents/planningandbuilding/pdf/killianprettyresponse.pdf> (Accessed: c. February 2010)
- Communities and Local Government (2015) *Commercial opportunities from planning portal data*. <https://www.gov.uk/government/news/commercial-opportunities-from-planning-portal-data> (Accessed: 17 March 2015).
- Conroy, M. M. & Evans-Cowley, J. (2004) 'Informing and Interacting: The Use of E-Government for Citizen Participation in Planning'. *Journal of E-Government*, 1 (3). pp 73-92.
- Conroy, M. M. & Evans-Cowley, J. (2010) 'The E-Citizen in Planning: U.S. Municipalities' Views of Who Participates Online'. in Silva, C.N. (ed.) *Handbook of Research on E-Planning: ICTs for Urban Development and Monitoring* Hershey, PA: Information Science Reference.

-
- Creative Research Systems (c. 2010) *Sample Size Calculator*.
<http://www.surveysystem.com/sscalc.htm> (Accessed: c. March 2010).
- Creswell, J. W. (2013) *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*. Los Angeles: Sage.
- Creswell, J. W. (2014) *Research Design: Quantitative, Quantitative and Mixed Methods Approaches*. 4th edn. Thousand Oaks, California: Sage.
- Creswell, J. W. & Plano Clark, V. L. (2011) *Designing And Conducting Mixed Methods Research*. 2nd edn. Thousand Oaks, California: Sage
- Cullingworth, B. & Nadin, V. (2006) *Town and Country Planning in the UK*. 14th edn. Abingdon: Routledge.
- Cullingworth, B., Nadin, V., Hart, T., Davoudi, S., Pendlebury, J., Vigar, G., Webb, D. & Townshend, T. (2015) *Town and Country Planning in the UK*. 15th edn. London: Routledge.
- Damodaran, L., Nicholls, J., Henney, A., Land, F. & Farbey, B. (2005) 'The Contribution of Sociotechnical Systems Thinking to the Effective Adoption of e-Government and the Enhancement of Democracy'. *Electronic Journal of E-Government*, 3 (1). pp 1-12.
- Davies, N. (2015) Personal Communication, email to Janet Kneller, 21 January.
- Davis, F. D. (1980) *A Technology Acceptance Model for empirically testing new end-user information systems: theory and results*. Available:
<https://dspace.mit.edu/handle/1721.1/15192>
- Davis, F. D. (1989) 'Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology'. *MIS Quarterly*, September 1989 pp 319-340.
- De Vaus, D. (2014) *Surveys in Social Research*. 6th edn. Abingdon, UK: Routledge.
- Department for Communities and Local Government (2014a) *Consultation and pre-decision*.
<http://planningguidance.planningportal.gov.uk/blog/guidance/consultation-and-pre-decision-matters/> (Accessed: 28 March 2015).
- Department for Communities and Local Government (2014b) *Flexible options for planning permissions* <http://planningguidance.planningportal.gov.uk/blog/guidance/flexible-options/making-a-non-material-amendment-to-a-planning-permission/> (Accessed: 29 March 2015).
- Department for Communities and Local Government (2014c) *Annual Reports and Accounts 2013-14*.
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/325763/41525_HC_7_DCLG_accessible.pdf (Accessed: 23 March 2015).
- Donaldson, T. & Preston, L. E. (1995) 'The Stakeholder Theory of the Corporation: Concepts, Evidence, and Implications'. *Academy of Management Review*, 20 (1). pp 65-91.
- Dutton, W. H. & Blank, G. (2011) *Next Generation Users: The Internet in Britain*. Available.
http://www.oii.ox.ac.uk/publications/oxis2011_report.pdf (Accessed:1 May 2015)
- Dutton, W. H. & Blank, G. (2013) *Cultures of the Internet: The Internet in Britain*. Available.
<http://www.oii.ox.ac.uk/wp-content/uploads/2014/11/OxIS-2013.pdf> (Accessed:1 May 2015)
- Dutton, W. H., Helsper, E. J. & Gerber, M. M. (2009) *The Internet in Britain 2009*. Available at: http://www.oii.ox.ac.uk/research/oxis/OxIS2009_Report.pdf (Accessed:24 March 2015)
- Dwivedi, Y. K. & Williams, M. D. (2008) 'Demographic influence on UK citizens' e-government adoption'. *Electronic Government, an International Journal*, 5 (3). pp 261-274.

- e-Citizen National Project (2005) *e-Citizenship: Local Authority Survey* Available at: http://www.e-citizen.gov.uk/NP/rr/pdf/Local_Authority_Review.pdf (Accessed: c. February 2010).
- Economides, A. A. & Terzis, V. (2008) 'Evaluating tax sites: an evaluation framework and its application'. *Electronic Government, an International Journal*, 5 (3). pp 321-344.
- ePlanning Scotland (2015). <https://eplanning.scotland.gov.uk/WAM/> (Accessed: 27 March 2015).
- European Commission (2005) *Signposts towards eGovernment 2010* Available at: http://europa.eu.int/information_society/activities/egovernment_research/doc/minconf2005/signposts2005.pdf (Accessed: c. February 2010).
- European Commission (2010) *A Digital Agenda for Europe*. Available at: www.kowi.de/Portaldata/2/Resources/fp/2010-com-digital-agenda.pdf (Accessed: 23 April 2015).
- European Commission (undated) *The New SME definition: user guide and model declaration*. Available at: http://ec.europa.eu/enterprise/policies/sme/files/sme_definition/sme_user_guide_en.pdf (Accessed: 17 May 2013).
- European Commission Directorate General for Information Society and Media (2009) *Smarter, Faster, Better eGovernment: 8th eGovernment Benchmark Measurement*. Available at: http://ec.europa.eu/information_society/eeurope/i2010/docs/benchmarking/egov_benchmark_2009.pdf. (Accessed 24 March 2015)
- Faaeq, M.K., Ismail, N.A., Osman, W.R.S., Al-Swidi, A.K. & Faeiq, A.K. (2013) 'A meta-analysis of the unified theory of acceptance and use of technology studies among several countries'. *Electronic Government, an International Journal*, 10 (3/4). pp 343-360.
- Fath-Allah, A., Cheikhi, L., Al-Qutaish, R. E. & Idri, A. (2014) 'E-government portals best practices: a comprehensive survey'. *Electronic Government, An International Journal*, 11 (1/2). pp 101-132.
- Fedorowicz, J., Gogan, J. L. & Culnan, M. J. (2010) 'Barriers to Interorganizational Information Sharing in e-Government: A Stakeholder Analysis'. *The Information Society*, 26. pp 315-329.
- Field, A. (2005) *Discovering Statistics Using SPSS*. 2nd edn. Sage, London:
- Fink, A. (2006) *How to Conduct Surveys: A step-by-Step Guide*. 3rd Ed. edn. Sage, Thousand Oaks, California.
- Flak, L. S., Nordheim, S. & Munkvold, B. E. (2008) 'Analyzing Stakeholder Diversity in G2G Efforts: Combining Descriptive Stakeholder Theory and Dialectic Process Theory'. *e-Service Journal*, 6 (2). pp 3-23.
- Flak, L. S. & Rose, J. (2005) 'Stakeholder Governance: Adapting Stakeholder Theory to E-Government'. *Communications of the Association for Information Systems*, 16 (Article 31). pp 642-664.
- Freeman, R. E. (1984) *Strategic management: A stakeholder approach*. Marshfield, MA. : Pitman.
- Friedman, A. L. & Miles, S. (2006) *Stakeholders: Theory and Practice*. Oxford University Press.
- Froome, J. (1999) 'Stakeholder Influence Strategies'. *Academy of Management Review*, 24 (2). pp 191-205.

- Fu, J.-R., Farn, C.-K. & Chao, W.-P. (2006) 'Acceptance of electronic tax filing: A study of taxpayer intentions'. *Information and Management*, 43 (1). pp 109-126.
- Gefen, D., Karahanna, E. & Straub, D. W. (2003) 'Trust and TAM in online shopping: An integrated model'. *MIS Quarterly*, 27 (1). pp 51-90
- George, D. & Mallery, P. (2003) *SPSS for Windows step by step: A simple guide and reference. 11.0 update*. 4th edn. Boston: Allyn & Bacon.
- Gil-Garcia, J. R. & Martinez-Moyano, I. J. (2007) 'Understanding the evolution of e-government: The influence of systems of rules on public sector dynamics'. *Government Information Quarterly*, 24 (2007). pp 266-290.
- Gilbert, D., Balestrini, P., Kolsaker, A. & Littleboy, D. (2007) 'Citizen Adoption of e-Government in the UK: Perceived Benefits and Barriers'. in Griffin, D., Trevorrow, P. and Halpin, E. (eds.) *Developments in e-Government: A Critical Analysis*. Amsterdam: IOS Press, pp 168-181.
- Gilbert, D., Balestrini, P. & Littleboy, D. (2004) 'Barriers and benefits in the adoption of e-government'. *The International Journal of Public Sector Management*, 17 (4). pp 286-301.
- Gliem, J. A. & Gliem, R. R. (2003) 'Calculating, Interpreting, and Reporting Cronbach's Alpha Reliability Coefficient for Likert-Type Scales'. *2003 Midwest Research to Practice Conference in Adult, Continuing, and Community Education*. Columbus, Ohio. Available at: <https://scholarworks.iupui.edu/handle/1805/344> (Accessed: 12 July 2013).
- Gomez-Reynoso, J. M. & Sandoval-Almazan, R. (2013) 'The Adoption of e-Government Services in Mexico: A Citizens' Perception Analysis'. *American Journal of Industrial and Business Management*, 2013 (3). pp 12-22.
- Goodhue, D. L. & Thompson, R. L. (1995) 'Task - Technology Fit and Individual Performance'. *MIS Quarterly*, pp 213-236.
- gov.uk (c. 2012) *Digital by Default Service Standard*. <https://www.gov.uk/service-manual/digital-by-default> (Accessed: 24 March 2015).
- gov.uk (undated) *Planning Inspectorate*. <https://www.gov.uk/government/organisations/planning-inspectorate> (Accessed: 28 March 2015).
- Greger, V., Balta, D., Wolf, P. & Krcmar, H. (2014) 'Analyzing Stakeholders in Complex E-Government Projects: Towards a Stakeholder Interaction Model'. in M. Janssen *et al.* (ed.) *Electronic Government*. pp 194-205.
- Hahn, T. (2015) 'Reciprocal Stakeholder Behavior: A Motive-Based Approach to the Implementation of Normative Stakeholder Demands'. *Business & Society*, 54 (1). pp 9-51.
- HM Treasury (2014) *Autumn Statement*. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/382327/44695_Accessible.pdf (Accessed: 24 March 2015).
- HM Treasury (2015) *Budget 2015*. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/413949/47881_Budget_2015_Web_Accessible.pdf (Accessed: 24 March 2015).
- Hung, S.-Y., Chang, C.-M. & Yu, T.-J. (2006) 'Determinants of user acceptance of the e-Government services: The case of online tax filing and payment system'. *Government Information Quarterly*, 23 (2006). pp 97-122.
- Janssen, M., Kuk, G. & Wagenaar, R. W. (2008) 'A survey of Web-based business models for e-government in the Netherlands'. *Government Information Quarterly*, 25 (2008). pp 202-220.

- Jeffery, N. (2009) *Stakeholder Engagement: A Road Map to Meaningful Engagement*. Doughty Centre, Cranfield University School of Management. Available at: <http://www.som.cranfield.ac.uk/som/dinamic-content/research/doughty/stakeholder/Guide.pdf> (Accessed: 14 April 2015).
- Jobst, M., Doellner, J. & Lubanski, O. (2010) 'Communicating Geoinformation Effectively with Virtual 3D City Models'. in Silva, C.N. (ed.) *Handbook of Research on E-Planning: ICTs for Urban Development and Monitoring* Hershey, USA: Information Science Reference.
- Johnson, R. B., Onwuegbuzie, A. J. & Turner, L. A. (2007) 'Toward a Definition of Mixed Methods Research'. *Journal of Mixed Methods Research*, 1 (2). pp 112-133.
- Jones, D. S. & Crowe, B. (2001) *Transformation not Automation: The e-government challenge*. London: Demos.
- Jones, S., Irani, Z., Sharif, A. & Themistocleous, M. (2006) 'E-Government Evaluation: Reflections on two organisational studies'. *Proceedings of the 39th Hawaii International Conference on System Sciences - 2006*.
- Kamal, M., Weerakkody, V. & Irani, Z. (2011) 'Analyzing the role of stakeholders in the adoption of technology integration solutions in UK local government: An exploratory study'. *Government Information Quarterly*, 28 (2011). pp 200-210.
- Kendall, C. (2009a) *Portal 2.0 redesign, 22 October 2009*. <https://portaldirector.wordpress.com/2009/10/22/portal-2-0-redesign/> (Accessed: 21 April 2015).
- Kendall, C. (2009b) *Infrastructure Refreshment, dated 22 October 2009*. <https://portaldirector.wordpress.com/2009/10/22/infrastructure-refreshment/> (Accessed: 30 March 2015).
- Kendall, C. (2010) *Closure of the e-Consultation Hub*. <https://portaldirector.wordpress.com/2010/10/01/closure-of-the-e-consultation-hub/> (Accessed: 30 March 2015)
- Kendall, C. (2012) *Smarter Planning – a new way of working, dated 24 October 2012*. <https://portaldirector.wordpress.com/2012/10/24/smarter-planning-a-new-way-of-working/> (Accessed: 30 March 2015).
- Kendall, C. (2013a) *Happy 10th birthday electronic planning, dated 1 May 2013*. <http://portaldirector.wordpress.com/2013/05/01/happy-10th-birthday-electronic-planning/> (Accessed: 30 March 2015).
- Kendall, C. (2013b) *Progress not perfection, dated 27 Feb 2013*. <http://portaldirector.wordpress.com/2013/02/27/progress-not-perfection/> (Accessed: 30 March 2015).
- Kendall, C. (2013c) *Planning Portal Reaches Milestone of 500k Visitors in April, dated 8 May 2013*. (Accessed: 8 July 2013).
- Kendall, C. (2014) *Planning Portal commercialisation*. <https://portaldirector.wordpress.com/2014/11/18/planning-portal-commercialisation/> (Accessed: 17 March 2015).
- Kendall, C. (2015) *2014 Statistics*. <https://portaldirector.wordpress.com/2015/01/05/2014-statistics/> (Accessed: 14 April 2015).
- Kijsanayotin, B., Pannarunothai, S. & Speedie, S. M. (2009) 'Factors influencing health information technology adoption in Thailand's community health centers: Applying the UTAUT model'. *international journal of medical informatics*, 78 (2009). pp 404-416.
- Killian, J. & Pretty, D. (2008) *Planning applications: A faster and more responsive system: Final Report Killian Pretty Review*. Available at:

-
- http://www.planningportal.gov.uk/uploads/kpr/kpr_final-report.pdf (Accessed: 28 March 2015).
- Klievink, B. & Janssen, M. (2014) 'Developing Multi-Layer Information Infrastructures: Advancing Social Innovation through Public–Private Governance'. *Information Systems Management*, 31 (3). pp 240-249.
- Kneller, J. D. (2010) 'Planning Portal: Citizen Journey Research', dated 8 October 2010. Unpublished..
- Kneller, J. D. (2012) 'Planning Portal Citizen Journey Research - Online Applications, v1.01', dated 2 April 2012. Unpublished.
- Kneller, J. D. (2013a) 'Planning Portal Professional Research - SME applicants.', dated 21 August 2013. Unpublished.
- Kneller, J. D. (2013b) 'Experiences and Perceptions of SME Professionals in e-Planning '. *European, Mediterranean & Middle Eastern Conference on Information Systems 2013 (EMCIS 1013)*. Windsor, United Kingdom: October 17-18 2013.
- Kneller, J. D. (2014) 'Planning Portal Research - Local Planning Authorities (Planning Portal with Plymouth University)', dated 23 July 2014. Unpublished.
- Lane Fox, M. (2010) *DirectGov 2010 and Beyond: Revolution not Evolution*. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/60993/Martha_20Lane_20Fox_s_20letter_20to_20Francis_20Maude_2014th_20Oct_202010.pdf (Accessed: 23 April 2015).
- Laplume, A. O., Sonpar, K. & Litz, R. A. (2008) 'Stakeholder Theory: Reviewing a Theory That Moves Us'. *Journal of Management*, 34 (6). pp 1152-1189.
- Layne, K. & Lee, J. (2001) 'Developing fully functional E-government: A four stage model'. *Government Information Quarterly*, 18 (2001). pp 122-136.
- Local eGov Project website (2005) *Welcome to the Home of The Take-Up Campaign*. <http://www.statistics.gov.uk/CCI/nugget.asp?ID=914> (Accessed: c. February 2010)
- Lu, H.-P. & Yang, Y.-W. (2014) 'Toward an understanding of the behavioral intention to use a social networking site: An extension of task-technology fit to social-technology fit'. *Computers in Human Behavior* 34 (2014). pp 323-332
- Mainardes, E. W., Alves, H. & Raposo, M. (2011) 'Stakeholder theory: issues to resolve'. *Management Decision*, 49 (2). pp 226-252.
- McKnight, D. H., Choudhury, V. & Kacmar, C. (2002) 'Developing and Validating Trust Measures for e-Commerce: An Integrative Typology'. *Information Systems Research*, 13 (3). pp 334-359.
- Mitchell, R. K., Agle, B. R. & Wood, D. J. (1997) 'Toward a Theory of Stakeholder Identification and Salience: Defining the Principle of Who and What Really Counts'. *Academy of Management Review*, 22 (4). pp 853-886.
- Mockford, S. (2015) Personal Communication, email to Janet Kneller, 6 January.
- Moore, G. C. & Benbasat, I. (1991) 'Development of an Instrument to Measure the Perceptions of Adopting an Information Technology Innovation'. *Information Systems Research*, 2 (3). pp 192-222.
- Nam, T. (2014) 'Determining the type of e-government use'. *Government Information Quarterly*, 31 (2014). pp 211-220.

- National Association of Local Councils (2013) *The Good Councillor's Guide: Essential Guidance for local councillors*. Available at: <http://www.nalc.gov.uk/library/publications/801-good-councillors-guide> (Accessed: 29 March 2015).
- Nistor, N. (2014) 'When technology acceptance models won't work: Non-significant intention-behavior effects'. *Computers in Human Behavior*, 34 (2014). pp 299-300.
- Onwuegbuzie, A. J., Johnson, R. B. & Collins, K. M. T. (2009) 'Call for mixed analysis: A philosophical framework for combining qualitative and quantitative approaches'. *International Journal of Multiple Research Approaches*, 3 (2). pp 114-139.
- Onwuegbuzie, A. J., Slate, J. R., Leech, N. L. & Collins, K. M. T. (2009) 'Mixed data analysis: Advanced integration techniques'. *International Journal of Multiple Research Approaches*, 3 (1). pp 13-33.
- Osman, I. H., Anouze, A. L., Irani, Z., Al-Ayoubi, B., Lee, H., Balci, A., Medeni, T. D. & Weerakkody, V. (2014) 'COBRA framework to evaluate e-government services: A citizen-centric perspective'. *Government Information Quarterly*, 31 (2014). pp 243-256.
- Performance and Innovation Unit (PIU) (2000) *e.gov: Electronic Government Services for the 21st Century* Available at: <http://www.strategy.gov.uk/downloads/su/delivery/e-gov.pdf> (Accessed: c. February 2010)
- Peter Pendleton and Associates (2006) *PPA Planning Survey - Use of Technology Survey - December 2006*. Available at: http://www.pendleton-assoc.com/images/Use_of_Technology_Survey.pdf. (Accessed: c. February 2010)
- Planning Portal News webpage. <http://www.planningportal.gov.uk/general/news/> (Accessed: 29 March 2015).
- Planning Portal (2009a) *Introducing the e-Consultation Hub to parish, town and community councils*. Available at: www.planningportal.gov.uk/uploads/lpaforum/pp028_a5.pdf (Accessed: 17 March 2015)
- Planning Portal (2009b) *Introducing the e-Consultation Hub to Local Planning Authorities*. Available at: www.planningportal.gov.uk/uploads/lpaforum/pp185_lpa-econ_a5.pdf (Accessed: 17 March 2015)
- Planning Portal (2009c) *1App*. <http://webarchive.nationalarchives.gov.uk/20100202125321/http://planningportal.gov.uk/england/government/lpas/1app/> (Accessed: 29 March 2015).
- Planning Portal (2015a) *Smarter Planning Champions - Planning Professionals*. http://www.planningportal.gov.uk/uploads/smarterplanning/smarter_planning_agentlist.pdf (Accessed: 17 March 2015)
- Planning Portal (2015b) *Frequently Asked Questions*. <http://www.planningportal.gov.uk/general/faq> (Accessed: 25 March 2015).
- Planning Portal (2015c) *Interactive Map of LPAs that have achieved Smarter Planning Champion Status*. <https://www.google.com/fusiontables/embedviz?q=select+col2%3E%3E1+from+1WmVKYsxdoklyrpVdaAUHuB96gprrdVM0OYIxPk4&viz=MAP&h=false&lat=53.09229208496392&lng=-3.6808735093244422&t=1&z=7&l=col2%3E%3E1&y=2&tmplt=2&hml=GEOCODABLE> (Accessed: 18 March 2015).
- Planning Portal (2015d) *National monthly online application figures measured against PS1/PS2*. http://www.planningportal.gov.uk/uploads/working_lpas_stats.xls (Accessed: 24 March 2015).
- Planning Portal (2015e) *Planning Portal website*. www.planningportal.gov.uk (Accessed: 27 March 2015).

-
- Planning Portal (2015f) *About Us*. <http://www.planningportal.gov.uk/general/aboutus/> (Accessed: 23 March 2015).
- Planning Portal (undated-a) *Smarter Planning: A toolkit for Local Planning Authorities*. Available at: http://www.planningportal.gov.uk/uploads/smarterplanning/smarter-planning-toolkit_lpa.pdf (Accessed: 17 March 2015).
- Planning Portal (undated-b) *Smarter Planning Toolkit for planning professionals*. Available at: http://www.planningportal.gov.uk/uploads/smarterplanning/smarter-planning-toolkit_pro.pdf (Accessed: 17 March 2015).
- Planning Portal (undated-c) *Statutory Consultees webpage*. <http://www.planningportal.gov.uk/planning/statcon> (Accessed: 28 March 2015).
- PriceWaterhouseCoopers (2009) *The Economic case for Digital Inclusion*. Available at: http://raceonline2012.org/sites/default/files/resources/pwc_report.pdf (accessed: c. February 2010)
- Proctor, S. (2015) Personal Communication, email to Janet Kneller, 20 January.
- Reddick, C. G. (2005) 'Citizen-Initiated Contacts with Government: Comparing Phones and Websites'. *Journal of E-Government*, 2 (1). pp 27-53.
- Robson, C. (2011) *Real World Research*. 3rd edn. Colchester, UK: Wiley
- Rogers, E. M. (2003) *Diffusion of Innovations*. 5th edn. New York: Free Press.
- Rowley, J. (2011) 'e-Government stakeholders—Who are they and what do they want?'. *International Journal of Information Management*, 31 (2011). pp 53-62.
- Saunders, M., Lewis, P. & Thornhill, A. (2009) *Research methods for business students*. 5th edn. Prentice Hall, Harlow.
- Savage, G. T., Bunn, M. D., Gray, B., Xiao, Q., Wang, S., Wilson, E. J. & Williams, E. S. (2010) 'Stakeholder Collaboration: Implications for Stakeholder Theory and Practice'. *Journal of Business Ethics*, 2010 (96). pp 21-16.
- Schaupp, L. C., Carter, L. & McBride, M. E. (2010) 'E-file adoption: A study of U.S. taxpayers' intentions'. *Computers in Human Behavior*, 26 (2010). pp 636-644.
- Scholl, H. J. (2001) 'Applying Stakeholder Theory to E-Government: Benefits and Limits'. *Towards the E-Society*, 74 (2001). pp 735-747.
- Scott, M., Golden, W. & Hughes, M. (2004) 'Implementation Strategies for E-Government: A Stakeholder Analysis Approach'. *12th European Conference on Information Systems, Turku, Finland*, pp 203-215. Available at: <http://aran.library.nuigalway.ie/xmlui/handle/10379/77>.
- Silva, C. N. (2010) 'The E-Planning Paradigm - Theory, Methods and Tools: A Overview'. in Silva, C.N. (ed.) *E-Planning: ICTs for Urban Development and Monitoring*. Hershey, USA: IGI Global.
- SOCITM (2008) *Better Connected 2008*. Available at: http://www.socitm.net/downloads/download/38/better_connected_2008_a_snapshot_of_local_authority_websites.
- Solaimani, S. & Bouwman, H. (2012) 'A framework for the alignment of business model and business processes: A generic model for trans-sector innovation'. *Business Process Management Journal*, 18 (4). pp 655-679.
- Solaimani, S., Guldmond, N. & Bouwman, H. (2013) 'Dynamic stakeholder interaction analysis: Innovative smart living design cases'. *Electronic Markets*, 2013 (23). pp.317-328
- Speer, R. & Dade, M. (2011) *How to get Planning Permission*. Ovolo Books.
-

- Suchman, M. C. (1995) 'Managing Legitimacy: Strategic And Institutional Approaches'. *Academy of Management Review*, 20 (3). pp 571-610.
- Tashakkori, A. & Teddlie, C. (1998) *Mixed Methodology: Combining Qualitative and Quantitative Approaches*. Sage, Thousand Oaks, California.
- Thomas, J. C. & Streib, G. (2003) 'The New Face of Government: Contacts in the Era of E-Government'. *Journal of Public Administration Research and Theory*, 13 (1). pp 83-102.
- Thompson, R., Compeau, D. & Higgins, C. (2006) 'Intentions to Use Information Technologies: An Integrative Model'. *Journal of Organization and End User Computing*, 18 (3). pp 25-46.
- The Town and Country Planning (Development Management Procedure) (England) Order 2015*. <http://www.legislation.gov.uk/uksi/2015/595/introduction/made> (Accessed: 6 May 2015).
- TSO (The Stationery Office) (2009) *Putting the Frontline First: smarter government*. Available at: <http://www.hmg.gov.uk/media/52788/smarter-government-final.pdf>. (Accessed: c. February 2010)
- Turner, M., Kitchenham, B., Brereton, P., Charters, S., & Budgen, D. (2010) 'Does the technology acceptance model predict actual use? A systematic literature review'. *Information and Software Technology*, 52 (2010). pp 463-479.
- UK Government (2014) *The Town and Country Planning (General Permitted Development) (Amendment and Consequential Provisions) (England) Order 2014*.
- United Nations (2003) *UN Global E-Government Survey 2003*. Available at: <http://unpan1.un.org/intradoc/groups/public/documents/un/unpan016066.pdf> (Accessed: 7 March 2010).
- United Nations (2008) *United Nations e-Government Survey 2008: From e-Government to Connected Governance*. Available at: <http://unpan1.un.org/intradoc/groups/public/documents/un/unpan028607.pdf> (Accessed: 7 March 2010)
- United Nations (2012) *United Nations E-Government Survey 2012*. Available at: <http://unpan3.un.org/egovkb/Portals/egovkb/Documents/un/2010-Survey/Complete-survey.pdf> (Accessed: 1 January 2015).
- United Nations (2014) *E-Government Survey 2014: E-Government for the Future We Want*. Available at: http://unpan3.un.org/egovkb/Portals/egovkb/Documents/un/2014-Survey/E-Gov_Complete_Survey-2014.pdf (Accessed: 1 January 2015).
- Varney, D. (2006) *Service transformation: A better service for citizens and businesses, a better deal for the taxpayer*. Available at: http://www.hm-treasury.gov.uk/media/4/F/pbr06_varney_review.pdf (Accessed: c. February 2010)
- Venkatesh, V. (2000) 'Determinants of Perceived Ease of Use: Integrating Control, Intrinsic Motivation, and Emotion into the Technology Acceptance Model'. *Information Systems Research*, 11 (4). pp 342-365.
- Venkatesh, V. & Bala, H. (2008) 'Technology Acceptance Model 3 and a Research Agenda on Interventions'. *Decision Sciences*, 39 (2). pp 273-315.
- Venkatesh, V. & Davis, F. (2000) 'A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Studies'. *Management Science*, 46 (2). pp 189-204.
- Venkatesh, V., Morris, M. G., Davis, G. B. & Davis, F. D. (2003) 'User acceptance of information technology: Toward a unified view'. *MIS Quarterly*, 27 (3). pp 425-478.

Welsh Government (2014) *Planning Policy Wales*. Available at:
<http://gov.wales/topics/planning/policy/ppw/?lang=en> (Accessed: 1 May 2015).

Wessels, B. (2010) 'The Role of Local Agencies in Developing Community Participation in E-Government and E-Public Services'. in Silva, C.N. (ed.) *Handbook of Research on E-Planning: ICTs for Urban Development and Monitoring* Hershey, PA: Information Science Reference.

Yin, R. K. (2009) *Case Study Research: Design and Methods*. 4th edn. Sage, Los Angeles.