

Risk Modelling at the Pre-Proposal Stages of eGovernment Service Projects

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To love and knowledge

ABSTRACT

eGovernment is a relatively new, but rapidly expanding, domain; mainly due to the perceived outcomes that it may bring to the public administration. Founded on the premise that eGovernment programmes may increase efficiency and effectiveness, decrease costs and enhance the quality of public services, governments invest heavily on such implementations. But here is a perplexing contrast; so far, many of such projects experience a high failure rate. That is realised in many facets; endless delays, and excessive costs, or complete cancellations are frequently observed. The reasons behind that can be many. However, such situation may be avoided or at least better handled through appropriate risk-based methods applied during the early stages of eGovernment project considerations. Within that context this thesis investigates the modelling of risk for eGovernment projects at the early, pre-proposal stages.

The interpretative qualitative study described in this thesis provides a 'first stab' in a previously weakly explored, but important, area of eGovernment research. It is therefore the main objective of this thesis to examine the relevance of risk modelling during the pre-proposal phase of eGovernment service projects. To achieve that objective, this thesis devises and employs a risk modelling tool; a design that incorporates an eService model and eGovernment risk taxonomy, allowing its users to identify pertinent project risk statements that may be exploited at later risk assessment exercises.

So as to accomplish the defined objective, this thesis is arranged in an order that covers all stages of the research process. These include an understanding of the eGovernment domain by expanding - amongst others - on the various eGovernment modelling, evolution, and evaluation methods as well as a discussion on eGovernment benefits, and its failure factors. Equally, a part is dedicated on elaborating upon eGovernment

risk and the existing methods to model it. A prototype risk modelling tool is developed in order to be used as a probe that is assessed and evaluated in the field by domain experts and practitioners. The thesis concludes by gathering qualitative data and analysing the grounded findings received from a series of interviews and workshops.

With reference to the findings addressing the thesis' main research question, the conducted study shows that risk modelling has effectively no applicability during the pre-proposal stages of eGovernment service projects. This study argues that although risk modelling has a recognised value, employing it is really futile at such early phase. It is primarily so, because at that point risk does not appear to carry enough weight to influence the decision-making process. Equally, this research finds that it is the political leadership that hands down the project ideas and the IT/IS project management staff simply implement. Even if risk modelling tools were employed by the IT/IS project management staff, the risk modelling output would be pointless as they have limited input into the decision-making process.

The study's findings also led this thesis to produce a conceptual framework for risk modelling, as well as relevant lessons to be learnt. The thesis elaborates on what risk modelling is expected to deliver and how it should look like. The findings have also further enhanced the risk modelling tool developed for this research, and generally propose new avenues for further research work in the domain.

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CHAPTER 1 - INTRODUCTION

1.1 RESEARCH BACKGROUND

Over the recent years, many governments around the globe have initiated their eGovernment strategies to exploit information and communication technology (ICT), eBusiness models and best practice. The main interest is to improve operations through the use of ubiquitous web access technology to public sector and eGovernment digital content. The profits of the informatisation of the public sector may be increased efficiency and effectiveness, decreased costs, and better quality of services (for example, read *Traunmüller and Lenk, 2000; Howard, 2001*).

However, reports (*Parliamentary Office of Science and Technology, p.2, 2003; Arnott, 2003*) show that several high profile eGovernment or general IT projects in the UK fail to conclude satisfactorily. Such failure is usually experienced either in terms of cost overruns, or serious delays, or even project cancellations due to various reasons (*Cabinet Office, 2000b*). Research (*Akomode et al., 2002, Evangelidis et al., 2002*) reveals that there are many diverse risk-generating areas that may affect the course of any eGovernment implementation.

Indeed, ICT projects - in general - can fail if prompt and proper analysis of risk elements does not occur at the early stages of the project development (*Avison and Shah, 1997*). It is also argued (*Love et al., p.949, 2005*) that the consideration of risk during the 'justification process' of such projects is very important. More in particular, many (to name a few, *Katzy and Xiaofeng, p.506, 2005; Loukis et al., p.301, 2005; Stoltzfus, p.334-335, 2005*) stress the importance of early consideration of risk within eGovernment implementations, since they perceive such projects as very 'risky' and prone to fail. Partially, that may be due to the fact that the domain of eGovernment is new and relatively unexplored (for instance, *Jaeger, 2003; Leith and Morison, 2004*).

The importance of this study stems from the fact that - as highlighted above and may be seen later in this thesis - eGovernment implementations form an integral part of the public administrations' current strategies. However, on the other hand, such programmes seem to have a high failure rate; with analogous subsequent side-effects. The reasons for such failure may be many. One area

that may attract particular attention is the early justification process and the better (or lack of) planning of such process. The current body of the literature done in the area is growing; however there does not appear to be much discussion on the role that risk may play during that phase. To meet that gap, this thesis explores that early stage of eGovernment project consideration through a risk perspective and attempts to examine the relevance of risk modelling within that process.

1.2 RESEARCH PROBLEM, ISSUES AND CONTRIBUTIONS

Within the afore-described context this interpretative qualitative study aims to explore the relevance of the modelling of risk at an early stage of the consideration of eGovernment projects. This study is grounded based on the findings drawn from research done within local government establishments in Scotland. On that note, this section briefly highlights the contributions that this research makes, which are further elaborated in the final chapter of this thesis.

As it was mentioned earlier there is a real drive behind eGovernment implementations that is based on the associated benefits it promises to provide to public administrations. Equally though, the observed high failure rate of such projects seems alarming. It is also perceived that early investigation of the risks associated with information systems projects may assist towards more successful results or at least early exit before committing into the project. However, not much has been written about the employment of risk-based methods during the early - before the actual project proposal - stages of eGovernment projects. Could risk-based methods, specifically designed for eGovernment implementations assist towards avoiding waste? Could risk-based methods reason the cancellation of - perhaps - enhancement of a proposed eGovernment project idea? And if so, what should they look like? When would such methods be most effective? Those questions led to the conception of the research problem that this thesis aims to solve. It can be encompassed in the following research question:

“How relevant is risk modelling at the pre-proposal stages of eService projects for government?”

Effectively the above question aims to unearth whether there is any value in employing risk modelling before committing into an eGovernment project. This thesis aims to describe such 'relevance' if - of course - it exists, and explore the impact it may have. Equally, this thesis introduces the notion of the pre-proposal phase. As is shown later in the thesis, two separate stages are identified; within which the relevance of risk modelling may vary - an aspect that this thesis covers also.

Essentially this thesis argues that the relevance of risk modelling at the pre-proposal phase of eService projects for the government is determined on three conceptual variables. The 'adoption', 'expectations', and 'presentation' are such determinants that form a conceptual framework that is presented in Chapter 5. Later in Chapter 6 it is concluded that risk modelling has little applicability during the pre-proposal stages of eGovernment service projects. And that is primarily so, because decisions that affect the course of a particular project idea at those early stages are imposed from political leadership, and the importance of risk at that point is minuscule compared to the strong political driver. This research also proposes a guideline on risk modelling for eGovernment practitioners, which is also discussed in the final chapter.

Moreover, this work delivers a prototype risk modelling tool that evolves throughout the thesis (*presented in Chapter 3 and further developed with field input in Chapter 4*), which may form the basis for further work in the area. Later on, Chapter 5 provides the conclusions on the various research issues that arose during the earlier literature survey stage and provides a conceptual framework. However, the main response to the research question is elaborated within Chapter 6, where it is shown (*Section 6.2*) that there is practically no need for risk modelling during the pre-proposal stages of eService projects for government. The conclusions drawn within chapters 5 and 6 are drawn after the examination of the findings (*as presented in Chapter 4*) deducted from the research done in the field. As it will be discussed in Chapter 3, this research carries out a qualitative interpretive study so as to elicit data from the field and comfortably reply to the afore-mentioned research question.

Throughout Chapter 2 a number of pertinent (to the research problem) issues are developed based on facts collated during the literature survey conducted for this thesis. The main aim of these propositions is to set the pillars upon which basic hypotheses may be found. Such issues complement the niche of this research programme to be realised in the form of the fundamental (within this thesis' context) research question that was described earlier.

The motivation behind this thesis stems from the observation that information systems implementations for the public sector in the last couple of decades, and - more importantly - high profiled eGovernment initiatives recently, are frequently susceptible to failure. It is also observed that lack of effective planning may subsequently lead to eService project failure. Risk can be one of the main components to be considered whilst planning for an eGovernment project. Apparently, within Chapter 2 it is argued that risk consideration is integral to the pre-proposal stage of a potential project. Moreover, better informed risk identification may aid towards the successful implementation of projects. Equally the literature survey (*as expressed in Chapter 2*) suggests that within an eGovernment context, any modelling of risk should occur holistically. That is because eGovernment risks are to be found in diverse areas that should not necessarily constrict within the sphere of technology. Similarly Chapter 2 suggests that a potential eGovernment risk modelling method would usually involve a means of risk categorisation. Equally, it is suggested (*as may be read in Chapter 2*) that the use of tools, supporting a better informed decision-making process, is advisable within the context of eGovernment.

Based on the afore-mentioned issues (*that will be further discussed in Chapter 2*) and with the research problem in mind, this thesis divulges a series of advances of and contributions (*which are presented in more detail in Chapter 5*) to the existing relevant body of knowledge. In summary, this research makes the following contributions in no particular order. This research finds that discussing about risk at the pre-proposal stages of eGovernment projects may be futile, mainly due to the strong political driver that influences the decision-making process. It also appears that the pre-proposal phase is a stage too early for risks to be taken seriously into account. Perhaps, that is a reason why - according to this study - risk consideration at such early stage of eGovernment projects happens erratically, even when that is part of an existing practice.

Although practically not applicable, this research also finds that if (ideally) risk modelling is adopted at the pre-proposal phase of eGovernment projects it may contribute to the promotion of issues for discussion, as well as the specification of risks that are likely to arise. Another contribution that this research provides is the conceptual framework for risk modelling of eGovernment projects at the pre-proposal stages as well as an eGovernment project mapping, which are both hoped to be of some practical use by eGovernment practitioners. Additionally, this study concludes that the perception of and attitude to risk is different in the public sector. Similarly, this research contributes to the existing perception on the similarities and differences between the domains of eGovernment and eBusiness. Finally, this thesis provides with a checklist of lessons to be learnt for and exploited by eGovernment practitioners in relation to risk modelling at the pre-proposal stages of eService projects.

1.3 JUSTIFICATION FOR THE RESEARCH

Globally, public administrations are investing heavily into the concept of electronic government. Fundamentally, this is due to the expected benefits that could be reaped from it, such like increased efficiency, cost-effectiveness and increased accessibility, to name a few (*for more on that read for example Traummüller and Lenk, 2000 or visit Chapter 2 - The Potential of eGovernment*). On the other hand, research (*discussed in Chapter 2 in the Section 'eGovernment Project Failure'*) shows that several high profile eGovernment projects in the UK fail to conclude satisfactorily and such expected benefits are far from realised. For instance, a report in the UK (*Arnott, 2003*) shows that the cost of cancelled or over-budget government IT projects has exceeded £1.5billion in the last six years. As an example, just a single cancelled eGovernment project on smartcards resulted in a loss of £698million to the British government. At the same time, research (*for example, Akomode et al., 2002; or for more read the relevant sections in Chapter 2*) reveals that there are many diverse risk-generating areas that may affect the course of any eGovernment implementation. Equally, information and communication technology projects - in general - can fail if prompt and proper consideration of risk elements does not occur at the early stages of the project development (*Avison and Shah, 1997*). Loukis et al. (*p.301, 2005*), Katzy and Xiaofeng (*p.506, 2005*), and Stoltzfus (*p.334-335, 2005*) highlight that and stress for the necessity of appropriate risk considerations. Implementing

eGovernment as a major development may not be easy, since it can involve many factors of risk that could threaten the success of the project. Adequate risk modelling procedures may help in avoiding major pitfalls if examined at an early stage. The two afore-mentioned situations are seen as the main drivers behind this research, and are perceived as quite important due to the obvious impact that they have (for example, the economic implications described above).

Later in this thesis, Chapter 2 provides the results from the literature survey. Amongst the various topics discussed, this thesis elaborates on the existing risk modelling methods as well as a discussion on eGovernment risk. Equally, this thesis examines the current state-of-the-art in eGovernment evaluation and modelling (*as may be seen in various Chapter 2 sections*). However, this research can not identify any work in the area of risk modelling at an early stage of eGovernment project discussions. Most risk modelling methods concern the full-blown project lifecycle and it does not appear that they are used before tendering for an eGovernment service project. This thesis attempts to address this gap and investigate (as already presented) the relevance of risk-modelling at a stage before the actual proposal of and tendering for an eService project.

This thesis assumes that the research done through this explorative and grounded study may be used as a starting point for further discussions on the perception of and attitude to risk when preparing eService projects in the public sector. This research also unearths potentially useful guidelines for practitioners working in the field of eGovernment, and therefore may assist towards alleviating the observed high failure rate of eService projects. This study also produces a basic risk modelling tool that may be further exploited and developed in future relevant research. Moreover, this research is useful as it uncovers issues that the literature does not seem to cover in a domain that is relatively new and unexplored.

1.4 METHODOLOGY

This section provides an introductory overview to the methodology used for the research described in this thesis. In order to provide an appropriate response to

the research problem presented earlier in this chapter, this thesis elaborates on the results drawn from a qualitative study.

As is further discussed in Chapter 3, this research commences with an extensive review of the relevant literatures. The prime aim of that is to 'capture' the pertinent body of knowledge about the research problem and concurrently form a firm basis upon which advances of and contributions to the existing body of knowledge are achieved. In essence such first research stage unearths the research problem and its issues, and provides an understanding of the pertinent phenomena. It is important to state here that this research uses also a research tool. Such tool is exploited in order to glean the subjective (of the research participants) as well the author's interpretive understanding (through the observation and interpretation of the subjective understanding). That process assists in extracting findings and conclusions pertinent to this research. The research tool is presented in Chapter 3 as it is part of the research methodology, however its conception and initial design results from the survey of the literatures as described in Chapter 2.

The next two stages of this research involve the actual field investigation. Initially, key domain experts participate in semi-structured interviews where they express their views on specific topics relevant to this thesis' research problem. Moreover, the domain experts explore the features of the research tool and provide relevant feedback. That is a key stage, because it is reflected on how far (or close) to reality (as the domain experts perceive it) the research tool is. Also, the findings of that stage shape the questions to be asked in the next stage, which 'narrows down' to more specific topics. Such findings are presented on the first part of Chapter 4 and - amongst others - result to the amendment of the research tool. The next stage of the field investigation involves the employment of scenario-based focus group workshops. During that stage focus groups consisting of eGovernment practitioners follow a scenario and exploit the research tool (in its updated version). After that the participants fill out questionnaires and participate in discussions about their experiences and opinions on the research tool as well topics relevant to the research problem. The scenario-based focus group workshop method is very useful as it achieves a rich influx of research data from multiple sources within a short period of time. Also it offers the opportunity to have the research tool

put to test following a real-life case scenario that the participants are familiar with. Throughout that stage the research tool is further evaluated and modified, resulting to a more realistic (in the sense that it would be acceptable to be used in the field) level. Again, the findings of the second field investigation stage are displayed in Chapter 4 of this thesis.

The results of the field investigation phase lead to the deduction of conclusions about the research problem and the research issues. Such conclusions are compared against the theory that arises earlier during the literature survey stage. The reflection of such comparison leads to the advances of and contributions to the body of knowledge that this thesis provides. They were highlighted earlier in the beginning of this thesis and are elaborated further in Chapters 5 and 6. A more fully discussion on the methodology used throughout this research programme is further discussed in Chapter 3 of this thesis.

1.5 DEFINITIONS

This section provides a presentation on the definitions of terms used throughout this thesis. This is done in order to ensure that there is adequate understanding of the various core topics used in the thesis. By defining the key and controversial terms, this section ultimately aims to achieve uniformity that assists in establishing positions taken within this thesis.

1.5.1 DEFINING EGOVERNMENT

The electronic government or eGovernment (and not eGovernance, which will be defined later in this section) or even “digital government” as is called in the USA domain is relatively new and hence lacks standardisation (Moon, 2002; Jaeger, 2003; Basu, 2004; Leith and Morison, 2004). Similarly, eGovernment means different things to different people (Seifert, 2003), and even as a research field is perceived to be immature (Grönlund, p.185, 2004). Al-Sebie and Irani (p.20, 2003) explain that such situation is due to two overarching reasons. According to them “*the definition of eGovernment has different sectors or dimensions, which includes government to citizens (G2C) government to businesses (G2B), government to employment (G2E) and government to government (G2G). It can also be viewed from different perspectives for example those of societies, businesses, economies, services, very basic level, technical level and political level perspectives.*” And

secondly, *“the definition of eGovernment varies according to the values, goals and cultures of a community.”* The thesis author’s impression on the causes of such problem is that it is probably due to the lack of a well defined focus of eGovernment. In other words, the author agrees with Bannister (2004) who argues that eGovernment has a problem of scope. He highlights the fact that the Europeans like to talk about ‘government’ when the Americans talk about ‘administration’, and then raises the fundamental question of what is exactly the boundary of the word ‘government’ within the context of eGovernment. Bannister (p.1, 2004) emphasises that the concept of eGovernment has two fundamental problems, namely that:

- *“Much of what is described as eGovernment is indeed superficial and*
- *Much of what is not superficial is not considered to be eGovernment.”*

Interested parties from diverse backgrounds devise their own definitions for eGovernment, which for the near future appears to be ever evolving. In this section an attempt is made to capture and highlight varying descriptions of eGovernment in order to better understand it.

To achieve in that attempt, this thesis will follow the OECD (p.23, 2003) eGovernment definition classification. According to that categorisation defining electronic government can fall within three groups:

Group 1.

“eGovernment is defined as Internet (online) service delivery and other Internet-based activity such as e-consultation.”

Group 2.

“eGovernment is equated to the use of ICTs in government. While the focus is generally on the delivery of services and processing, the broadest definition encompasses all aspects of government activity.”

Group 3.

“eGovernment is defined as a capacity to transform public administration through the use of ICTs or indeed is used to

describe a new form of government built around ICTs. This aspect is usually linked to Internet use.”

Discussions on the “informatisation” of the public sector date back to the late 70s (for example, *Kraemer and King, 1976; LAMSAC, 1978; Perry and Kraemer, 1979*). Similarly, *Lenk (1994)*, and *van de Donk & Snellen (1998)* insisted on the importance of the informatisation for and modernisation of the government. Those early visionaries’ perception of eGovernment appears to fall into the second of the above-mentioned categories. On the other hand, the third category matches the eGovernment that some scholars (for example, *Bellamy and Taylor, 1994; Bekkers, 1998*) like to talk about. eGovernment may be seen as the complete transformation of the public administration. As *Traunmüller and Wimmer (p.2, 2004)* forecast, eGovernment “*aims at fundamentally transforming the production processes of public services. Thereby it transforms the entire range of relationships towards public bodies.*” *Scholl* also (*p.1, 2005*) pinpoints that eGovernment, “*at least in the short term, has the capacity to transform the business of government in mode rather than in nature*”.

So let us take a look at the various eGovernment definitions. To adhere to the afore-mentioned OECD categories the definitions are classed under respective headings.

Group1

- “eGovernment is a program that utilises Internet communication technology to improve communication, service and transactional processes with its stakeholders” (*Stoltzfus, p.333, 2005*).
- “eGovernment means providing public access via the Internet to information about all the services offered by central government departments and their agencies; and enabling the public to conduct and conclude transactions for all those services” (*NAO, p.1, 2002*).
- “Although governments use a variety of information technologies, the use of the Internet has become a key component of enhanced service delivery. eGovernment, the

delivery of government services online, provides the opportunity to increase citizen access to government, reduce government bureaucracy, and enhance agency responsiveness to citizen needs” (Gant and Gant, 2002).

- *“Electronic government refers to government’s use of technology, particularly web-based Internet applications to enhance the access to and delivery of government information and service to citizens, business partners, employees, other agencies, and government entities” (McClure, 2000).*

Group2

- *According to Stahl (p.4, 2005) “eGovernment is understood as those aspects of public administration that have to do with the tasks of the executive. When these tasks are discharged with the help of ICT we speak of eGovernment. Typically these are administrative tasks, service delivery, but they may also include other executive duties such as interpretation or enforcement of laws.”*
- *Schubert and Häusler (2001) state that “eGovernment includes the governmental task of setting a valid legal framework for the effective use of the electronic media in a society as well as the application of these media for public procurement, services to companies and citizens and the management of the internal organisation.”*
- *“eGovernment is an attempt to ease access to governmental information and services for citizens, business, and government agencies, and further to improve the quality of the services” (Lambrinoudakis, 2003).*
- *Similarly, electronic government (Silcock, 2001) is the use of technology to enhance the access to and delivery of government services to benefit citizens, business partners and employees.*
- *An eGovernment definition slightly biased towards eCommerce (Howard, 2001), specifies that eGovernment is the application of the tools and techniques of eCommerce to the work of*

government. These tools and techniques are intended to serve both the government and its citizens.

- “eGovernment is defined to mean the use of ICT to facilitate the administration of the state by the central civil service and the services that this provides” (Bannister and Lalor, p.16, 2001)

Group3

- “eGovernment is a program which uses technology, specifically web-based technology, to transform how the business of a government is conducted” (Wang, 2002).
- Some (Tambouris et al., 2001) argue that “eGovernment is the application of information and communications technology (ICT) to transform the efficiency, effectiveness, transparency and accountability of informational and transactional exchanges within government, between governments and government agencies at federal, municipal and local levels, citizens through access and use of information”.
- A similar view (Wassenaar, 2000) envisages eGovernment as “the application of information and communication technology (ICT) to improve, transform and/or redefine any form of resource and information exchange (transacting and contracting) between involved actors like companies and governmental agencies and their customers, suppliers or other partners by developing and maintaining dedicated inter-organisational systems, virtual organisational arrangements and international institutional arrangements”.
- Also, eGovernment is the “process of reform in the way government works, shares information and delivers services to external and internal clients” (Bhatnagar, 2002).
- Finally, “eGovernment has been conceptualised as the intensive or generalised use of information technologies in government for the provision of public services, the improvement of managerial effectiveness, and the promotion of democratic values and mechanisms. Information Technology (IT) has the potential to transform government structures and

to improve the quality of government services” (Gil-Garcia and Pardo, p.187-188, 2005)

Following the above discussion on the definition of eGovernment this thesis perceives eGovernment as falling under the 3rd OECD category, and defines it as *a policy framed, government-wide programme, where networked communication and information technologies are employed in order to transform and deliver governmental services to citizens, businesses and other governments.*

1.5.2 EGOVERNANCE

Backus (2001) defines eGovernance *“as the application of electronic means in (1) the interaction between government and citizens and government and business, as well as (2) in internal government operations to simplify and improve democratic, government and business aspects of Governance”*. A more brief definition (Heeks, 2001a) of eGovernance simply states that *it is the use of ICTs for the support of good governance*. According to Finger and Pécoud (p.125, 2003) eGovernance is *a dynamic concept that implies the growing use of the networked information and communication technologies for the three State’s main functions (policy-making, regulation and operations) increasingly involving non-state actors at the global and local levels.*

Evangelidis et al. (p.396, 2002) portray eGovernance as the overarching environment within which eDemocracy and eGovernment interact. That is an eGovernance perception with which Biasiotti and Nannucci (p.770, 2005) also agree. They state that *“the implementation of eGovernment, while implying the modernisation of procedures and structures within Public Administration (PA) organisations (that is eAdministration), regards also the change of procedures and modalities in which citizens and PA relate to each other (that is eDemocracy), and all together aim at achieving a new way of ruling public matters, that is a new Governance or eGovernance”*.

Possibly the most comprehensive description of eGovernance comes from Riley (2003) who elaborated on the distinction between eGovernment and eGovernance. Although Riley did not explicitly define the term, he described it in terms of characteristics that were put against the equivalent of

eGovernment. In a nutshell, Riley axiomatically defined governments as the “*societal superstructure for politics, policies, and programs*”, whereas governance is the “*societal synthesis of politics, policies, and programs*”. Therefore, the digitisation of government (eGovernment) includes functions such as electronic service delivery, electronic workflow, electronic voting, and electronic productivity. In the case of eGovernance (digitisation of governance) Riley includes the functions of electronic engagement, electronic consultation, electronic controllership (basically standardisation of technologies within organisations), and goes as far as “networked societal guidance”, which in other words is participatory (or bottom-up) governance.

1.5.3 eSERVICES

Within an eCommerce/eBusiness context, de Ruyter et al. (p.186, 2001) define the eServices as “*the interactive, content-centred and Internet-based customer services, driven by the customer and integrated with related organisational customer support processes and technologies with the goal of strengthening the customer-service-provider relationship*”. Similarly, eServices for government are simply the ‘online’ services (Hoogwoot, p.33, 2002) that are provided by the public administration within an eGovernment environment or “*the electronic provision of government services*” (Stoltzfus, p.333, 2005). “*eServices comprise all interactive services that are delivered on the Internet using advanced telecommunications, information and multimedia technologies*” (Boyer et al., 2002).

As Gordon (2002) explains, government services are delivered at various levels of interaction. Three levels (also in Aichholzer and Schmutzer, 1999) are usually identified: information, communication, and transactions. Information services deliver government information via static web pages and pages generated from databases to citizens, tourists, businesses, associations, public administration, and other government users. Communication services use groupware technology such as e-mail, discussion forums and chat to facilitate dialogue, participation and feedback in planning and policy-making procedures. Therefore, and still according to Gordon, (p.12, 2002) transaction services use online forms, workflow and payment systems to allow citizens and business partners to take care of their business with government online. Typical applications of eServices for citizens include applying for social benefits,

registering vehicles, filing changes of address or applying for building permits. For businesses, perhaps the application of greatest current interest is the online procurement of government contracts. Aichholzer and Sperlich (p.412, 2001) distinguish eGovernment services in various thematic categories, such as:

- *“General information and support, like contact addresses of public agencies;*
- *Employee related categories, like permission, employee protection, social security, work place evaluation, job search and offer, training, and internships;*
- *Business licenses and permits for business start-ups;*
- *Public registers, like land register, business register, legal information, patents, and norms;*
- *Financial services, like the filing of tax forms, and customs;*
- *Public procurement and tendering, and*
- *Records, like statistics and social security data.”*

1.5.4 Risk

The definition of risk has evolved throughout the centuries (Wharton, 1992; Douglas, 1990) and means different things to different people (Collier and Berry, p.274, 2002). Stemming from varying backgrounds, several authors provide a multitude of risk definitions. Some perceive risk as something negative and unwanted (Rowe, 1977) or a hazard (Tregear, 2001). Baccarini et al. (p.287, 2004) see risk as *‘the chance of an event occurring that is likely to have a negative impact on project objectives’*. Williams (p.24, 1995) associates risk with uncertainty, as it is seen as an uncertain event that has an adverse effect. However and following Tchankova (p.291, 2002), *“the inability to identify possible gaining risks is as inappropriate as non-identified risks related to the loss. Missing a good positive possibility that an organisation seeks is a problem equal to bearing losses”*. As such, risk can be associated with opportunities as well (van Scoy, 1992) and therefore, further neutral definitions may be more appropriate within the domain of this research. Collier and Berry (p.274, 2002) see risk as *‘the consideration of (a process) and the consequences (the outcome - both fortuitous and hazardous) of unpredictable and uncontrollable events, and perceptions about those events’*. Similarly, risk is (Williams, p.5, 1993) *‘the combination of individual uncertainties which*

have an impact on the overall objectives of the project'. As this thesis deals with risk and decision making in a technological - but not restricted to computing - area, the BSI project management definition of risk is adopted according to which '*risk is the uncertainty inherent in plans and the possibility of something happening that can affect the prospects of achieving business or project goals*' (British Standards Institution, 2000). Here, it has to be emphasised that risk should not be confused with risk factor. Keil et al. (p.104, 2002) define it as '*the condition that forms a serious threat to the successful completion of an IT project*'. Since this thesis does not necessarily see risk only as a threat, it will loosely adapt to the above definition by describing a risk factor as a condition that forms uncertainty and magnifies the possibility of something to happen that could affect the project goals.

1.5.5 RISK MANAGEMENT, ASSESSMENT, AND ANALYSIS

Risk management may be defined in numerous manners, but broadly speaking it may be expressed as the application of the process of management decision-making to the particular problems of risk. This thesis adopts the British Standard Institute's (2000) broad risk management definition according to which it is the '*systematic application of policies, procedures, methods, and practices to the tasks of identifying, analysing, evaluating, treating and monitoring risk*'.

Risk assessment, on the other hand, forms part of the overall risk management process and can play a very important role in project management decision-making (Williams, 1995, p.19). Effectively, risk assessment encapsulates the stages of risk analysis and risk evaluation. According to the BS-6079 Standard (British Standard Institute, 2000), risk analysis is the '*systematic use of the available information to: a) characterise the risks, b) determine how often the specified events could occur, and c) judge the magnitude of their likely consequences*'. The second stage of the risk assessment process - the risk evaluation - is described as '*the process used to decide risk management priorities by evaluating and comparing the level of risk against predetermined standards, target risk levels or other criteria*'.

1.5.6 RISK MODELLING

A 'model' can be described as something used as an example (*Compact Oxford English Dictionary, 2005*). More specifically, a model is 'a schematic description of a system, theory, or phenomenon that accounts for its known or inferred properties and may be used for further study of its characteristics' (*The American Heritage Dictionary of the English Language, 2000*). A 'risk model' can be defined as a 'mathematical, graphical, or verbal description of risk for a particular environment useful in risk assessment for consistency, training and documentation of the assessment' (MacNamee, 1999). This thesis loosely adopts that definition and describes 'risk modelling' as the process of schematically describing risk for a specific domain.

1.5.7 PRE-PROPOSAL PHASE

Before the actual project management (which - amongst others - includes the design and development) of eGovernment projects there is a phase that this thesis calls 'pre-proposal'. It is that phase where discussions and preparations take place on better preparing a project proposal before a bid for the funding of the proposed project occurs. This thesis assumes that the pre-proposal stage comprises the following two parts: i) the *feasibility study*, and ii) the *business case*. The business case may be described as 'a description of the reasons for the project and the justification for undertaking the project' and 'covers the entire scope of change to the business that is affected by the project' (OGC, p.189, 2002). On the other hand, this thesis understands that the feasibility study is the early appraisal of an idea for a particular project. It is seen as the assessment of the idea for a potential project at the outset, in other words the 'ex-ante' evaluation. Ex-ante is the kind of evaluation (or better, appraisal) of whether an action (or project) is worthwhile and what the impacts are (HM Treasury, p.47, 2005).

1.6 SCOPE DELIMITATIONS

The thesis' fundamental research problem was introduced earlier in this chapter (*in Section 1.2*). It was shown that this research investigates how relevant risk modelling may be during the pre-proposal phases of eService projects for the government. However, there is still the need to also present the scope of this research; what this research is about and more importantly

what this research is not about. This section attempts to frame the research boundaries that sketch the scope of this thesis. Such scope together with the assumptions made based on the definitions of the key terms (*as earlier discussed in Section 1.5*) and the research methodology limitations (*as are to be elaborated in Chapter 3*) provide the field within which this research is realised.

As is described in the research methodology chapter (*Chapter 3*) as well as in Chapters 4 and 5, this thesis is mostly based on a study carried out in the public sector. With the exception of two initial interviews (one with an expert from the academia and another one with an expert from the private sector), this research is founded on information extracted from the government at the local level. This study aims to focus on the local government level as it poses a microcosm of the national level government. Hence, issues are perhaps more apparent and may be directly captured. Additionally, since the topic of this research lies within the eGovernment sphere, it is assumed that it is more desirable to seek data from the public sector instead of the private. That is because decisions taken that affect eGovernment programmes commence at the public sector. Having said that it has to be emphasised that two of the initial interviews (*as expressed in Chapters 3 and 4*) are non-public sector only for the purpose of capturing a more holistic picture that helped to better shape the consecutive field research. Equally, the local government participants selected for this research are based in Scotland. That is primarily because it is easier to compare issues, since the Scottish local government falls under the jurisdiction of the devolved Scottish national government.

Another point worth noting here is that this research is not about risk management or project management. This thesis focuses on the pre-proposal phase as it is described in Section 1.6 and therefore it does not examine the topic of risk modelling within a full-blown project management lifecycle of a project that has already passed the tendering process. Equally, this thesis does not look into risk management processes and in fact it does not investigate risk assessment functions either. This thesis is focused at the earliest stage before any risk assessment is commenced - that of the risk discussion, definition and identification. Of course, such stage can be part of any later risk assessment (*in fact that is desirable, as can be deducted from the thesis conclusions in*

chapters 5 and 6) and/or management process and therefore it is hoped that conclusions drawn from this thesis may have an input to such processes. The essence of this thesis is to examine whether - and to what extent - a formalised risk modelling process at an early stage can have an impact on the course of decision-making for eGovernment projects. That 'early' stage is defined as the pre-proposal phase and that is before any formal risk management has started, where no formal risk management strategy is in place either. However and as it was pointed earlier, it is hoped that the conclusions of this thesis may be used as leads for further research in the area of later stages such like project and/or risk management.

This research exploits a risk modelling tool as a research tool. The conception of this tool is based on results from the literature survey stage of the research methodology. It is further evaluated and updated throughout the research in order to make it more realistic and applicable. However, this research is not about the design and development of a risk modelling tool. This research uses such tool as a probe for the extraction of useful data that assist in the development of conclusions and construction of new theories. That is how such tool is seen in this thesis and it is so primarily due to two fundamental reasons. First, that is a very useful way to demonstrate to the research participants what this research perceives as 'risk modelling tool' and allow them to provide feedback that is apt and specific. Also the employment of the prototype risk modelling tool allows the researcher to observe and draw conclusions from the interaction that the participants have with the tool. Therefore, the tool is purely used in this thesis as a vehicle (in may be described as a theoretical Trojan horse) for research data extraction that affect the thesis' response to the research problem. Of course, the final version of the risk modelling tool may be further re-used in the future by any interested parties and can be seen as a by-product of this research.

The domain of eGovernment (*as previously introduced in Section 1.5*) is relatively new and unexplored. With that in mind this qualitative research employs participative methods and forms a grounded study that aims to explore the relevance of risk modelling at an early stage of eGovernment project considerations. It is therefore not the intention of this thesis to measure or to prove existing theories, but rather to unearth and provide a 'first stab' in new

and unexplored field. This study should be seen as a commencing point that calls for further positivist survey research to generalise the findings.

1.7 THESIS OUTLINE

This thesis comprises six parts. It commences with an introduction to the whole thesis, as can be read in this chapter and continues with a thorough investigation on the thesis topics' pertinent literatures. The third chapter of this thesis elaborates on the methodology taken in order to carry out research, whereas the fourth chapter expands on a discussion about the findings retrieved from the field of research. Finally, this thesis concludes with two chapters discussing on the research's conclusions. Chapter 5 synthesises the conclusions back to the literature, whereas Chapter 6 elaborates on the main thesis finding as well as further pertinent matters. It may also be worth noting here that at the back of this thesis, and after the references to the bibliography, the Appendices section may be found. That part of the thesis plays a complimentary role to the whole thesis and mainly covers the 'raw' data retrieved throughout the research.

This first chapter already provided a brief introduction to the research by establishing the overall field, encapsulating the previous research and indicating the gap. It also presented the fundamental research problem and summarised the main research issues. In Section 1.3 the research was justified and the previous (to this one) section highlighted an overview of the methodology used for this research. The next part of this chapter is consumed in a thorough discussion on the definitions of the main terms used throughout this thesis. Finally, this chapter closes with a presentation on the delimitations of the scope of this thesis and its key assumptions.

Chapter 2 forms the largest part of this thesis, and is concerned with providing the results of an extensive survey of the pertinent literatures. Briefly, that chapter provides the theoretical foundations for this research and elicits the research issues as well as assists in the construction of this thesis' research tool (*which is further presented in Chapter 3*). There is an initial introduction to the eGovernment domain, which is the wider frame within which this research takes place. In a nutshell, such discussion on the background of eGovernment commences with the presentation of the potential of the concept, as well as a

comparison with eBusiness (which may be seen - at least historically - as the predecessor). Moreover, various eGovernment modelling methods and evolution descriptions are discussed. Such discussion is later used as the starting point for the design of one major component of the research tool (*as is presented in Chapter 3*). That section of Chapter 2 also presents a discussion on the evaluation of eGovernment programmes as well as the overarching policy drivers behind eGovernment programmes at national and international levels. Following that, the chapter elaborates on project failure to be found in eGovernment or generic IT projects in the public sector arena, which predominantly refer to any major government projects that exploit IT, but are not explicitly defined as part of specific eGovernment programmes. Chapter 2 also provides a brief discussion on the two pre-proposal stages and introduces the notion of risk and risk identification for project planning. That discussion prepares the setting for a thorough elaboration on the eGovernment risk, which follows in the final section of the literature review chapter. It is a very important section, as it outputs a summary of eGovernment risks which is later used to form a major component of the research tool (*introduced in Chapter 3*).

The third chapter of this thesis presents the research methodology. To achieve that, Chapter 3 first attempts to establish the research approach which sets the foundations for the research methods that are used in this thesis. That is followed by a section that provides the overview of the phases of this research, starting from the existing body of knowledge (*as is summarised in the literature survey chapter*) and ending with the contributions of this research programme to the body of knowledge (*as can be read in chapters 5 and 6*). The consecutive section presents the research methods that are used in order to elicit research data from the field. The research tool is then presented and is being used in this thesis as a 'vehicle' for research data extraction; but may also be seen as this research' by-product. Such presentation entails - in brief - the conception and initial design of the tool, as well as an elaboration on the perceived benefits that may be acquired through the use of it. The research tool presentation sums up with a discussion on its potential use and its outcomes, by using the findings of two recent cases of eGovernment project failure. Chapter 3 concludes with the discussion of quality criteria for the research and pertinent ethical considerations.

This thesis' fourth chapter's prime intention is to present the findings of this research, as they were collected through the employment of the methodology discussed in Chapter 3. Largely, Chapter 4 is divided into three main elements. The first part discusses on the findings retrieved during the first stage of the field research, termed also as 'domain experts'. That discussion is based on the interviews taken from eGovernment experts and is largely consumed in setting a wider frame round this thesis research problem. Findings referring to the risk modelling tool (that is the research tool) are also discussed, and lead to the first major update of the research tool; which is also presented. Such first large part of the fourth chapter finishes with a discussion on the findings about the consideration of risk at the early project stages (before a proposal is made). It is also worth noting here that after that discussion there is a summary of the domain experts' findings in a tabular form. Such summary is also included at the bottom of each of the other two remaining parts of this chapter, and that is in order to help gather the main highlights of the findings for further exploitation at the conclusions chapter. The next part of that chapter presents the findings retrieved from a workshop about the business case stage of eGovernment projects. It starts with the presentation of information deduced in regards to the research tool's and the resulting update of the tool. Further to that, the discussion continues on the tool's capabilities and its potential employment during the business case stage. The third - and last - large part of Chapter 4 elaborates on the findings returned from a workshop with eGovernment practitioners focusing on risk modelling during the feasibility study stage of potential eGovernment projects. Again, this part follows the same pattern as its previous counterpart, by presenting the findings targeting research tool's design and consecutively demonstrating the updated version of the risk modelling tool. After that a thorough presentation on the findings on the tool's capabilities and employment at the feasibility study commences.

The thesis' penultimate chapter starts an elaboration on the research's conclusions. The chapter opens with a thorough discussion on the conclusions on the main research issues. In essence, that part revisits the research issues drawn during the literature review stage (*as discussed in Chapter 2*) after the examination of the findings of the field research (*as presented on Chapter 4*). That elaboration further leads into the development of a conceptual

framework for risk modelling. Chapter 5 concludes with a critical reflection on the relevant literature research findings.

Chapter 6 starts with the presentation of the study's main finding. Then a fuller picture of the thesis' findings in regards to the body of knowledge is provided, as well as a section on the implications for practice. The latter one resembles a checklist for eGovernment practitioners. After a brief discussion on the thesis' limitations, the penultimate section of the sixth chapter presents the author's reflections on the methodology used. Chapter 6, and indeed this thesis, concludes with a section aiming to assist interested parties in the selection of and preparation for future research. Ultimately, Chapter 6 - coupled with Chapter 5 - provide the thesis' response to the research question set earlier on Chapter 1.

1.8 CONCLUSION

This introductory chapter outlined the research as is expressed in this thesis. This first part of the thesis presented an introduction to the research problem and the pertinent research issues. Then the research was justified by elaborating on the identified research gap and the practical contributions that this thesis may bring. Following that, the research methodology was overviewed and a summary of the whole thesis structure was carried out. The penultimate section within this chapter elaborated extensively on the fundamental definitions that are used throughout this thesis. Finally, this chapter concluded with a presentation of the assumed delimitations of this study that assist in framing the scope of the thesis. Based on such grounds, the thesis can carry on in the following chapter with a detailed description of the findings from the survey of the pertinent literatures.

CHAPTER 2 - LITERATURE REVIEW

2.1 INTRODUCTION

It is this chapter's main objective to introduce the reader to the background behind the thesis' motivation. That research motivation stems from the output of an extensive literature survey conducted in the domain of electronic government, as well as other related areas. This chapter assumes that the reader is familiar with the definitions of the main terms used in this thesis, following their introduction in Chapter 1. Also the work presented in this chapter helps towards the conception and design of the research tool which is presented in Chapter 3.

Initially this chapter provides a background of eGovernment framed around the needs of this research. The very promising and ambitious potential of electronic government is discussed, demonstrating the many perceived benefits of eGovernment in the public administration and society in general. At that point, part 2.3 tries to explore the common grounds (as well as some basic differences) between eGovernment and eBusiness; a discussion that is deemed to be proven beneficial for the broader understanding of the domain. The subsequent two section parts discuss about the modelling and evolution of eGovernment, whilst part 2.6 discusses about the evaluation of eGovernment projects and their factors for success. The section concludes with a presentation of the leading eGovernment policies in the European Union, the United Kingdom, and Scotland; which are seen to be as the strategic political drivers behind eGovernment programme implementation.

Following the introduction to the justification for research earlier in this thesis (*in Chapter 1, Section 3*), the theory behind the motivation of this research starts to unfold within Section 2.8. There, the thesis' author expands on the frequent phenomenon of project failure in the information systems for the public administration, and indeed the eGovernment projects.

On the other hand, Section 2.9 elaborates on the early stages of the preparation of potential eGovernment projects. There, a connection is made between risk and its importance to the planning of eGovernment projects. The identification of risk is also discussed and argued that it can help towards the success of projects.

Based on the introduction to risk at an early project planning stage, Section 2.10 elaborates on risk within an eGovernment context. A categorisation of eGovernment risk is proposed, followed by a thorough discussion on the risks (identified in the literature) that surround eGovernment implementations. The following part (Section 2.11) expands on various risk modelling methods for eGovernment that have been found in the pertinent literatures.

Throughout this chapter various research issues are identified, based on the literature survey results. It is them that help to frame research hypotheses. Such hypotheses are then used in order to shape and support the response to the thesis' fundamental research problem. Such research propositions are later presented at the conclusion of this chapter.

2.2 THE POTENTIAL OF EGOVERNMENT

eGovernment programmes have a great potential with many benefits to offer to the governments worldwide. A very broad way of showing the major gains that the electronic government could bring is summarised in Canada's blueprint for eGovernment (*Canadian Governments Online, p.viii, 1999*), which states that '*the overall benefit of applying this blueprint will be more efficient and effective program delivery, reduced overall costs across government(s), and maintained or even improved customer service in the face of fiscal restraint*'. Similarly, the World Bank Group (2005) frames the main eGovernment benefits as goals, namely: a) Better service delivery to citizens, b) improved services for business, c) transparency and anticorruption, d) empowerment through information, and e) efficient government purchasing.

A few eGovernment benefits have been documented (*O'Neill, 2000; Schubert and Hausler, 2001; Greunz et al., 2001; Howard, 2001; Traunmüller and Lenk, 2000*). Because of the enhanced access to the government and its services, customers (citizens, private sector, or other governments) can now enjoy 24/7 unstoppable services throughout the year (*Bonham and Seifert, 2003*). Moreover, the access to government services will be managed from all possible locations (customer's office, governmental department, customer's house, public kiosk/booth, etc.) and in all possible ways (face-to-face, email, web, phone, post, etc.) or self-service (*Cohen and Eimicke, p.7, 2001*). Grönlund

(p.31, 2002), for instance, discussed on the case of people renewing themselves online their vehicle registrations.

As a result of the above and in addition to the availability of vast amount of information about policies, laws, etc. eGovernment programmes are believed to increase the citizens' satisfaction (*Kim et al., 2005*). And hence the government can now become more accountable (*for more on accountability and transparency through eGovernment read Bonham et al., 2001; Chandler and Emanuels, 2002*) to its people, as well as internally. Within eGovernment environments citizens are also able to exchange views with their peers, expressing their stand on various issues that will also be heard by government representatives. In other words the inter-networked infrastructure (upon which eGovernment is applied) enhances the communication between the citizens and the government, thus the government can have a better picture of what the citizens want (*Pieterse et al., p.269, 2005*). It is thus an easier way for governments to improve their services and get closer to their citizens (*Batista, 2003; Larsen and Milakovich, 2005*).

Additionally, eGovernment aims to integrate operations and encourage cooperation between various agencies within the government (*Cabinet Office, 2000; Timonen et al., 2002; Tyndale, 2002*). As such, one of the major benefits that eGovernment may provide is increased productivity, efficiency and reduced costs (*US House of Representatives, 2003; OECD, pp.28-29, 2003*). In fact, Al-Kibsi et al. (2001) estimate that "15 per cent of eGovernment's benefits stem from technology solutions; the rest come from streamlining the delivery of services. The two together can produce dramatic cost savings per transaction." Furthermore, it is believed (*Tambouris, 2001*) that the introduction of ICTs to the public sector so as to implement eGovernment will develop new skills and motivations for government employees (*Bonham et al. 2001; Wiskott, 1999*).

From a private sector point of view, eGovernment programmes are believed (*Microsoft, 2001*) to offer similar benefits to businesses. eGovernment implementations create healthy environments, within which businesses can carry out their dealings with the government easier, due to reduced 'red tape' and simplified, automated processes. Businesses and governments now become

partners, under the umbrella of Public Private Partnerships, and there is a shared approach to benefits and risks. Within an eGovernment environment, the private sector organisations will be encouraged to deal electronically with the governmental agencies. It is therefore seen as a '*powerful driver for economic development*' (McIlroy, p.316, 2001).

A survey, conducted in the US, on eGovernment (Hart-Teeter, 2000) demonstrated what people (members of the public, as well as Government officials) believe are the most important benefits of eGovernment. According to that survey the top four benefits of eGovernment are the following: i) Government would be more accountable to citizens, ii) There would be a greater access to information, iii) Government would be more efficient/cost-effective, and iv) Government services would be more convenient. In fact, it is argued (Hazlett and Hill, p.446, 2003) that "*citizens, influenced by private sector experiences, are expecting public services that are not only of high quality, but also integrated across different public bodies and agencies*". Hazlett and Hill, further cite Richard (1999) who argued that "*such pressures to co-ordinate information have always been present in government but the Internet exacerbates the need. There is one citizen in front of the screen, looking for information about one issue. Even though the answer might come from a variety of branches and departments, the citizen expects some homogeneity in the results.*" It can also be argued (Brown, 2002) that eGovernment may be seen as a means to "*level the playing field between large and small countries*". Similarly, following the eEurope2002 (1999) Action Plan it is perceived that "*eGovernment could transform old public organisation and provide faster, more responsive services. It can increase efficiency, cut costs, increase transparency and speed up standard administrative processes for citizens and business.*"

Following the above discussion Table 2.1 shows the typical eGovernment benefits that fall within two main categories; i) the government, and ii) the citizens and businesses.

Table 2.1: eGovernment Benefits

GOVERNMENT	CITIZENS & BUSINESSES
Cooperation between agencies	Increased accessibility
Improvement of services	Satisfaction
Accountability & Transparency	Better informed
Efficiency	Convenience
Cost-effectiveness	Better served
Empowerment of 'smaller' countries	Can trust the government more (<i>due to increased transparency & accountability</i>)
Motivation of employees	
Improved customer service	

Quite interestingly, a recently published research study (*Driessen and Ponsioen, 2005*) shows that eGovernment programmes do actually deliver some of their promised goods. Following the results from eight case studies across various European Union Member States, it is argued that eGovernment “primarily pays off” (*Driessen and Ponsioen, p.373, 2005*). However, and not very surprisingly (since Governments invest in eGovernment), the benefits of time & cost reductions, and increased efficiency & productivity are hugely reaped by the governments (due to compression of the administrative burden). Such returns do not seem - at present at least - to realise for the citizen/businesses side of things, and the authors of that study suggest that more need to be done.

2.3 EGOVERNMENT VERSUS EBUSINESS

Some people see a correlation between electronic government and electronic business where the latter is perceived as a subset of electronic government (*for example see Figure 2.1 from Schubert and Häusler, 2001*) or where eGovernment is simply the eBusiness for the public administration (*Gisler et al., 2001*). There are various reasons why this is happening (*for more read Greunz et al., 2001*). Historically, the eBusiness term (mainly expressed as eCommerce) precedes the eGovernment concept and also provides it with the basic enabling methods and theories (*Tambouris et al., 2001*) that have been adopted by eGovernment scholars and practitioners. Indeed, as Carrick (*2001*) explains, there are lessons to be learnt and experience to be drawn from the eBusiness domain and applied on eGovernment. Furthermore, that trend sparks from the mere fact that both terms are based on the use of ICTs for the transformation of the more “traditional” fields of business and government. As such, there are some striking similarities that can be found in both concepts,

and in fact it is argued (*Blakeley and Matsuura, p.39, 2001*) that the one is the driving force behind the other one.

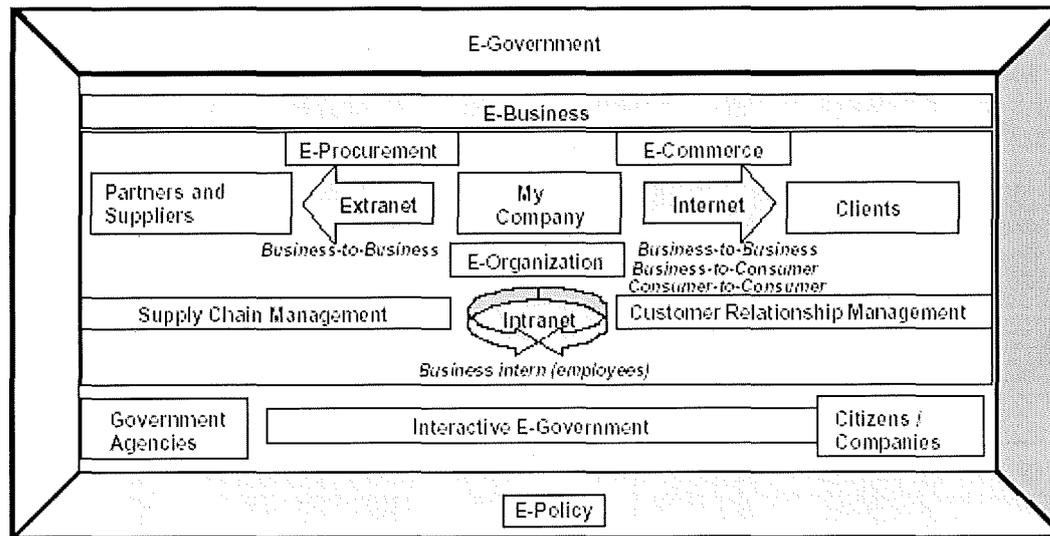


Figure 2.1: eGovernment / eBusiness Relationship (taken from *Schubert and Häusler, p.2, 2001*)

From a structural point of view, both concepts share at least six similarities (*Greunz et al., 2001*). Both require a multi-step process in order to come to a mutual agreement; with typical examples the application for a permit (eGovernment) and the negotiation process (eBusiness). Secondly, the stakeholders involved in both concepts are highly distributed. Thirdly, the end result has to be legally binding, usually in the form of a contract. Fourthly, both eBusiness and eGovernment systems are based on heterogeneous platforms in order to support communication and data processing. Finally, another structural similarity that is found in both eBusiness and eGovernment is the control of the fulfilment (that is normally the payment). More abstract similarities can also be identified. For example, both terms evolved from a simple effort to provide improved external communication channels to business process reengineering and complete transformation of the way business is done in both the private and the public sectors (*Traunmüller and Lenk, 2000*). Also, citizens are now more computer savvy and due to increased eBusiness functions/services usage they now expect more from Government. As such, one-stop shop type of eGovernment services accommodate a similar standard of service as their eBusiness counterparts (*Thong et al., 2000*). Furthermore,

organisational boundaries in both concepts are becoming meaningless (*read for example Davison et al., p.283, 2005*). Another resemblance is that both fields share the same need for improved guarantees on issues such as privacy, security and trust (*for example, Dridi et al., 2001; Davila et al., 2000*).

On the contrary, those '*superficial similarities quickly fade*' (*Galindo, p.345, 2001*), and therefore eGovernment and eBusiness start to share remarkable differences between them. Indeed it is stressed that suggesting that citizens are the same to and should be treated as customers can be naïve if not dangerous for the future of eGovernment implementations and the public administration in general (*Ciborra, 2003*) A fundamental difference is the fact that eGovernment is governed and ruled by public law, which also has an effect on the nature of the offered service (*for example, Wimmer et al., 2001*) whereas the service or product in eBusiness is depending on the strategy of the enterprise. As a result, any change in eGovernment takes time and is always politically dependable, whereas changes in the field of eBusiness can be dramatic and at a frantic pace. This is mainly due to the fact that electronic business is more 'open' as it is mainly governed and ruled by private profit. Additionally, the transactional phases of service delivery differ in these two disciplines (*Dridi et al., 2001*). More specifically, in electronic business there are mainly three steps, which are: i) information, ii) negotiation and agreement, iii) conclusion. On the other discipline (that of electronic government) there are just two steps: i) information, and ii) conclusion. It has to be stressed here that law, which explicitly requires persistent data storage existence as well as seriously strong privacy protection, protects transactions in eGovernment. These two disciplines provide transaction service delivery to different groups of customers in the sense that in eBusiness targeted customers have known characteristics (hence homogenous customers); whilst in eGovernment customers are heterogeneous. Gisler and Spahni (*2000a*) point out some other interesting differences between eGovernment and eBusiness. For instance, within an electronic government environment there is normally the monopoly (*also in Davison et al., p.283, 2005*) of the public administration with no stress of competition, whereas in the field of eBusiness many vendors exist and the competition is fierce. Additionally, the level of management influence in both cases is different. More specifically, Gisler and Spahni (*2000a*) argue that in electronic business environments decisions can be turned into

actions with no opposition. That can be partially due to the fact that for eBusiness projects there has to be a relation between the customer retention and loyalty and profitability, whereas that is not the case for eGovernment (Montagna, p.206, 2005). Speaking of loyalty, even that is argued to be different between the two domains. Davison et al. (p.283, 2005) explain that in eBusiness loyalty is directly related to the 'generation' of new services or advanced customer relationship management systems that make potential customers feel for a needed service, and as such they may return. In eGovernment that case is slightly different, as the focus of loyalty is shifted to "digital loyalty", i.e. the preference of citizens to use digital services over other forms, since digital services should be much cheaper (for the public administration) to provide."

The similarities and differences between the fields of electronic government and electronic business are summarised in the Table 2.2 below. Such comparison will aid in the better understanding of the electronic government field and assist in the assessment of risks. That is because a lot more has been written in the more mature domains of eCommerce and eBusiness, and thus risk factors from those domains may also be applicable to eGovernment implementations.

Table 2.2: eGovernment vs. eBusiness

SIMILARITIES	DIFFERENCES
Better customer service	Levels of goal importance
Similar infrastructures	Orientation / strategy (eGovernment is ruled by public law, eBusiness is ruled by supply and demand)
Transformation of business	Speed of change
Collapse of organisational boundaries	Transactional phases
Common needs for guarantees on privacy, security, trust	'Customer' groups
	Monopoly in eGovernment / fierce competition in eBusiness
	Different level of management influence
	Definition of loyalty

2.4 MODELLING eGOVERNMENT

In this section a summary of some interesting eGovernment theoretical frameworks/models takes place. Such annotation will aid to better understand the concept of eGovernment, from a holistic point of view, and demonstrate its

main components. These frameworks/models can be distinguished into two types: i) strategic, since they define the strategies that have to be followed to better realise eGovernment, and ii) operational, since they describe various architectures of eGovernment systems.

Three strategic designs are first described in this section. The first one demonstrates the way eGovernment adds value to the public sector, whilst the second one attempts to set the various viewpoints from which eGovernment systems may be viewed. Thirdly, the “three-dimensional viewing of eGovernment” defines the main actors (and their interactions) of any eGovernment system.

In the same fashion, three operational models for electronic government conclude the section. The first one discusses two different types of eGovernment architectures coupled with their advantages and disadvantages. Likewise, the second operational model provides another design principle for eGovernment implementations based on process reengineering steps. The last one describes eGovernment projects by looking at internal and external perspectives.

2.4.1 EGOVERNMENT VALUE CHAIN MODEL

eGovernment can often be viewed from a business perspective. In such a case a governmental value chain model (*Figure 2.2*) can be designed (*Wassenaar, 2000*), in order to help public administrators to better understand and realise the innovations organisational and information systems can bring to the public sector.

This value chain model consists of three main functions of the public sector, namely: (i) the legislative function, (ii) the administrative function, and (iii) the juridical function. These three functions form the three main governmental management fields of this model, which are the: (i) legislative governance, (ii) administrative (resource) management, and (iii) the service delivery management. Each field is divided into a strategic-constitutional, tactical-intermediation and operational-retail level.

The field of legislative governance embraces the constitutional institutions like the government, parliament and their relations to the citizens. In this field the fast growing interactive ICT capabilities are enabling systems like electronic democracy, electronic election and discussions. The field of administrative management is involved in the public resource allocation especially in planning, programming and budgeting the resources for the public sector. In this field the fast growing ICT interactive capabilities are a trigger from re-engineering of administrative structures eliminating many existing hierarchical governmental layers. Finally, in the field of service delivery management, new interactive ICT capabilities like front/back office systems and service component-based development are streamlining the governmental service delivery chain by eliminating many bureaucratic ‘rituals’ in the interaction between governmental agencies and their citizens. The integration of information systems is enabling user friendly, one stop-shopping concept of public services.

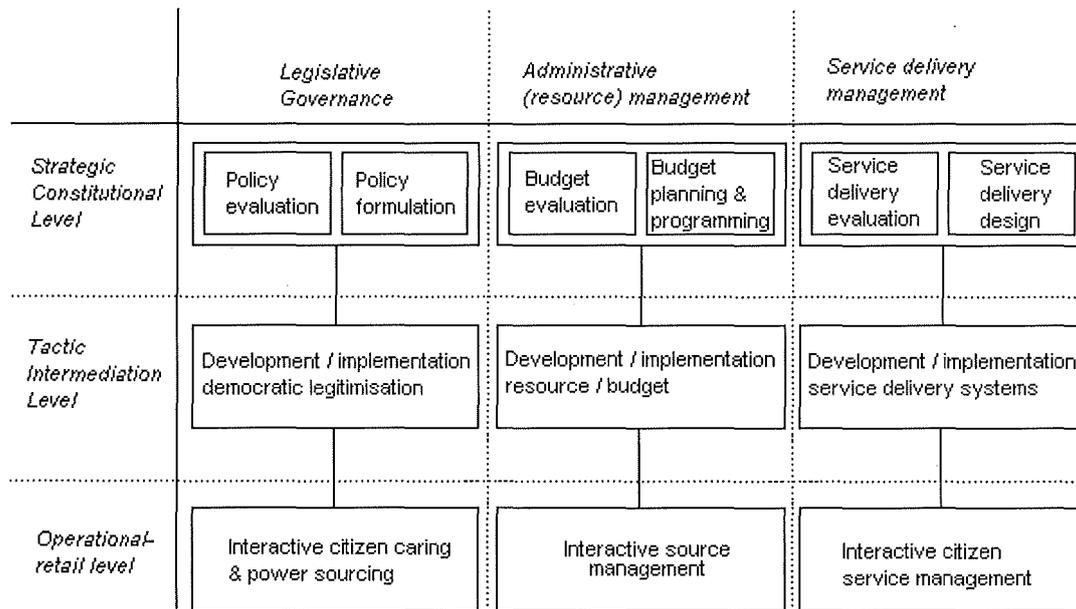


Figure 2.2: eGovernment Value Chain Model (from Wassenaar, 2000, p.291)

2.4.2 THE ‘FOUR PERSPECTIVES’ EGOVERNMENT FRAMEWORK

A structure that attempts to describe/set the main components of eGovernment is the ‘four perspectives’ framework (Lenk and Traunmüller, 2000; Papantoniou et al., 2001).

This framework aims to set the future shape of an Electronic Government and create some guidelines for developing eGovernment. It is a structure that consists of four separate perspectives, which are:

- The addressee's perspective
- The process perspective
- The co-operation perspective
- The knowledge perspective

The addressee's perspective refers to the single-window service, which connects the back office to the front office and brings the administrative services into contact with their addressees (or better the citizens). The authors of this framework describe eGovernment as an iceberg, where the nine tenth below the water surface are as important as the top. The addressee's perspective of 'Integrated Access Management' is the top of the iceberg, which has to be complemented by the three further perspectives that all address the part of the machinery of government hidden below the water surface.

The second aspect of this framework is the process perspective. This viewpoint aims to deal with the organisation redesign. Here, it is stressed that in order to reorganise public administration an investigation has to be made to examine the potential differences and similarities between the private sector processes and those of the public sector. Finally, the framework (through the process perspective) distinguishes three factors that determine the administrative processes, namely: i) law, ii) politics, and iii) information as a resource.

Another viewpoint of the 'four perspectives' framework is the co-operation perspective. Co-operation is a concept that spans both, strictly coordinated work and collaboration work. The co-operation perspective is of special importance to activities related to complex decision-making, negotiation, and in general policy formulation.

The fourth aspect of this framework is the knowledge perspective. It is very important in understanding administrative work in such a way as to be able to redesign it without incurring major losses of skill, expertise, know-how and

goodwill. Here the framework also categorises knowledge in different types, namely: i) knowledge about the policy field to be influenced, ii) knowledge about the effects of previous actions, iii) knowledge about legal rules, standards and political conditions, and iv) knowledge about one's own capabilities to act.

2.4.3 THE 'THREE-DIMENSIONAL VIEWING OF EGOVERNMENT' FRAMEWORK

Another important framework set to define and understand the concept of eGovernment and its attributes is the 'three-dimensional viewing of eGovernment' (*Gisler and Spahni, 2000b; Papantoniou et al., 2001*).

This framework identifies three different roles that are involved within the eGovernment concept. Such roles are: i) the citizen, as an individual, ii) the unions of citizens to organisations of private law, iii) the institutions of the public law, which involve the classical three authorities 'government', 'parliament' and 'courts' and, basically, the entire public administration.

Based on these three different roles the framework proposes three dimensions (or views) of eGovernment. The first dimension is the institution-based view on eGovernment. Here, eGovernment covers all electronically executed operations between institutions of public law with other institutions of public law, institutions of private law or with citizens. The second dimension of this framework is the service-based view on eGovernment. From this viewpoint the quality of the exchanged service is assessed. The exchanged service refers to all electronically produced services described in the public law. Finally, the third dimension of the framework is the relation-based view on eGovernment. That focuses on the relationship between the institutions and not on the legal status of the involved parties.

2.4.4 INTEGRATION / FRAGMENTATION MODEL

Research (*Laprø, 2000*) shows that there are two ideal eGovernment design models: (i) the integration model, and (ii) the fragmentation model. According to the integration model there is the provision of an integrated Internet 'counter' where the public receives different services from the different back-offices in an integrated manner. The counters are government counters and the

integration mainly applies to services provided by different government organisations. The model is depicted in Figure 2.3 below.

The main characteristic of this model is that the government has the main role. In an extreme case, there would be just one counter on the Internet, from where all government services can be obtained. This eGovernment design model can create a clearly visible government.

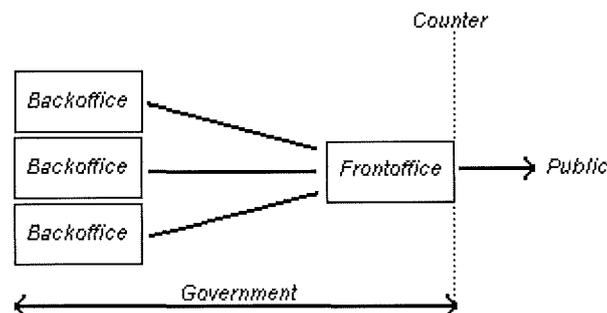


Figure 2.3: The Integration Model (from Laprø, 2000, p.335)

On the other hand, the fragmentation model (see Figure 2.4) aims to find existing channels to the target group. These channels can be governmental or non-governmental, where in such case these non-governmental channels are seen as for front offices for government service provision. Below is the Integration model sketch.

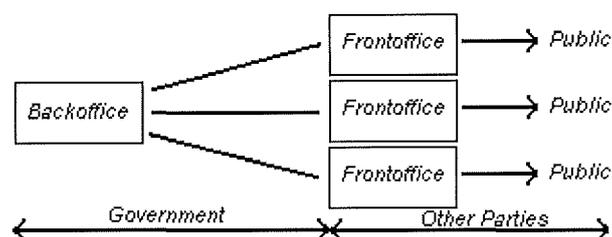


Figure 2.4: The Fragmentation Model (taken from Laprø, 2000, p.337)

In this model an increased withdrawal can be experienced. In an extreme case, all government services will be incorporated in existing commercial contact services, which the public already uses in normal life. This design approach can make the government disappear behind the scene.

Laprø (2000) concludes that both models face numerous of problems. For the integration model a major threat is the breakdown of internal walls between services and managements. There also exists the identity problem, where some parts of organisations sharing the same counter become less distinct. Finally, in the integration model risks related to information exchange as well as inter-organisational coordination are typical and need to be solved. The fragmentation model, on the contrary, faces problems related to the relationship between the private and the public sector. For instance, it is sometimes hard for governments to persuade the private sector to work together. There are also always the conflicts between public and private sector in various aspects.

2.4.5 INTER-GOVERNMENTAL PROCESS RE-ENGINEERING

Similar to the above model for eGovernment is the 'Inter-governmental Process Re-Engineering' (Millard, p.300, 2002). That approach is using the back and front office components of government, and shows how they interact with the citizens and businesses. It is an approach phased at four progressive diagrammatic sketches. The first diagram demonstrates the traditional state of the public administration, where citizens and businesses have to directly deal with various individual government offices. A first structural re-engineering of the situation described in that first diagram leads to the development of the '*front office re-engineering*' sketch. That situation is best described as a one-stop shop, where citizens and businesses access the government services through one point, regardless of their purpose. As such, the multitudes of points - due to the organisational structure of government - are circumvented (if not eradicated). Eventually the front office re-engineering leads to the re-organisation of the back office that has to be updated in order to reflect the needs of the citizens and businesses (that communicate through the front office). Therefore, the back office is being transformed by introducing new departments and processes and removing unnecessary old ones. The complete inter-governmental process reengineering (and hence eGovernment) is achieved and depicted at Millard's fourth diagram, the '*total re-engineering*'. That model of eGovernment is where "*there is a shift from 'cold' administration to 'warm' ICT-supported human services in terms of personnel, and increasingly also in terms of resources. Small, ICT-automated back offices can serve and support very large front offices with more frontline ICT-*

supported human services based upon the improved cost-effectiveness and increased quality of administrative back office procedures.”

2.4.6 GENERAL MODEL FOR EGOVERNMENT INITIATIVES

Another framework that attempts to describe eGovernment is the so-called “General Model for eGovernment Initiatives” (Dridi *et al.*, 2001). The model consists of two perspectives; the external perspective and the internal perspective, which are equally important for developing eGovernment initiatives. The external perspective includes a layer of three types of electronic services, which are the information service, the communication service, and the transaction service. The second layer that resides within the external perspective is the security infrastructure, which mainly aims to guarantee the trust towards the eGovernment systems. The third and final part of the external perspective is the ‘constraints’, which are basically of three kinds, namely: i) the organisational constraints, ii) the technical constraints, and iii) the legal constraints.

On the other hand, the internal perspective refers to the back-office infrastructure, which includes important organisational systems, such as workflow management systems, databases, content management, etc.

2.5 THE EVOLUTION OF EGOVERNMENT

The purpose of this section is to discuss about the evolution of eGovernment; in other words examine (and after borrowing Bannister’s, 2004, expression) how ‘deep’ the intrusion of the networked information and communication technologies within government are, and how wide the realisation of eGovernment is. Following Tian and Tianfield (p.431, 2003) such evolution can be distinguished in two categories; one according to the levels of development and one according to the levels of system complexity. The literature revealed a number of approaches for demonstrating the levels of eGovernment maturity, which has to be said, most of them do fall within either of the afore-mentioned categories. In the following few subsections such models will be discussed.

2.5.1 SYSTEM COMPLEXITY EVOLUTION MODELS

To assist public administrators design and develop eGovernment researchers (Layne and Lee, 2001) at the University of Nevada developed a generic

eGovernment growth model. That very popular model describes the four stages towards fully functional eGovernment, which are: (i) cataloguing, (ii) transaction, (iii) vertical integration, and (iv) horizontal integration. These four stages are explained in terms of the complexity involved and different levels of integration as shown on Figure 2.5.

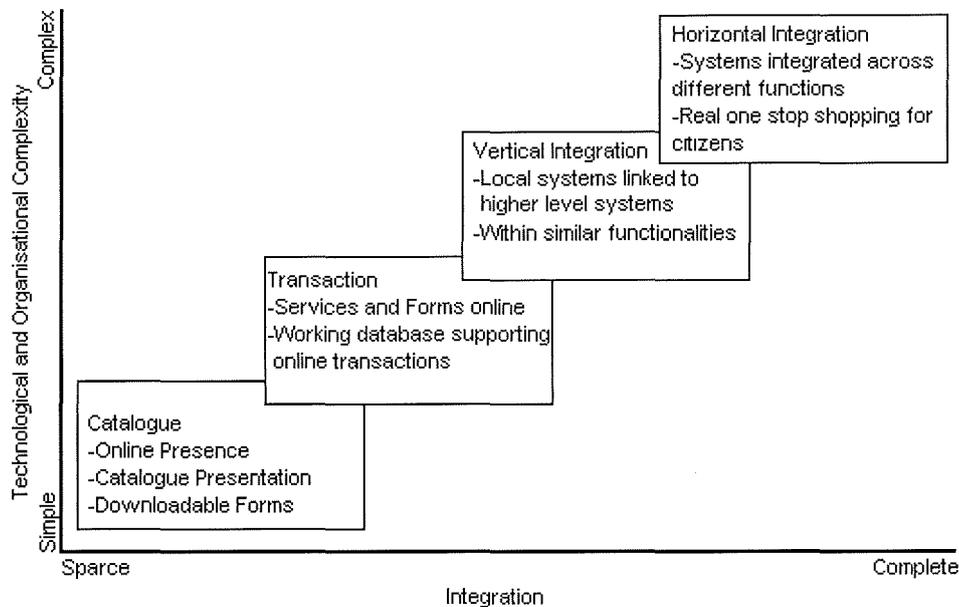


Figure 2.5: Fully Functional eGovernment Growth Model (from Layne and Lee, p. 124, 2001)

In stage one of cataloguing, initial efforts of local governments are focused on establishing an online presence for the government. Many local governments' efforts on web development and forms-on-line initiatives belong to this stage. In the second stage, eGovernment initiatives will focus on connecting the internal government system to online interfaces and allowing citizens to transact with government electronically. This stage can be called 'transaction-based' eGovernment, and at this stage, eGovernment efforts consists of putting live database links to online interfaces, so that for example, citizens may renew their licenses and pay fines online. By having similar agencies across different levels of governments and by having different agencies with different functionality talk to each other, citizens will see the government as an integrated information base. Ultimately, a citizen can contact one point of government and complete any level of governmental transaction - a 'one-stop

shop' concept. This integration may happen in two ways: vertically and horizontally. Vertical integration refers to local, regional and central governments connected for different functions or services of government. In contrast, horizontal integration is defined as the integration across different functions and services.

Quite similar to the 'Fully Functional eGovernment Growth Model' is the OECD's recommendation (p.73-74, 2003) for eService development, which in fact has been prepared by the Australian National Audit Office. According to that model there are four possible stages of eService development, which are:

1. *Information*: Information is published on the Web; it is a static stage.
2. *Interactive information*: During this phase eService users can access databases in order to browse and interact with the contained data. This stage is not static, as it "*necessitates a greater investment in thinking about how citizens and information will use that information, about the rules for making certain information public and accessible, and about the target audience and the types of tools that can add value to the user experience, making it easier to find what he or she is looking for and/or tailoring information searches.*"
3. *Transactions*: Within that stage the eService users can enter information securely and transact with the organisations. Of course, this stage accommodates all the actions permitted within the two afore-mentioned stages. Here, organisations have to respond in real-time with the users, and hence it is a dynamic stage.
4. *Data sharing*: The ultimate stage of eGovernment service development is that where an organisation can share information with other government organisations, and of course, accomplish all activities within the previous three stages. The OECD (p.75, 2003) acknowledges the fact that this stage is quite advanced and especially difficult to define/achieve.

The above four stages of eGovernment evolution can be further analysed in six distinctive stages (*Deloitte Research, 2000*), such as:

1. *Information Publishing/Dissemination*: Basic stage, where information is communicated one-way from government department websites.
2. *'Official' Two-Way Transactions*: eService users interact with the government department to receive services such like parking tickets payments and television license.
3. *Multi-Purpose Portals*: Here, eGovernment users interact with a single point of contact with the government, and obtain services and information.
4. *Portal Personalisation*: It is the stage where eService users can customise (or even better personalise) the eGovernment portal according to their like and needs.
5. *Clustering of common services*: Here, a government-wide transformation occurs where some agencies start to disappear, since eGovernment services become more centralised and seamless.
6. *Full integration and enterprise transformation*: This is the ultimate eGovernment stage, where complete transformation has occurred; with new departments being born whilst others completely removed.

Quite arguably, Tambouris et al. (2001) state that such categorisation of eGovernment evolution is mainly focused on technologies and “*restricted to service delivery management related initiatives*”.

2.5.2 DEVELOPMENT EVOLUTION MODELS

Howard (2001) discusses about the economic transformation in the United States of America from agrarian to industrial and further to electronic (for a similar approach paralleling eGovernment and digital economy read *Swedberg and Douglas, 2001*). By taking that even further he then elaborates on how the electronic government will evolve into three (the *publish, interact* and *transact*) stages. Perhaps that model is a hybrid of both a development and a complexity type of model as it talks about development, whilst in essence

describing the complexity of public eServices. As such, the first stage is where the government has an '*electronic presence*'; the second one is where the citizens have some sort of basic interaction with the government; and the third stage is where citizens carry out all their transaction with the government online.

A four stage eGovernment development evolution model is proposed by Papantoniou et al. (p.403, 2001), which appears to be similar to the model suggested by Howard as above. It includes the stages of *static information* (whereby information regarding the government organisation is published online) and *citizen interaction* (whereby citizens have basic interaction with the government); stages that are almost identically described in Howard's model. The third stage of the Papantoniou et al. model is the '*knowing the citizen*', through which additional personalisation/customisation is offered to the citizen. It is stressed that during that stage business intelligence and data warehousing applications - amongst others - must be developed, as well as Customer Relationship Management strategies should be followed. The fourth maturity level is the '*full e-government transformation*'. It is that stage which "*allows extensive self-care, citizen communities, business partner integration, higher personalisation, e-enabled offerings, products or services thus transforming eGovernment to a "home for the citizen"*", and Papantoniou et al. conclude that eventually the "*governmental departments become learning organisations, understanding all citizens' needs*".

Other development evolution models go along the same lines, as for example Chandler and Emanuels (2002) who define four different levels of eGovernment, such like information, interaction, transaction, and integration. Equally, Holliday (2002) agrees with that maturity classification of eGovernment and further distinguishes the first 'information' stage into the *emerging* and *enhanced* stages. Also, Chen (2002) explains that "*eGovernment delivers its content and services through the continuum of the four levels of interactions*", which are the following:

1. Enabling information search by citizens online;
2. evolving into providers of interactive services such as email, forums and web forms;

3. facilitating transaction services for businesses and citizens;
4. transforming practices and services from government to the agents and the community.

Looking closer at the models here, as well as the complexity ones in the previous section, it is evident that the eGovernment evolution (or for some others "eGovernment adoption", *Ebrahim et al. 2003*) is popularly distinguished in a staged fashion. Indeed, this observation is also made by Al-Sebie and Irani (p.27, 2003) who conclude with a three-tiered stage approach - associated also with level of benefits to stakeholders (citizens or businesses) - that includes the following:

1. *"Information services, static information, one-way communication. Information services meet the requirements of the first stage of eGovernment where the purpose of government is only to present static information and services online. The benefits of this stage for both citizens and businesses are limited."*
2. *"Communication services meet interaction or two-way communication stage. The main purpose of government at this stage is to obtain at least simple interaction online with its citizens and businesses. The benefits of an eGovernment system will increase."*
3. *"Transaction services that lead to integration of government services and enable citizens to access government services from a single point. The benefits from eGovernment at this stage will be at the highest level."*

Davison et al. (p.285, 2005) argue that *"while these staged models tend to help identify 'where you are', they usually fail to 'guide you to the next stage'."* Then they conclude by citing Hodgkinson's (2002) IT in Government Maturity Curve that mature eGovernment is characterised by high levels of capability and performance on multiple dimensions. Such *"capabilities include the ability to share data and information across government units, reduce process times through workflow and ERP systems, and the ability to capture and share knowledge of government employees (Davison et al., p.286, 2005)."*

Also, *“performance dimensions include the government’s ability to offer the vast maturity of suitable services with an e-delivery option, and a large number of citizens and organisations making use of them (Davison et al., p.285, 2005).”*

2.5.3 THE DYNAMICS OF EGOVERNMENT EVOLUTION

A third - quite novel - way to describe the evolution of eGovernment programmes is a framework based on the dynamics of eGovernment evolution (Martinez-Moyano and Gil-Garcia, pp.194-199, 2004). The authors of that framework adopted a systems dynamics approach, which offers a more ‘natural’ way of investigating the effect of changes in one variable on other variables over time. As Martinez-Moyano and Gil-Garcia (p.196, 2004) explain, *“eGovernment dynamics can be understood using an endogenous view based on the notion that observed behaviour conditions the system of rules present in an organisation, which in turn conditions the responses individual actors have to the system of rules”*. And the authors continue that *“over time, eGovernment presence becomes the norm and eventually an operational standard that can become a legal requirement (a new rule of how government services should be provided).”* In a nutshell, this approach to assess the level of eGovernment evolution is based on feedback loops originating from the work of Argyris and Schön (1996) on organisational learning.

Compared to the other methods, the fundamental advantage of this approach is that it does not perceive the development of the different eGovernment stages as homogeneous. Indeed, the authors of that framework cite Giddens (p.245, 1984) who stated that *“if the social life is contingent, all social change is conjectural. That is to say, it depends upon conjunctions of circumstances and events that may differ in nature according to variations of context, where context (as always) involves the reflexive monitoring by agents involved of the conditions in which they ‘make history’.”* Therefore, understanding the way rules and norms (in regards to eGovernment adoption) evolve over time can be another way of assessing the eGovernment maturity. The eGovernment dynamics approach is possibly the most flexible, yet quite abstract and hard to master method to examine the evolution of eGovernment. This thesis’ author would also add that this approach is possibly best for explaining why a

particular eGovernment programme evolved in a certain way, rather than how it will evolve.

2.6 EVALUATING EGOVERNMENT

This section will look into a number of ways of evaluating eGovernment. Before doing so, it has to be emphasised that the previous section elaborated on the various stages of eGovernment developments, based on their maturity or adoption levels. It has to be stressed that there is a fine line between the evolution of eGovernment and the evaluation of relevant programmes. This is so, because in order to assess the progress of eGovernment implementations it is important to distinguish the various stages of such programmes. In effect, maturity/adoption models may also be used to evaluate the state of eGovernment. Therefore, evaluation methods discussed here - or indeed - adoption ones expressed previously, could easily fall within either of the two (2.5 & 2.6) sections.

Also, sometimes evaluation of eGovernment can occur as 'benchmarking' (Janssen, 2003; Janssen et al., 2004), which rather refers to the present status of eGovernment adoption at a local, national, or international level. According to Irani et al. (p.63, 2005) that type of evaluation is 'volumetric' and it does not address '*the notion of benefit to the citizen through the provision of infrastructure*'. Also, such benchmarking has its flaws due to metrics, political intervention, or definition of eGovernment (discussed in Bannister, 2004) and anyway, it targets eGovernment programmes, rather than specific eGovernment projects which is the focus of this thesis. As such, a discussion on benchmarking is beyond the scope of this work.

2.6.1 EGOVERNMENT SUCCESS FACTORS

Before looking into the evaluation of eGovernment, it is necessary to understand its success factors. Becker et al. (p.503, 2004) discuss on the issue and conclude with the following four: i) organisational responsibility for eGovernment, ii) eGovernment awareness, iii) budgetary funding, and iv) organisational change. Beaumaster (2002) calls for a change in the approach taken when looking at the introduction, and in fact adoption, of information and communication technologies within the public sector. Such approach will perceive information technology as an integrated part of organisational

operations and planning. Moreover, it is suggested that the *“IT personnel are technically proficient and possess an understanding of the operations of local government”*. Beaumaster also envisages within that approach data being an organisation-wide resource and technologies to be designed with the whole organisation in mind, as well as *“users being trained to use IT to its fullest capacity”*. Based on the recent Swedish Customs’ experience with eService development, Wicktor (pp.499-500, 2005) presents a series of eGovernment critical success factors. He emphasises that in order to develop eServices that are going to be used, the customer (usually the citizen) should always be the focus of attention and his/her needs should be recorded and accommodated. Moreover, iterative development strategies should be followed in order to keep the pace with the rapid changes of today’s Internet technologies. Another success criterion for eGovernment programmes should be the provision of *“seamless solutions with focus on flows and processes”* that overcomes any departmental boundaries. Similarly, front and back office structures should have a streamlined way of communication otherwise, as Wicktor explains, *“the best of initiatives might in the end merely become a traditional static website.”* Finally, opting for multiple channels of communication with the customers poses another success factor for eGovernment initiatives.

Gil-Garcia and Pardo (2005) elaborated extensively on factors that ensure the success of electronic government programmes. They reviewed pertinent literatures in the areas of eGovernment as well as IT/IS for the public sector and amalgamated their conclusions into five main success factors categories (or as they term them ‘strategies’). The information and data strategies ensure the success of eGovernment programmes by looking at various information management issues. Within that category the following key success factors have been identified:

- Existence of an overall plan for managing data and information products;
- Getting continual feedback from partner users ensuring data quality;
- Existence of quality and compliance assurance programme.

Another success factor category is the 'Information Technology', which includes success factors like ease of use and usefulness, as well as demonstrations and prototypes. The latter one stems from the work of Dawes and Pardo (2002; also in Heeks, pp.171-172, 2001b) who found that due to the complexity and novelty of emergent technologies early prototypes should be developed and explored. Also, demonstrations on these technologies would enhance awareness. Thirdly, organisational and managerial strategies should also be put in place so as to guarantee success. Here, success factors like the following may be identified:

- Identification of clear goals, milestones and measurable deliverables;
- Developers' and end-users' skills and training needs;
- A balance between technical, managerial and political skills amongst members of the eGovernment programmes;
- Innovative financial schemes and partnerships need to be devised to ensure viability of eGovernment initiatives.

Gil-Garcia and Pardo (p.195, 2005) conclude with two categories for eGovernment success; the legal and regulatory, and the environmental or institutional. The first one entails the development of information technology policies and standards as a critical success factor. On the other hand, the latter category calls for executive leadership or sponsorship in order '*for some formal institutions to be changed*'. Finally, executive and legislative support - as well as strategic outsourcing - appears to be critical for the success of most eGovernment implementations.

Ho and Pardo (2004) reviewed a series of models for factors that influence information systems development success and failure. They highlight five critical success factors for eGovernment, where the major one is the top management commitment to the IT initiative. Other critical success factors include the alignment of IT investment to the business and mission of organisations, as well as the harmonisation of an organisation's strategic mission with the implementation of IT systems. Moreover, the authors find that "*IT investment projects affect entire organisations. Therefore, it is essential to have project team members from different functional units, such as IS*

financial, and human resources, involved in projects.” Finally, user involvement in developing information systems is perceived as a critical success factor for eGovernment programmes.

Moreover, Heeks (p.171-172, 2001b) presents a series of methods that guarantee the success of eGovernment. He explains that *‘legitimising and mapping organisational reality’* is a critical success factor. That can be achieved by encouraging eGovernment project participants to articulate the difference between logic/theoretical models of what they should be doing and real depictions of what they are actually doing. Heeks also proposes that the use of prototypes of the eGovernment system can also help to ensure success (also in Dawes & Pardo, 2002). Another eGovernment success factor should be the focus shift of the applications from rationality-imposing to reality-supporting ones. That is because rationality imposing applications (such as decision support systems) are based on a series of assumptions and preconditions, which may not always be the case. On the other hand, applications like word processing for example have a small design-reality gap and hence are more prone to succeed. Another eGovernment success factor according to Heeks is that any information systems customisation needs to match the organisation’s realities; systems should not just be adopted, but they should rather be adapted. Additionally, *‘incrementalism’* is another factor for the success of eGovernment implementations. That dictates that any changes brought within the organisation should be broken down and introduced slowly. In other words, eGovernment system development and adoption should follow the motto *‘think big, start small, and scale fast’* (Accenture, p.12, 2001). By citing Markus and Benjamin (1996), Heeks proposes that public sector ICT professionals should also be facilitators of change employing skills of communication and negotiation. Similarly, another eGovernment factor for success is the *‘hybrid’* staff type. Such public sector employees understand the wider government context, but also possess managerial and information systems skills.

2.6.2 EGOVERNMENT EVALUATION METHODS

Evaluating of eGovernment is closely aligned with the evaluation of Information Systems, possibly due to the familiarity of the two domains. A lot has been written in information systems evaluation and a discussion on that is beyond

the scope of this thesis (for example, Professor Zahir Irani has written extensively in the area, Irani, 2002a; Irani, 2002b; Irani and Love, 2002).

Recently, Irani et al. (2005) presented a conceptual framework for the evaluation of eGovernment projects. It is a framework that '*embraces investment decisions, evaluation methods, culture and structure, as well as post hoc evaluation*' (Irani et al., p.61, 2005). That framework takes a holistic approach towards evaluating eGovernment projects. It is emphasised that organisational culture and structure should be highlighted, since eGovernment systems entail parts of human social structures. Culture and structure have an influence in all other parts of that framework. A second concept - the 'evaluation method' - is proposed, whereby key questions in regards to value and choice of method need be posed. Also, factors and sources of risk and/or cost should be examined. Thirdly, that framework prescribes that investment decision-making needs be considered. Questions in regards to the main drivers and decision maker's roles have to be asked. Furthermore, 'when' and 'how' enquiries are proposed to be made in the post hoc evaluation which is the fourth tier that Irani et al. present in the framework for evaluation of eGovernment projects.

Finally, Irani et al. (p.75, 2005) stress that the '*notion of value is not adequately understood*'. That goes along the same lines with Bannister's (2004) comment who points that there are problems with the definition (and the framing of boundaries) of eGovernment. As such, the evaluation of eGovernment is not yet fully explored nor completely understood. The following three parts of this section present some interesting evaluation methods that have been used within eGovernment contexts.

2.6.3 THE BALANCED EGOVERNMENT SCORECARD

The Bertelsmann Foundation (2001) has developed the 'Balanced eGovernment Scorecard', which poses a post hoc method for evaluating electronic services within a wider eGovernment strategy. In effect that is the adoption of the *balanced scorecard* method proposed by Kaplan and Norton (1996; also in Martisons et al., 1999) within the eGovernment context.

In a nutshell, this methodology consists of a matrix with the following five fields (or *scorecards*) that each of them comprises a set of evaluation criteria:

1. *Benefit (11 criteria)*: This field associates with the quality and quantity of the eServices, and focuses on the benefit level on behalf of the citizens.
2. *Efficiency (16 criteria)*: Various criteria are used in order to analyse the extent to which actual improvements to efficiency are realised.
3. *Participation (6 criteria)*: Here, it is evaluated the degree to which the eService's design promotes (or not) political communication and enables a higher degree of citizen participation.
4. *Transparency (5 criteria)*: The criteria within this scorecard assess how transparent the government processes are.
5. *Change management (9 criteria)*: This fifth scorecard examines the state of planning and implementation within an eGovernment programme.

Ultimately, a total measurement is added up within the matrix of scorecards. That demonstrates "*the point at which a certain online offering - whether from the federal Government or a local authority - is to be found along the route towards the realisation of eGovernment*" (Bertelsmann, p.7, 2001). Such 'point' materialises into the Balanced eGovernment Index or Begix.

Because of the Begix, the Balanced eGovernment Scorecard can also be seen as an adoption method (as discussed earlier in this chapter). Therefore, if compared to the 'staged' approach (described earlier), the scorecard model differs in at least two ways. First, it provides a set of criteria (that can be used holistically) against which eGovernment services may be examined. And second, it does not presuppose that all eGovernment implementations follow a logically defined incremental evolution.

2.6.4 ICTE-PAN EVALUATION METHODOLOGY

One of the main deliverables of the ICTE-PAN (Methodologies and Tools for Building Intelligent Collaboration and Transaction Environments for Public

Administration Networks) is the evaluation methodology (Loukis *et al.*, pp.303-305, 2005). It is a more detailed (compared to the balanced scorecard method) methodology, particularly targeting information systems projects for the government. According to its authors (Loukis *et al.*, p.303, 2005), '*this methodology was required to be multi-dimensional (covering a wide range of characteristics and sub-characteristics), multi-level (both formative and the summative, including various levels of evaluation throughout the lifecycle of the project) and multi-view (combining and consolidating various mutually complementary subjective and objective assessments)*'. This method evaluates (in a post hoc or ongoing fashion) any IS project in regards to efficiency and effectiveness, assessing to what extent the project meets the user needs as well as the level of quality. To achieve that, ICTE-PAN employs a number of well defined standards.

The whole evaluation process is based on the international standard ISO/IEC 14598 for software product evaluation, combined with the ISO/IEC 9126 for software product quality, which provides quality characteristics and metrics. Those quality characteristics can be distinguished in: *functionality, reliability, usability, efficiency, maintainability, and portability*. The ICT-PAN evaluation methodology is multi-levelled as it provides:

- *Formative evaluation* performed at various points throughout the project lifecycle both by technical experts and users. That aims to identify problems and suggest improvements during project development.
- *Summative evaluation* performed by users at the operation phase, when most functionality is up and running. That aims to assess the quality of the project at an early (pilot) stage.

Recent application of that evaluation method prompted its designers to conclude as follows. It is a '*complex and demanding methodology, requiring much effort and putting a heaving workload on all project partners*' (Loukis *et al.*, p.307, 2005). Also, '*the reliability of the evaluation results is heavily dependent on the quality of the questionnaires and evaluation matrices*' as well as is an evaluation methodology that offers many advantages to highly

risky projects due to its multi-dimensional, multi-view, and multi-level approach (*Loukis et al., p.308, 2005*).

2.6.5 CAPABILITY ASSESSMENT AND PLANNING TOOLKIT

Researchers at the Centre for Technology in Government, University at Albany - State University New York in the United States of America have developed the Capability Assessment and Planning Tool. That toolkit has been applied in the case of the preservation of digital government records in the USA (*Pardo et al., 2005*), as well as for the purposes of consideration or planning for a justice information-sharing initiative (*Cresswell et al., 2005*) in the United States.

That is an ex-ante evaluation method made to be used by persons involved in the planning of a particular eGovernment initiative. It is self-assessed by interested parties, as it assumes that such persons are best equipped by their knowledge and experience, and therefore can best examine the capability of a particular eGovernment project or programme. As such, this evaluation method's ultimate aim is to enhance the prospects of success of a particular eGovernment initiative based on capability assessment.

According to its developers, this toolkit sees capability in a two-fold manner. First, capability is derived from a set of generic dimensions that apply in typical eGovernment initiatives. And second, such dimensions may be applied or interpreted differently, depending on the nature of a particular eGovernment project. Overall, capability has the following attributes:

- *“Multi-dimensional - It is made up of several dimensions, all of which contribute to overall initiative capability.*
- *Complementary - High or low levels of capability can result from different combinations of factors, high capability in some dimensions can often compensate for lower levels in others.*
- *Dynamic - It can increase or diminish due to changes within an initiative or in its external environment.*
- *Specific to its setting - Some elements of capability apply to all settings, but capability for any particular initiative must*

be assessed relative to its specific objectives and environment.” (Pardo et al., p.1, 2005)

As such, the toolkit provides a framework and methods for collecting capability assessment ratings and using that information to assist in planning and making decisions about eGovernment projects. Such assessment involves three main activities: i) *preparation* - obtaining authorisation, mobilising support and resources, and planning the details of activities; ii) *assessment* - collecting, analysing, and reporting assessment data, and iii) *using results* - designing and implementing actions to enhance capability.

2.7 EGOVERNMENT POLICIES

In this part of the chapter a discussion on the current eGovernment status within the EU, the UK, and Scotland takes place. It is done so, because eGovernment starts from and finishes in the policy/public administration domains. Having a quick grasp of the current status will aid in the better understanding of the eGovernment field.

2.7.1 THE EUROPEAN UNION

The EU policy towards eGovernment is mainly set by the ‘eEurope - An Information Society for All’ (*European Commission, 1999*) initiative, formally launched in December 1999. This political initiative scopes in ensuring that the EU member states fully harness the potential of information and communication technologies. The main aims of such initiative are to set targets in 10 priority areas, from education to the disabled and from healthcare to transport. These targets are to benefit the citizens of the EU member states. The key objectives of the eEurope Initiative are the following: a) to bring every citizen, home and school, every business and administration, into the digital age and online, b) to create a digitally literate Europe, supported by an entrepreneurial culture ready to finance and develop new ideas, and c) to ensure that the whole process is socially inclusive, builds consumer trust and strengthens social cohesion. To achieve these objectives the EU Commission proposed 10 priority areas (one of them is the Electronic Government) for actions to be achieved. Furthermore, the European Commission published the eEurope 2005 Action Plan (*European Commission, 2005a*), where it outlined that Europe should have eGovernment (amongst others) by 2005. Quite recently

(June 2005), the European Commission published its vision towards a European Information Society beyond 2010 (*European Commission, 2005b*) with a document titled “i2010 - A European Information Society for Growth and Employment”. There, the EU’s pledge to eGovernment is further reinforced by the statement “as the use of ICT grows, so does its impact on society. i2010 recognises this in three ways: making sure that ICT benefits all citizens; making public services better, more cost effective and more accessible and improving quality of life (*European Commission, p.9, 2005b*).”

To demonstrate its commitment to eGovernment, the European Commission has set up the Interoperable Delivery of European eGovernment Services (or IDABC), which aims to “use the opportunities offered by information and communication technologies to encourage and support the delivery of cross-border public sector services to citizens and enterprises in Europe, to improve efficiency and collaboration between European public administrations and to contribute to making Europe an attractive place to live, work and invest. (taken from <http://europa.eu.int/idabc/en/home>)” Also, at the IDABC website ([http:// europa.eu.int/idabc/en/chapter/3](http://europa.eu.int/idabc/en/chapter/3)) it is stated that “to achieve its objectives, IDABC issues recommendations, develops solutions and provides services that enable national and European administrations to communicate electronically and offer modern public services to businesses and citizens in Europe. The programme also provides financing to projects that address European policy requirements and improve cooperation between administrations across Europe. National public sector policy-makers are represented in the IDABC programme’s management committee and in many expert groups. This makes of the programme a unique forum for the coordination of national e-government policies. By using state-of-the-art information and communication technologies, developing common solutions and services and providing a platform for the exchange of good practice between public administrations, IDABC contributes to the eEurope objective of modernising the European public sector.”

2.7.2 THE UK

The UK Government’s policy towards eGovernment is expressed in the three major government policy statements signed by the UK’s Prime Minister Tony Blair, which are: i) the *Modernising Government (Cabinet Office, 1999)* white

paper, ii) the *Our Competitive Future* (Cabinet Office, 1998) white paper, and iii) the *E-Commerce@its.best.uk* (Performance and Innovation Unit, 1999) report.

To support and audit the policies set in these three statements the UK Government appointed an e-Minister, as well as established the eGovernment Unit (formerly known as the Office of the e-Envoy) so as to “ensure that IT supports the business transformation of Government itself so that we can provide better, more efficient, public services” (Cabinet Office, 2005a). The common ground upon which these three statements are based is the focus on the need to encourage business to develop eCommerce strategies. More particular, in the ‘Modernising Government’ white paper, the Government describes its will to renew and modernise the whole government machine, mainly with the use of ICT. Furthermore, it sets a tight deadline stating that by 2005 all public services will be available 24/7 throughout the year. On the other hand, by composing the ‘Our Competitive Future’ white paper the UK Government sets its policy for the eCommerce in the UK and the means by which the knowledge economy can be one of the cornerstones of the UK industry. E-commerce@its.best.uk, then again, is a report delivered by the UK Government that sets out priorities for the UK to achieve a successful eCommerce economy. In fact, this report suggests ways according to which the UK could become the leader in Europe, as long as it overcomes major barriers to eCommerce, such as foundations, understanding, access and trust. In general, the e-commerce@its.best.uk report focuses on the economic benefits achieved by implementing eCommerce and in encouraging the private sector to take up eCommerce.

Quite recently, a fourth major policy framing document has been issued by the UK Government in order to envisage the ‘next step forward’ for eGovernment. The ‘Transformational Government’ (Cabinet Office, 2005b) sets the strategy for a complete transformation of the public services, and it primarily aims at providing leadership in three key areas:

1. *“The transformation of public services for the benefit of citizens, businesses, taxpayers and front-line staff.”*

2. *The efficiency of the corporate services and infrastructure of government organisations, thus freeing resources for the front-line.*
3. *The steps necessary to achieve the effective delivery of technology for government (Cabinet Office, p.2, 2005b)."*

Following the vision set by the UK Prime Minister (as described above), the British eGovernment implementation is mainly expressed through the Directgov (formerly known as UK Online; for more read *Jackson and Curthoys, 2001*) portal. Directgov (<http://www.directgov.gov.uk>) is designed to be the primary citizen-facing area of online government and it has three levels of planned access: a) basic information surfing, b) interactive name/password access, c) secure certification and encryption with comprehensive access to government services. This portal works in a 'life episodes' fashion, for example: 'having a baby' or 'going away' or 'moving home', etc.

Moreover the UK eGovernment programme includes the provision of secure transactions with the government for individuals, organisations, and agents (of individuals or organisations) through the Government Gateway portal (reached electronically at <http://www.gateway.gov.uk>). Furthermore and at a government-to-government level, the UK government developed the 'Government Secure Intranet - GSI' (*McIlroy, 2001*). GSI is a government-wide network, which enhances interdepartmental communications, and thus, facilitates the creation of 'Joined up Government'. It is sponsored by the Central IT Unit (CITU), managed by the Government Central Computer and Telecommunications Agency (CCTA), and marketed and provided by a commercial supplier, Cable and Wireless Communications (*Petrie et al., 2000*).

The latest benchmarking reports from the European Commission, in regards to the eGovernment progress (or evolution) in the UK, demonstrate adequate results. The benchmarking method that the European Commission is using is based on a staged approach that consists of 4 progress levels, namely:

1. Stage 1 - Information: online information about public services
2. Stage 2 - Interaction: downloading of forms

3. Stage 3 - Two-way interaction: processing of forms, including authentication
4. Stage 4 - Transaction: full case handling, decision and delivery (payment)

As far as eServices for the citizens (*IDABC, 2005a*) is concerned, the UK eGovernment progress has reached the ultimate (stage 4) in four services; income taxes, family allowances, student grants, and enrolment in higher education. There are also four other Government-to-Citizen eServices that are at the 'two-way interaction' stage, but they cannot go any further. Apart from that, there is still progress to be made as there are various other eServices that are at the information or interaction stages and are planned to reach either the stage 3 or Transaction levels in the future. On the other hand, the situation for the G2B eGovernment evolution (*IDABC, 2005b*) in the UK appears to be slightly better. There are four fully transactional eServices, which are the: social contribution for employers, corporation tax, VAT, and custom declarations. Also, the '*Registration of a New Company*' eService is at the third stage and is deemed to reach the fourth one as well. In addition to the above, the UK Government offers two more eServices that are currently at the second stage, and are envisaged to reach the fourth stage sometime in the future.

2.7.3 SCOTLAND

The Scottish Executive (the Scottish government) published in August 1999 the first Programme for Government titled 'Making it Work Together' (*Scottish Executive, 2005a*) in order to demonstrate its commitment to promoting a modern government in Scotland. Within that context the 'Vision for 21st Century Government in Scotland' speech, delivered by the First Minister (*Scottish Executive, 2005b*), recognised the information and communication technologies as critical for pushing forward modern government in Scotland. As such, in the Openscotland Information Age Framework - OSIAF (*Scottish Executive, 2005c*) the Scottish Executive set the target that all government services in Scotland will be available online by 2005. Within OSIAF the plans are placed for eGovernment in Scotland. Generally speaking, the Scottish Executive follows the plans and technology guidelines set by the British government, which have been discussed above.

In order to ensure that the aims and targets set in OSIAF are met within the announced deadlines (of all government services to be put online by 2005), the Scottish Executive publishes quarterly a 'Delivery Progress Report'. That report keeps track on the level of progress made all across the Scottish Executive and its agencies in regards to eService provision. In order to monitor the progress level a staged approach (*see the Evolution of eGovernment Section above, for more on the stage approach*) is followed. That four-stage methodology of eGovernment evolution is adopted from the *Four Stage Framework* being used by the European Commission in order to assess eGovernment progress across the EU (*European Commission, 2005c*). The first stage is the provision of information online, where 91% of services delivered by the devolved Scottish Government have reached (*Scottish Executive, 2005d*). Similarly and according to the latest report (*Scottish Executive, 2005d*), 82% of government services are levelled on the second stage. That stage is described as a 'one-way interaction' as activities like forms downloads or comments/queries delivery can be performed. Two-way interaction can be achieved at the 3rd stage, where the requests made at stage 2 can be answered electronically. As it stands (*Scottish Executive, 2005d*), 61% of the Scottish Government's services have reached that level. On the other hand, only the 45% of the Scottish Executive's services are fully interactive and have reached the fourth stage of eGovernment evolution.

2.8 EGOVERNMENT PROJECT FAILURE

As portrayed earlier in this chapter, it is widely accepted that the employment of information and communication technologies to implement eGovernment programmes offers a good opportunity for the Public Sector. Apparently, it is expected that effectiveness will increase, customer service will improve, and the costs of public services will decrease (as discussed earlier). Unfortunately though, the present (over the last decade) reality across the British Public Sector does not match the ambitious expectations. Such disappointment may result in '*waste of huge financial resources, loss of opportunities, disappointment of the public and heavy criticism by the press*' (*Loukis et al., p.301, 2005*).

2.8.1 UK eGOVERNMENT FAILURE CASES

Recent reports in the UK capture the attention by presenting a series of failed IT projects across the public sector. Such failure is usually experienced either in terms of cost overruns, or serious delays, or even project cancellations due to various reasons (*Cabinet Office, 2000b*). Indeed, it is documented (*Parliamentary Office of Science and Technology, p.2, 2003; Arnott, 2003*) that the cost of cancelled or over-budget government IT projects has exceeded £1.5bn between 1998 and 2003. When compared to the total of around £10bn expenditure (*Parliamentary Office of Science and Technology, Summary, 2003*), it may be argued that such situation poses a considerable waste of taxpayers' money. Moreover, it is stated (*House of Commons, p.71, 2004*) that for the period 2003/2004 only, an estimated £12.4bn has been spent on IT in the UK public sector "with a significant proportion at risk of being wasted".

One such high profile failure case is the Libra system for the British Magistrates Courts (*Royal Academy of Engineering, p.8, 2004*), which has been described by the Chairman of the Public Accounts Committee as one "one of the worst IT projects I have ever seen" (*Collins, 2003*). The initial project cost estimation was £146m and it skyrocketed to £360m in 2003, whilst the main supplier often threatened to withdraw unless it was paid the money. Another high profile IT project failure in the public sector was the National Probation Service (NPISS) system. That information system project "was reported as 70% above the expenditure forecast by the Home Office - to cost at least £118 million - even though many probation services found it hard to use" (*House of Commons, p.11, 2005*). The whole programme suffered long delays, as well as parts of the system had to be withdrawn as the software wouldn't work. Also, ten probation service authorities (out of 54) refused to use the system, whereas only 16 had actually fully utilised the system (*NAO, 2001*). After a series of delays and migration from one system (CRAMS) to another (COPERNICUS), the whole NPSISS was rendered obsolete by the development of a new IT strategy.

Also, in the recent past (last decade) a long list of big IT projects for the Public Sector that failed in the UK can be produced. One such example, which has been cited by various information systems scholars (*Heeks and Bhatnagar, 1999; Beynon-Davies, 1995*) is the case of the London Ambulance Service

Computer Aided Despatch project. It was a project that ended up being seriously flawed, failing to accommodate user needs and expectations. In fact, the shortcomings of that project may have cost the death of around 20-30 people due to the late arrivals of the ambulances (*as reported at <http://www.lond.ambulance.freeuk.com/cad.html>*). Another similar case is the cancellation of the Benefits Payment Card project (*House of Commons, 2001*), which also happened to be one of the first Private Finance Initiative (PFI) awarded projects. That project suffered serious delays and eventually had to be aborted, costing an estimated £1bn. Possibly, a very good source of failed ICT public sector projects is the report delivered by the Public Accounts Committee (*House of Commons, 1999*) on 'Improving the Delivery of Government IT Projects'. There (*in the ANNEX A Section*), a list of 25 problematic IT projects is presented, with the failure causes and the lessons to be learned. Even before the last decade, ICT project failures in the British Public Sector have been documented (*for example Hackney and McBride, 1995; Poulymenakou and Holmes, 1996*).

2.8.2 FAILURE IN LARGE IT PUBLIC SECTOR PROJECTS

Following on the afore-mentioned discussion about information and communication technology projects that failed in the UK, the coming few paragraphs will explore the reasons behind such failures. The UK Government - through the National Audit Office - developed a list of the 'common causes of failure in IT-enabled projects' (*NAO, p.4, 2004a*), which are as follows:

1. *"Lack of clear link between the project and the organisation's key strategic priorities including agreed measures of success.*
2. *Lack of clear senior management and Ministerial ownership and leadership.*
3. *Lack of effective engagement with stakeholders.*
4. *Lack of skills and proven approach to project management and risk management.*
5. *Lack of understanding of and contact with the supply industry at senior levels in the organisation.*
6. *Evaluation of proposal driven by initial price rather than long-term value for money (especially securing delivery of business benefits).*

7. *Too little attention to breaking development and implementation into manageable steps.*
8. *Inadequate resources and skills to deliver the total delivery portfolio.”*

Indeed, a survey of the pertinent academic literatures appears to divulge similar results. Ni and Ho (pp.67-68, 2005) discuss that the '*personal zeal of elected officials*' and '*immediate political interests*' replace any best practices and render ICT projects to managerial challenges and failures. Or as Dovifat et al. (p.308, 2005) put it, "*it is argued that micro political games of actors in several distinct arenas have considerable influence on the outcome of IT-induced innovation in the public sector.*" Ni and Ho also found that policymakers and public ICT managers often underestimate the cost and overestimate the revenue potential of eGovernment applications. That usually results to poor business planning and subsequent project failure. Gupta and Jana (2003) argue that eGovernment implementations fail because of a lack of understanding of effective planning, development and deployment. Janowski et al. (p. 311, 2005) enlist a number of similar failure reasons for eGovernment programmes, such as '*lack of internal ownership, absence of vision or strategy, poor project management, inadequate technological infrastructure, and obstacles to data interchange*'. They further add the '*lack of business case for the project, over-reliance on technology as the main driver, and lack of sufficient administrative reform*' as cause for failure in eGovernment implementations. Also, Chutimaskul (p. 498, 2003) stresses that failure to control ICT investment does produce waste, delays, and poor quality in eGovernment projects. Stemming from their German experience, von Ranke et al. (p.397, 2005) identify three commonly found project failure reasons. They are: i) '*insufficiently met requirements*', ii) '*bad estimations of cost and time*', and iii) '*inadequate and too complex resulting systems*'. Pardo and Scholl (2002) categorise the failure factors into two categories - i) the predominantly technical orientation, and ii) the integrative. The first category is pretty much self explanatory. The latter category encompasses organisational, psychological, and other socio-technical dimensions. As such, Table 2.3 can be produced.

Table 2.3: eGovernment Failure Factors

Integrative	Technical
Political agendas	Project business planning
Lack of long term strategies/vision	Incorrect cost/time estimation
Insufficient administrative reform	Heavy reliance on the ICT side of things
Lack of adequate communication between stakeholders and leadership	Systems/Project complexity
Lack of skills and resources	Lack of infrastructure
Requirements/Need misinterpretations	Data/Systems integration challenges

2.9 PLANNING FOR PROJECTS AND RISKS

Looking back in Section 2.2 and the potential of eGovernment, and comparing with the current reality of electronic government - as expressed in Section 2.8 - it can be argued that there may be more to be done for eGovernment services to succeed. With the eGovernment failure factors (described in 2.8.2) in mind, this thesis assumes that better (in terms of information available and structure) planning at the early stages of eGovernment project consideration could help avoid waste. That tags along the same lines of Love's et al. (p.949, 2005) argument who talk about the importance of risk assessment during the 'justification process', as they call it. Therefore, this section discusses on the pre-proposal project stage and introduces the notion of risk and risk identification for project planning.

2.9.1 PRE-PROPOSAL STAGES

As it was defined earlier (in *Chapter 1, Section 1.6.6*) this thesis describes as pre-proposal the phase that encompasses the feasibility study and business case stages. Here, these two stages will be briefly discussed.

PRINCE2, the de facto project management methodology for projects in the public sector and beyond, highlights the business case, but does not include it in the actual project management process. That is because business cases are to be developed prior to project definition (CIPFA, p.5, 2005a).

Business cases involve the financial calculations pertinent to projects in mind, but also entail other activities such like decisions to go ahead with the project, or where it ranks amongst other projects within the organisation, or how the project reflects the strategic priorities of an authority (CIPFA, p.4, 2005a). The

importance of the business case stage is briefly emphasised in PRINCE2 (OGC, p.190, 2002). A business case of a potential project should involve judgements about the whole lifecycle, from strategic value, through to decisions about procurement and implementation. Amongst others, the business case should explain the reasoning behind the need for a project outcome, as well as the various options that need to be considered for the delivery of a required outcome. Moreover, benefits and risks should be identified and described (OGC, p.190, 2002). It is stressed (especially for eGovernment projects) that issues involved need to be well understood and addressed; and therefore, appropriate tools need to be employed (CIPFA, p.4, 2005a).

The Office of the Deputy Prime Minister in collaboration with the Chartered Institute of Public Finance and Accountancy prepared a guide for auditing eGovernment business cases (CIPFA, 2005b). There, it is stated that a business case goes through four stages:

- *Strategic* - Involving eGovernment initiatives to plans and strategies for service improvement.
- *Full* - Involving the likely benefits, risks and resources such initiatives would involve.
- *Final* - Involving contracts, specification and partners by which delivery will take place.
- *Post project* - Involving the performance and process by which the initiative was realised. It has to be stressed here that this stage refers to evaluation/auditing purposes and therefore is after the project is delivered.

Four main challenges are identified in business case building (CIPFA, pp.8-10, 2005a). eGovernment projects have a novelty factor and yet are not fully understood. As such, the lack of good relevant information that is present in a consistent manner poses the first challenge. Secondly, in order to convince to get the funds for a potential eGovernment project, the precise nature of constraints as well as the relevant risks needs to be identified. Moreover, eGovernment projects are different from other technology-based projects in the sense that they entail the combination of two 'complex chains of activities', which are demanding in two ways. Therefore, both 'soft'

(organisational) and 'hard' (technical) activities need to be considered. CIPFA (p.10, 2005a) suggest that "*on the hard side, specialist technical skills will normally be required, to support the specification and delivery of projects. On the soft side, an understanding of the business/service context (as well as the organisational/cultural setting) may also be needed.*" Finally, eGovernment project business case planning should notice that there are different types of such projects.

On the other hand, the feasibility study stage is seen as an earlier step that informs the business case. Effectively, the feasibility study is an earlier and much smaller business case (and hence includes similar components) that considers a project idea at strategic level, where intangible and non-financial natured benefits are investigated (Irani and Love, p.78, 2002). Ultimately speaking, the feasibility study should decide on a 'go/no go' basis for a particular project idea (Washington State Department of Information Services, 2000). Feasibility study can be seen as an integral part of the requirements definition when initiating the planning process of a potential project (OGC, 2004). There, high level statements need to be interpreted in order to meet business needs. The Office of Government Commerce (OGC, 2004) states that the purpose of the feasibility study is to identify the relative importance of requirements in relation to business objectives and that may be carried out as part of high level business planning. Also, the feasibility study should aim to describe - in sufficient detail - the reasons (needs, benefits, costs, etc.) why senior management would - or not - consider a particular proposal for a project (State of Victoria, App. A, 2005).

The main challenges involved at this stage are basically similar to the business case planning stage. Although, since it is a very early stage, where discussions on the qualification of a particular idea are held, other challenges can emerge. Irani and Love (p.76, 2002) explain that despite the main drive behind the feasibility study is to qualify or reject a potential project, sometimes managers use that stage to ensure that a project qualifies for further investment. That stems from the fact that this stage is seen as a '*financial hurdle that has to be overcome and not as a technique for evaluating the project's worth*', and therefore, benefits are overestimated and risks are overlooked. Irani and Love (p.78, 2002) stress the need for appropriate mechanisms to support this stage.

2.9.2 RISK IDENTIFICATION

Risk identification is really self explanatory as a term, since it involves the identification of risk within a particular context, forming an information base (Aleshin, p.209, 2001). "By risk identification the organisation is able to study activities and places where its resources are exposed to risks (Tchankova, p.291, 2002). The literature reveals that there are several methods to support the risk identification. In fact, Chapman (1998) distinguishes between methods i) solely conducted by the risk analyst, ii) where the analyst interviews a member of the project team, iii) where the analyst leads a working group. Brainstorming may be used in order to identify risk (Kontio et al., p.169, 1998), and is argued to be the most commonly method used (Isaac, p.226, 1995). Brainstorming (for more read Osborn, 1963) is a method that involves redefining a problem, generating ideas, finding solution and conducting evaluation. Other risk identification methods include semi-structured interviews (Kontio et al., p.169, 1998), the Nominal Group Technique and the Delphi Technique (Chapman, pp.158-159, 2001).

Risk identification is part of the wider risk management process. As Isaac (1995) explains, such process typically comprises the following stages: a) risk identification, b) risk assessment, c) risk response. Broadly speaking, risk management can be defined as the 'systematic application of policies, procedures, methods, and practices to the tasks of identifying, analysing, evaluating, treating and monitoring risk' (British Standard Institute, 2000). The importance of risk management in overall project management is well documented (for example, in the information systems domain read Smith et al., 2001; Baccarini et al., p.286, 2004; Gerber and von Solms, 2005, or in general read Williams, 1993; Williams, 1995). It is also argued (Zeichner, 2001) that a risk management philosophy should be adopted as a principal approach for managing electronic government. However a more elaborate discussion on risk management goes beyond the boundaries of this thesis' research and as such it will not commence.

The importance of risk identification for the successful management of risk, and consequently a project, is acknowledged by many (as stated in Chapman, p.151, 2001). Chapman explains that risk identification is the most important

element of the risk management process, simply because *'once a risk has been identified it is possible to take action to address it.'* Equally, if all possible losses or gains are not identified, then these non-identified risks will become non-manageable (Tchankova, p.290, 2002). In fact, risk identification can assist managers in understanding issues and identifying areas for additional attention (Moulton and Moulton, p.379, 1996), as well as help in understanding where the risks originate from (Smith et al, p.9, 2001). Love et al. (p.949, 2005) emphasise the importance of risk identification within an IT project environment context, revealing that the lack of it poses a major reason for project failure. Stahl et al. (p.17, 2003) conclude that risk identification is the most important step towards complete risk management, because *'without it the subsequent steps are impossible.'*

The usual 'output' of the risk identification stage - and indeed the other subsequent risk management steps - is the risk register, which may be defined (Williams, p.7, 1993) as the *'administrative device for keeping track of risks'*. Overall, the risk register serves two principal roles (Williams, p.19, 1994): i) it poses a repository of a body of knowledge, and ii) it initiates the analyses and plans that flow from it. Patterson and Neailey (p.367, 2002) add that the risk register helps project members review risks on a regular basis, but they also stress the fact that risk register use can eventually become repetitive.

2.10 eGOVERNMENT AND RISK

As argued earlier in the definitions section (1.6.1) of Chapter 1, eGovernment is a relatively new term and it is not completely understood nor fully explored. Thus it may be deduced that it is surrounded by risks that span over a wide spectrum that includes diverse areas of interest. Not much has been written in the area of eGovernment risks and in an attempt to fill that knowledge gap this section discusses about risk within an eGovernment context. Loukis et al. (p.301, 2005), Katzy and Xiaofeng (p.506, 2005), and Stoltzfus (pp.334-335, 2005) highlight the 'riskiness' of the eGovernment implementations and stress for the necessity of appropriate risk considerations.

Beaumaster (2000) agrees with Garson (1998) on the fact that 'issues' surrounding ICT implementation within the Public Administration can be categorised in the following five areas: i) leadership, ii) organisation, iii)

environment, iv) management process, v) personnel, and iv) technical systems. Expanding on the work of Jiang and Klein (2000) and others, Gil-Garcia and Pardo (2005) elaborate on the challenges of eGovernment. They come up with the following five categories: i) information and data, ii) information technology, iii) organisational and managerial, iv) legal and regulatory, and v) institutional and environmental. Similarly, experience from the electronic business domain (*for discussion on eGovernment and eBusiness read earlier in this chapter*) and the relevant literature show that some have attempted to classify risks in various high-level categories according to the nature of the risks. To name a few, Tchankova (2002) proposes seven different classes of risks, namely: i) physical, ii) social, iii) political, iv) operational, v) economic, vi) legal, and vii) cognitive environment. Additionally, Liebermann and Stashevski (2002) distinguish between five different areas of risk in the eCommerce field, which are the: i) financial, ii) physical, iii) psychological, iv) social, and v) technological. Furthermore, in the 'Integrated Risk Management Framework' (*Treasury Board of Canada Secretariat, p.9, 2001*) the following main classification of potential risks influencing an organisation are identified: i) political, ii) economic, iii) social, and iv) technological.

In that fashion, this thesis proposes the following high level classification of risks that surround eGovernment projects:

- a) *Technical* - such risks arise from the way ICTs are used in order to serve the purpose a particular project is meant for.
- b) *Societal* - where the risks that usually affect the way people live and interact within society are explored
- c) *Economical* - where financial related risks are indicated
- d) *Political* - here risks that are relevant to policies/decisions are discussed. It has to be stressed that under the 'political' risk umbrella the law-related risks are included.
- e) *Security* - since security has a major importance in eGovernment projects (*for example read Choudrie et al., p.580, 2005*) it has to have a risk class on each own.

2.10.1 TECHNICAL RISKS

eGovernment may be a rather new and trendy concept for most politicians; as such they often want to encourage the implementation of eGovernment projects quickly, while they are still in office. That is mainly done to gain political advantage (*Ni and Ho, p.67, 2005 talk about 'personal zeal' of elected officials*), but may lead to inadequate planning that can eventually result in the failure of a project. Research (*Evangelidis et al., 2002*) involving a UK local government organization indicated a lack of: (a) adequate identification of service requirements; (b) adequate standard classification of the services the eGovernment system is meant to satisfy. That implies that the eGovernment (or IT in general) staff find it difficult to classify the services and therefore may have problems in planning for the design and development of the IT infrastructure. The OECD (*p.135, 2003*) talk about lack of clarity of objectives, due to the nature of business of the government; posing the question "how do you measure 'quality of life'?" Requirements identification, analysis and specification for a business or an organisation form an essential part that leads to the successful implementation of most ICT implementations (*Akomode and Moynihan, 1999; Avison and Shah, 1997*). In most ICT projects, the stages of requirements identification, analysis and specification are either ignored, shabbily carried out or inappropriate methods are employed. The situation often leads to project failures. A design with risk elements employed in an ICT project can also lead to inappropriate implementation not minding the sophistication level of the hardware and software used. This situation often creates more risks, as the resulting system may not deliver the performance level expected from it. Eventually, maintainability (*Ni and Ho, p.68, 2005 highlight the need for long-term operating support*) of the system may become another added problem as the original 'product' may fall short of its quality in performance.

The 'holistic nature' of eGovernment implies that everything relating to governmental services has to be integrated under one single eGovernment umbrella. The implication is that all governmental and non-governmental data, information, systems, services and other necessary items have to exist and interact in a common platform of communication. In the case of one UK organisation (*Evangelidis et al., 2002*) the IT staff found it difficult to achieve

that goal when it attempted to integrate new IT systems with the existing ones. The main drawback was that in some cases, the whole system infrastructure (i.e. legacy system) in a locality (or a public establishment) might be so outdated that it may be quite difficult and frustrating or almost impossible to fit it into a modern technology platform of the desired eGovernment project (Jackson and Curthoys, 2001).

Risk management can serve as an essential management tool (or strategy) for supporting information systems (and hence eGovernment) IT project managers (Baccarini et al., p.286, 2004; Gerber and von Solms, 2005). Indeed, it is proven that risk management can contribute to better public services (and hence eServices) by '*improving efficiency, making more reliable decisions, and supporting innovation*' (NAO, p.8, 2004b). Unfortunately, many public institutions do not have a formal risk management strategy in place (Evangelidis et al., 2002). If so, the IT staff members have to confront every newly discovered project threat on the basis of makeshift arrangements. It may be said (OECD, p.149, 2003) that the absence of adequate risk management strategies increases the chances of overall project failure, which stems from the fact that risk is associated with uncertainties that have an impact on the overall objectives of a project (see definitions section earlier in this chapter). Almost any project's objectives are to meet a particular specification, within specific timescale, and a defined cost (Williams, p.5, 1993).

Most eGovernment implementations prompt for huge information system projects. Guidelines from the OECD (p.2, 2001) denote that the larger the IT project is, the bigger the likelihood of failure - mostly due to the size and complexity (Chengalur-Smith and Duchessi, 1999; Holden et al., 2003). It is advised (Accenture, p.12, 2001) for eGovernment managers to opt for smaller projects or sub-divide a larger project into manageable parts. By doing so, in larger eGovernment projects major activities can be clearly identified and appropriately grouped, in order to minimise the risk of failure. Moreover, within that situation a more proper allocation of suitable human (or non) resources to each of the major activities (or group of them) can be enabled. Similarly, the use of inappropriate technology (Caldwell and Keller, 2001; Akomode and Moynihan, 1999) can also lead to major implications. More

specifically, the adoption level of mature (or non) technologies can pose a technical risk (*Barki et al., 1993; Roy, 2003*).

2.10.2 SOCIETAL RISKS

Some parts of eGovernment projects may be outsourced to private establishments (*OECD, 2001*), since in most cases, the public sector does not have all the resources or expertise to accomplish a full scheme of eGovernment; therefore, collaboration with the private sector is of paramount significance. Experience derived from research in one UK city council (*Evangelidis et al., 2002*) highlights that such partnerships are not always healthy and can be susceptible to problems. In that case, there was a lack of mutual trust and understanding by both parties (public and private), as a private organisation did not honour all of its promises and a city council had to find a new business partner.

Research divulges that lack of adequate leadership is a major eGovernment risk factor, especially if such leadership is with regard to business or project management (*OECD, 2001*). Fundamentally, eGovernment is based on the use of information and communications technology and as such technical experts of ICT are often viewed as the ones to lead and make the project a reality (*Barki et al., p.25, 1993*). On the other hand, eGovernment may be viewed as a grand business project that requires adequate business/project management skills (*West Sussex County Council, 2001*). When an IT expert with little or no business management experience is placed in a leading managerial position of a huge e-Government project, there may be an increased possibility of the risk of failure. Equally, someone with business and project management skills alone with no background in ICT may not be the appropriate person to head or lead an ICT (or an eGovernment) project. Knowledge of business/project management and ICT by one person or group is likely to provide better leadership skills for successful eGovernment projects (*Gagnon, 2001*).

Research findings indicate that social and human risk factors are capable of hindering progress in eGovernment projects, especially due to the lack of people with IT skills (*Heeks and Davies, 1999; OECD, 2001*). Also, research done at a British organisation (*Evangelidis et al., 2002*) indicates that employees from departments other than the IT department did not understand the new

systems (*similarly observed in Sellers, 1981*). Therefore and due to the 'new modus-operandi' introduced by eGovernment (*Joia, pp.208-209, 2004*), they were either unwilling to cooperate with the IT staff or simply could not use the new systems (*also Beaumaster, 2002*). Similarly, persons from the IT department of that city council complained of under-staffing (another major social risk factor), as they did not have enough skilled human resources to carry out their tasks on time in the eGovernment project (*Garson, p.4, 2003*). Furthermore, politicians are the people initially responsible for most projects of eGovernment implementation. Politicians decide whether or not a public establishment should proceed towards eGovernment, then may provide (or carry on doing so) the funding for the project (*Harris, p.34, 2000*). In most cases of eGovernment success or failure, the senior public sector officials may be in the position to receive the praise or blame (*OECD, 2001*).

Findings from research uncover the somewhat embarrassing issue of agency rivalries (*Letch, 2001*). It may be reasonable to assume that at a national level, the various local governments would and should collaborate in order to achieve better administration and service delivery. Unfortunately, research (*Landsbergen and Wolken, 2001*) indicates that is not always the case. In one situation (*Evangelidis et al., 2002*), neighbouring local city councils did refuse to join forces due to political, cultural problems and beliefs. It is a case partially to be blamed on the so-called 'data-ego' (*Kerr, 1991*), which refers to an ownership feeling of data or systems whilst fully blown. Certainly, such behaviour by local city councils may damage any progress in eGovernment at a national level.

A major societal risk factor affecting electronic government projects seems to be the erroneous comprehension of the needs of customers (mainly citizens) by the eGovernment developers (*Vidgen and McMaster, 1996*). There is no point in creating eGovernment programmes when customers do not understand the delivered services or they are not delivered in the proper (the way citizens want) manner. For example, research has shown (*Proudman, 2001*) that consumers (or citizens) mostly see the Internet as an information retrieval medium and not as an appropriate place for transactions. Despite that, more than a few eGovernment programmes aim for providing electronic transactional services. That is perhaps why few (*Hazlett and Hill, 2003 citing press reports*

by Sturgeon, 2002, and Hayday, 2003) point out that potential users like businesses or citizens do not use eGovernment as much as expected as seen in C.5.2 and C.5.3 sections earlier in this chapter.

Unfortunately, not all people have access to a computer or the Internet (Stahl, 2001). Various reasons can be attributed to it, but together they form a modern social problem resulting in the so-called digital divide. In fact Wilhelm (pp.65-66, 2000) prompts that *“those who are already disadvantaged struggle to keep pace in economic, social, and political life. Technology gaps will very likely exacerbate these inequalities, which means that low-income and minority individuals will run faster only to remain on the periphery of society”*. As long as this digital divide exists and grows eGovernment projects may fail. Similarly, on an international level, infrastructure taken for granted for some countries does not necessarily suggest that all countries have the technological infrastructure to support deployment of eGovernment programmes (Heeks and Davies, 1999). Another factor of risk is that of the uneducated citizens - when seen as end users (Dawes and Pardo, 2002). Many people may be interested and willing to access eGovernment services, but they may not be sufficiently educated to do so confidently unless they receive some sort of training. On the contrary, some citizens may never fully exploit eGovernment, simply because they do not wish to do so, if Schlachter’s suggestion is adopted (pp.535-536, 1995).

Research conducted in a UK city council (Evangelidis et al., 2002) indicates that one major risk to eGovernment initiatives was the level of bureaucracy practised in the establishment (van der Heijden et al., 2001). For instance, when staff from the IT department approached employees from other departments for information to help them develop the project further within the organisation, they often received excuses as to why the required information could not be made available. Bureaucracy within an establishment to resist against change (Ho, 2002; Edmiston, 2003), mostly due to fear of redundancy (for example read Sunday Times, p.2, 2002) and motivation (Heeks and Davies, 1999), can hinder eGovernment programmes. Additionally, a scholar (Atkinson, 2000) notes that one other major eGovernment impediment is the lack of pressure for change. In the private sector, businesses - from the smallest to the larger ones - are all moving towards eCommerce due to fierce

competition. As technologies evolve at a quick pace, eCommerce companies have to follow that pace to stay ahead of the competition. On the other hand, public administrations throughout the world do not really have such a problem (due to lack of the fierce competition, or many times the state's monopoly), with a consequence that there is not that much pressure on them to change and move towards digital government.

2.10.3 ECONOMICAL RISKS

It is suggested (*Keller and Baum, 2001*) that public sector funding models are currently not set up to fund many of the eGovernment projects that are cross-agency or cross-jurisdictional in nature. Another one (*O'Neill, 2000*) adds that there may be additional costs for staff expertise and IT infrastructure, costs that need additional investments. Along the same lines various scholars (*Scoggins, 1981; Beaumaster, 2002*) explain that there is often the case of lack of resources to support training and development of existing staff in order to understand the latest available technologies.

As Atkinson (*2000*) explains, governments have to keep up managing paper and face-to-face governments. At the same time they have to find the required amount of time and effort to create digital government with limited resources (*Ho, p.435, 2003*). Therefore, managers, who have a holistic vision about eGovernment, may face difficulties since some public sector departments have the resources to develop eGovernment, while others do not. Additionally, research (*Evangelidis et al., 2002*) indicates that in some cases financial support from external sources has been proven difficult to obtain. Consequently, eGovernment projects may not develop properly. Furthermore, most eGovernment project plans are initiated by politicians. The people who run the governments are the ones that initially agree to invest public money into the concept of electronic government. Unfortunately, too often it has been observed (*Akomode et al., p.398, 2002*) that after initial enthusiasm, many local politicians are not capable or willing to understand the need for further investments in IT. Equally, eGovernment projects are usually subjected to one year budgets (*Fountain, 2001, Dawes and Pardo, 2002*). It is therefore believed (*OECD, p.149, 2003*) that "*the much stated 'think big, start small, scale fast' doctrine can be difficult to implement because of ongoing budget scrutiny*". That of course has technical implications (see '*Technical Risks*'

section for smaller more manageable projects) and therefore forms another eGovernment paradox.

2.10.4 POLITICAL RISKS

It is argued (*Attaran, 2000; Oberer, 2002*) that governmental organisations should develop and practice proper IT policies. It is maintained this needs to be done mainly for two reasons: (a) to protect employees and (b) to protect the organisation from potential legal claims. Such policies can in some cases conflict with current Data Protection or Privacy Rights legislation. This is mainly due to the fact that these IT policies should include activity monitoring. Therefore such legislation may also need to be modified. The very nature of eGovernment is that all governmental services should be carried out electronically. Most such services do require the joining of some kind of contract. Unfortunately, since “everything is being done electronically,” the absence of paper is evident. In the UK, such deficiency needs to be addressed as it has been suggested that contracts in electronic form may not be valid (*Pattison, 1997*). There is a need to update or change the current legislation (*Cavazos, 1994; Hagen, p.23, 2000*). Undoubtedly, new modern legal frameworks have to be developed, without having to introduce ‘radical’ or inappropriate laws (*Hutchinson and Stoney, 2001; Ågren, 2001*). Failing to do so, eGovernment progress may be severely hindered. eGovernment projects are inheritably technology driven and as such many potential policy (i.e. legal) risks lie within the very nature of the technology that is used or in the way it is used. For example, *Oberer (2002)* discusses about ‘legal conditions’ to accommodate the security infrastructure needs of eGovernment. Equally, *Klischewski (p.244, 2001)* calls for organisational regulations in order to resolve issues that arise from technologies, such like data protection. Technical-specific risks can potentially expose public sector organisations to serious liability (*Watts, 2001*). Typical examples of such risks are the ‘deep linking’ and the ‘framing’ on governmental web sites. The associated risk with deep linking is the fact that the user may bypass the home page of a website and ‘jump’ to another page within the web site, without having to agree or disagree with the terms and conditions of that web site. On the other hand ‘framing’ is a case wherein governmental web sites are designed to use frames, thus they offer the possibility to the user to misrepresent the contents of such a web site by ‘mixing’ it with other web sites.

In countries that are federations of states (the USA, for example) integrated electronic government may create a constitutional conflict by narrowing the difference of the constitutional powers between the states' government and the federal government (Jaeger, 2002). By creating federal eGovernment, there is a legal danger that is often overlooked of blurring the divisions of power between the branches of the federal government and between the federal and state governments (Bellamy, p.3, 2000; Harris, p.34, 2000). In the case of the USA, the constitution mandates that the state governments have certain powers and rights that the federal government should not take away. Another generic threat, which has to be addressed when implementing any eGovernment strategy, is the unwillingness of the traditional bureaucracy to reform legal frameworks in order to rearrange power (Hagen, p.23, 2000). Research (Klee-Kurse, p.213, 2000) reveals that some civil servants may not wish to cooperate in order to reform legislation, mostly because of fear of redundancy. Such a situation, together with the existing lack of transparency and the growing density of regulations and administration compounded by a single tissue of cooperation of acting entities, may disrupt the transformation of the public sector (Traunmüller and Lenk, 2000).

As previously mentioned several times, eGovernment risks do frequently arise due to political decisions at leadership level. Technical risks, such as inadequate planning can be induced because some senior decision-makers aim to appear popular with the public. Similarly, economical type of risks can develop due to changes in the political status, and subsequently, deviations in policy strategies. As such, a major political risk for eGovernment initiatives can be the various policy agendas and politics, micro or macro (for more read Bellamy, 2000). The political influence, partially due to micro-politics (for the influence of micro-politics in eGovernment read Dofivat et al., 2004), extends to the category of societal risks as well as can be read earlier in this chapter. Governmental agencies or departments within the same agency do not cooperate, and as such eGovernment strategies may not be fully realised. Such cross-agency cooperation may be due to conflicts of political interest and turf issues (Edmiston, 2003; Bannister, 2003; Barki et al., 1993).

2.10.5 SECURITY RISKS

The issue of security in ICT projects and therefore in eGovernment (*Davila et al., 2000; Stamoulis et al., 2001; Joshi et al., 2002; Kalloniatis et al., 2004; Love et al., p.962, 2005*) is vast and covers physical, technical and human aspects (*Akomode, 2000*). The technical implications of security in ICT projects may be classified with regard to confidentiality, integrity and availability (*Mercuri, 2000; Phillips & von Spakovski, 2001*). These three properties and their susceptibility form the core of technical security in ICT systems (*Pfleeger, 1997*). Due to a combination of internal politics and expertise, security issues relating to the items discussed represent aspects of risk factors being experienced by public establishments. Additionally, due to insufficient security practices, the threat to privacy (*Milner, 2000*) becomes another issue of paramount importance. Such a threat may be expressed in a twofold manner (*Carbo & Weiss, 2001*), namely: i) privacy threats from government intrusion, ii) privacy threats from public-private partnerships.

Finally, *Dridi et al. (p. 105, 2001)* assert the following four eGovernment security risks:

- *“Authenticity of data - Ensuring that it is possible to identify the originator of data.*
- *Non-repudiation of messages - Ensuring that neither the sender nor the recipient of a message can deny having sent/received it.*
- *Proof of originality - Ensuring that an electronic document is the original version and not a copy.*
- *Proof of identification - Ensuring individuals are who they claim to be when accessing the system, sometimes just proofing being authorised and not revealing the users' identity may be desired (anonymity, pseudonymity).”*

2.10.6 CASE STUDIES

This section presents the cases of three eGovernment projects that failed because various risks materialised. This presentation will be further referred to later on in this thesis in order to demonstrate the potential applicability of the thesis' research tool in Chapter 3. Two cases of Government-To-Citizen (G2C) eGovernment projects that ran in the United States of America (*as presented by Ni and Ho, 2005*) will be discussed, followed by another one in Brazil.

Both of the US projects were information kiosks. One was the GeorgiaNet Kiosk Project aiming to provide information for the 1996 Atlanta Olympic Games. Such information was maps, transportation, and hotel information for visitors, all provided through a touch-screen booth system. During the Olympic Games and for sometime after, the information kiosks were successful, acquiring also an award for innovation. A couple of years later though, problems started to emerge and the whole project was abandoned by the year 2002. Ni and Ho (*pp.65-66, 2005*) identify at least five reasons that led to the project's failure. First and foremost, the state could not support financially the kiosk system any more, as the original estimates for private sector support (through advertising) did not materialise. That was partially due to the lack of an effective marketing plan to attract vendor's interest. Moreover, there was no sound financial analysis put in place in order to forecast end users' intentions to pay for any transactions; neither was there an alternative business plan in order to sustain the operation in case of hardship. A fifth reason, likely to cause the project to fail, was investment (in order to cut costs) into outdated technology that eventually led to maintenance problems and consequently abandonment of support by the state's central eGovernment unit.

The second G2C case of a failed eGovernment project is the City of Boston's (*Ni and Ho, p.66-67, 2005*) attempt to make its services more accessible to the citizens. The 'Boston-I' is another kiosk-based system that started during the 90s. It aimed to provide the citizens and visitors interactive systems with the city's agencies, as well as information services about restaurants, hotels, tourist attractions. The project was assigned to a small private organisation with experience in the media business sector. The initial project proposal called for expensive kiosks, as well as rich content and services' provision. The

whole plan seemed to be very ambitious and risky, and as such the City of Boston officials took a very cautious stand towards it. Most of the risks have been transferred to the private organisation, and the city decided to take a staged approach allowing the initial development of only a few kiosks (out of the 20 that were originally planned for), in order to assess the viability of the whole project. During that pilot phase, it appeared that the project was not viable and consequently it was abandoned. One reason for that failure was the fact that the private organisation could not sustain and recover the development and maintenance cost anymore. Moreover, the end user take up did not reach expectations. Interestingly, the City of Boston did not abandon the whole kiosk idea and they did actually develop internally a similar solution. They placed computer terminals in various indoor locations around Boston, so that citizens could log on to the city's web site. Having said that the computer terminal solution could offer limited functionalities, as there was no provision for direct credit card payments; therefore the terminals could only be placed within secure indoor locations.

Recent research (*Joia, 2004*) elaborated on the case of an unsuccessful Government-To-Government (G2G) project and presented the main lessons to be learnt. That case is about an inter-organisational system between the Brazilian Central Bank and the Federal Senate of Brazil. The main aim of that system was to support the work of the Senate in ensuring that a government agreement with the International Monetary Fund (IMF) would comply with the Brazilian Federal Constitution. The sponsor of that eGovernment system was the Central Bank that deemed the system would enhance transparency. The project entailed a website granting restricted access only to senators in order to make them avoid using emails, which were seen to be not secure. As such, anything related to the IMF agreement would be posted on that website. Strong security features have been put in place in order to make that website secure, one of which prompted for use of the system only for the senators themselves and not their assistants. In the beginning the project was a success, with 90% of the senators to have used the system at least once. However, after the initial 3 months the senators stopped using the system. Overall, over the course of the last 3 years there was not even a single logging in by any senator. *Joia (p.209, 2004)* concludes with at least four main reasons why that project failed. First, it was not expected that the senators (i.e. the end users) would not have the

skills (even basic ones) to fully exploit the system, and consequently there was no provision for any training programmes. Furthermore, there was no proper marketing campaign of the system in order to demonstrate to the senators its full capacity and actual point of use. Therefore, the senators did not really grasp why they should be using that system. Also due to the extreme measures taken to ensure secure transactions within the system the G2G solution offered limited access. Finally, it was a system not carefully thought as it did not comply with the way things work at the Brazilian Senate; preventing the senators' assistants to access the system was one of the reasons why the take-up of that service ended up being non-existent.

Following the above three brief case studies it is easy to produce a list with the main risks that materialised into factors causing the above mentioned projects to fail. Such listing is shown on Table 2.4 below.

Table 2.4: Risks Caused Project Failure

Case 1: GeorgiaNet
• Lack of ongoing financial support
• Lack of effective eService marketing
• Lack of knowledge of end-users' needs
• No alternative business plan
• Outdated technology
Case 2: Boston-I
• Outsourcing to private organisation
• Lack of knowledge of end-users' needs
Case 3: Brazilian Inter-organisational System
• Lack of end users' basic ICT skills
• Lack of end users' training
• Lack of effective service/solution marketing
• Restricted accessibility
• Service/solution did not adhere to organisation's culture

2.10.7 SUMMARY OF RISKS

To conclude this part, the reader may find useful to read an outline of all risks identified in the discussion presented above. Therefore, a tabular representation of the main high-level risk factors identified in eGovernment implementations is shown on Table 2.5 below.

Table 2.5: Risk areas in eGovernment projects

Technical	Societal	Economical	Political	Security
Lack of proper service requirements identification	Public-private partnerships	Cross-agency/cross-jurisdictional projects face financial hardship	Lack of proper ICT policies	Data confidentiality issues
Lack of service standardisation	Inadequate leadership	Additional cost for staff expertise	Lack of cooperation amongst civil servants	Data integrity issues
Maintenance difficulties	Inadequate business/project management skills	Lack of support from external sources	Lack of transparency in regulation & administration	Data availability issues
Integration with legacy systems	Lack of ICT skills	Additional cost for ICT infrastructure	Conflict with existing legislation	Non-repudiation of messages
Use of inappropriate technology	Local governments cultural/political differences	Not all public sector departments have enough/equal resources to implement eGovernment	Problems with 'online' contracts	Privacy threats
Increased size and complexity of projects	Lack of competition in the public sector	Lack of resources for staff training	Constitutional conflict	Authenticity of data issues
Lack of formal risk management strategies	Bureaucracy fights back		Technical risks may lead to serious liabilities	Proof of identification issues
	Failure to identify the true end-user need		Inadequate planning	Proof of originality issues
	Failure of constant political support			
	Understaffing			
Digital divide				

2.11 EGOVERNMENT RISK MODELLING METHODS

This part of the thesis demonstrates methods extracted from the literature that model risks for assessment and/or management in eGovernment. The literature survey done for this purpose did not produce a large list with such approaches (or frameworks) dedicated to eGovernment. That is probably due to the fact

that eGovernment is still evolving as a domain and such situation may change in the future.

Most risk assessment methods that have been recovered refer to fundamental identification of some 'big' risks. Usually, such 'methods' come in the form of an appendix in strategic eGovernment documents that set the vision for a local authority (see for example, *Buckinghamshire County Council, 2002*; *London Borough of Hackney, 2002*; *Stevenage Borough Council, 2002*). Almost all UK local authorities have published a 'visionary' statement for eGovernment and in almost each of them there is a risk assessment appendix. Similarly, the Government of Canada has published a risk management framework (*Government of Canada, 2001*) for the public sector in general, with a focus on the electronic service delivery. From a slightly different viewpoint, Prefontaine (2003) presented a risk model guide for managers in eGovernment. A more detailed risk assessment approach is provided by Podgorsek (2004), who comes from an auditor's point of view. Then, there is the UK's Office of Government Commerce (*OGC, 2004*) that presents some guidelines for efficient design of risk management methods. Finally, Dr. Richard Heeks proposed two risk assessment methods for eGovernment. The first one is based on the 'design-reality gaps' paradigm (Heeks, 2003a), whilst the second one is termed 'simple factor rating' (Heeks, 2003b).

The few sections below summarise the eGovernment risk assessment methods identified in the available literature. This thesis' segment concludes with a tabular comparison of the methods, which could amalgamate the current state of the art in risk assessment for eGovernment.

2.11.1 IMPLEMENTING ELECTRONIC GOVERNMENT

Nearly all the 'Implementing Electronic Government (IEG)' statements, prepared by the UK's local authorities, have an appendix with risk assessment. Usually, this comes in the form of a list of identified risks classified under the broader categories. Such risks are shown next to 'source', 'impact', and 'probability' columns and sometimes there is a 'countermeasure' column for further risk management. The assessment is purely qualitative, as it uses statements as 'I' - for internal or 'E' - for external, and the usual Ms, Ls, and Hs, for medium, low, and high respectively. What can be said about such risk

assessment is that it is not a very specific method as there is no guidelines/framework to define how a manager should do it. Then again, there is no particular mention about how and who devised such assessment. Also, it seems to be more of an assessment of issues that will arise towards working for eGovernment and they do not necessarily represent or target particular eGovernment projects. Such assessment may give a nice overall 'picture' - a landscape - of where an eGovernment vision might face uncertainties.

2.11.2 INTEGRATED RISK MANAGEMENT FRAMEWORK

In 2000 the Government of Canada (*Government of Canada, 2001*) published a generic framework for risk management in the public sector. The main aim was to provide a practical guide to assist public service employees in their decision-making. It has to be emphasized that it is a framework for the public sector management in general and not entirely focused on eGovernment (though it accommodates eServices as well). It is a framework that provides a good basis upon which risk assessment may occur. It comprises four elements, namely the: i) 'Developing the Corporate Risk Profile', ii) 'Establishing an Integrated Risk Management Function', iii) 'Practising Integrating Risk Management', and iv) 'Ensuring Continuous Risk Management Learning'. In the first element there is a provision for generic risk categorisation and the main status of the organisation, risk management and organisation's risk profile is identified. The second element deals with the discussion about the selection of the proper risk management strategy, method and approach. The next element within this risk management framework deals with the actual exercise of the risk management process following the plans set in the second element. And finally, the fourth element ensures that the results of the risk management process are communicated and lessons are learnt. This framework is at a very high level (defining risk strategies), hence it does not provide with any help or provision of specific methods for risk assessment. On the other hand, it does specify the various stages of the risk management process, thus presents some high-level guidance on the risk assessment process as well.

2.11.3 RISK ASSESSMENT OF ESERVICE PROJECTS METHOD

The 'Risk Assessment of eService Projects' white paper (*Podgoresek, 2004*) presents a framework for risk assessments in eGovernment. The main deliveries of this framework are a definition of the place of risk assessment in

eGovernment projects, as well as the definition of the fundamental structure of the risk assessment process. This framework is divided into two segments; the 'Start Up/Periodic Activities', and the 'Ongoing Activities'. The first segment consists of two parts. The first part deals with risk analysis and the second part presents the additional step of planning for the risk. The 'Ongoing Activities' segment contains continuous project management activities, such as risk control and risk monitoring. This framework provides a recommendation on the frequency of the whole risk management process, as well as a classification and ranking of risks. The additional feature of this framework is that it suggests control objectives for specific risk categories, but this is more about the management of risk rather than the assessment of it. On the downside, it does not dig into enough depth to describe the steps entailed in the risk assessment/management process.

2.11.4 THE OGC GUIDELINES

The OGC's Successful Delivery Toolkit (OGC, 2004) includes guidelines on how a proper risk management framework should be designed. It describes what a framework for risk assessment/management should do and how to do. It is very generic, but it may be used as a quick 'testing device' for examining if a newly developed eGovernment risk assessment/management framework can deliver the goods.

2.11.5 DESIGN-REALITY GAPS

The 'design-reality gaps' include a step-by-step guide to identifying and addressing failure risks for eGovernment projects (Heeks, 2003a). The core of this method is the ITPOSMO acronym, which stands for Information, Technology, Processes, Objectives and values, Staffing and skills, Management systems and structures, and Other resources: time and money. ITPOSMO are the seven dimensions of eGovernment that are necessary for an understanding of design-reality gaps. The main rationale behind this method is to assess the current situation of the eService project following the ITPOSMO areas, against the planned design of it. Then by using semi-quantitative values, from 0 to 10 (0 for no change, and 10 for radical change) the user of this method may add all ratings up and the overall project rating will show what the most likely outcome is. Additionally, there are some other steps in this method that deal

with necessary actions to be taken, so as to assist in any future risk management exercises.

2.11.6 NEW MODELS OF COLLABORATION

Recent research (*Prefontaine, 2003*) at the University of Quebec, Montreal and the CEFRIO in Canada have presented a guidebook for managers. Within that guidebook there are guidelines in doing risk management in areas - usually ICT-enabled - like eGovernment. The main feature and strength of this high-level risk management approach is a typology of risks. This typology distinguishes between external and internal risks. The external ones arise from socio-economic, political, and technological environments. On the other hand, the internal risk sources are deduced from the project nature, the participants, and their relationships. Then, this guideline presents these risk factors according to their importance and so implies that the most frequent ones should be tackled first by the managers. This risk management/assessment exercise's strength lies within its typology, though apart from that it does not really provide any rigid methodology on how to identify and/or analyse/evaluate risks.

2.11.7 SIMPLE FACTOR RATING

'Simple Factor Rating' (*Heeks, 2003b*) is another method for carrying out risk assessment exercises in eGovernment. That method provides a set of questions based on factors that affect eGovernment projects. Such factors are classed according to a 7-tiered taxonomy of issues, which are: 1) Drivers, 2) Strategy, 3) Management, 4) Design, 5) Competencies, 6) Technology, and 7) Others. Each of these questions is then answered and rated. All the ratings are then summed-up, using a semi-quantitative approach (0 to 10, with 10 being the best possible mark), and the highest the score the more likely for the project to succeed. This method is quite easy to be implemented and is quite suitable for an on-the-spot 'health-check' of a particular eGovernment service project. The problem is that it is extremely generic, and it assumes that all eGovernment projects face the same issues, which may be argued is not quite correct (actually the author of this method stresses that as well). Also, there are not many questions put in place, which makes it quite unstable too.

2.11.8 QUICKSCAN APPROACH

The QuickScan Risk Assessment method (Katz and Xiaofeng, 2005) takes a holistic approach towards risk assessment in eGovernment projects. According to its authors *"ICT supported organisational transformation programs should not narrowly be considered as a technical project only, but the link to both organisational strategy and business routine operation activities needs be assessed."* Also, the risks within eGovernment projects are seen to be *"correlated with the nature as well as the degree of inconsistencies that transformation creates between different parts of the organisation, its operations, strategy and IT systems"* (Katz and Xiaofeng, p.507, 2005). QuickScan is based on the 'principle of risk assessment framework', which entails four major components; the 'strategy', 'capability', 'people', and '(IT) systems'. By looking at those four components, identified tensions for an eGovernment project can be identified. That process then leads to risk profiles that are of three kinds: i) Strategy and Management of the organisation that plan eGovernment transformation, ii) Organisational Capability for the receiving organisation, and iii) IT program management maturity of the implementation professionals. Such profiles quickly draw the managerial attention where adjustments can be made in order to increase success potential for a particular project. The rationale behind that method is that several different risk profiles for different dimensions are created by different stakeholders. As such, through this risk assessment method, the decision makers have a better and early holistic understanding of the eGovernment project and its pitfalls. This tool is similar to the 'design-reality' gap method, but a little more advanced. As its authors point out it is unique in the following features:

1. *"It is organisational and management oriented, not only technical. Quick risk assessment helps organisation managers to understand the (in) consistency caused by introduction of new IT system within and among the three organisational dimensions Management & Strategy, Organisational Capability, and IT Program Management;*
2. *It is longitudinal and change process oriented with a view to anticipate potential risks before rather than after they*

occurred. The tool can be a useful tool for eGovernment transformation program manager to communicate with decision makers, and to create shared awareness & understanding on eGovernment program among the stakeholders. The tool can also be used by decision makers to understand the potential impact of eGovernment program on organisation, and allocate the needed resources to deal with these risks” (Katzy and Xiaofeng, p.513, 2005).

2.11.9 EGOVERNMENT RISK MODELLING METHODS’ CHARACTERISTICS

A feature summary of all the above mentioned methods for risk modelling is tabulated (Table 2.6) below. Hopefully, that table should capture the main characteristics of those methods. Two observations can be made after looking at Table 2.6.

Most of the selected risk modelling methods take a holistic approach towards risk, targeting decision-making at strategic level. More than half of the methods provide (or point towards) some sort of risk classification.

Table 2.6: eGovernment Risk Modelling Methods' Characteristics

Methods	Characteristics		
IEG	Categorisation and listing of risks	Qualitative assessment criteria for future risk management	No practical risk identification /assessment method
	Lack of assessment steps description	Overall risk 'landscape' provision	
Integrated Risk Management Framework	Generic risk management framework	Provides a background for risk classification	No practical specific risk identification/assessment method
Risk Assessment for eService Projects	eGovernment risk assessment framework		No specific risk identification/assessment method
	Includes elements or risk management as well		Not enough 'depth' in risk assessment steps description
OGC	Too generic; only to be used as a guide	Does not provide any risk assessment methods	Describes how to develop risk assessment strategies
New Models of Collaboration	Risk classification provision	Abstract risk assessment	Lack of specific risk assessment method(s)
Design-Reality Gaps	Specific method for eGovernment risk assessment		Semi-quantitative assessment
	Criteria for future risk management		Risk classification provision
Simple Factors Rating	Specific method for eGovernment risk assessment	Semi-quantitative assessment	Risk classification provision
	Too broad; assumption that same risks are in every project	Does not specify how risks can be identified	Very simple to use
QuickScan	Specific method for eGovernment risk assessment	Change process oriented; dynamic	Basis for common awareness & understanding of risk issues amongst the stakeholders

2.12 RESEARCH ISSUES

After having a closer look at the various sections that were elaborated in this chapter, this thesis proposes the following few research issues. Such research issues support this research work towards finding a satisfactory response to the research problem. Looking back in Section 2.6.5, the capability assessment and planning toolkit highlighted the importance of risk in planning as it helps to identify risk in order to support decision-making (*Cresswell et al., 'Executive Summary, 2005*). Similarly, risk appears to be integral to the ex-ante

evaluation of eGovernment projects (*Irani et al., p.74, 2005*), both when considering culture and structure but also when selecting evaluation methods. Therefore, it may be argued *that the consideration of risk can play a role when assessing eGovernment projects at an early stage.*

On the other hand and after investigating the pre-proposal phase in Section 2.9 and its parts the following research issue may arise. Both parts of the pre-proposal stage include to some extent (the business case to a larger, and the feasibility study to a lesser) an insight into project risk. Hence, it is proposed that *the consideration of risk is integral to the pre-proposal stage.*

Stemming from the definition of eGovernment in Section 1.5.1, eGovernment projects are not fully explored and their issues need to be better understood. Moreover and following the elaboration on the pre-proposal project phase in Section 2.9.1 it is evident that mechanisms and tools need to be devised to support decision-making at that early stage. Hence, it is proposed that *better informed - through the use of tools - decision-making is needed at the pre-proposal stage.*

Section 2.9.2 looked into risk identification, where its main attributes were discussed. There it was shown that it (through the employment of risk registers) can offer a body of knowledge that may be further used for any pertinent analyses and plans. Building on that and after a synthesis with discussions in earlier sections, it may be argued that *informed risk identification can help - through the provision of a corpus of knowledge - towards the successful management of projects.*

Section 2.10 identified a gap in the body of knowledge in regards to risk and elaborated on a thorough discussion and categorisation of eGovernment risk. Throughout such discussion it is more than evident that the risks of eGovernment are not only technology oriented/sourced. Therefore, another prime research issue may be as follows. *eGovernment risks can be found in diverse areas and are not restricted in the technological domain.*

Following the extensive discussion on the topic of eGovernment risk, this chapter carried out a presentation on the various risk modelling methods for

eGovernment that the literature survey divulged. Such discussion concluded with a tabular presentation of the risk modelling methods' characteristics. There (*Section 2.11.9*), two observations are made that consecutively lead to the formulation of the following two research issues. Firstly, *an eGovernment risk modelling method should examine risk holistically*. And secondly, *an eGovernment risk modelling method would normally include some kind of risk categorisation*.

2.13 DISCUSSION

This chapter elaborated on the results of the literature survey done for the purposes of this thesis. Overall, the aim of this part of the dissertation is to provide a background behind the domain of research, also involving the introduction to the topics explored as well as the motivation behind it. Additionally, this chapter provides the foundation upon which the leads to further research in the field are provided. Largely, that is materialised in the formation of research issues (*as was demonstrated above*) that will be investigated at later stages, as well as the founding ingredients for the research tool that will be introduced at Chapter 3, and further employed during the field research phase.

A large chunk of this chapter's work entailed a discussion based on the pertinent literatures that provided an understanding of the domain of eGovernment. Such discussion opened with the assortment of the promised opportunities eGovernment may deliver. That part of the chapter concluded with a tabular representation of the perceived eGovernment benefits. It was important to first appreciate the potential of eGovernment as later in the chapter it was shown that the current experience appears to be slightly different. The domain of eCommerce/eBusiness appears to be a precursor of eGovernment, at least from a purely historical perspective. Therefore, in order to better appreciate the various attributes of eGovernment a comparison amongst the two domains occurred earlier in Section 2.3. on top of the fact that it adds to the better understanding of the eGovernment domain, that comparison (*based on the perceived similarities*) was especially helpful to uncover the various eGovernment risk that were introduced later in the chapter.

The understanding of eGovernment further expanded by the presentation of various eGovernment models. Such models were largely distinguished into strategic and operational. Again, such elaboration aimed to contribute to the fuller appreciation of eGovernment, in this case from a rather structural/architectural point of view. More importantly though, by looking at the existing models of eGovernment ideas are captured on how to better design this thesis' research tool; which in effect is an eGovernment model as well. As it will be shown in Chapter 3, the model used in this thesis is not an adopted version of any of those models; it is however strongly influenced. For example, features like citizens and institutions (*as discussed in 2.4.3*) or back-office and front-office (*as discussed in 2.4.4*) are incorporated. To conclude that 'background' discussion on eGovernment this chapter expanded on two more topics, those of the evaluation of eGovernment, and the eGovernment policies. The latter one is an important one, because it demonstrates the importance of eGovernment as government organisations at various levels (regional, national, and international) demonstrate their commitment to eGovernment by setting ambitious relevant programmes. On the other hand, this chapter dedicated some space in discussing the various ways of evaluating eGovernment implementations. That is also helpful towards pinpointing issues for further research, as was shown earlier in this chapter (in particular, the role that risk may play in the measurement of eGovernment implementations' success).

Section 2.8 of this chapter plays a fundamental role in this thesis. There, it was argued that the current - as well as in the recent past - experience of eGovernment appears to be not particularly successful. Aspects such as effectiveness, customer service improvement, and costs that according to what section 2.2 advocated appear to be far fetched. In effect Section 2.8 formed the broader motivation behind this research. Initially, that section provided examples of failed implementations within the wider public sector, and then elaborated on the most common failure factors of such implementations. That bit is important for this research in a twofold manner. Factors that are deemed to contribute towards the failure of eGovernment implementations appear to include problems with efficient planning and especially at an early stage, such like the business case. That forms part of the niche of the research programme described within this thesis.

Following on that lead, the next section of this chapter explored a potential avenue to the solution of the problem discussed in Section 2.8 (i.e. the failure of eGovernment projects). It is within that section where this thesis introduces the assumption that better planning at the early stages of eGovernment project considerations may assist towards avoiding waste. Equally, that section introduced the notion of risk identification. It demonstrated that risk identification forms an important part during early planning for information systems. Moreover, the discussion within Section 2.8 further fed into the development of issues (*as earlier shown*) to be explored at the field research phase.

A large portion of this chapter was occupied with the investigation of eGovernment risk and the consecutive presentation of the current risk modelling methods for eGovernment implementations. To aid in the investigation of the risks that surround eGovernment implementations, the domains of eGovernment and eBusiness/eCommerce were taken into account. It may be said that one of the contributions that this thesis makes is the presentation and categorisation of risk. As such, that section of this chapter provided a list of eGovernment risk factors classified within five categories, namely i) technical, ii) societal, iii) economical, iv) political, and v) security. Such categorisation is especially useful for this thesis, as it is later re-used in the form of a taxonomy, forming a major component of this thesis' research tool (*as it will be discussed in Chapter 3*). Again, as with most of its predecessors, this section sparked interest for further research, thus composing a research issue (*as shown earlier above*) to be further explored during the field research phase. Moreover, at that point the chapter presented three case studies of recent eGovernment projects that failed to deliver because some of the typical eGovernment risks materialised. That section will be further revisited in the forthcoming chapter, where it shall be shown how applicable the research tool is. This chapter finished the discussion on eGovernment risk by examining the current methods of risk modelling/assessment. Apart from bringing a wider understanding to the topic, that section further contributed to the purposes of this research. By examining the current methods of risk modelling/assessment for eGovernment projects, this research uncovered their main characteristics/attributes. Ultimately, that aids in better appreciating what is usually expected from such methods to deliver, and of course what

they look like. Overall, it is shown that there are two striking characteristics: i) a holistic, multi-perspective approach towards risk, and ii) some kind of risk classification. Such attributes will be taken into account in the formation of this thesis' research tool that will be introduced in the forthcoming chapter.

CHAPTER 3 - RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter expands on the methodology employed for the fulfilment of this research programme by establishing the proper research approach that needs to be pursued. Discussing about appropriate research methodologies in information systems research, Galliers and Land (p.901, 1987) remark that the '*research methods must take account of the nature of the subject matter and the complexity of the real world*'. Bearing that in mind, this chapter commences with an explanation of the selection of a particular research approach selected. Such approach is the foundation that dictates which research methods are suitable for this thesis. Then, a section is dedicated to the presentation of the various research phases that are followed for the successful attainment of this doctoral programme. Section 4, a major part of this chapter, presents individual methods employed so as to establish, evaluate, validate and complete the main research hypotheses. Then a large section is dedicated on the conception and development of the prototype version of a risk modelling tool. That tool is to be used as the main research tool for this thesis. It will help elicit data from the field research and assist towards answering the research question. The two main components of the risk modelling tool are presented, and a discussion on its potential use concludes this large section. Moreover, in the second to last section the evaluation criteria for this doctoral work are demonstrated to ensure a satisfactory level of research quality. Finally, a discussion on ethical considerations concludes this chapter.

3.2 RESEARCH APPROACH

A large portion of this chapter deals with the research paradigm taken to support this thesis and comfortably respond to the research question set earlier in Chapter 1. Before expanding on the presentation of the research approach it would be wise to clarify and distinguish between the terms of 'approach' and 'method', so as to avoid any confusion. As Galliers (p.147, 1992) puts it, a method is usually a way to systematise observation, whereas on the other hand, an approach tends to be a 'way of doing research'. Therefore, a research approach is something broader than a research method and indeed it may employ several different methods. Consecutively, the following sections within

this chapter will elaborate on the methods used throughout this doctoral programme.

But before probing deeply into the methods used for this research, the epistemology followed needs to be examined. That will pave the way for the most appropriate research methods to be used. Looking closely at the relevant literature it may be said that not much has been written in regards to the kind of paradigm that is most suited for research in eGovernment. In fact, the research domain of electronic government is still shaping and is debateable (*Grönlund, pp.178-185, 2004*) on whether it is mature enough to pose a distinct research discipline. As such, the search for an appropriate approach to this study has shifted to better established research domains, such like electronic commerce/business and information systems. Extensive discussion on the similarities and differences between those fields and the electronic government occurred earlier in Chapter 2.

Walsham (*p.74, 1995a*) distinguishes the information systems research approaches into interpretive and positivist, which seems to be befitting with Galliers (*p.149, 1992*) who distinguishes between 'scientific' and 'interpretive' philosophies. Also, this appears to be the case with research in the field of electronic commerce (for example, *Debreceeny et al., p.179, 2002*). Additionally, Klein & Myers (*p.69, 1999*) add a third one; the 'critical' approach. According to them, '*IS research can be classified as such if the main task is seen as being one of social critique, whereby the restrictive and alienating conditions of the status quo are brought to light*'. On the other hand, the positivist research approach (*following Archer, 1988*) presents facts and values distinctively, and scientific knowledge comprises only facts. The positivist or scientific approach is identified by repeatability, reductionism, as well as refutability (*Checkland, p.13, 1981*), and the observations are made in a rigorous and objective manner (*Klein and Lyytinen, p.137, 1985*). Conversely speaking of interpretivism, Lee (*p.147, 1994*) explains that it is all about understanding human subjects understanding themselves and the world around them. As Lee illustrates, interpretivism is not about 'erklären' (*explaining* - which is the work of positivism), but it is about 'verstehen' (*understanding*). Therefore, it is not proper to suggest that one approach is better over the other; they are simply different and in reality they can be used in a

complementary fashion. As Lee suggests (p.354, 1991), the results of an interpretive research may be exploited as the starting point for the development of further positivist understanding. Also, Remenyi and Williams (p.145, 1996) conclude that that in the field of information systems it is essential that researchers embrace both qualitative and quantitative approaches as the lead to more satisfactory results.

The research programme imprinted on this thesis follows the interpretive approach (for more on interpretivism in information systems research, please refer to *Walsham, 1993; Walsham, 1995b*), and the research methods will adhere to that paradigm. The reasoning behind that may be summarised in Boland's (pp.195-196, 1985) argumentation that researching the information systems is better perceived as a hermeneutic process. Such advance is defined by three tasks. Firstly, the information system's output is to be interpreted by the user of the system. In this research a risk modelling tool is used in a similar fashion and its output is evaluated by users in local government establishments. Secondly, Boland explains that the organisation is interpreted by the designer of the information system. As it will be shown later in this dissertation, the author designed a risk-modelling tool based on knowledge derived from relevant literature review and interviewing with domain experts. Finally, the researcher interprets the information system's design and use, whilst it is being used. In this dissertation's case, a risk-modelling tool will be used by domain users and such interaction shall be observed and interpreted accordingly by the thesis author. Apart from these three hermeneutic-based reasons, the stigma of any research project may be defined by the type of the main research question it attempts to answer (*Yin, p.5, 2003*). Following the discussion on the main research aims in Chapter 1, it is apparent that this research is based on a 'how' type of question. This is clearly a kind of exploratory question and as such, an interpretive approach would be more suitable. Finally, since the field of electronic government is still evolving, there is a pertinent need for the development of theory rather than the confirmation of pre-existing theory (after *Bryman, 1999*). That in itself prompts for a qualitative research approach which ultimately may add something new to the eGovernment body of knowledge.

3.3 RESEARCH PHASES

The interpretive approach followed throughout the doctoral programme employs several research methods. If seen as a variant to phenomenology (Klein and Lyytinen, p.137, 1985; Galliers and Land, p.901, 1987), interpretivism can gain dearly from employing multiple methods, simply because different views of the phenomena can be established (Easterby-Smith et al., p.27, 1991).

This research programme can be distinguished into four main phases. Although not exclusively adopted, such four phases are inspired from and in a way comply with Mingers (pp.245-246, 2001). John Mingers explains that research is not discrete but a process that comprises four phases. The 'appreciation' phase deals with how the researcher views a particular research situation and usually involves prior literature and theories. Then comes the 'analysis' phase that involves the presentation of mechanisms or structures that had they existed they would produce the phenomenon that has been observed or experienced. Thirdly, the 'assessment' phase mainly deals with the results interpretation and compares/explains them in comparison to the expected results based on the theory. The last stage of the research process, according to Mingers, is the 'action' phase where the whole research results are reported and disseminated.

This research programme's phases are depicted on Figure 3.1 and are summarised as follows:

- Phase 1 - Literature review and research tool design
- Phase 2 - Domain experts and research tool enhancement
- Phase 3 - Evaluation and validation
- Phase 4 - Assessment and recommendations

Looking at Figure 3.1 it is apparent that this research ultimately aims to complete a 'knowledge circle' that starts from the current body of knowledge and finishes with an output that feeds new theory into the eGovernment body of knowledge. To achieve that 'knowledge circle', the doctoral research narrows down from Phase 1 and Phase 2 to a specific area in Phase 3, whereby

research results are generated. Phase 4 is based on such research output and expands on generalising some new theory, in the form of framework/guidelines and instigates the leads for further research in that area.

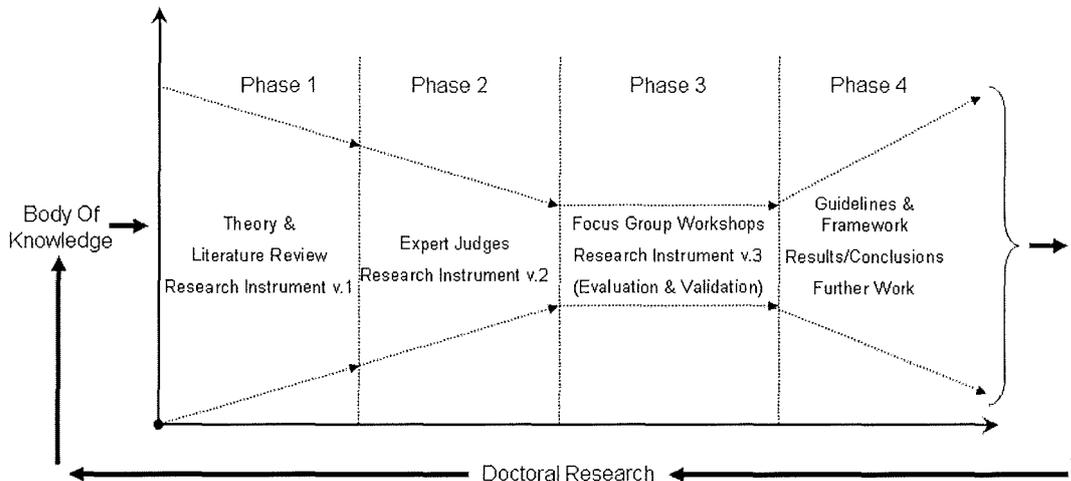


Figure 3.1: Research Phases

Phase 1 sets the main problem (research question in Chapter 1) of the research as well as the wider context of the research area. Such context is presented in Chapter 2 that includes the results of an extensive literature survey done in the wider area of electronic government, project management and risk. The rationale behind that is to provide the background and wider context behind the research. More importantly, the literature review helps to uncover research issues and questions that are the focus of the data collection (Perry, p.75, 1999) presented in later chapters. Also, the results of the literature survey output the initial design of the research tool (it is described later in the thesis).

The next stage of this research - Phase 2 - receives the output of the previous phase and a research tool is developed. The need for that phase, and indeed the development of a research tool, is encapsulated in Smith's et al. (p.174, 1996) words. They say that developing (and further validating) a tool may glean the subjective understanding (of the research subjects and how they perceive their situation) as well as the researcher's interpretive understanding (since the doctoral student will observe and interpret the subjective understanding). To achieve that, domain experts are asked for their opinion and guidance in order to develop a tool that may be usable in real-life. The main purpose of

such action is to connect the theoretical knowledge gathered in Phase 1 with a more practical perspective of the experts and make the tool more realistic.

During Phase 3 of this research, the tool will be evaluated and validated. Such process will elicit data from the field and it will further inform the last stage of this research. Phase 3 will be based entirely on field work with public sector employees. It shall be the product of scenario-based focus group workshops. Such workshops include a series of different research methods trying to arrest a multifaceted - holistic approach. In this way it is easier to achieve a higher volume of data retrieval in a more reliable and valid way as specific areas of interest are covered from different perspectives. Some information systems research scholars (*Mingers, 2001; Landry and Banville, 1992*) advocate that employing multiple research methods (in a structured way), so as to tackle a specific research questions, can be very beneficial and it is highly recommended.

The last research stage (Phase 4) presented in this thesis will attempt to generate some new theory and ultimately inform and update the relevant body of knowledge. As Walsham (*p.79, 1995a*) explains, this newly generated theory should be viewed more as a 'tendency' that is useful to explain the data received throughout the research programme. It should not be seen as wholly predictive for future situations. Hopefully, the generalisations made will be valuable in the future for research within other contexts, only if seen as the explanation of a particular phenomenon derived from the interpretive research within a specific context.

3.4 METHODS

The section that follows presents an overview of the methods, which are employed as part of the thesis research methodology. This section forms a large portion of this chapter and care has been taken to provide the fullest possible description for the reader to understand better what steps are taken to acquire credible research data.

3.4.1 LITERATURE REVIEW

The initial stage of this research work includes a survey and analysis of related literatures. As Perry (*p.72, 1998*) suggests, this stage of the PhD research

programme endeavours to formulate a theoretical foundation upon which the research is based. Ultimately, this stage will pinpoint all the research issues that have not been clarified by other researchers yet and therefore pave the way for the aims of this research programme. Perry comments that this section of the PhD programme is not an end in itself, but it is a means to the end of diagnosing the niche for this research.

Chapter 2 of this thesis includes the results of such literature survey, though it has to be stressed that the definitions of the main terms used in this thesis (as prescribed in Section 1.5) are also outcomes of the literature survey phase. The main focus of the pertinent literatures' review was to look at the immediate field of eGovernment risks. Also, a substantial amount of work done in Chapter 2 was exploring the parent fields of the research problem. Broadly speaking, areas such like project management and risk management literatures have also been explored. Also, the broader area of eGovernance and the disciplines of eCommerce/eBusiness have been investigated.

The literature review stage produces at least two main outputs. First, hypotheses are built upon the uncovered research problems found within the related literature. Such hypotheses are to be further refined and explored at later stages of this research programme. The second major product of this research phase (Phase 1, as seen on Figure 3.1) is the development of a research tool. In this case, such research tool is a risk modelling tool for eGovernment service projects and will be presented later in this chapter. The research tool is to be further refined, evaluated and validated at the later stages of this research. This stage's results have been presented at the 3rd European Conference on E-Government at Trinity College in Dublin, Ireland (*Evangelidis and Macintosh, 2003*). The paper briefly outlined the research project and provided a framework for risk modelling in eGovernment. This allowed the research student to have some first hand experience, as well as feedback from academics with eGovernment expertise, on his research project.

3.4.2 DOMAIN EXPERTS - INTERVIEWS

Phase 2 of this research programme (as previously outlined in this chapter) entails interviews with domain experts. The value of a leading stage of investigation before commencing with the main data collection from the field

is well established in qualitative research. Maxwell (p.79, 1998) explains that such pilot studies have a distinct value in qualitative research designs, as they generate an understanding of the concepts and viewpoints held by people involved in the domain of interest. The ultimate aim of this stage is to investigate the research problem and attempt to narrow down to a particular issue of academic interest. For example in this thesis case, the author tried to elicit information in regards to better shape the consecutive field research stages. The feedback retrieved from this stage assisted in forming more specific questions to be asked in the workshop's stage. Also, such interaction with the field experts provides a first insight on how 'realistic' the research tool is. Such 'interaction' updates and revisits the initial research tool design for the first time.

Such small field investigation was undertaken to validate the research tool and seek for the niche in the particular research spectrum. Four exploratory semi-structured interviews were conducted with experts in the area of eGovernment. Those participants have been selected purely because they had key domain expertise. Two of them were senior public servants involved in the design and development of eGovernment services; one interviewee was a senior private sector employee at an organisation implementing such services; and finally, the opinion of one eGovernment academic expert was looked for. Three of the interviews were carried out in person, at the participant's office and lasted for about an hour. The fourth interview was carried out through electronic correspondence, due to the geographic limitations; as the respondent lives abroad. The results of such exploratory interviews with the domain experts have provided the leads for the focus of this project, as well as an updated version of the research tool. A discussion of this stage is introduced in Evangelidis et al. (2004), which is a refereed paper that was presented at the 3rd International Conference on Electronic Government held in Zaragoza, Spain.

3.4.3 SCENARIO-BASED FOCUS GROUP WORKSHOPS

This section demonstrates a mixed research methodology that is based on some known methods complimenting each other. Ultimately, this research process attempts to respond to the research issues raised earlier within this thesis, as well as evaluates and further refines the research tool. Overall, this mixture of

methods arrangement may be termed as 'scenario-based focus group workshop' and aims to simulate an instance of a real-life event and observe the participants using the research tool. It is a process that complies with the qualitative and exploratory temperament of this research programme.

The workshop research process can be discriminated into methods used to collect data for a 'before-use' appraisal and an 'after-use' evaluation of the research tool. In order to allow the researcher explore what the participants' first impressions with the tool are, they are all provided with the tool and are asked to express their viewpoint on the sheets provided to them, also allowing them to freely modify/update anything they wish. On the other hand and for the 'after-use' appraisal of the prototype tool, various structured and unstructured research methods are exploited.

One such method is an unstructured interview with all the participants in the form of an open discussion that follows a series of pre-planned open-ended probes (*Anderson and Kanuka, 2003*). In such a way, the participants are free to discuss on the topics from their own perspective (*May, 1993*), which potentially may pave the way - due to the group's dynamics - for change on the discussion focus to more important topics (*Robson, 2002*). To complement representativeness (*Fetterman, 1998*) the method of questionnaires is also used. This well-known method is also exploited to supplement the open-focus group discussion, mainly for two reasons (*Kidder and Judd, 1987*); i) to avoid any potential interviewer (the researcher acting as moderator) bias, and ii) to provide greater feeling of anonymity (since in the open focus group discussion the participants could be more cautious in expressing their opinion freely). And finally, a method of retrieving and organising swiftly and in a consistent manner is also employed. Basically, a grid-based method poses a 'two-dimensional' structured survey and it is asking for the brief comments (after specific questions) of each focus group member. Such comments are placed by the participants in a table that has rows representing questions and columns reflecting on a certain context of inquiry. The main strength of this method is to have a feedback blitz, saving time and cost.

A presentation of the scenario-based focus group workshop research process, within an eGovernment context, has been introduced at the fourth

International Conference in Electronic Government in Copenhagen, Denmark (Evangelidis, 2005). That refereed article elaborates on the practical use of that research process, by using an example of the use of the research tool at the business case stage of an eService project. Overall, each focus group workshop is structured around three phases, each of which is described below. These are:

- Presentation
- Interaction
- Discussion

During the interaction phase the researcher takes notes to record the behaviour and any potential points raised by workshop members. Also, during the interaction and discussion phases, the participants are video and audio taped, so as to capture as much data as possible throughout the workshop.

Presentation

The first phase of the workshop lasts for about 30 minutes and encompasses the following segments:

- An introduction to the project aims and the role of the research
- The ground rules for how the focus group could help and the filling of the agreement forms
- The rationale behind the research tool and its potential benefits, including a presentation of its main purposes
- An introduction to the scenario, the criteria that the participants should use to assess the research tool, and the method of applying them

Interaction

During the second phase of the workshop, the participants have 45 minutes to use the research tool, bearing in mind that they are in a situation as prescribed by the scenario. In the beginning of the session, and for about 8 minutes, each participant has the opportunity to familiarise him/her-self with the two components of the research tool. During that stage, the participants are asked to alter/update the components in a manner that feel more suitable. Following

that, the remaining session involves the members using the tool and creating output (risk statements) to be recorded on a supplied form (risk assessment blank forms). Due to the restricting time limitations of the workshop the researcher - who is asking the participants to use different parts of the research tool at finite intervals - guides the session. At the end of the session, the participants are allowed time to express their comments about the research tool on sticky notes, following the guidelines presented to them through the scenario. Basically (*with minor differences amongst the two workshops, for more check the respective Appendices Section*), it is asked whether the research tool fulfils the following purposes:

- To provide a common high-level understanding of eService projects
- To provide a standardised process of identifying specific risks for eService projects

The participants have to assess whether the tool may satisfy the above purposes and in order to judge that the following criteria may be used:

- Does it identify likely issues?
- Does it identify areas that could be overlooked?
- How useful is it?
- How usable is it?
- How complete is it?

The participants may use an A4 grid sheet, where they attach their sticky notes.

Discussion

The third and last phase of the workshop involves two separate feedback-gathering elements; a structured questionnaire, and an open-ended discussion. First, the members are asked to provide, in written form, comments on their experience with the research tool. They are asked to fill in a questionnaire, which comprises a number of questions; all examining the tool from different angles. The participants are given approximately 20 minutes for the task. After that an open-ended discussion follows, where all the participants may express

their views openly in regards to the research tool and the research topic in general. The researcher is only involved by guiding the discussion, employing probe questions.

3.4.3.1 FOCUS GROUP

The use of focus groups is a well established method of collecting data for qualitative research (for further study in focus group read *Stewart and Shamdasani, 1990; Greenbaum, 1998; Morgan, 1993*). Focus groups have been used in the area of information systems (for example read *Pettigrew and Durrance, 2001*), as well as in the eBusiness sphere (*Lichtenstein and Swatman, p.213, 2003*). Following Beck's et al. (*p.73, 1986*) definition, a focus group is an informal discussion among selected individuals about specific topics relevant to the situation at hand. More specifically, focus groups pose a research method that collects data through group interaction on a topic determined by the researcher (*Morgan, p.6, 1997*). Morgan continues by adding that the researcher provides the focus and the group interaction process outputs the data.

Broadly speaking, all focus groups have several common characteristics, which are typical for such research method. Krueger (*pp.16-21, 1994*) describes six distinctive ones, whereas Vaughn et al. (*p.5, 1996*) annotates that focus groups have five core elements. First of all, a focus group is an occasion that involves people. There is a moderator who is guiding the focus group discussion by using prepared questions and probes in order to elicit information needed for the research. Also, there are the focus group participants that are persons willing to help with the research. Another main element for typical focus groups is the fact that the participants' characteristics should be relatively homogeneous. That means that the researcher, who organises the focus groups, has to decide about the target audience and what characteristics it should have. Then, persons that fulfil a certain common profile are invited to participate. A third element of this research method is that all the participants actively participate - through the guidance of the moderator - in an open discussion. That discussion is 'focused' on a certain topic to which the participants are acquainted with somehow and is usually carefully predetermined and sequenced. Another major classic element of the focus group method is that it does not produce quantitative information. It rather generates very rich

qualitative data that represent the views, attitudes and perceptions of the participating persons. The data can be verbal, but also non-verbal such like gestures or general behavioural responses of the participants. Two other common characteristics of this research method are that (i) focus groups need to be conducted in series, and (ii) it is a data elicitation procedure. Usually, it is best to use more than one focus group in order to do some research on a given topic. This is mainly because only one group of persons may result into biased output that could be influenced by a number of factors (internal or external) affecting that particular group. Finally, the focus groups method is an excellent way of collecting data that is mainly aiming to capture the viewpoints, feelings and way of thinking of people in regards to services, programmes or products. Hence, it is not a method, like brainstorming - for example - that attempts to reach common consensus about a topic.

Many are the benefits that can be reaped from the employment of focus groups in qualitative research. The most striking ones (*Stewart and Shamdasani, pp.508-509, 1998; Krueger, pp.34-35, 1994; Morgan, pp.13-15, 1997*) - and indeed relevant to this thesis - are perhaps the following. Focus groups are usually very useful in order to collect data from a number of people in a rapid way and usually with the least possible cost in terms of monetary or time value (if compared to interviewing the same amount of people individually). Also, during the course of focus group interviews the researcher (as a moderator) has the opportunity to question the participants directly and elicit even more data on the spot. As previously mentioned, the focus group method allows the researcher to obtain a very rich, as well as, large amount of data. Probably one of the biggest strengths of the focus group practice is the synergistic and dynamic effect of the whole setting. Within a focus group, participants react to and develop upon the views of other group members, hence producing more results.

Unfortunately though, using focus groups has some negative side-effects as well that may be seen as the opposite of the method's advantages. As Bryman (*pp. 349-350, 2001*) summarises, there are several major limitations to the research done following that particular method. A very practical disadvantage of the focus group method is that the data retrieved, are very difficult to analyse, since a large amount of information can be rapidly produced. Similarly, the

time required for the researcher to transcribe the audiovisual recordings and produce realistic written output can be daunting to say the least; not to mention the added technical shortcomings with the recordings (like variations in the voice pitch or several participants talking at the same time). At a more organisational level, arranging for a focus group can be extremely difficult for various reasons. It is one thing to find people who actually fit the research requirements, another thing to have them agree to participate in the workshop, and it may be quite equally hard to actually experience the participants' presence at the focus group's meeting at a certain place and within a specific time. Another limitation of the focus group method is that there is always the danger that through the proceedings of a focus group, the researcher (if not experienced) can lose control and the discussion focus may swift to other areas, totally irrelevant to the initial research target. Finally, the mere fact that the strength of this method is the group dynamics is equally a limitation to a certain extent, if certain participants (due to their dominant role within an organisation) can actually consume most of the time and do not allow (either simply because they want to speak more or probably because of their presence) the other focus group members participate in the discussion. That situation can severely hinder the output of the focus group exercise.

There are probably two main areas that can affect the reliability of the results obtained by using the focus group research method, which are i) the size of a focus group, and ii) the number of the focus groups. Much has been written on that matter with sizes and numbers fluctuating depending on the needs of each particular research programme. In regards to the size of a focus group it seems that 6 to 10 people would suffice (*Krueger, p.6, 1994; Morgan, p.43, 1997; Folch-Lyon and Trost, 1981*). Overall, having smaller focus groups the researcher could have a much clearer reaction from the participants, simply because they have more time to talk. Having said that, the larger a group is the more data is likely to be output. As far as the amount of focus groups to be used within a particular programme is concerned, at least two focus groups are needed, and usually three or more should be undertaken (*Bryman, p.341, 2001; Morgan, p.43, 1997*). Broadly speaking, to ground a whole research on a sole focus group is not recommended. In fact, the results of single focus group based research can be misleading, as the data retrieved may have been influenced by the composition of a particular group of people and its specific

group dynamics. If the groups are two and the results appear similar then it is safer to conclude that the group dynamics did not affect the output. In the case that the results do not seem alike, then maybe saturation has not been reached and a few more focus groups are needed.

Finally, apart from the reliability of the results, the validity of this research method is directly affected on whether 'it is used carefully for a problem that is suitable for focus group enquiry' (Krueger, p.31, 1994). In this dissertation's case focus groups are used in Phase 3, which primarily deals with the evaluation and validation of a research tool. Vaughn et al. (p.28, 1996) suggest that the focus group method can be used for the development, completion and evaluation of tool prototypes. Puchta and Potter, talking from a Marketing science perspective (p.7, 2004), append that the use of focus groups is applicable in cases where the research question involves the evaluation of a product or service, which may be argued that is applicable in this research as well. Similarly, the focus group method can enhance the vocabulary used for the research construct and its applicability in the 'real world' (Vaughn et al., p.28, 1996). Also, this doctoral programme's research nature is exploratory and is looking for the leads (by using the tool as a vehicle towards achieving that) in generating some new theory in an area within the eGovernment domain that not much has been said before. Focus groups are suitable, and have been used, (Wilkinson, 1998) in exploratory research for both generating hypotheses as well as further exploring a given research analysis.

3.4.3.2 SCENARIOS

Scenarios first appeared in the 1970s as a decision-making support process in the oil and manufacturing industries, such as the Royal Dutch/Shell (Wright, p.87, 2005), whereas before that they have been exploited by the military for strategy-related studies (Ratcliffe, p.129, 2000). The use of scenarios in the eBusiness domain is also popular (Gordijn et al., 2001) whereby they have been used in order elicit requirements for the commercial and technical feasibility of project ideas. Also, scenarios have been recently employed to plan for potential change that the eGovernment programme may introduce to the public sector (Cairns et al., 2004). Similarly, scenario-based research methodologies have been exploited in the fields of HCI research (Rosson and Carroll, 2002) and eDemocracy research (Whyte and Macintosh, 2003). In the

latter two cases scenarios are used as narratives so as to communicate ideas/designs to real users in an easy to comprehend non-technical format.

There are several different scenario definitions, depending on the nature of the domain within which they are applied as well as the rationale behind their employment. An annotation of a few diverse scenario definitions is presented by Ratcliffe (pp.129-130, 2000). Carroll and Rosson (p.185, 1992) provide us with a comprehensive definition stating that 'each scenario is a description (in text, in a storyboard, etc.) of the activities a user might engage in while pursuing a particular concern'. Ultimately, the scenario method aims to provide a projection of future possibilities within which is to be examined how an organisation has to operate. Following Wright (p.88, 2005), the '*chief attraction of scenarios to organisation strategists has traditionally been as a tool that facilitates decision-making under conditions of uncertainty and ambiguity*'. It is not a forecasting method with a strict sense, but a way to project the future. Indeed, scenario methods have to be simple enough to be understood and effective (Mercer, p.33, 1995).

Fahey and Randall (1998) classify scenarios as i) global, ii) industry, iii) competitor, and iv) technology. Within this research, scenarios would probably fall under the fourth category as they can be used to help take better technological decisions by better understanding the potential opportunities. The scenarios used in this research are not strictly defined like scenarios exploited for requirements engineering (for example, Gordijn et al. 2001) purposes. This thesis constructs and applies scenarios in a narrative way. By '*encountering and interpreting such narratives, actors appreciate themselves and engage in constructing meaning in their own lives*' (Wright, pp.89-90, 2005) and hence, it is possible for the researcher to capture an instance of a real-life event. As such, the main reason why this research programme includes scenario in its research methodology is to provide a realistic, yet futuristic, context within which real domain (eGovernment) users will have the opportunity to use and evaluate the researcher's ideas (in the form of a research tool). It is therefore a test bed for ideas and further development of related theory (Ratcliffe, p.131, 2000; Wright, p.95, 2005). That proving ground platform '*serves as a description of the "universe" of the information need situation in which the user is supposed to see himself*' (Borlund and

Ingwersen, p.228, 1997) upon which the 'real user' formulates his/her viewpoint about the research tool.

3.4.3.3 PROJECTIVE TECHNIQUE

Although the researcher knows what a tool represents, that may not be the exact case for the real domain user who is going to use such an item. To cover that gap, a projective technique may be used. By doing so, the real user's understanding of the tool may be elicited. Such domain perceptions may reveal particular inclinations, needs or hopefully a broader worldview (*Fetterman, p.486, 1998*).

Projection techniques came to surface within the discipline of psychology as early as in the year 1911, when Sigmund Freud was looking at the mechanism of paranoia (*Lilienfeld et al., p.29, 2000*). Apart from extensive use in psychology, variations of projective techniques have also been used in areas such like consumer/market research (*Gordon and Langmaid, 1988*), management research (*Easterby-Smith et al., 1991*), and education (*Boddy, 2004*) for teaching improvement purposes. There exist various techniques that fall under the 'projective' umbrella, and usually they either prompt users to exemplify presented ambiguous stimuli or ask the participants to respond - in a free manner - to open-ended instructions (*Lilienfeld et al., p.29, 2000*).

Fetterman (p.486, 1998) explains that projective techniques should always be used in a complimentary fashion and not as the main method for research data elicitation. In fact, data retrieved through projective techniques have to be triangulated in order to achieve reliability (*Donoghue, p.50, 2000*). And *Donoghue* adds that '*projective stimuli are often used in conjunction with individual interviews, and focus group moderators also use projective stimuli to enhance focus-group discussions*', which is exactly how such method is used in this research. *Donoghue (p.51, 2000)* also argues that projective techniques fit best at the beginning of a focus group discussion, so as to 'break the ice'. Adding to the above, *Lilienfeld et al. (p.55, 2000)* express their view that projective techniques are seen as having poor validity mainly because of suboptimal design and construction. Having said that, the main strength of using a projective technique is the richness and the accuracy of the data they produce (*Wagner, 1995*).

Within that context, this research methodology exploits a plain method, projective-styled, so as to retrieve as plenty information possible about the real users' opinion - or better, first impressions - in regards to the realism of the research tool. Such 'realism' may be multifaceted, entirely depending on the users' contribution, which usually can be related to the vocabulary used within and the appearance of the research tool. It has to be stressed here that the author of this thesis is using the term 'projective technique' in a loose kind of fashion. Hence, to overcome the likely reliability and validity shortcomings, such method is used only as a secondary method and amongst other more valid mechanisms.

3.4.3.4 GRID INTERVIEW

The A4 Grid interview method may be described as a system that is built up of interconnected constructs. Each of such constructs consists of several elements. In effect each construct is based on a postulate and a number of corollaries. Ideally, it is expected that the A4 Grid method can represent an individual's perceptions, helping to focus analysis and making it easier to communicate such perceptions. The A4 Grid is highly structured; however its contents are determined freely by the respondents. Therefore, it may be assumed that it can pose a form of structured interviewing that provides specific descriptions that are free from the interviewer's personal bias. In essence, the A4 Grid allows the research participants to tell the researcher of their worldview in a highly structured manner.

It must be stressed here that the constructs and elements are not elicited from the domain users, but rather provided to them. With that in mind the following A4 Grid interviewing characteristics may be observed. The respondents are given the opportunity to comment the particular elements of a construct, thus providing a representation of what they think about the element(s). As it is shown later in this chapter the constructs are assessment criteria and the elements are purposes of a research tool used within a particular context (the topic of each grid); and the respondents (eGovernment domain users) provide their comments in a free manner.

Moreover, this research method may deliver the following benefits. It is a method that can be entirely based on each individual respondent's framework,

thus avoiding the researcher's bias. Finally, grid interviewing provides insights for both the researcher and the researched. That third advantage is probably the sole benefit achieved within the research programme of this thesis. It has to be stressed here that there is one other perceived benefit that the author feels adding. The main reasons why a variant of the grid interview method has been employed for this research, is the fact that it is a quick way to receive simultaneous qualitative results (the opinion of the respondents) about a given topic (the research tool) in a very structured way. On the other hand, probably the two grid-based method disadvantages that could potentially affect this research are the following. Firstly, the retrieved results can be rather packaged and less meaningful, since the participants rely on the structure of the method. And secondly, it is a method that can be used mechanistically and thus any constructive criticism (on behalf of the research participants) that is beyond the boundaries of the A4 Grid (as the researcher set them) may be excluded.

In the case of this research programme, the constructs for the grid are given rather than elicited. As far as reliability is concerned, it is expected that the results obtained can be meaningful and significantly related to the individual's behaviour. One pitfall, potentially damaging to the reliability of this method, maybe the context within a particular individual is asked about a construct at a time. In this case in order to tackle such limitation, the author employs the scenarios, which aim to put the respondents into a given state of mind (*for more on scenarios read earlier in this chapter*). Perhaps, the best way to examine the A4 Grid method's validity is to examine the usefulness of the employment of such method and what value it offers to the researcher's understanding about a topic. The grid-based interviews attempt to capture within a restricted amount of time as much qualitative information possible in regards to the research tool.

3.4.3.5 QUESTIONNAIRE

During Phase 3 of this research programme and as part of the scenario-based focus group workshops, questionnaires have been utilised. The method of posing written questions to domain users is very common in qualitative research and its main purpose is to '*measure some characteristics or opinion of its respondents*' (May, p.65, 1993). There are structured questionnaire designs (Jankowicz, pp.269-298, 2000), where the content and possible sequences of

the questions have been pre-determined. On the other hand, there are also questionnaire designs that may have open-ended questions, whereby the participants are free to answer fully in their own words (*Spata, p.228, 2003*). In fact, there are many different variations on how to design a questionnaire and each of them carries advantages and disadvantages.

Within the scenario-based focus group workshops, a relatively semi-structured questionnaire approach is used. It is semi-structured in the sense that all participants have to respond to the same list of questions and within the same period, but also is given the freedom to respond freely in a narrative way. According to Bryman (*p.143, 2001*) the advantages of such approach can be the following. Because no standardised reply options are given, the respondents are free to answer in their own terms. As a consequence, unusual responses may be derived, thus enabling the researcher to discover areas that has not previously considered. Also, if carefully designed, the open ended questions do not 'tap' the respondents within a specific frame of reply. Moreover, open-ended questionnaires are excellent for exploratory work in new areas of knowledge, and indeed the responses retrieved by them can guide a further design of structured - more specific - questionnaires. On the other hand Oppenheim (*p.115, 1992*) annotates some major disadvantages that come along that questionnaire design. First, they can be time-consuming to prepare as the questions have to be well thought, but also time costly in terms of analysing the data retrieved. Similarly, since there is no pre-definition of the responses, there has to be devised a coding mechanism for categorising and analysing the results of the questionnaire; that can be a slow process with questionable reliability. Finally, presenting a list with open-ended questions to a bunch of respondents can look intimidating, as requires more mental effort on their behalf.

Talking about reliability and validity of the questionnaire research method, Fowler (*p.344, 1998*) argues that it all depends on how well a particular questionnaire satisfies the following five characteristics:

1. *'Questions need to be consistently understood.*
2. *Questions need to be consistently administered or communicated to respondents.*

3. *What constitutes an adequate answer should be consistently communicated.*
4. *Unless measuring knowledge is the goal of the question, all respondents should have access to the information needed to answer the question accurately.*
5. *Respondents must be willing to provide the answers called for in the question'.*

3.4.3.6 WORKSHOP REASONING

In addition to the literature review and the domain experts' interviews, a major part of the research methodology used within this programme is the scenario-based focus group workshops (in Phase 3). Individual methods used within the workshop process were explained earlier within Section 3.4 of this chapter. The paragraphs below demonstrate the main rationale behind this methods' blend.

The focus group method ordains the focal setting of the workshop. Primarily, this is so in order to achieve enhanced representation, since a number of actual users are gathered. Also, it is an excellent way to retrieve data from multiple sources at the same time, hence achieving increased information productivity within limited time. Speaking of data, due to the expected group dynamics' influenced participants' interaction richness of data may be achieved. Moreover, having a number of domain users within one setting makes it easier for the researcher to observe and capture (through camera and Dictaphone) the participants' behaviour and responses in regards to the research tool. Finally and as discussed earlier in Section 3.4, the focus group method complies with the chosen research approach. On the other hand, the scenario method in order to 'guide' the focus groups is employed primarily because it provides a realistic context within which the research ideas are presented.

Following the workshops' structure, as described earlier in part 3.4.3, there is one research method used for a 'before use' evaluation, and three research methods for the 'after use' appraisal by the participants. Within that framework, a projective-style method is used, which aims to capture the first - before use - impressions of the participants. Such method allows the participants to provide comments in a free manner and hence supply the

researcher with rich data. At this stage, such data usually reflect on state of realism of the research tool in terms of language and context. Additionally, this method allows each respondent to reply free of any group dynamics partiality.

During the 'after use' appraisal part of each workshop, each participant is asked to fill in a grid-based questionnaire. In this way, a number of individual responses are produced within a rapid amount of time. This mini-survey method provides individual (hence unbiased from group dynamics) replies in a highly structured way. Therefore, the data can be easily compared amongst the participants. Finally, that is a method complies with the qualitative nature of the research and primarily targets the main purposes of the research tool. After that, the workshop's participants are asked to complete a questionnaire, which allows the researcher compare and contrast the gathered data. Having said that, since there is no multiple choice or boxes to tick, the users are - to a certain degree - free to narrate freely under each question, and hence to provide the leads for further exploration. This method also complies with the interpretive nature of the research programme, and it is free from focus group dynamics bias. The last section of each workshop is an open discussion, relatively unstructured (only few probes are used to frame the discussion), which allows the researcher to retrieve group dynamics' influenced information. Such data are usually rich in terms of volume, but can also uncover areas that have not been previously considered. A table summarising the reasoning behind the inclusion of certain methods and methods within the Phase 3 of this research programme is shown on Table 3.1.

Table 3.1: Workshop Reasoning

FOCUS GROUP SETUP	SCENARIOS	PROJECTIVE TECHNIQUE	GRID INTERVIEW	QUESTIONNAIRE	FOCUS GROUP DISCUSSION
Representativeness	Realistic test bed of ideas	Before use appraisal	After use appraisal	After use appraisal	After use appraisal
Data richness		Data richness	Rapid data capture	Higher volume of retrieved information	Uncovered issues may arise
Productive over limited time		Free from group dynamics bias	Data can be compared	Data can be compared	Data richness
Participants' observation opportunity			Free from group dynamics bias	Free from group dynamics bias	Group dynamics influenced
			Research approach compatibility	Research approach compatibility	Research approach compatibility

3.4.4 REFLECTION ON THE RESEARCH METHODS

The research methods section of this chapter would be useful to conclude with a critical reflection on the way such methods were used in this research. In essence, this will be a brief discussion on the 'things' that have not been done, but should have been done in regards to the employed research methods. Reflecting by hindsight, on the research methods used throughout this research should be enough to demonstrate that the author of this thesis appreciates any potential shortcomings and omissions. Such reflection appears to revolve around three issues of interest, namely the: a) triangulation of data, b) management of bias, and c) call for a broader multi-method approach.

It is not very clear how the triangulation of data has been achieved by mixing the domain experts' interviews with the data retrieved through the workshops' stage. In fact, the first stage of this field investigation would have achieved better convergence of evidence if the selected domain experts shared more common characteristics. On the other hand, the methods employed throughout the workshops' stage do achieve better triangulation of data. That is evident from the table (Table 3.1) shown earlier above, where it was demonstrated how the various methods complement each other in order to extract useful data. A criticism to that could of course be the fact that such triangulation is more methods related rather than data related. Perhaps the best tactic to tackle the problem would have been a third field research stage, whereby the

'facts' that have been deduced from the previous two stages were now being evaluated by the domain experts that initially participated in this research.

Equally, there is not enough evidence on how the research methods employed throughout this research tackle the issue of bias. Again, the table shown earlier above (Table 3.1) highlighted that the multi-method approach taken within the workshops' stage, could successfully alleviate the potential bias on behalf of the participants. However, there is no clear strategy taken in order to manage the potential bias of the researcher. Ideally, two tactical changes in the way the research methods were used could manage any potential bias on behalf of the researcher. One such tactic would be to employ a more open-ended approach (instead of the semi-structured based interviews) towards asking questions during the domain experts' stage, as well as during the workshop. Equally, an important step that should have been taken would be to allow the field research participants read and comment on the interpretation of the evidence deduced by the researcher.

Resulting from the above, it could be reflected by hindsight that a better multi-method approach would perhaps have been more beneficial for this research. This research could be characterised as 'discovery' and as such a more open approach in the field investigation would be better. The employment of open-ended interviews would therefore extract more unexpected data from the field, as opposed to the rather 'guided' evidence produced through the use of semi-structure interviews and prepared questionnaires. If the workshop methods were less 'structured' and more open, combined with open-ended domain experts' interviews, this 'discovery' research would have produced more revealing unexpected evidence. Equally, and as discussed earlier in this part, there should have been a third field investigation stage during which the domain experts would express their opinion and evaluate the findings of the earlier field research stages. In that manner, the findings derived from the field research would have been more rigid.

3.5 TOWARDS A RISK MODELLING TOOL

This thesis uses a prototype risk modelling tool as a probe in order to answer the fundamental research question posed earlier above. Such risk modelling

tool is the outcome of the literature survey as previously expressed, and is by no means exclusive. It has to be borne in mind that this risk modelling tool is used more as a 'vehicle' in the journey towards a satisfactory reply to the research question, rather than an end to itself. In other words, it is not this thesis' prime focus to develop a risk modelling tool that is probably more advanced than other similar tools.

In this section's parts that follow the risk modelling tool is going to be presented. As it will be shown this research tool consists of two components; i) the *eGovernment Services Risk Taxonomy*, and ii) the *Framework for Risk Modelling in Government Services*. Both these parts have been extracted through thorough literature survey in the area, which has been presented earlier in this chapter.

3.5.1 EGOVERNMENT SERVICES RISK TAXONOMY

Looking back in Section 2.6.3 and the brief description on the scorecard approach for eGovernment evaluation, as well as the Design-reality Gaps method (2.11.5) and Simple Factor Rating (2.11.7) it can be deduced that a categorisation of risk based on risk factor categories and high level grouping can be beneficiary. Similarly one of the propositions made in the conclusions of Chapter 2 dictated that an eGovernment risk modelling tool should somehow provide a risk classification. Moreover and by following the extensive discussion on eGovernment risk above, it is easy to produce a risk taxonomy for eService projects. As such, with the aid of Table 2.5 the following figure (*Figure 3.2*) may be produced. Effectively it is a way of categorising risk factor categories under wider project related categories, such like: i) *people* - the human/social aspect of the project, ii) *strategy* - the high level vision of the project, iii) *design/implementation* - the more technical side of the eService, and iv) *deployment & acceptance* - referring to the issues pertinent to the project once it is implemented.

The eGovernment Services Risk Taxonomy serves a number of purposes. The main reason behind it is the fact that it can structure the various risk issues surrounding electronic transaction service projects for the public administration. More specifically, that taxonomy encompasses a number of risk factors that have been identified through the discussion in earlier sections of

this chapter. By employing such risk factors there is the potential to measure (in any future risk assessment exercises) the probability and the impact, as well as assign ownership, of the risk. In other words, that taxonomy may be the starting point for risk identification (and consequently risk assessment) in eService projects. It aims to formulate a pool of knowledge that could be exploited to generate risk statements for future risk identification and assessment exercises; posing the 'engine' that 'runs' the risk modelling tool. Furthermore, such a taxonomy may also provide the foundation for a common vocabulary of the government services (and their issues) that may ultimately help people working in that field to communicate in a more efficient way.

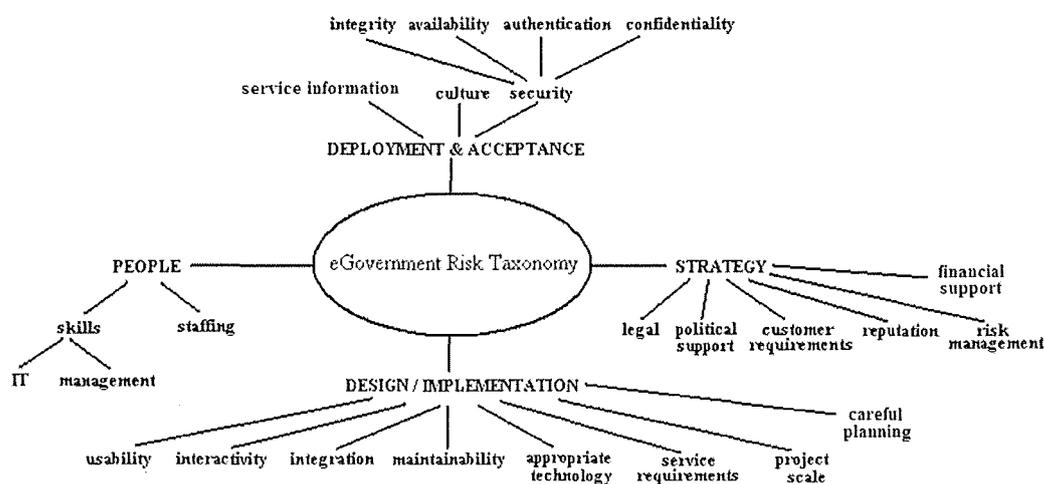


Figure 3.2: eGovernment Services Risk Taxonomy

3.5.2 FRAMES - FRAMEWORK FOR RISK MODELLING IN EGOVERNMENT SERVICES

The Framework for Risk Modelling in E-government Services (or FRAMES) aims at the provision of the foundations for efficient risk modelling in eGovernment services, by providing definitions for components in the domain. Following Montagna (p.209, 2005), "frameworks are useful because they allow us to organise and integrate the various elements of a problem in a simple and consistent way, assuring the attainment of the pursued outcomes. In addition, they allow holding a common work discipline." Also, FRAMES tries to bridge the gap between very broad discussions on risk or too specific risk assessment tools for eGovernment, as identified earlier in Section 2.11.9. Therefore, FRAMES

attempts to bring risk modelling at an operational level by showing functional areas of a typical eService project, without being too elaborate.

Many authors appear to agree on the fundamental stakeholders of eServices for the government. Dridi et al. (p.100, 2001; also in Oberer, 2002) present eGovernment as an interface between citizens, businesses, and government. Similarly, Krenner (2002) and Heinderyckx (2002) identify the public administration, citizens, and businesses as the main groups of eGovernment stakeholders. Hodgkinson (2002) takes things a little further by referring at inter and intra-departmental sharing and common interface to citizens. Tambouris (2001) describes eGovernment along the same lines. Looking from an operational point of view, he argues that three are the main eGovernment users. It is the citizens and companies who are the end users, as well as a central government authority responsible for the services. The third main user is any other public authority required for 'local service repository' administration.

Taking the above into consideration and after examining the models (*especially in sections 2.4.4 and 2.4.5*) of eGovernment in the discussion about eGovernment models earlier in Chapter 2, FRaMES may be designed. Within FRaMES (*Figure 3.3*) an eGovernment transaction service project may be seen to have three main subsystems that interconnect four main modules of the transaction service project. These four main modules are: i) the *customers*, ii) the *eService*, iii) the *organisational level*, and iv) the *intra-organisational level*. The 'customers' module primarily refers to the end users of the eGovernment service. Such users may be citizens or businesses (and/or in some cases other governments) that interact with the front end of the system.

The second main module of FRaMES is the eService itself, which is divided into two main parts, namely:

- a) The *front end* that is the main application/function, which the customer is interacting with; and therefore, as Lenk and Traunmüller (p.4, 2002) put it, it is 'customer-centred'. According to the OECD (p.73, 2003) it is what the constituents see, which refers to the "*information and*

services provided and the interaction between government and both citizens and business”.

- b) The *back end* that denotes the point where the eService interacts with the ‘parent’ organisation. The importance of the back end (*also described as back office*) for eGovernment success is discussed in Bekkers (1998). Such organisation may be the public authority carrying the responsibility for the service, as well as other organisations that contribute, share information, interact with the eService. In other words that part is about the internal operations of an organisation that support core processes and are not accessible or visible to the general public (OECD, p.87, 2003); and consequently it is ‘task-driven’ (Lenk and Traummüller, p.4, 2002). Overall the back end is regarded as the Government-To-Government interaction (Homburg and Bekkers, 2002), though within this thesis it is understood that non-government organisation may attach to it.

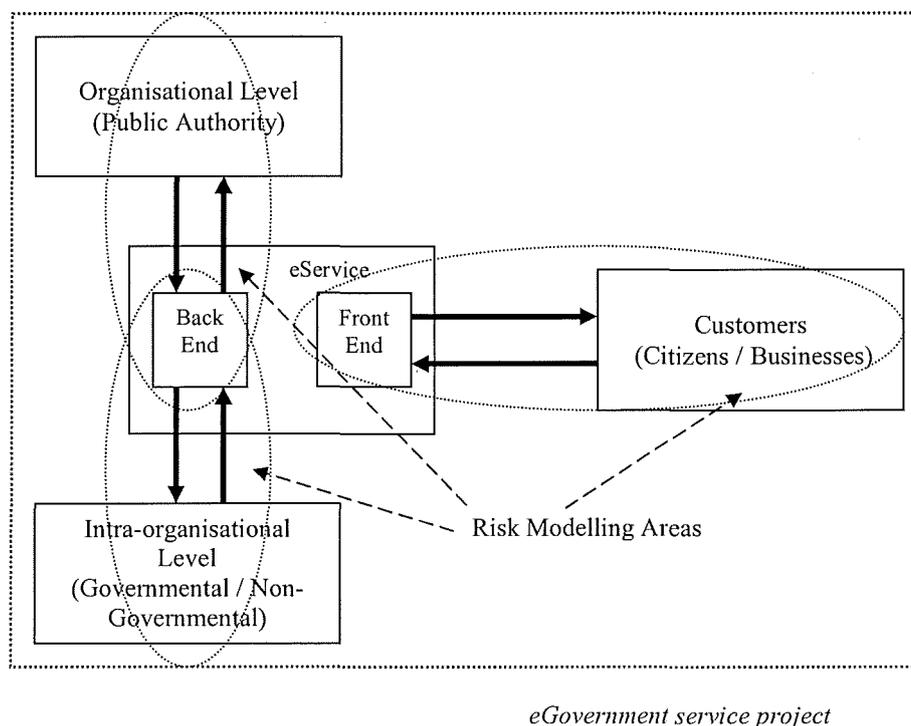


Figure 3.3: FRAMES

The third main module within FRaMES is the organisational level and it basically refers to the public authority that is responsible for the development of the electronic government transaction service. Within that level, the main actors / functions that support or develop the electronic transaction service can be found. Finally, the fourth main module within FRaMES is the intra-organisational level that usually entails, other than the public authority, organisations (governmental or non-governmental) that are needed to support or develop the eService.

As mentioned above, within FRaMES there are three major subsystems that are formed between the modules of the system. One such subsystem is formed by the connecting relationship of customers and the front end of the eService. A second one is shaped by the connecting relationship between the organisational level and the back end of the eService module. And finally, a third such subsystem is created between the back end of the eService module and the intra-organisational level. Such subsystems are crucial in order to better 'customise' any future the risk identification process within an eGovernment transaction service project.

3.5.3 AIMS AND USE OF THE RISK MODELLING TOOL

Tagging along the lines of the research question (*as expressed in Section 1.2*) the proposed risk modelling tool tries to improve the understanding of eGovernment services and assist in the identification of risk. More specifically, the main aims of the risk modelling tool can be summarised in the following statements:

- To provide a holistic view of an eGovernment project's risks at an early stage.
- To support the identification of risks involved in the development of eService projects.
- To support decision-making by increasing the awareness of typical issues surrounding eGovernment service projects.
- To assist towards a suitable answer to this thesis' research question.

It is envisioned to be used at the pre-proposal stage of a potential eGovernment project and therefore it is assumed that senior decision-makers will use it. They will use it as part of a wider exercise considering costs and risks, and benefits, in order to assess the worth of a potential project.

Moreover, the tool may be used to identify high-level risks that can impact on the project. The tool can aid to categorise them accordingly and thus enhance any later risk assessment exercise. As such, each of the decision-makers will have a look at the risk-modelling tool and identify areas of concern (*for example 'customer'*) associated with the eService. Such areas may be linked (subject to individual decision-maker's discretion) to a particular risk factor (*for example 'IT skill'*). Under that risk factor category, one or more risks can be identified. Those risks can be expressed as risk statements put in a positive manner, for example *'Customer has IT expertise to use the system'*. That follows Keizer et al. (p.217, 2002) argument that positive statements should be preferred from negative statements when identifying risks. It is so, because *'negative framing of risks induces more positive perceptions than positive framing'*. Hence, people tend to respond in a more cautious manner and they do not appear to accept the risk too easily. The decision-makers then enlist their risk statements and use such lists to support their decision-making process during the feasibility study stage. Such risk enlisting can either feed into risk register, or it could be used by the decision-makers to support more fully the reasoning behind their decisions, or both.

3.5.4 POTENTIAL BENEFITS OF RISK MODELLING IN EGOVERNMENT

Certain benefits are expected to be reaped from the introduction of the aforementioned risk modelling tool in eGovernment projects. By looking at a series of potential risks within certain areas of eGovernment services, an overall reduction in risk exposure may occur. Such tool should also aid in the improvement of decision making, since there shall exist a comprehensive and structured understanding of the activities, opportunities and threats involved in the project. Furthermore, following a common eGovernment risk modelling guide, project managers may carry out future activities in a consistent and controlled manner. The benefits of systematic eGovernment risk modelling are also expected to improve the control of project costs, quality and time, factors that are extremely important, since they are the precursors for the balancing

of 'side-effects' such as citizens' satisfaction, public authorities' image and others. eGovernment is surely a quite modern concept and therefore its evolving terminology is still not 'standardized', meaning that eGovernment managers might be using different terms whilst talking about the same subject, which results to undesirable effects. Fortunately, with the introduction of a holistic risk modelling tool people involved in eGovernment project development may now follow a common terminology; thus better communicate about various eGovernment issues.

More specifically, it is expected that this risk modelling tool may provide numerous of positive outcomes to the users. First of all, the tool should act as a template which would show the main sources of risk that surround eGovernment implementations. Additionally, it could be used as a template for further risk identification in eGovernment projects that could be fully customised for the particular needs of individual projects. Also, that framework is designed to provide electronic government users an integrated systems view of all major issues involved in the identification and analysis of high level risks. The 'whole picture' provided by FRaMES and the eService risk taxonomy should enhance awareness on the various threats and opportunities that are normally associated with eGovernment projects as well as provide the basis for eGovernment developers to further calculate the significance of the various risks and aid them in a better decision-making process.

3.5.5 RISK MODELLING TOOL POTENTIAL APPLICATION

This thesis' part will discuss on the potential use of the risk modelling tool in reported cases of eGovernment project failures. The rationale behind that is to demonstrate the potential applicability of the tool within actual situations and how it could aid towards the identification of risks that really materialised, playing a part in the overall project failure. It has to be emphasised that this thesis does not claim that such projects would be a success had the risk modelling tool been used. The focus should be on whether the risk modelling tool could have some relevance in the failure case studies. To achieve that, the following few paragraphs shall refer back to cases of eGovernment project failure that were identified during the literature survey phase (*as seen in 2.8.3*) and will attempt to show how the risk modelling could fit in those cases.

Looking back at the eService risk taxonomy as well as FRAMES, it can be said that most of the risks mentioned in the case studies discussed earlier (*shown in Table 2.4*) could have been captured. The following table (*Table 3.2*) is an updated version of Table 2.4 shown earlier in Chapter 2, showing categories within the eService Taxonomy that the cases' risks could have been captured.

Table 3.2: Risk Modelling Tool Captured Risks

Case 1: GeorgiaNet
• Lack of ongoing financial support --- <i>financial support</i>
• Lack of effective eService marketing --- <i>service information</i>
• Lack of knowledge of end-users' needs --- <i>service requirements</i>
• No alternative business plan --- <i>careful planning</i>
• Outdated technology --- <i>inappropriate technology</i>
Case 2: Boston-I
• Outsourcing to private organisation --- <i>public-private partnerships</i>
• Lack of knowledge of end-users' needs --- <i>service requirements</i>
Case 3: Brazilian Inter-organisational System
• Lack of end users' basic ICT skills --- <i>lack of ICT skills</i>
• Lack of end users' training --- <i>lack of ICT skills (subject to perception; training as a consequence of earlier consideration of lack of ICT skills)</i>
• Lack of effective service/solution marketing --- <i>service information</i>
• Restricted accessibility --- <i>availability</i>
• Service/solution did not adhere to organisation's culture --- <i>culture</i>

Of course, such discussion is quite subjective and it depends on the way individuals identify risks. For example, in Case 1 there is the incident of the 'outdated technology' risk. One user of the risk modelling tool could have looked at the FRAMES model and identify within the front end/customer relationship a risk that could fall under the risk factor category 'inappropriate technology'. He/she could call such risk 'outdated technology', but he/she could also call it 'immature technology'. Both these cases would refer to different examples that could (or not) equally apply within that context. The factual case though would be that the risk modelling user would have gone through the process of thinking about some kind of 'inappropriate technology' within the front end/customer relationship. That in itself would be beneficiary

if compared with the case when a decision-maker would not even consider the case of 'inappropriate technology' within that eService relationship. Obviously, that does not mean that the projects would not have failed. However it may be argued that having used the risk modelling tool, the decision-makers (who might not necessarily have past eGovernment project experience) could be in a better position to foresee the problematic areas that have arisen and ultimately led to project failure.

3.6 QUALITY CRITERIA

On the presumption that a research design is a logical set of statements, its quality can be judged according to certain logical tests (Yin, p.33, 2003). Kidder and Judd (pp.26-29, 1987) present a set of criteria for evaluating social sciences research designs.

Such criteria are the:

- (i) *construct validity*, which refers to the measuring of the theoretical constructs of interest, and to do so independent and dependent variables need to be defined;
- (ii) *internal validity*, which is the extent to which conclusions can be deduced on the relationships between each of the variables;
- (iii) *external validity*, which is about generalising the results obtained to the broader context of the research hypothesis.

Although Dorsten and Hotchkiss (p.20-21, 2005) discuss about the dependent and independent variables as well, they also point the fact (p.136, 2005) that it is tough to implement a specific reliability and validity quality approach to qualitative research, since there are too many contingencies involved.

Klein and Myers (p.69, 1999) claim that interpretive research within an information systems context '*does not predefine dependent and independent variables*' for at least three reasons. Firstly, such research paradigm focuses on the human sense in an evolving fashion. Secondly, interpretive research in information systems tries to interpret phenomena through the meanings that people attach to them. And thirdly, doing interpretive research in the information systems domain attempts to understand the context of the system

and the process by which that system interacts with the context. As such, Klein and Myers (*pp.70-79, 1999*) present a set of quality standards for interpretive field study in the information systems domain; which this thesis adopts.

The 'Set of Principles for Interpretive Field Research' comprises seven criteria that may be used to assess the quality of a particular research study in the domain of information systems, and hence in the domain of eGovernment. Such seven principles are the following (*cited verbatim from Klein and Myers, p.72, 1999*):

- (i) *The fundamental principle of the hermeneutic circle*, which suggests that all human understanding is achieved by iterating between considering the interdependent meaning of parts and the whole that they form.
- (ii) *The principle of contextualisation*, which refers to the required critical reflection of the social and historical background of the research setting, so that the intended audience can see how the current situation under investigation emerged.
- (iii) *The principle of interaction between the researchers and the subjects*, which refers to the critical reflection on how the research materials (or 'data') were socially constructed through the interaction between the researchers and participants.
- (iv) *The principle of abstraction and generalisation*, which requires relating the idiographic details revealed by the data interpretation through the application of principles one and two to theoretical, general concepts that describe the nature of human understanding and social action.
- (v) *The principle of dialogical reasoning*, which requires sensitivity to possible contradictions between the theoretical preconceptions guiding the research design and actual findings ('the story which the data tell') with subsequent cycles of revision.
- (vi) *The principle of multiple interpretations*, which requires sensitivity to possible differences in interpretations among

the participants as are typically expressed in multiple narratives or stories of the same sequence of events under study.

- (vii) *The principle of suspicion*, which requires sensitivity to possible 'biases' and systematic 'distortions' in the narratives collected from the participants.

The application of this set of quality criteria to this research programme are shown on Table 3.3 (*next page*). Under each of the seven set of principles there is a brief summary of how this research accommodates each criterion.

Table 3.3: Set of Principles for Interpretive Field Research (*adapted from Klein and Myers, p.72, 1999*)

SET OF PRINCIPLES
<p>1. The Fundamental Principle of the Hermeneutic Circle Chapter 1 (as part of Phase 1) of this thesis elaborates on the wider context of risk modelling and its impact on the decision making process during the pre-proposal phase of the eService project development for the government. Within that chapter the fundamental question on the relevance of a risk-modelling tool at that stage is founded and explained. Such research 'idea' started from the observation that a large number of eGovernment projects fail and the perceived eGovernment benefits seem to lag behind. Therefore, Chapter 1 may be viewed as the onset for the consequent research phase; that of the literature review.</p>
<p>2. The Principle of Contextualisation Chapter 2 (as part of Phase 1) of this thesis presents the 'landscape' of this research programme. Issues directly related to the research question are presented and further explored. More in particular, a theoretical foundation (based on literature survey) is developed, upon which the research is based. During this stage, issues like the parent literature, the research problem area, the boundaries of the research problem, and parts of the research problem studied in previous research are investigated and explained.</p>
<p>3. The Principle of Interaction Between the Researchers and the Subjects Throughout this research programme and indeed as is depicted on Figure 3.1, a research tool is designed, developed and assessed. Although initially inspired from the literature review process, such apparatus undergoes further development and enhancements through the feedback received from the interaction between the researcher and research subjects. During Phase 2, semi-structured interviews with domain experts ensure that the research tool is at a state 'compatible' to real life. Additionally, Phase 3 includes a series of workshops whereby participants evaluate and validate the research tool.</p>
<p>4. The Principle of Abstraction and Generalisation Phase 4 expands on the data received through the use of the research tool in earlier stages, and provides a set of guidelines (in the form of a framework). The resulting framework provides some novel theory that, hopefully, adds something new to the relevant body of knowledge.</p>
<p>5. The Principle of Dialogical Reasoning In Phase 4 there is an extensive discussion on the results received through the field work and a comparison of such findings with the expected ones. Such comparison informs and affects the concluding remarks related to the research question.</p>
<p>6. The Principle of Multiple Interpretations Despite every effort is made to keep the topic focused (for example through the use of scenarios), it is inevitable that the research participants perceive parts of the research differently than intended. Issues like the use of certain vocabulary or definitions of specific terminology, as well as the 'gap' between a theoretical model and real life (as understood by the participants) do affect the research. The experience - from the researcher's viewpoint - of such different perspectives and their potential impact on the research are investigated in Phase 4 of this programme.</p>
<p>7. The Principle of Suspicion Although not primarily intending to do so, as Klein and Myers explain (<i>p.78, 1999</i>), this step is not strictly necessary, Phase 4 (in the Conclusions Chapter) does include a discussion on possible 'biases' on behalf of the research participants throughout the programme.</p>

3.7 ETHICAL CONSIDERATIONS

Much has been written on ethics in research (for a rather philosophical approach to it, read *May, pp.41-47, 1993*; for guidelines read *Social Research Association, 2003*; a brief summary on research methods' ethics *Spata, pp.47-56, 2003*; about ethical problem solving read *Sieber, pp.127-156, 1998*). Broadly speaking, it appears that ethics in research revolve around three areas, namely: i) deception; ii) unanticipated changes; iii) control and use of data. Deception is sometimes used to avoid revealing the true nature of a particular study, but it is irrelevant in the case of this research programme as it is not employed at all. Also, the case of unanticipated changes refers to cases where the researcher had agreed (prior to the commencement of the research project) in a written form to specific ethical regulations, and after some time on the project certain methods need be changed; hence there is a danger for breaking the initial ethics contract. Again, in this case, this is not applicable as such pre-arrangements have not been made. The third one, and probably the most relevant to this research is about the 'ethical responsibility of the researcher to not publicise or circulate any information that is likely to harm the interest of the research informants' (*Easterby-Smith et al., p.65, 1991*). One way of getting round this problem is to allow the research participants to fill in a consent/agreement form and provide them with as much information they need in order to be informed enough on the research project's aims. *Jankowicz (p.140, 2000)* suggests that the informed consent intends to let the participants know why they are involved in the research, as well as the fact that they are actually involved in it, and also that all measures are taken to ensure their anonymity and the confidentiality of their arguments/data received.

Potentially, this research could pose an ethical risk to the research participants in two separate cases. The first case, where ethical issues could arise is during the Phase 2 of this research programme whereby field experts are being interviewed. In each of such semi-structured field interviews, the interviewees have been asked verbally (and is recorded in the interview transcripts) whether they wished to keep the interview confidential. The second case where an ethical issue could come to surface is the workshop field research during Phase 3. To tackle any potential ethical problems, the researcher has informed the

workshop's participants on the workshop's aims and procedure prior to the event (*look at the Appendices section for the invitation letter*). Also, each workshop participant has been asked to sign an agreement form, which can be found at the Appendices section.

Following on the reflection on the research methods used (as discussed in 3.4.4) there are two more ethical issues that should have been considered within this section. Throughout the field research stages, transcripts with the data retrieved have been produced. Such transcripts should have been returned to the research participants, prompting them to validate them (if of course, they wanted to). Equally, it would have been ethically appropriate to contact all the research participants and supply them with the findings of the research, so as to allow them to understand how their feedback contributed towards the completion of this research.

3.8 CONCLUSION

This chapter presented and explained the research methods and methods used to carry out this thesis. The discussion started with an analysis on the establishment of an appropriate research approach for this doctoral work. Such elaboration is needed as it is the research paradigm that will pinpoint the suitable methods to be used for a satisfactory proceeding of this doctorate. Equally, a large chunk of Chapter 3 was spent on the description of the conception and development of the research's tool. Also, the research tool's potential benefits and applicability were demonstrated. Moreover, this chapter presented the research assessment criteria that can be used to establish a quality standard upon which the methodology procedures can be judged. Lastly, a discussion on the important ethical considerations surrounding this research programme concludes this chapter. The next chapter introduces and discusses on the thesis' findings as they were captured through the employment of the research methodology that was previously discussed in this chapter.

CHAPTER 4 - ANALYSIS & FINDINGS

4.1 INTRODUCTION

This chapter discusses on the output retrieved from the field research. This is the part of the thesis, where the theory produced at the literature survey stage is tested and further updated. To come up with real-life field data, the thesis exploited the research methodology presented at an earlier chapter and here is the place where the results of such methodology are discussed. Based on the field research results, useful conclusions are drawn and directly affect the thesis' response to the research question posed at the beginning of this dissertation.

This chapter is divided into 3 main sections, namely: i) the domain experts, ii) the workshop on the business case, and iii) the workshop on the feasibility study. The first section presents the findings retrieved from four interviews with key eGovernment experts, carried out in the beginning of this field research. The second part of this chapter discusses on the output produced from a workshop, discussing on risk modelling at the business case stage of eGovernment projects. The third part of this chapter discusses on the findings gathered from a workshop with eGovernment practitioners discussing on risk modelling at the feasibility study stage. Throughout this chapter there is also a progressive update on the research tool's design, which is based on the feedback received from the field research. All three sections of this chapter conclude with a tabular representation of each individual field research stage's findings.

Before delving into the presentation of this thesis' field research findings, the next few sections will elaborate on how the field research data formed the thesis' findings. To achieve that, the various findings' themes that emerged and the coding of the raw data will be discussed. The evolution of issues, such like the risk modelling tool and the pre-proposal phase stages, throughout the field research will also be presented. The analysis segment of this chapter will close with a discussion on the various participants' roles and how they may have influenced the findings.

4.2 DATA GATHERING AND THEMES

The study presented in this thesis involves a series of interviews and two workshops. The nature of the research methods used and indeed the overall research approach followed throughout is qualitative. Therefore, one task for the author of this thesis was to devise a way of analysing the gathered data and putting them in a certain way that creates a meaningful research output. Overall, all verbal and written data are gathered in an orderly written fashion and then categorised within topics and themes that pave the way towards the deduction of pertinent research conclusions.

During the first field research stage, that of the interviews with the domain experts, all data was received in a verbal form recorded with the help of a Dictaphone. Each interview was then transcribed word by word. The workshops' field research stage's case was slightly different. There, only the discussion part of the workshops needed transcribing, as the remaining methods for data collection throughout that second field research stage required from the participants to express their feedback on paper. However, as each workshop involved the feedback of multiple participants, all data retrieved during the various workshop stages had to be grouped together. It has to be stressed here, that the first two workshop data collection methods (initial comments on the research tool, and the A4 Grid) required some extra attention as the comments received were expressed on a rather unstructured, free manner - as opposed to the questionnaire, where the participants replied in a rather more specific way.

Perhaps the most challenging task was to group all the retrieved data in a way that would be most appropriate to produce as many pertinent research conclusions. Broadly speaking, the gathering and interpretation of the data was done in an evolutionary manner; by exploring the wider context first and narrowing down towards unearthing findings that would critically contribute to this study's research conclusions.

The first three interviews shared the same questions that may generally fall within the following four thematic categories:

Setting the Landscape - This category, together with the next one, serves the purpose of guiding the research and pinpointing the focus. It aims to elicit important issues that are likely to arise during eGovernment project development. Potential differences between eGovernment projects and other information systems implementations are examined; as are the various types of eGovernment projects. It is also this thematic category that attempts to get some initial feedback on the potential contribution of a qualitative risk modelling approach within eGovernment projects.

eGovernment Project Risk - Questions asked within this theme attempt to divulge eGovernment risk-specific data. Differences amongst the risks of eGovernment projects are explored. Moreover, this thematic category attempts to pinpoint the domain experts' understanding behind top-level risk factor areas (and therefore assist towards a comparison against the ones identified through the literature survey stage).

The eService Model: FRAMES - This thematic category includes all the data retrieved from the initial field research stage that examined the form of the FRAMES part of the research tool. The main aim of this theme is to capture the participants' feedback in a way that may make the FRAMES component more presentable and realistic. Also this category focuses on the context within which such model could be better exploited.

The eService Risk Taxonomy - As with the latter thematic category, this one also attempts to better the presentation and applicability of a part of the risk modelling tool; in this instance, the eService Risk Taxonomy.

The fourth interview of the initial field research stage started a deeper exploration into the 'timing' of risk modelling. Such 'timing' focuses on what

stage risk modelling and the tool in particular would be most applicable. The pre-proposal phase is - indirectly - investigated and more in particularly the 'qualification of the project idea' (or feasibility study) and the 'planning' (or business case). Moreover, that fourth interview further feeds into the aforementioned thematic categories that refer to the better shaping of the various risk modelling components.

The transcribed data from all four interviews have been gathered and categorised according to the afore-described themes. There is no formal method of coding used within this thesis. However, the data collected during the initial field research stage have been marked informally following a customised method that associated the thematic categories with various text lines of the transcribed interviews. Such 'marking' entailed the assignment of a reference number to a particular piece of transcribed text that corresponded to a topic associated with a thematic category. Once the marking was finished, all such referenced chunks of transcribed text got clustered together. In such way it was easier for the researcher to gather the findings together in a meaningful way. The outcome of such laborious process is shown later in this chapter.

For the second part of the field investigation, both workshops followed the same format. As it was described earlier in Chapter 3 of this thesis, the workshop process followed a series of events, incorporating a variety of data gathering methods. Although such methods were different in style, they all complied with a particular research strategy in mind, that of triangulation and the overcoming of potential shortcomings such like participants' individual bias and/or 'group dynamics' influences. Therefore during different stages within each workshop, similar topics (expressed differently, from multiple angles) were investigated. Just to mention one or two such case; i) the participants are asked about the risk modelling tool's usability both during the A4 Grid (*GA4*, p.B15; *GB4*, p.B17) and the Questionnaire (*Q6*, pp.B19-B20), and ii) the participants respond to the relevance of the risk modelling tool at the feasibility study stage both during the Questionnaire (*Q1*, p.C10) and the Discussion (*D1*, pp.C15-C16) stages. Thus, also the workshop stage of the field research phase collected data following certain thematic categories that were

formed in a way that helps towards the production of valuable findings that lead to a multitude of pertinent research conclusions.

The starting thematic category for both the workshops pertained the design of the research tool. Of course, the case is slightly different between the workshops as they investigate the tool within different contexts (feasibility study and business case stages). However, a multitude of data is gathered within such thematic category; clustered within the topics of: i) level of detail, ii) usability, and iii) design. This thematic category serves the same purpose as the equivalent one during the domain experts' stage, which is to further advance the risk modelling tool and render it more applicable. Equally, the findings entailed within this category may be extrapolated and generalised in order to capture the potentialities of such tool during the pre-proposal stages of eServices projects; which will be discussed later in the conclusions of this thesis.

The second major thematic category for the data collected during the workshops' stage is that of the tool's capabilities; what the risk modelling tool could actually provide during the pre-proposal phase's stages. This thematic category involves numerous sub-categories, as the data recovered from the field are indeed rich. Broadly speaking there are topics covered such like risk identification, categorisation, and project preparation (just highlighting a few), but also findings that prompt for additional capabilities that such tool may be expected to deliver.

The third thematic category of the data gathered during the second field research stage accumulates all the information regarding the employment of the risk modelling tool during each of the pre-proposal phase's stages. The data are gathered within this thematic category following their impact on issues that broadly revolve around: i) risk modelling in theory, ii) risk modelling in practice, and iii) what is required for risk modelling to be adopted.

Again, as with the coding of information for the domain experts' interviews, a similar informal coding method was employed at this stage. As the workshops' data collection process is more complex than the interviews' one, a referencing system is used that distinguishes amongst the various workshop stages, and in

some cases even the participants (for more on that, read Appendix B and Appendix C where such referencing is shown). The referenced data are then 'marked' against the afore-mentioned thematic categories and their sub-categories. Such manner aids in producing findings that are meaningful and lead to the deduction of relevant research conclusions.

The largest part of this chapter presents the findings of this thesis. Such findings are the produce of the categorisation, like afore-presented, of the raw data (*presented in the Appendices*) as they were captured during the field research stage. At the end of each major stage (domain experts, business case workshop, and feasibility study workshop) there is a summary table that highlights the findings of each stage under the following columns: i) expediency, ii) design, and iii) adoption. It should also be noted here that the findings presented in this chapter frequently reference to the raw data as they are presented in the Appendices part of the thesis.

4.3 EVOLUTION OF THE RISK MODELLING TOOL AND PRE-PROPOSAL STAGES

During the Research Methodology chapter there was a discussion on the various phases of this research work (*see for example Figure 3.1*). It is evident from there that the field research starting point is the theory that was built based on the literature review. The first stage of the field research tries to validate that theory and further dig deeper to divulge the research focus. Such focus is further validated and examined later on during the second part of the field research.

That situation is further reflected on the findings of this thesis that are presented within this chapter. The thematic categories (as expressed above and elaborated later in this chapter) of the recovered data from the field clearly show that trend. Perhaps that case is particularly evident with the evolution of the risk modelling; as of course, it was expected from the Research Methodology chapter. As it is later shown within the chapter, the tool continuously evolves. As such, the version of the risk modelling tool after the second workshop looks completely different from the version that was divulged through the literature survey stage. In a similar fashion, the findings guide the focus for the 'timing' of risk modelling. More specifically, the first three domain experts' interviews discuss vaguely about the applicability of the tool

(and to an extent, risk modelling as a whole) during early discussions of eService projects. However, it is the fourth domain expert interview that introduces the notion of risk modelling during the 'project idea qualification' (in other words, feasibility study) and 'project planning' (in other words, business case). The workshops' stage - related findings do further narrow down within each of those pre-proposal phase stages.

4.4 ROLES AND INFLUENCE

As prescribed earlier in the research approach part of this thesis and further described above in this chapter, a number of key participants actively engaged in the field research stage for the purposes of this research thesis. The participants' professional background and their role within their organisations shape their viewpoint as it is expressed in this research. This section will annotate the participants' roles and will elaborate on how such roles may have influenced the quality (qualitative or quantitative) of the data retrieved from the field.

The initial field research stage involved a series of three face-to-face semi-structured interviews and one open-ended questionnaire interview, done through email. The main intention - as is described in the research methodology chapter (*Section 3.4.2*) - behind that was to generate an understanding of the concepts and viewpoints held by people involved in the domain of interest. To achieve that, the selected participants serve the common domain of interest - that of eGovernment - within different environments. The first person that participated at that stage worked at the time for a large telecommunications corporation as a top-level senior employee responsible for eGovernment solutions delivery in Scotland and Wales. As it was expected from the outset, that participant contributed his feedback to this research clearly from a private sector perspective. For example, when the participant was asked to express (*pp.A2-A3*) if there is something unique in eGovernment projects (as opposed to other IS/IT projects) the participant replied in a negative fashion. The participant maintains a stance that if the organisation's customer wants a project (eGovernment or not) such project may be delivered. Throughout that interview very valuable feedback is received mostly as seen through the lens of a senior member of a commercial IT/IS solutions delivery organisation.

On the other hand, the second and fourth domain experts had (at the time of their interviews) a public sector professional background. Both of them were senior members of their establishment. One led the eGovernment department and was responsible for setting the eGovernment of that city council. The other participant was - at the time - responsible for managing the public-private partnership for eGovernment implementation between a large IT/IS corporation and his local government establishment. Due to their professional background both of these domain experts provided an insight to this research from a public sector perspective. That is some quite valuable feedback, because it is these two interviewees that actually elaborate on the various distinct characteristics of eGovernment projects (and their environment) as opposed to other projects. For example, the first one explains (p.A18) vividly about the issue of change within the public sector, an insight that - perhaps - would not be possible to be expressed by anyone not working there. Another case of the way the role of the domain expert influences the data received is probably when the second public sector employee discusses about the various "unique" politically-borne issues that affect the eGovernment projects (*see for example, p.A25 or p.A27*). At this point it may be very useful to note that the actual behaviour of both the public sector eGovernment domain experts is perceived (by the researcher) as noticeably different from the one of the private sector domain expert. The latter one presented himself as quite comfortable, whereas there were moments where the other two appeared to be uncomfortable discussing about certain issues; especially matters regarding (p.A17, p.A19) the political nature of such projects or about the practices followed for such projects (*for example, p.A33-A34*).

In order to achieve a wider perspective on the matters explored in this research, a fourth domain expert was consulted. That domain expert was at the time a researcher of eGovernment at a University in Greece. Although this time it wasn't a face-to-face semi-structured interview, the data retrieved from the questionnaire submitted by that domain expert are very useful. Probably due to the nature of the interview (questionnaire) as well as the academic background of that domain expert, the data retrieved generated understanding about the various concepts that this research investigates. For instance, that domain expert assisted towards shaping various important parts

(for example, the 'Setting the Landscape' or 'eGovernment Project Risk' sections) of this thesis as they will be described later in this chapter.

It is perhaps the workshop stage where the roles of the participants play a dynamic part in shaping the findings retrieved from the field. During the earlier stage of the field research, the background (professional mainly) played a role in the way issues are perceived. In the second stage the participants' role acted more dynamically in the sense that there is a synthesis of opinion at some parts (the discussion stage) of the workshop, as well isolated - and sometimes contradictory - comments in other parts (for example, A4 Grid or questionnaire).

For the purposes of the workshop on the business case stage five members of an eGovernment project development team working within a local government establishment attended. Three of those participants were business analysts, one was a senior eGovernment consultant, and the fifth one was the eGovernment change manager at the public authority, with many years of working experience in that department. On the other hand, one of the three business analysts was a graduate with limited working experience. As it was expected, the results retrieved from the discussion part of the workshop were the produce of group dynamics. For example, it is evident in the video footage (captured with the camera during the workshop) that the "graduate" participant chose a rather passive approach, only replying to comments directed at him by the other members of the workshop. Moreover, the two more senior participants appeared to be guiding the discussion and the focus of the arguments. Interestingly, that case is different during the other parts of the workshop, where all the participants contribute at a levelled extent their opinions that are often diverse.

The second workshop consisted of seven eGovernment practitioners working at a local authority. Three of them were - at the time - business analysts (one junior and two senior), another two were employed as senior software developers, one was a project manager, and the seventh participant was the business change manager. As with the workshop on the business case stage, this one also experiences certain influences depending on the role of each individual participant. Again, that is apparent in the discussion stage of the

event. However, in this instance the discussion appears to be led by the participants who genuinely had a strong viewpoint to express and not necessarily the ones with the more senior role. Interestingly, such positions were also maintained during the other parts of the workshop. However, in the discussion they were kicked off by the participants that felt strongly about them, and then others joined in the discussion. That situation clearly contributes to the findings of this research, as the group dynamics of both the workshops unearthed pertinent issues that would otherwise be left uncovered.

4.5 DOMAIN EXPERTS

The main rationale behind the selection of the domain experts was to include persons with a considerable level of eGovernment experience and within different sectors or positions of responsibility. To achieve that, the thesis' author managed to interview one person from the private sector, two from a local government establishment (but within different positions), and one academic active in eGovernment research.

The first interview took place at the BT Headquarters in Edinburgh on the 21st of October 2003, and lasted for approximately one hour. It was a semi-structured, mostly open-ended, face-to-face interview. The second interview took place at the City of Edinburgh Council in Edinburgh on the 17th of November 2003. That interview was also semi-structured, mostly open-ended, and lasted for approximately one hour. The third interview was conducted over the Internet through a questionnaire that was sent as an email attachment. The questionnaire was returned completed on the 14th of December 2003. The final interview took place at the City of Edinburgh Council in Edinburgh on the 22nd of September 2004. That was a face-to-face interview, which was semi-structured, open-ended, and lasted for approximately one hour.

4.5.1 SETTING THE LANDSCAPE

The purpose of this section is to widely explore the nature of eGovernment projects and set the foundations for deeper investigation more pertinent to the thesis' research question. As such, the main areas of concern when developing eGovernment projects are investigated. Also, it is enquired whether there is anything unique about eGovernment projects, and equally, whether there are different types of eGovernment projects. Finally, the opinion of the domain

experts is sought on the potentialities of the contribution of risk based frameworks to eGovernment service project development. Such enquiries and their findings help in understanding better the wider domain and setting a landscape for further research.

The research initiates with an exploration of the main areas of concern when designing and developing eGovernment projects. In that way this thesis author aims to elicit pertinent issues that are likely to arise during eGovernment project development. It appears that the main areas of concern when dealing with eGovernment projects span across four axes, namely: i) the *business need*, ii) any *project management issues*, iii) related *technology issues*, and iv) *attitude*.

The eGovernment project developers are primarily concerned with the business need of the customer (which quite often is the citizen) (pp. A1-A2; p.A13). There is no point planning for and developing a project if the customer is not going to use it. An eGovernment project has to be useful to the customer and the customer will use it (providing the project is appropriately marketed). Therefore, understanding the customer's true needs (and how the project will satisfy them) is of paramount importance right from the start. From a project management point of view, eGovernment projects seem to be no different for any other ones. The field research reveals that a fundamental area of concern for such project can be the sustainability of the cost (p.A13). More in particular, the source of funding, as well as the manner and level of return of investment from the project itself play an important role. Additionally, a clear and realistic depiction of the project timeframe and/or the efficient planning of priorities are high on the agenda (p.A22). Setting reasonable timescales and defining well-planned priorities are important. Thirdly, the domain experts expressed that eGovernment projects have a technological aspect that usually poses a primary area of concern. For example, the project decision-makers would usually look whether the organisation (usually a government establishment) has the technical ability (p.A13) to design and develop the project. Such capability may revolve around issues such like information (for example, the flow and/or reliability of information) or systems (for instance, the integration of the existing infrastructure with any new systems). Equally, openness to standards and non-commitment to specific providers appear to be

important technical areas of concern (p.A22). Moreover, any technology used has to be mature, stable and user-friendly. Finally, the research indicates that a typical area of concern when looking into the development of a potential eGovernment project is related to attitude (p.A22). That attitude is bi-directional. It can reflect on the perception the project developers have of the potential eGovernment system and what they think it can provide, often overlooking the fact that such system has to provide a service to its customer(s) that is usually the citizen(s). On the other hand, the Public Sector organisation's staff and their attitude towards the new system pose a major concern. It is about civil and/or public servants' accepting (or not) the new way of doing things and adapting to the new status quo.

The field research indicates that electronic government projects are to a certain extent different than other information systems projects. eGovernment projects' nature is primarily more customer-focused (p.A2; p.A13), usually aiming to provide services to citizens. Equally, eGovernment implementations tend to be cross-boundary (p.A13). For example, in the past public sector IT projects were targeting at specific problems within defined areas. Nowadays, eGovernment projects try to tackle issues that may not be narrowly defined. As a result, eGovernment projects appear to be more complicated, as they have to cope with extremely complex business processes (p.A22). Moreover, it is particularly vivid in eGovernment implementations that non-project related factors appear to have an impact to their success. Equally, the long term success (or failure) of eGovernment projects is directly affected by any changes in the political sphere and its intrinsic decisions and actions (p.A22). However, the field research also emphasises the fact that eGovernment projects should not be treated in a different way than any other information systems projects (p.A2). If treated in a special way, they might fail like other 'trendy' projects (the expert elaborating on that argument referred to the alleged failure of the Business Process Reengineering projects) in the past.

Throughout the series of interviews with the domain experts it is highlighted that there are different types of eGovernment projects. It appears that eGovernment projects can be distinguished as *infrastructure* or *service-oriented* ones (p.A22). The infrastructure types of eGovernment projects would involve office automation and back-office applications. On the other hand, the

service-oriented projects would be about the development of end-to-end IT-enabled business processes that result in government to citizen (G2C), government to government (G2G), or government to business (G2B) services. Furthermore, eGovernment projects may be classified following at least five thematic categories (p.A13). First, there are the internal projects, which are about increasing efficiency in the way things work within a public sector organisation. Then, there are the intergovernmental projects that are usually about cooperation between different governmental agencies. Again, the rationale behind implementing such projects is normally to increase efficiency and cut administration costs by saving on paperwork, etc. Moreover, another eGovernment project type category is the 'citizen participation' one according to which the citizens are engaged in decision-making processes. Also there is the 'customer service' kind of projects. Finally, the 'citizen inclusion' types of projects form a fifth category on their own. Citizen inclusion eGovernment projects are about making technology available to everybody within a locality. If seen from a source-funding point of view, the latter two categories of eGovernment projects appear to include different kind of eGovernment projects as well. From one hand, there are eGovernment projects that the end-user pays for and they could be classed as transactional (p.A3). Usually, such project types are centrally based and the public administration funds them through taxation. On the other hand, there are those projects that the citizen pays for directly to the government department (p.A3). Typically, such projects can be passport applications or disclosures of criminal history.

By analysing the above, Figure 4.1 may be sketched providing with a snapshot of the various kinds of eGovernment projects. That image presents the various eGovernment projects in two top-level types; a) the *infrastructure* ones, and b) the *service-oriented* projects. The infrastructure eGovernment projects appear to be distinguished into two categories; a) the *front and back office*, and b) *the digital inclusion*. On the other hand, the service-oriented projects include the following three categories: a) *internal projects*, b) *intergovernmental projects*, and c) *citizen focused*, which can be further distinguished to *active citizenship* and *customer services*.

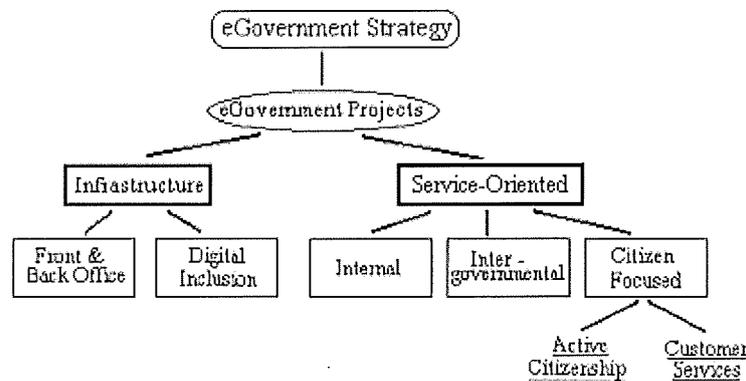


Figure 4.1: eGovernment Mapping

Concluding with the 'setting of the landscape', the domain experts' interviews reveal that the use of a risk based framework may indeed contribute towards the successful development of electronic government service projects. The field research actually indicates that such a framework may help in the qualification of a particular project idea, and effectively assist in avoiding waste (p.A12). A risk based approach could help towards a more rigorous decision on the selection (or not) of a potential project idea that will be seen as a more viable future project. Similarly, a risk based framework would make the delivery of eGovernment projects probably better (p.A12; p.A21). Usually, complete success in terms of project delivery on time, within budget and according to customer expectations does not happen. Any risk based framework should likely lead to better results (p.A21). However, it is also addressed that it all depends on the framework user's vision on how to use it (p.A23).

4.5.2 EGOVERNMENT PROJECT RISK

The interviews with the domain experts divulge that there are indeed different types of risk that are likely to arise in different kind eGovernment projects. One such example could be a 'customer service' project (p.A14). A recent case of a smartcard project was surrounded by risks related to new technologies, as well as issues arising from collaborating with a multitude of different project partners. On the other hand, 'internal' kinds of eGovernment project face their own characteristic risks. For instance, one participant discussed about an e-procurement system and the many difficulties that had to be overcome that were related with finding ways to cope with internal change (of the business processes). Other cases of different type of risks on specific kind of

eGovernment projects that the field research reveals, relate to the 'infrastructure' ones (p.A22). Those kinds of projects are perceived to be less 'risky' than other eGovernment implementations. That is probably because they do not tend to change bureaucratic procedures and/or business priorities. On the other hand - and as one research participant put it - service-oriented projects (p.A22) appear to be more susceptible to risk, as they try to re-engineer the 'mission and vision' of public administrations. Interestingly, the nature of the eGovernment projects in terms of how their long-term costs will be covered is also another variable that defines the types of risks that will likely arise. For example, Private Finance Initiative / Public Private Partnership (PPP/PFI) projects are risky in the sense that the money invested (by the private sector organisation) is to be recovered by the end user (p.A3). That means that there has to be a recognised way of any feedback; otherwise the project will start costing money to the private sector (collaborating with a public authority) organisation. Secondly, on projects where the money is to be recovered on a transactional basis, the return of investment is not very clear and that can be a serious gamble (p.A3).

A close look at the feedback received during the initial field research can also highlight some of the main sources of risk to be found in eGovernment projects. Broadly speaking, the domain experts identify four main sources of risk, namely the: i) *policy*, ii) *need*, iii) *technology*, iii) *project management*. Policy and implementation management have to be closely looked at and recognised for any risk that could be there (p.A4; p.A14; p.A22). Any change of policy can have an impact on the implementation of eGovernment projects. Apparently, every time legislation changes then the technology systems and business case have to adjust as well. A particular example presented during the field research highlights that situation. A customer service kind of eGovernment project regarding property certificates was anticipated to increase a public authority's income by employing online transactions with end-users. However, that eService project failed to meet the expectations due to a legal challenge dictating that end-users should not be charged for using the service. Closely linked to the policy generated risks is also the 'people's intention' risk. It is often the case for eGovernment projects that as they evolve, the original intend within the contract may be read differently by new people or be changed by technology.

The field research also identifies the need for an eGovernment project as another risk-generating source (*p.A4*; *p.A22*). Understanding (or the lack of it) the end-user (usually the citizen) need(s) and carefully appreciating all stakeholders' requirements for a particular eGovernment project can generate problems. If such need is not carefully considered, the project's take-up will be cumbersome and no matter how well designed it is it may fail. Equally, this field research reveals, misconceptions exist about eGovernment projects. Such misconceptions perceive the project as something to 'own' rather than as something to 'serve' and hence miscalculating the actual need for a given project by the customer(s).

The other two risk generating sources of eGovernment projects appear to be related to technology and project management practices (*p.A14*; *p.A22*). Managing IT staff with little or no experience in the dealings of the civil or public service or public authority staff with little or no IT skills is a typical risk source. Similarly, ill-defined priorities due to unclear business objectives also pose a common risk source. Equally, the employment of technologies is a major source of risk. That also includes the potential failure to produce added value from the operation of technology, in cases when information technology infrastructure is seen as the final project outcome.

4.5.3 RISK MODELLING TOOL

One of the prime aims of this initial field research is to explore the applicability of the risk modelling tool; in other words to identify how far from 'reality' the research tool is. Apparently, the research divulges some feedback on both components of the risk modelling tool, namely the FRaMES and the eService Risk Taxonomy. The comments received at this stage contribute to the enhancement of the risk modelling tool, which follows at the next section.

4.5.3.1 FRAMES

One of the two risk modelling tool's components, the FRaMES, appears to look correct according to the initial field research (*p.A5*; *p.A15*; *p.A29*). It seems that it does cover the relevant areas and - overall - looks well. In fact, a research participant employs real-life scenarios to emulate what FRaMES could cover (*p.A15*). According to that scenario, the participant thinks that the eService component is the area he would be looking at. Traditionally, the risks

of the eService component are dealt with internally (within the public authority). Though, in some case the public sector officials try to negotiate on transferring that risk responsibility to their commercial partners, like in the case of an e-procurement system currently in place at the participant's establishment.

However, the research participants require some clarifications in regards to the terminology used in the model. For example, one asks in regards to the 'public authority' and 'governmental/non-governmental' components of the model (p.A4). It is not clear if it is about an individual or the public sector establishment. Moreover, concerns are raised in regards to the eService model design. It is not clear how third-parties can fit in the picture (p.A23). Equally, it is not apparent where 'supporting service providers' such like banks, postage handling, cross-service providers, and others may fit. Therefore, it is suggested that the modelling of one-stop services (1 front-end to n back-ends) and middle-tiers (n front-ends to 1 middle-tier to n back-ends) may be added (p.A23). Another FRAMES update suggestion prompts for renaming the 'intra-organisational level' as 'crosscutting phase' (p.A5). Finally, it is stressed that an overarching component may be added; that of the policy level/change (p.A15). The 'organisational' and 'intra-organisational' levels can be merged under a bigger heading. It is explained that the organisation should be responsible for any risk at the policy level, as the organisation should have the required understanding of the wider environment.

4.5.3.2 ESERVICE RISK TAXONOMY

Broadly speaking, the four main risk taxonomy headings; the 'people', 'strategy', 'deployment and acceptance', and 'design and implementation' appear to cover generic risk issues that are likely to arise (p.A6; p.A16; p.A23). In fact, it is expressed that it is a useful approach (p.A29; p.A31). There is no suggestion for any other ones to be put at that high level. However, the research prompts for a few updates. The 'people' category is suitable, though quite generic. That is because people can cover so many aspects and therefore it could perhaps be proposed for that category to be merged with 'strategy', since people determine strategy (p.A7). Overall, it is suggested that people and strategy may be merged together and put under 'influencers' (p.A7). Influencers are defined as enablers; not as in people. Moreover, it is proposed

that 'deployment and acceptance' and 'design and implementation' represent the project as a whole (p.A7), whereas 'people' and 'strategy' represent the influencers.

Looking into the 'people' risk category several remarks arise from the field research. Examining it from a customer perspective, the following may be stated. A 'customer side' could include the public sector organisation, but also its customer; the end-customer, who is usually the citizen. End-customer's considerations and needs have to be assessed (p.A6). Accordingly, looking into the end-users' skills (IT and non-IT ones) (p.A16; p.A17). Moreover, it is also suggested that the decision-makers and influencers need to be considered. This field research points out that there have to be categories within the taxonomy that prompt for a look into perceptions, drivers, and agendas (p.A8). Such agendas can be of individuals or those of the organisations. All these are very important, because it is a risk not knowing who the players are. And that refers to customers, but more importantly it should be focused on the people working on the project. Although the two key issues (the people and their skills) are already there, the backing from their senior managers may also be added. Persons in roles like chief executives or directors (and possibly politicians) should show their continuous commitment to the project (p.A17). Equally, the field research prompts for the addition of leadership as a risk factor category under 'people' (p.A23).

The domain experts also provide this thesis with their feedback on the 'design and implementation'. Although positively commented it is stressed that the heading prompts for an assumption (p.A9). That category presupposes that the project is right and needs to be designed and implemented. However, it is good that such assumption exists, because it calls for a question to be asked before issues under this heading are examined. That can be translated into the question of 'need' (p.A9; p.A20). Issues related to business or citizen need have to be asked before the design and implementation. Therefore, it is suggested that a potential 'need' risk factor grouping may have two-sub-groups; those of 'business' and 'end-user' need (p.A9). On the other hand, this research suggests that the usability group of risk factors may be more appropriate under the 'deployment and acceptance' category. Furthermore, the 'project scale' group may be further expanded into scale according to

project size, and that related to project complexity (p.A19). It is also emphasised that the integration element is very important for eGovernment projects and that may be further distinguished between data, system, and application integration groups (p.A19). Probably that is what one domain expert referred at when suggesting that the taxonomy may include somewhere the 'interoperability to other systems' (p.A23). The design and implementation appears to cover most areas, though there is a hint for further expansion of the appropriate technology group. In fact, it is expressed that it could possibly be further distinguished between 'maturity', 'stability', 'openness', and 'performance' (p.A23).

The field research reveals some useful remarks for the 'deployment and acceptance' risk taxonomy heading. It is noted that there is a fine line between 'deployment' and 'implementation', and there may be a differentiation between 'deployment' and 'acceptance' (p.A10). Also, 'evolution' is an important issue in eGovernment and it should be covered somewhere within the taxonomy (p.A10). That category refers to the evolution of a particular solution through a series of smaller projects; in other words, it is the evolution of the whole way of doing business. On the other hand, there are some updates that may be made to the taxonomy focusing on issues pertinent to the community; with the end user in mind (p.A18). The issues of training may somehow interrelate with the acceptance side of things as well (p.A18). Additionally, culture is indeed a big issue that needs to be looked at under that heading, but of equal importance is the business change as well. Therefore, the deployment and acceptance heading may include a grouping of change, with the 'cultural process' and 'business process' as sub-groups. The security group appears to be quite appropriate and complete, and indeed the 'deployment and acceptance' looks relatively complete as a whole (p.A18). However, it is pointed out that some groups overlap with the 'strategy' category (p.A23).

Finally, the field research provides this thesis with some feedback on the 'strategy' risk taxonomy heading. The 'political support' can be complemented with another group, such like 'operational support' that may include crosscutting related risks (p.A9). In fact, any such crosscutting related issues may be rather referred to as 'intra-organisational boundaries', which is stressed that is needed under 'strategy'. Moreover, policy (or legal) support

related risks may be put on top of the political support (p.A10). On the other hand, the 'customer requirements' group is not appropriate for the 'strategy' category; it should rather be under 'design and implementation' (p.A9). However, it is stressed that something like 'customer needs or aspirations' may be included at this point. Equally, 'change management' and 'contingency planning' may be placed under the 'strategy' heading (p.A23). Moreover, the level of performance and availability should be questioned under a 'service level management' risk factor grouping. Also, a 'business level management' group may be added, describing risk factors related to the levels of business transactions actually served by the proposed system. Finally, the field research proposes (p.A30) for three new risk factor categories to be included under the 'strategy' heading, which are: i) the 'level of cost', ii) the 'identification of funding', and iii) the 'sustainability of the project'.

4.5.4 RISK MODELLING TOOL UPDATE

Following on from the field research so far, the research tool's parts can be further updated. The FRaMES component may change slightly, most notably in the terminology used. Structurally though, all of the previous components are still there with no new additions. That is so because none of the four domain experts explicitly argued that either of the tool's components is invalid. Therefore, the names of some blocks can be altered as they are found to cause confusion. The suggestion of the experts to include an overarching policy-wide framing is omitted for two reasons. It is possibly beyond the powers of the eService project management personnel (following the assumption that the tool is to be used by project managers) to influence policy matters. On the contrary, policy level decisions appear to have a strong influence on the course of such projects and as such policy level issues can be covered by the appropriate risk factor category in the eService risk taxonomy. As such, Figure 4.2 depicts the updated version of the FRaMES component.

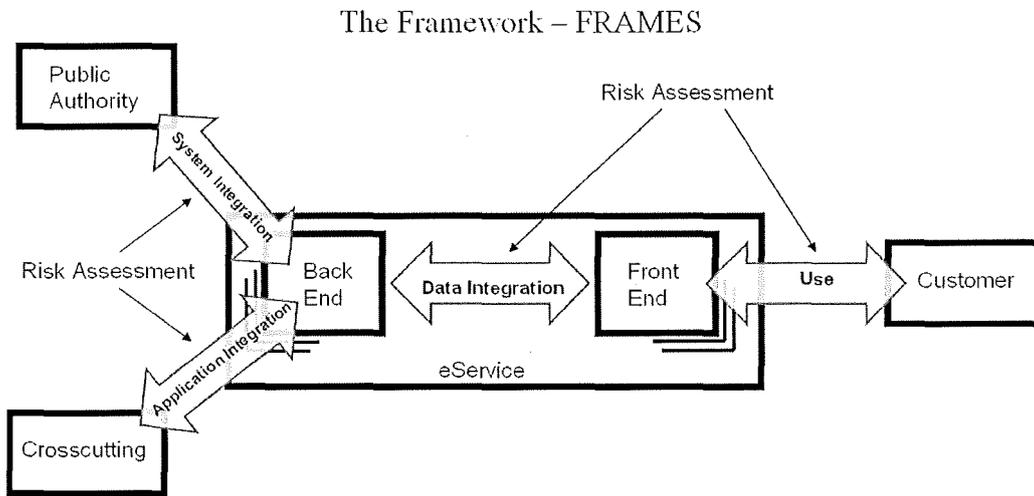


Figure 4.2: FRAMES Version 2

The eService risk taxonomy part of the research tool can be updated to a more considerable extent. That is due to the fact that FRAMES is quite top-levelled and more abstract, whereas the risk taxonomy entails more apt issues that are easier to be discussed. Through the various useful remarks made by the four domain experts the transformed second version of the risk taxonomy is shown in Figure 4.3.

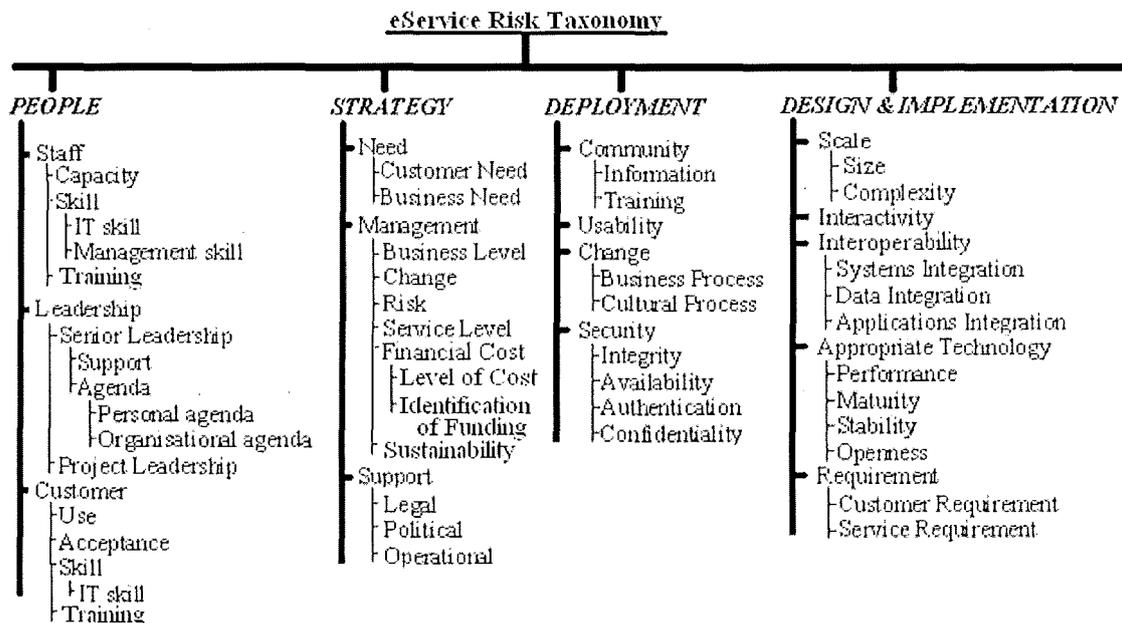


Figure 4.3: eService Risk Taxonomy Version 2

4.5.5 RISK CONSIDERATION IN PROJECT IDEA QUALIFICATION

The field research divulges that new ideas for potential project developments would usually be filtered out through the feasibility study (p.A25). At that stage, the costs and benefits of the proposed project are examined from a high level. It is stated that it is a recent public sector practice to look - during the feasibility study - into the risks of the potential project (p.A27; p.A33). However, it is emphasised that the current norm is for project ideas to come directly - as requests - from political leadership. As such, it is hinted that there is no point in exploring the risks at that stage since the project idea has to progress further no matter what. Although it is equally emphasised that since more of the 'must have' projects are being implemented, new choice-based projects come to surface; and that is where the consideration of risk can actually play a role (pp.A25-A26).

It appears that there are no standard methods being employed at the feasibility study to support decision-making. There are ad hoc assessments of what the new system's output and need will be, its benefits and its costs (p.A27). Such assessments are usually at a very high level (implying that not too much detail is required) and they are usually based on past experience built up within the establishment, as well as a wider IT awareness (p.A28). Again, it is highlighted that eGovernment project ideas are often dictated by the political leadership (p.A25; p.A27). However, due to the failure rate of eGovernment projects it is now recognised that more time and effort needs to be spent at the early stages of project considerations. To satisfy that need, the research reveals that checklist-like methods could be used at the feasibility study (p.A27). Such methods could identify the main components to be tested; and they would be especially valued in Government-to-Citizen projects. That is because those kinds of projects are relatively unexplored when compared to internal ones, such like government-to-Government.

More specifically, in terms of employing risk models for the qualification of the project idea it is stated that there is a high level consideration of risk (p.A12). Such risk consideration is being approached on an ad hoc manner and is not standardised at all. As mentioned earlier, most decision-making (and hence any risk considerations) at that stage is based on previous experience and wider

knowledge based on best practice. The field research indicates that a tool like the thesis' one could be used for the qualification of an eGovernment project idea (p.A29; p.A31). The FRaMES component appears to be able to identify any issues that are likely to arise. Although it does not provide answers, the tool (and more precisely, FRaMES) does help to identify pertinent questions and gets the components down (p.A29). Such questions are particularly useful during the discussions at the qualification of the project idea (p.A12; p.A29). It is stated that potentially FRaMES could be further expanded in order to provide more detail. However, that would be more appropriate at later stages, after the project idea is qualified (p.A29). Equally, it is stated that the eService taxonomy is helpful too. It is a good way ensuring consistency as it provides an approach to break any issues down and pass the idea through a consistent set of criteria (p.A29). That would ensure that the experience and knowledge of the management team is complemented by and streamlined with the taxonomy.

4.5.6 RISK CONSIDERATION IN PROJECT PLANNING

As far as the project planning (or better, the business case) stage, this field research suggests that public authority establishments would have a 'bucket' of ideas for potential eService projects (p.A33). In order to select an idea for further development, issues like sources of funding, central government programme direction, and what the idea accommodates are looked upon. As such, the business case should cover such issues and justify the idea as a candidate project.

One research participant states that in his establishment there is a method that is employed in order to support decision-making at the business case stage. Although the expert does not get into much detail about the method used, he says that it is a hybrid approach developed between the local authority and their commercial partner (p.A34). By using that method, the future project's main components, as well as the level of detail, are identified in order to deliver the business case. Ultimately, that method helps the project management team to convince the project sponsors (for example, politicians or senior city council management) that there is an actual business case in place (p.A34). In order to do that, the method assists in showing where the benefit lies, who will sustain the costs, and what the ongoing costs are. Once the

business case is accepted, all that information will feed into the further project development stages.

It appears that the risk-based method of choice for the consideration of a business case is the risk register (p.A20; p.A34). The business case stage usually entails a sort of list where risks with their probabilities and impacts are enrolled. The population of such risk registers is normally based upon previous experience and current knowledge. Apparently, the risk modelling tool presented in this thesis is found to be helpful at the business case. There, it could be used as a checklist. In fact, it is reported that the risk modelling tool has some relevance to the business case stage as it would ensure that all angles with each process are covered (p.A20; p.A34). However; the risk modelling tool would not be sufficient - on its own - during that stage. It is expected that issues would 'narrow down' and become more specific. Similarly, a template-like checklist would not be of good use at the business case stage, as issues tend to get more project-specific (p.A34). In a nutshell, the risk modelling tool could be relevant in the business case as long as it was more like a register.

4.5.7 SUMMARY

The afore-discussed interviews with the four domain experts provide an insight pertinent to the research tool. Moreover, the response retrieved from the domain experts feeds into the main research hypotheses and directs the path towards answering the thesis' research question. So as to appreciate more fully the domain experts' feedback on this research, a tabular representation of the four interviews' conclusions in regards to the research tool is presented (in no particular order of preference) here. Table 4.1 may contribute towards this thesis attempt to understand the relevance of risk modelling at the pre-proposal stages of eGovernment service projects.

The table shown here is divided into three columns, all of which are referring to the research tool. That tool is used as a stimulus to spark attention and generate response from the domain experts in regards to this thesis' research topic. The first column is called '*expediency*' as it aims to capture what the risk modelling tool does and/or is expected to do. The '*design*' column presents what the risk modelling tool resembles and/or ideally should look like. Thirdly, the '*adoption*' column includes the four domain experts' opinion on whether

such risk modelling tool is currently in place and/or be used within a real context.

Table 4.1: Domain Experts Research Reflection

EXPEDIENCY	DESIGN	ADOPTION
Provides a consistent view of likely issues to be discussed at the feasibility study.	Provides a checklist with issues to be considered.	Risk consideration at the feasibility study is not formal and is being approached on an ad hoc fashion.
Provides a logical way for discussion at the feasibility study.	Identifies the questions to be asked and puts the components down.	Risk consideration at the feasibility study is based on previous experience and wider knowledge based on best practice.
Can aid in the identification of issues that can be overlooked.	Risk registers are employed at the business case stage, including probabilities and impacts assessment.	For politically-imposed (or better, critical) projects, risk consideration is irrelevant at the feasibility study.
The risk modelling tool should 'narrow down' and get more specific to be effective at the business case stage.	Template-like risk checklists are not very effective at the business case stage.	For choice-based projects, risk consideration is useful at the feasibility study.
It could help in the qualification of a project idea, help avoid waste.	It should provide metrics, like overall project risk or risk impacts.	Risk modelling at the business case stage is being used in the form of risk registers.
It should likely lead to better project results.	Risk factor areas that should be looked at include the following: implementation management, policy, customer requirements and need, change, technology, project management issues.	
	To frame the eService the following parts should be included: the policy level, the eService component with two parts; i) the public authority, and ii) third-party of partner part, one-stop services and middle-tiers.	
	The four main risk factor categories ('people', 'strategy', 'deployment & acceptance', 'design & implementation') are generic enough to cover most risk generating areas.	

4.6 WORKSHOP ON THE BUSINESS CASE STAGE

This section will discuss on the findings of the business case stage workshop. The workshop took place on the 29th of December of 2004 at the Merchiston Campus of Napier University in Edinburgh. The workshop lasted for nearly two hours (with a ten minute break) and was held in a small room, where the facilities included a data projector for the presentation phase of the workshop, as well as an audio and video recorder for the capturing of the event. Apart from the participants and the researcher, an assistant also attended the workshop that was responsible for the recording of the proceeding.

The members, selected for this workshop, were all employed at the City of Edinburgh Council. The actual number of participants that attended the workshop was five and they were all working at the eGovernment Unit within the city council. The participants were all actively engaged in the eService project development and management, and their positions varied; three were eGovernment consultants, one was a senior eGovernment consultant, and one was an eGovernment change manager.

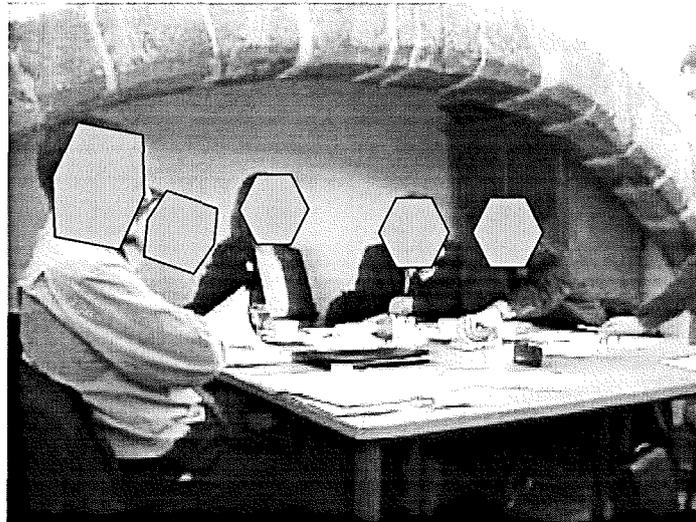


Figure 4.4: Business Case Workshop Participants (*masked for confidentiality*)

4.6.1 RISK MODELLING TOOL DESIGN

The Business Case workshop's findings provide an array of suggestions in regards to the risk modelling tool's design. Such deductions can be grouped under the following headings:

- a) *Terminology* - where updates on the naming conventions used in the risk modelling tool are proposed;
- b) *Structure* - where suggestions on the tool's modules are presented;
- c) *Concepts* - where proposals on the addition of new tool features are submitted;
- d) *Level of detail* - where a discussion on the efficiency of the risk modelling tool's design is presented;
- e) *Usability* - where the workshop participants' view on the effectiveness of the tool's design is summarised.

Terminology

It is clear from the outset that the business case workshop participants agree that the FRAMES components' terminology does not look appropriate (CDF, p.B12; Q6, p.B19; D1 and D3, p.B21). In numerous of occasions and for almost every part of the FRAMES there are suggestions for modification of the naming conventions (*to name a few, CAF, CBF, and CCF, p.B11*). Looking closer at the feedback received, it is evident that the terms used to differentiate between individual relationships amongst the various FRAMES modules are misleading, if not inappropriate. The 'System Integration', 'Application Integration', and 'Use' do not appear to mean something in particular or are seen to overlap, and various participants are puzzled with them (CAF and CBF, p.B11; CEF and CAT, p.B12). There are several calls for clarification of any of those relationships (CAF and CCF, p.B11; CDF, p.B12; Q6, p.B19). Similarly, there are few suggestions for renaming such relationships. For example, it is suggested for 'System Integration' to be changed into 'Process or Working Practices' (CAF, p.B11), and for 'Data Integration' to be changed into 'Middleware' (CAF, p.B11). Equally, the participants suggest in few occasions for either of the relationships to be renamed interchangeably (CBF, p.B11; CDF, p.B12; Q6, p.B19). As far as the other FRAMES modules is concerned there are some

proposals for change of the name. 'Crosscutting' appears to confuse the participants and it appears it may be changed into 'Inter-Agency' or 'Inter-Departmental' or something like 'Other agencies (that interact)' (CBF, p.B11). The 'eService' raises some concerns as well, since there are questions on what it actually means or for a change of its name into something like 'Public Authority' (CBF and CCF, p.B11; CDF, p.B12). Another minor update calls for a naming change of the module 'Public Authority' to 'Owners' (CBF, p.B11).

On the other hand, apart from one instance where there is a question (CCT, p.B13) on what 'interactivity' actually means, there does not seem to be a need for any major changes in the terminology used for the eService risk taxonomy part of the tool. However, the workshop participants propose the following amendments to be made:

- a) 'capacity' (under 'people', 'staff') to change into 'availability' (CBT, p.B13)
- b) 'interoperability' to change into 'integration' (CBT, p.B13)
- c) 'acceptance' (under 'people', 'customer') to change into 'acceptance/satisfaction' (CET, p.B13)

It has to be emphasised here that the participants provide few more suggestions for taxonomy enhancements (CAT, p.B12; CBT, CCT, CDT, and CET, p.B13). However, the author deems that most of them are already covered under different terms.

Structure

The design of the tool in terms of structure receives a mixed response. As far as FRAMES is concerned there are calls for a few alterations and additions to be made. Perhaps one of the most striking additions that FRAMES should include is the distinction between internal and external entities (CAF, CBF, and CCF, p.B11). Those entities can be characterised according to their relation with the eService project's owner organisation, for example a particular government agency. As such, modules such like 'customer' and 'crosscutting' may be further defined as internal or external (CAF and CCF, p.B11). Following the issues discussed earlier (in the terminology part) in regards to the naming of the relationships amongst the various FRAMES modules, such confusion leads to

further relationship updates. For example, between the 'back end' and the 'front end' there have to be three relationships; namely the 'system integration', the 'data integration', and the 'application integration' (CEF, p.B12). It is also suggested for two more relationships to be added between the 'front end' and the 'customer' (CEF, p.B12). Similarly, it is expressed that there should not be any relationship between the 'public authority' and the 'back end' (CEF, p.B12). Equally, it is mentioned that the 'use' relationship may further include 'order', 'request', and 'pay' (CEF, p.B12). Such proposals for updates in the FRAMES in regards to the relationships amongst the various modules are most probably due to the vague definition of the relationships' terminology. On top of those, there are calls for two further structural additions to the FRAMES component. One arises from the question mark raised in regards to whether the 'public authority' module refers to discrete departments or a government establishment as a whole (CAF, p.B11). Equally, it is not clear to the workshop participants how collaboration amongst different government agencies would be feasible (CDF, p.B12). As such, FRAMES must somehow distinguish accordingly. Finally, the 'eService' module of FRAMES is not accurate and it is envisaged that an 'eService' module should encapsulate almost everything on the sketch (CBF, p.B11).

Broadly speaking, the workshop participants find the eService risk taxonomy fairly complete. However, looking closer into the eService risk taxonomy component of the risk modelling tool a few structural modifications are proposed. There is a particular focus for the inclusion of 'support' under the 'people' category. In various instances, participants stress the need for user support (D1 and D3, p.B21) (in the sense of whether the users are willing to use the service or not), as well as for staff support (CDT, p.B13) (in terms of commitment to project execution). As far as 'strategy' is concerned, two further categories may be added. Under 'need' a category termed 'statutory' would include the risks related to the legal requirement(s) prompting for a particular eService project (CAT, p.B12). Equally, 'affordability' may also be added to denote any risks pertinent to the management's capability to proceed with a particular project (CCT, p.B13). There are also some further additions to be made in the 'deployment' category of the taxonomy (CAT, p.B12; CCT, p.B13; CET, p.B14). Such additions respond to potential risks that are relevant to the change that the new eService project may bring to the existing

technology used, as well as the current organisational status quo. Two additions may also be made to the fourth category, the 'design and implementation'. The first one calls for a new category termed 'existing infrastructure' that describes the risks revolved around the current hardware and software technologies within the eService project's owner organisation (CBT, p.B13). Moreover, a third risk factor category may be added under 'requirement' that may be called 'functional' (CAT, p.B12). On top of the afore-mentioned additions two more are worth adding, namely the 'benefits' (CBT and CCT, p.B13; Participant A, p.B25) (referring to the risks on how benefits are expected to be realised through the project) and the 'access to the service' (CBT and CCT, p.B13). The first new category may be added under the 'strategy' tree, whereas the latter one should fit comfortably under 'customer' within the 'people' category.

Concepts

The feedback received from the business case workshop reveals that there is replication of features (CAF, p.B11; CAT, p.B12; GA1, p.B14; Q10, p.B20) amongst the FRAMES and the eService Risk Taxonomy components. Again, such situation seems to stem from the erroneous naming convention of the relationships between the various FRAMES modules. As such, there is some duplication of features (for example 'systems integration' or 'application integration') that causes confusion. However, such replication poses an opportunity for the participants to propose that it would be very useful if both FRAMES and taxonomy formed a more integrated risk modelling tool. Such integration can be in the form of a matrix or mesh as one puts it (GB4, p.B17; Q2, p.B18; Q3, Q4, and Q6, p.B19). To achieve that it is suggested that the eService risk taxonomy may be tailored accordingly to match FRAMES and vice versa. In fact one participant notes one such example (CCF, p.B11), according to which titles like 'people' or 'processes' or 'IT' or 'culture' could be placed under 'system integration'.

Another interesting point is raised by a participant that relates to the potential interaction amongst various risk factor categories (CDF, p.B12; Q6, p.B19; Participant B, p.B26). That idea suggests that there can be formations of feedback loops between various risks in certain model areas. For instance, an eGovernment solutions department within a government establishment may be

developing an eService project for the corporate services department of the same government authority. Risks associated with this project could affect project delivery - which will affect the corporate services budgets. The corporate services department funds the eGovernment solutions equivalent; hence a funding shortfall may endanger the original project.

Level of Detail

Following the participants' feedback throughout the business case stage workshop one thing is apparent; the FRaMES component needs to be re-designed. As described in the two previous parts within this section, FRaMES fails to satisfy in terms of structure and terminology. The epicentre of such failure is the erroneous inclusion of relationships amongst its various modules. Additionally, this field research reveals that FRaMES is oversimplified (GA5, p.B16) and as such it cannot reflect reality (Q8, p.B20). The participants' comments prompt for a design compromise between simplicity and over-complexity. Such re-design may highlight a more detailed expansion between the front and back end modules of FRaMES. Also, it appears that FRaMES is rather technology-biased (Q8, p.B20) and therefore an emphasis on 'softer' issues, such as internal/external people and/or change is advisable. Similarly, areas like partnerships and suppliers (Q10, p.B20; D3, p.B21) need to be covered as it explained by the workshop participants, which that is where a public authority usually tends to transfer the responsibility of certain risks. On the other hand, there is plenty of evidence (GA1, p.B14; GA5, p.B16; GB5, p.B18; Q10, p.B20) to suggest that the eService risk taxonomy level of detail is reasonably complete. In fact, that appears to be the main strength of the tool at that stage, allowing the participants to argue that it could be used as a checklist (GA1, p.B14; GB1, p.B16; Q1, p.B18; Q3, p.B19; D1, p.B21). Of course, it can never be entirely complete and additions (discussed earlier in this section) are further suggested.

Usability

The overall participants' response on the tool's usability is rather mixed. From one hand, there is a direct call for radical design changes of FRaMES (GA1, p.B14; GA4, p.B15; GA5, p.B16; GB5, p.B18; Q8, p.B20; D1, p.B21), whereas on the other side the taxonomy's feedback is rather promising (GA4, p.B15; Q9, p.B20; D1, p.B21). It is clearly expressed (GB4, p.B17) that FRaMES is less useful

when compared to the taxonomy. That makes the overall tool less usable. The prime reason behind that is that FRaMES is subject to misinterpretation (GA3, p.B15) that mainly arises from the fact that its contained relationships do not fit. As far as the taxonomy is concerned (GA4, p.B15) it appears to be easy to use and understand, although it is stated that it requires some initial familiarisation time. The whole tool would become more usable if it was more integrated and presented as a matrix (similar to the previous comments expressed in the comments part of this section). Equally, another potential addition to increase the tool's usability appears to be the inclusion of some kind of risk scoring feature (GB5 and Q1, p.B18; Q6, p.B19; D1, p.B21). It is also interesting to note the fact that within the limited amount of time given to the participants to use the tool, they produced a total of 61 different risk statements (the total number is 71) pertinent to a particular scenario (pp.B23-B25). That in itself shows that the risk modelling tool (even in a state that caused several misinterpretations) has some kind of basic usability, enough to produce plenty useful results.

4.6.2 RISK MODELLING TOOL UPDATE

From the afore-presented comments it is evident that the research tool does indeed need some modifications in order to be more applicable at the business case stage of eService project development. All these remarks are taken into consideration and the updated form of the tool and its components is presented beneath. In fact - and as it is obvious from further below - the risk-modelling tool may be more usable if presented as a single integrated one, rather than consisting of two separate, disconnected components.

FRaMES

The following diagram (Figure 4.5) is the FRaMES part of the risk-modelling tool as it is envisaged to be more appropriate following the remarks made by the participants in the workshop. There is a complete transformation of the earlier FRaMES version, following the remarks made by this workshop's participants. Perhaps most notably, the new FRaMES version distinguishes between internal and external customer for case when the eService is targeted at a government department or a non-government end-user respectively. Equally, the FRaMES Version 3 separates the infrastructure into 'internal systems' and 'external

system' so as to better depict case of outsourced or in-house information systems services.

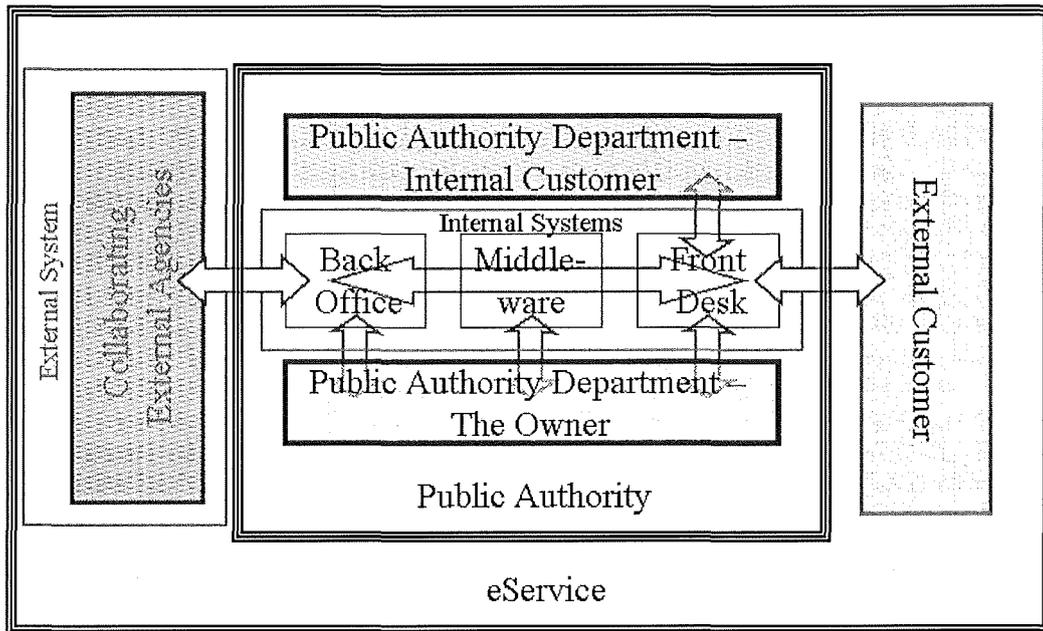


Figure 4.5: FRAMES Version 3

eService Risk Taxonomy

The next diagram (Figure 4.6) is the eService Risk Taxonomy part of the risk-modelling tool as it is envisaged to be more appropriate following the remarks made by the participants in the workshop. Here, several categories have been renamed and moved according to the workshop's feedback.

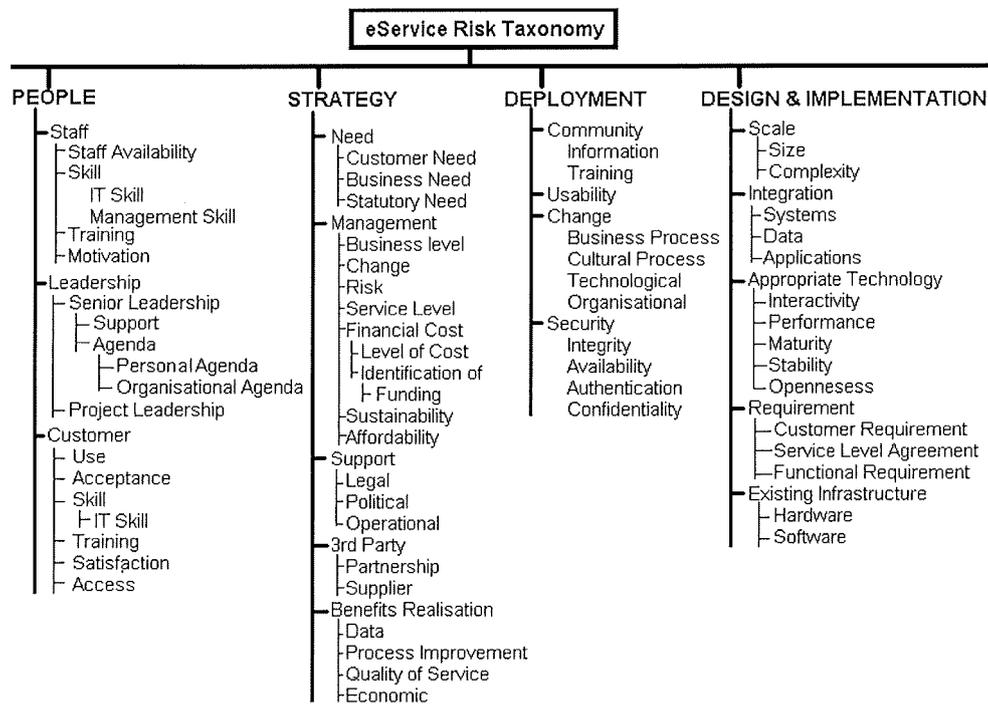


Figure 4.6: Updated eService Risk Taxonomy Version 3

Integrated Version of the Risk Modelling Tool

Following the remarks of the workshop participants in regards to the need of a more integrated version of the research tool, Figure 4.7 attempts to accomplish such fuller version of the tool. Equally and in order to assist in that, the risk statements produced during the workshop (see Appendices section) are employed. By closely following where each statement came from, the researcher concluded on how to best integrate specific taxonomy categories to certain FRAMES areas and make the tool more complete. As it is evident, the eService risk taxonomy is divided into several appropriate segments that are relevant to particular FRAMES areas. It has to be emphasised here that there is no addition of any risk metrics functionalities - although prompted by the workshop's participants - as the focus of this research does not cover risk assessment or risk management.

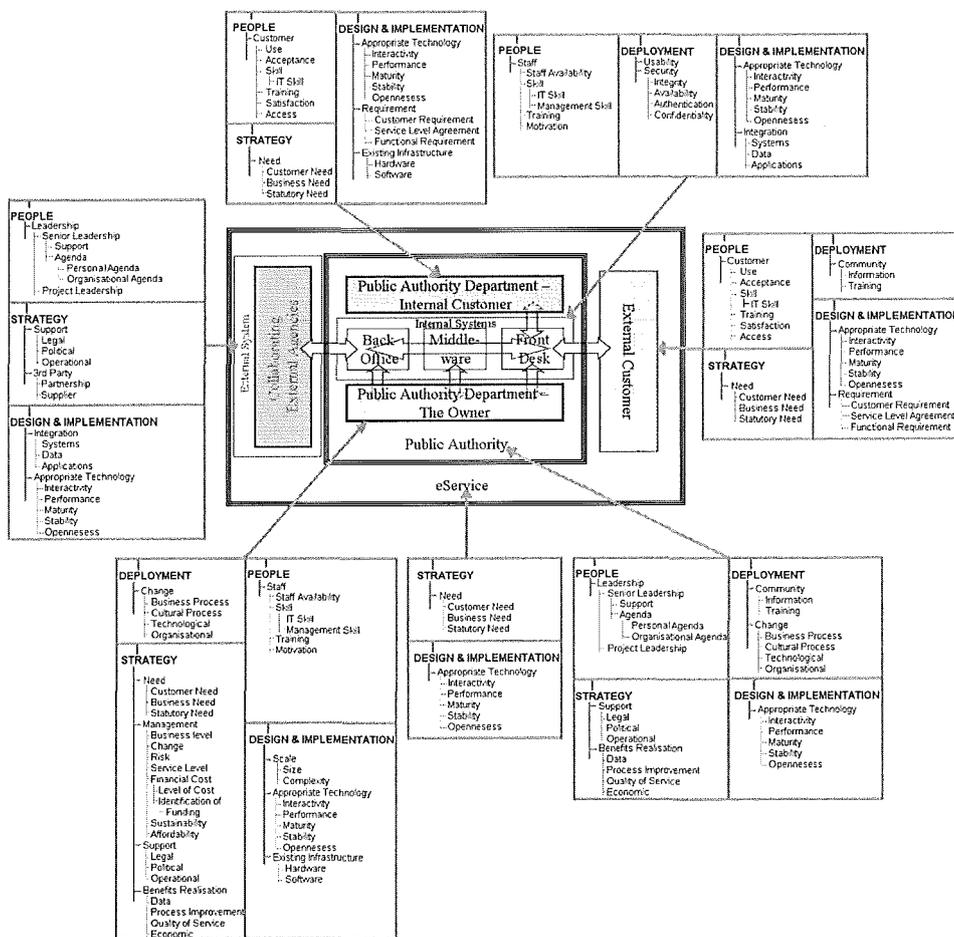


Figure 4.7: Integrated Risk Modelling Tool Version 1

4.6.3 RISK MODELLING TOOL CAPABILITIES FOR THE BUSINESS CASE

It is this section part’s intention to present the actual capabilities of the risk modelling tool, following the workshop participants’ comments. The conclusions in regards to the tool’s capabilities may be summarised in the following four headers:

- a) It helps identify risks
- b) It may be used as a checklist
- c) It helps categorise risks
- d) More features are needed

It helps identify risks

Foremost, the workshop participants find that the risk modelling tool may help towards identifying risks (GA1 and GA2, p.B14; GB1, p.B16; GB4, p.B17; Q2, p.B18; Q3 and Q5, p.B19; D2, p.B21). In fact, this field research divulges that this represents one of the tool's core strengths. It should also be mentioned that although the tool help with the process of identifying risks pertinent to eService project implementations, it does not constitute a process in itself. That is mainly because the participants so not see any steps that are clearly defined. Moreover, the tool would help identify risks much slicker if FRAMES was more accurate. Similarly, any future risk identification with this tool would be optimised if the eService risk taxonomy matched the FRAMES modules. Notably, the participants seem to agree that the level of risk identification provided by the tool makes it more appropriate for the feasibility study stage.

It may be used as a checklist

The workshop reveals that the risk modelling tool may be used as a checklist (GB1, p.B16; D1 and D2, p.B21) of likely issues at the business case stage. In fact, the tool is praised as a good checklist. However, it is also acknowledged that there is still room for improvements and more time is required to fully appreciate the risk modelling tool's efficiency as a checklist. This checklist appears to be good in identifying areas that could be overlooked, thus ensuring there are no gaps. It helps to identify areas that will require further analysis, as well as helps to identify at each stage some of the problems to overcome. Moreover, the risk modelling tool may be used as a checklist that identifies the key relationships (in regards to risk) and/or stakeholders. The participants find that the idea of taking risk and assessing it from different perspectives sounds interesting. It is a good discipline and it would be a strength added to the business case as it helps avoid potential 'single-mindedness' (as one participant explains) of a single decision-maker and it puts risk consideration at a prompt time. It is however stressed that more descriptive taxonomy headings may be needed. Equally though, this research points that such checklist is relative to the good (or not) knowledge of the likely risks to arise.

It helps to categorise risks

Apparently, one of the risk modelling tool's main strengths is that it helps categorise risk. Such risk categorisation can further assist in formulating risks in

a way that prepares them for discussion and debate amongst the project team members (Q2, p.B19). The workshop reveals that the risk modelling tool poses a method of dissecting systems and analysing the risk elements within the system (Q1, p.B18). Therefore, by subdividing the systems into key components a subsequent risk assessment process can be performed more precisely. Similarly, the participants also find that the risk modelling tool may actually present risks better (D2, p.B21). The participants also find that expressing the risk statements in a positive manner is a good discipline. In fact, they find commonalities with GAP analysis (D2, p.B21). As such, risks are perceived as opportunities for further consideration. Moreover, that risk categorisation further stimulates the process of debating about risk. The tool represents a powerful brainstorm means for identifying and discussing relevant risks (D2, p.B21). However, the participants also highlight that the tool does not appear as (or does not provide) a process itself (Q3, p.B19; D2, p.B21), as it does not provide any clearly defined steps that lead to a certain output. Equally, despite the fact that the tool is helpful to directing discussion on the likely risks, there is a tendency to focus on risks that the user is already familiar with (Q5, p.B19).

More features are needed

Although this risk modelling tool appears to identify risks and stimulate the process of discussing about issues that may affect the course of a particular project, it may be the case that just that is not enough for the business case stage. In fact in a few occasions the participants express that a risk modelling tool like this should provide some kind of risk metrics (GA5, p.B16; GB5 and Q1, p.B18; D1, p.B21) in order to level the risks, their impacts and effects. During the business case stage, apart from any risk assessment features this tool should also provide management strategies (GB3, p.B17; Q11, p.B21) for the identified risks. Risk assessment and risk management are fundamental features of a business case stage, and this tool does not provide such features. That is reason that leads the participants to believe that the eService risk modelling tool would be more appropriate at the earlier stage; that of the feasibility study (GA1, p.B14; Q2, p.B18).

4.6.4 EMPLOYING THE RISK MODELLING TOOL AT THE BUSINESS CASE STAGE

This part of the business case workshop findings focuses on the adoption of the risk modelling tool or indeed any other similar tools within the field. The term adoption rather refers to the actual use of such tool by the decision-makers when considering the business case of a particular project.

In theory...

As already explained earlier in this chapter, the eService risk modelling tool's main strengths are the identification and categorisation of risks (*for example, GA1 and GA2, p.B14; GB1, p.B16; GB4, p.B17; Q1, Q2, Q3, Q4, and Q5 pp.B18-B19, D1 and D2, p.B21*). The participants find that this tool is relevant at the business case stage as it helps to identify the areas that will require further analysis. It helps to identify at each stage some of the problems to overcome. Moreover, it is found that the tool would be used during the business case stage as a means for providing a holistic understanding of eService projects and their issues. That is because the lack of risk understanding can lead to failure to protect against risks, which subsequently is a major cause of project failures. Additionally, the risk modelling would be used at business case stage because it can formulate issues and dissect systems. The subdivision of systems into key components may help towards a more precise risk assessment to be performed. That may further save time and resource usage in the future and minimise the failure likelihood of the project delivering its objectives.

Not enough for the business case stage

However, the participants equally mention that the risk modelling tool - in its current state - would likely be used during the feasibility study stage and not the business case one. Apparently, it is clearly stated that such risk modelling tool would be "*very applicable at a high-level feasibility stage, but no further than that*" (*Q9, p.B20*). That is mainly due to the fact that the business case stage is effectively like a miniature project management lifecycle. Therefore, all usual project management processes - including risk management - are followed, but to a lesser extent. As such, the participants explained, the PRINCE2 guidelines (*Q11, p.B21; D4, p.B22*) are usually followed. Thus it is deduced that any such risk modelling tool should somehow comply with those guidelines. Like a typical risk register, this tool should also include a

mechanism for identifying the likelihood as well as the impact of the identified risks. Moreover, on top of any risk assessment features a risk modelling tool employed at the business case stage should also provide some basic risk management strategies. The lack of such features make the workshop participants deduct that the risk modelling tool - in its current state - is not enough for the business case stage.

The reality though...

Apparently, the business case workshop reveals that the reality is slightly different from the theory. In fact, it is stated that any identification of risk - and of course the use of such supporting tools - is dependant on current culture and practices (GA2, p.B14; p.B23); implying the practices followed within individual government establishments. Although the theory prompts for the use of tools such as risk registers, in reality they are used on an ad hoc and non-standardised basis (D4, p.B22). This field research reveals that risk registers are maintained infrequently and not from everyone; just the project manager. Often, that can happen simply because the people involved in the business case of a particular project do not have the time for such considerations (D4, p.B22). It is therefore usually hoped that most risks are captured in the requirements documentation (Q11, p.B21). Practically, only the big impact kinds of risks are looked at in the business case. That is probably because more robust and consistent risk considerations should normally occur during the project development lifecycle, and not at an earlier stage as the business case one. In fact, the participants explain that during the business case only the high-level (high impact and frequency) risks are usually identified and apparently the project will normally pass the business case stage phase once it's successful in terms of costs (D4, p.B22).

4.6.5 SUMMARY

The afore-mentioned discussion on the business case stage workshop's findings may be summarised as shown in Table 4.2. The first column ('expediency') briefly annotates the workshop participants' comments on what the tool appears to do and what it should ideally do. Equally, the 'design' column summarises the main comments in regards to what the tool appears like and/or what it should look like. The third column, called 'adoption', includes the main opinions of the workshop participants in regards to whether this tool would be

used (or not) in real life contexts; and of course, highlights the existing trend as is now.

Table 4.2: Business Case Research Reflection

EXPEDIENCY	DESIGN	ADOPTION
It defines likely risks.	In terms of usability the FRAMES part needs to be redesigned, in respect of: i) terminology, and ii) architecture.	A tool like that would be adopted to provide holistic understanding of eService projects.
It resembles a checklist.	In terms of usability the taxonomy part is sufficient.	A tool like that would be adopted to identify areas that call for further attention.
It identifies areas that could be overlooked.	Both FRAMES and the taxonomy need to be merged into a single tool.	Such tool is useful pending current practices (of the organisation).
It focuses thought on key areas.	In terms of detail the FRAMES component needs some updates.	At the business case more is required (risk assessment and management), and hence such tool would be used at the feasibility study.
It categorises risks in a way for discussion and debate.	In terms of detail the taxonomy component is quite complete, with some additional updates to be made.	In practice, risk tools are only used on an ad hoc basis and are non-standardised.
It helps avoid 'single-mindedness' when considering the risks.	It would be interesting to include risk feedback loops.	In practice, it is hoped that most risks will be captured in the requirements documentation.
It should provide risk assessment functions.	Expressing risk statements in a positive manner is good.	In practice, thorough consideration of risk happens during the full-blown project management lifecycle and not during the business case.
It should assist in the provision of management strategies.		

To conclude this section, it may be said that this risk-modelling tool has some relevance to the business case of eService projects for the government. However, for that to be realised at least three conditions have to apply. There is a level of tool applicability that has to be considered, as well as a study on how the tool will become more suitable. Moreover, the adoption level by the public sector practitioners has to be considered.

The research tool appears to be relevant to the business case of eService projects, if seen as a tool for risk identification and understanding and not as a process with distinct steps. The participants deem that it could be best used as

a checklist or as a brainstorm tool. Moreover, the practitioners who used the research tool appear to benefit from it as they find that it could save them time and resources by breaking the pertinent components down in a consistent manner.

As can be the case with every prototype, the workshop members agree that there is room for improvement. To better the risk-modelling tool and help it maximise its potential, various suggestions are made. It is clear that at the presentation stage (at least), an example of the actual use of the tool is very much needed. From a structural point of view, the tool may need to become more integrated and the level of detail has to appear more deep and thorough; to look more complex. Additionally, both tool components have to be better explained and the terminology needs to become more appropriate. Finally, the workshop participants expect from such a tool to enable them to add/measure risk levels as well; in other words provide them with the means of risk assessment. Although such remark is perfectly reasonable and vivid, it is beyond the boundaries of this research, since this work is focused in the actual modelling/identification of risk so as to inform/support the next stages of the whole risk management process.

The third main point worth considering whilst discussing on the relevance of this risk-modelling tool at the business case of an eService is whether it would actually be used. It arises that - in its present form - this tool would be more applicable prior to the business case; the feasibility study stage. Overall, it is clear that in that particular (where the workshop participants work) public sector establishment there is no standard way of modelling risk at the business case. The possible reasons behind that could be lack of time for such a thing or different approaches that exist in various public authority departments. Therefore, this tool or any such tool would in fact be used depending on the agency's attitude towards risk modelling. Having said that, it is worth considering that in some cases guidelines or frameworks (PRINCE2, OGC respectively) are being followed for risk management (and thus risk identification) at the business case. To conclude, it is often the case that any project idea that can justify and provide for its costs may normally pass the business case. And that, without the project members having to bother much

about any particular consistency in the risk identification/modelling process. That would be cared for at a later stage.

4.7 WORKSHOP ON THE FEASIBILITY STUDY STAGE

This part of the chapter discusses on the findings produced from the workshop on the feasibility study stage. The workshop was held at the View Forth Complex Building in Stirling, on the 31st of May 2005. The workshop lasted for nearly two hours (with a ten minute break) and was held in a medium-sized room, where the facilities included a data projector for the presentation phase of the workshop, as well as an audio and video recorder for the capturing of the event. Apart from the participants and the researcher, an assistant also attended the workshop that was responsible for the recording of the proceeding.

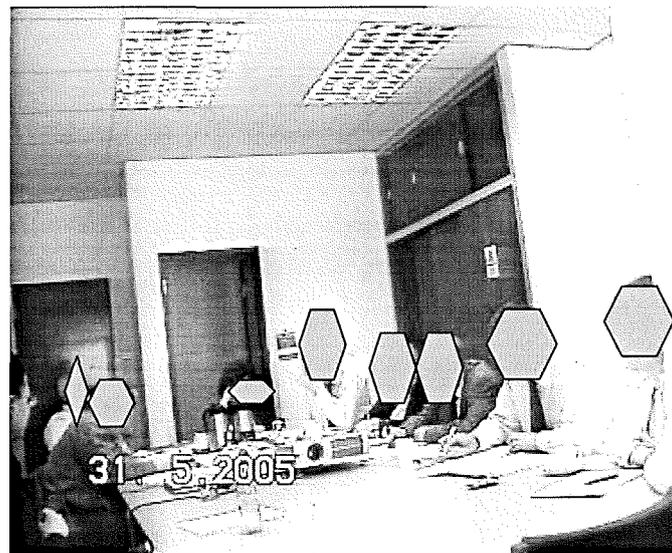


Figure 4.8: Feasibility Study Workshop Participants (masked for confidentiality)

The members, selected for this workshop, were employed at the Stirling City Council. The actual number of participants that attended the workshop was seven and they were all working at the Organisational Development and Improvement Department within the Stirling City Council. The participants were actively engaged in the eService project development and management, and their positions varied; two were Senior Business Analysts and one was Junior Business Analyst, two were Senior Software Developers, one was a Project Manager, and one was a Business Change Manager.

4.7.1 RISK MODELLING TOOL DESIGN FOR THE FEASIBILITY STUDY STAGE

The workshop about the risk modelling tool at the feasibility study stage outputs some useful information about the design of the tool. However, it has to be said that such produce is not as rich as the one deducted during the work presented at the earlier field research phases. Perhaps, the reason behind that may be that the tool is now more solid and better presented, as well as more appropriate for the feasibility study stage; that is in regards to the level of detail. The section that follows presents the findings from that workshop, referring to the design of the risk modelling tool, as the workshop participants expressed. Such findings elaborate on the tool's current design, as well as what it may be done in order to improve in the future and make it more appropriate for the feasibility study stage.

Looking at the risk modelling tool from a usability perspective, the feedback appears to be mixed. At a relevant question (*GA4, p.C8*), four participants return positive remarks, whereas the other three reply in a more sceptical manner. More specifically, one finds that the tool 'seems a bit intimidating at first glance' and another one deems that it is usable; however, 'confusing' - especially the eService area. Equally, another one finds that there is duplication across areas and categories 'that might be better as a group'. On the other hand, the remaining workshop participants applaud the tool's usability by assorting comments, such like 'easy to use' or 'fairly straightforward'. All seven participants used the tool comfortably and as can be seen (in the Appendices) extracted around 10 different risk statements (as asked by the researcher) each (*pp.C19-C21*). The richness of the output, compared to the limited amount of time given to the participants, suggests that the risk modelling tool can actually produce risk statements. Also, it is worth noting that all risk statements are almost equally distributed across most of the tool's areas of concern, except one; the 'eService'. The reasons behind that can be many. Although it is quite probable that the participants perceive the eService area as very abstract, at which they have no authority (in the sense that they are already working within that area).

In a few occasions, the workshop participants propose some amendments to be made in the risk modelling tool's design. In some instances such amendments

are realised as calls for additions in the risk categories positioned in the various areas of the tool. One participant says that the tool 'misses the local/central government' (GA5, p.C8) and therefore assumes (without suggesting any) that there are more risk categories. More specific proposals for risk category additions to the tool suggest the following. 'Statutory need' and 'political need' (D6, p.C17) may be added under the 'need' category of the 'public authority'; also, 'vision' and 'corporate strategy' (D6, p.C17) may be further placed. At one point (*Observations*, p.C18) a participant states that issues such like trust, softer skills and user acceptance seem to be missing from the model. However, other participants counter-argue that some of that is already there (*Observations*, p.C18). In regards, to the risk categories and the various eService areas, one participant stated (GA4 and GB1, p.C8) that is 'not always sure which eService area fits into'. Perhaps, a quite revealing output of this workshop - in regards to the risk modelling tool's design - is the position that one participant takes that the tool could be further aligned to the PRINCE2 methodology (D5, p.C17). In fact, the workshop participants further elaborate, the risk modelling tool can easily achieve such alignment by renaming the eService areas more appropriately in order to map the PRINCE2 project board areas. More specifically, it is proposed that the 'internal systems' may be equal to 'senior supplier', the 'internal customer' equal to the 'senior user', and the 'owner' can be translated to 'executive' (D6, p.C17). If the tool's design changes in that fashion, then the risk modelling tool will look more like a package rather than an add-on (D6, p.C17). In fact, it is further expressed that - as is - the risk modelling tool uses a language that is more 'intuitive' than the PRINCE2 terminology. That is because the tool is focused on eGovernment service projects, whereas the PRINCE2 methodology is more of a generic project management guideline. As such, by tweaking the tool's design in terms of the terminology used to comply with the PRINCE2 methodology, a more complete risk modelling tool can be achieved.

Overall, the participants seem to agree that the risk modelling tool is fairly complete. Positive comments like 'about 95%' or 'mostly there' are expressed by the participants when asked to comment on the 'completeness' of the tool (GA5, p.C8; GB5, p.C9). However, it has to be stressed that some participants identify the limitations of the workshop that hinder their opinions in regards to that matter (GA5, p.C8). Quite reasonably, some participants argue that it is

difficult to assess the 'completeness' of the tool as more 'in depth' investigation is required or simply because it is 'difficult to assess as eServices are evolving on several fronts'. Equally, in two occasions it is argued that no tool would ever be complete (*GA5, p.C8; GB5, p.C9*).

The design of the risk modelling tool receives some further positive comments for three main reasons. First, the participants find that the tool allows a holistic view covering both an internal (eService owner) and external (partners and customers) perspective. Secondly, the tool is designed in such a way that can help identify all eService areas that are affected. And finally, the workshop participants find that the tool's design allows its user to identify same risks at different levels from micro to macro level.

4.7.2 RISK MODELLING TOOL UPDATE

The workshop about risk modelling at the feasibility study stage provides rich results referring to the abilities/functionalities of the risk modelling tool as well as the adoption of risk modelling (as well as that of the tool). The same cannot be said as far as the tool's design is concerned. However, there is still some useful feedback that reflects on the second version of the integrated risk modelling tool as is depicted on Figure 4.9 below. The minor amendments refer to the change of the terminology used, as well as some risk category additions. The workshop participants also prompted for further risk metrics functionalities, however - and as is stated earlier in this chapter - this thesis does not have the focus on risk assessment or risk management. Hence, such potential tool alterations are not taken into account.

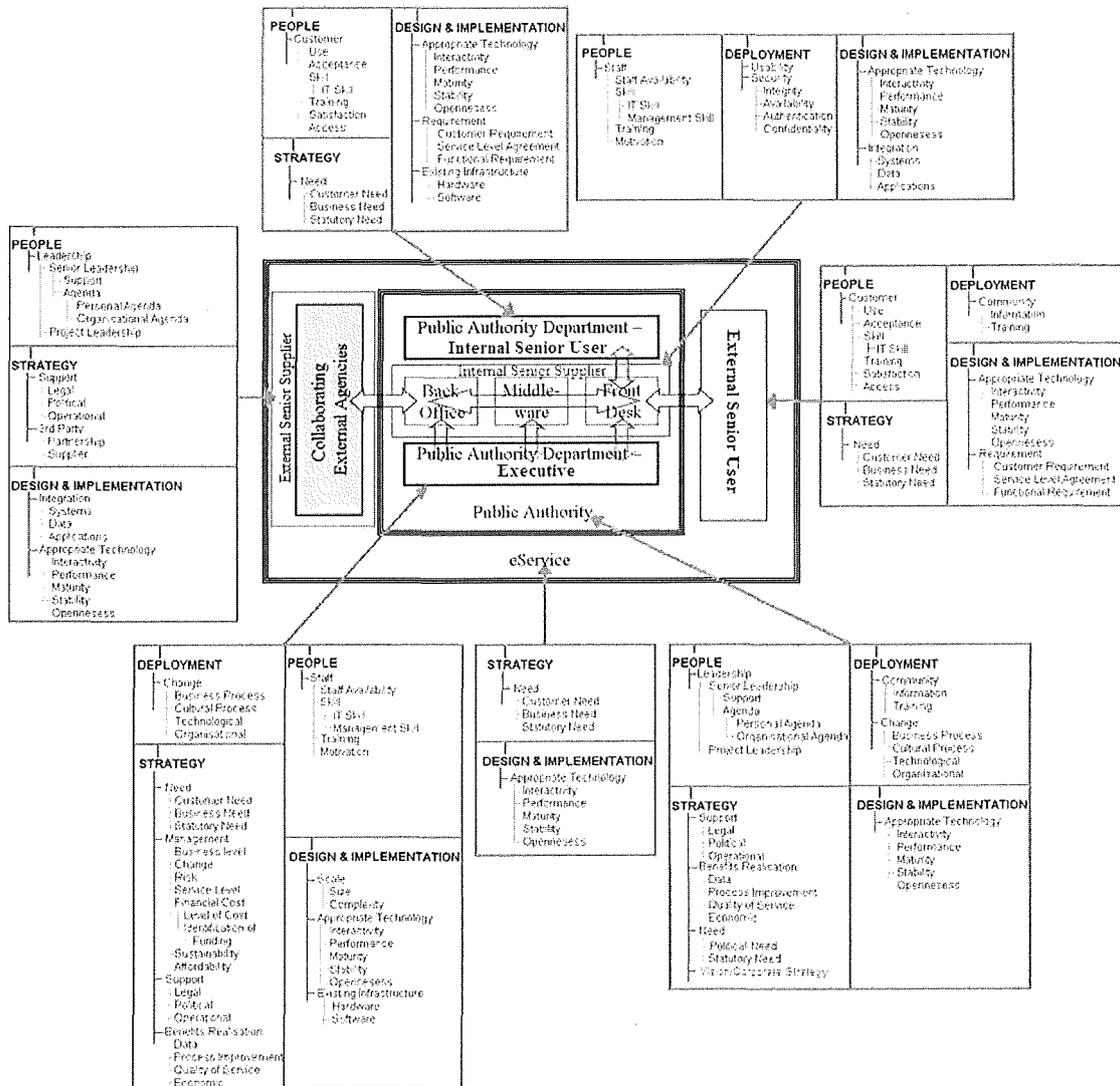


Figure 4.9: Integrated Risk Modelling Tool Version 2

4.7.3 RISK MODELLING TOOL CAPABILITY FOR THE FEASIBILITY STUDY STAGE

The text that follows presents the findings from the workshop that refer to the capabilities of the risk modelling tool. To better appreciate the feedback received, this section is divided in the following areas:

- a. Holistic view, discussing on whether the tool allows the stakeholders appreciate all issues.
- b. Risks identification, presenting the participants' views on the tool's ability to identify risks.

- c. Further project stages preparation, discussing on the tool's ability to provide input to any further project development stages.
- d. Cost/benefit analysis, portraying what the participants find that the tool may contribute towards any cost/benefit analysis.
- e. Project idea revision, where the tool is examined on whether it identifies any updates for the project idea.
- f. Project cancellation, discussing on the risk modelling tool's potential to provide the rationale for cancelling a project idea.
- g. Business environment scope, examining the risk modelling tool's ability to better scope the business environment.

4.7.3.1 HOLISTIC VIEW

During the workshop, the participants are asked to reply on whether the risk modelling tool allows the stakeholders better appreciate all issues (*GA1, p.C7*). Four out of seven reply with a direct 'yes' and some further comment, whereas the other three also give positive feedback providing some pre-conditions apply. Such requisites generally refer to the degree that actual risk modelling takes place, as well as the level that any risk assessment exercise influences (or not) the course of decision-making during the feasibility study stage. Such issues will be further discussed later on in this chapter.

It appears that the risk modelling tool can see risks from a holistic view due to three main reasons. Firstly, one participant notes that the tool is 'useful to focus people's thoughts' (*GB2, p.C9*). That seems to be particularly helpful when considering that fact that 'in the public services it can be convenient to put off thinking about the risks', as one participant claims (*Q8, p.C13*). Moreover, at another instance within the workshop (*Q2, p.C10*), somebody states that such focus (provided by the tool) can pinpoint specific areas where several risks materialise. As such, the participant concludes, those risks can be all killed off later with one solution (*D4, p.C16*).

Secondly, the workshop reveals that the risk modelling tool achieves to provide a holistic approach towards risk by assisting its users look through a wider lens.

As one puts it, this tool possible helps to think in a wider context, which eventually might lead towards the re-evaluation of the project idea (*Q4, p.C11*). Moreover, a participant finds that the tool provides a holistic view by looking through internal and external (partners and customers) perspective (*Q6, p.C12*). Hence, as another one adds, it 'helps to identify all areas that are affected' (*Q6, p.C12*). Similarly, one participant finds that it allows stakeholders to better appreciate all issues by providing the framework for looking at all risks (*Q9, p.C13*).

Thirdly, the participants explain during the discussion stage of the workshop that because of its holistic attitude towards risk, this tool may be used in a complimentary fashion to any ad hoc risk identification (*D1, p.C15*). Of course, that implies that the project development team is carrying out a risk identification exercise as per usual and then use this tool to uncover any big missing risks. Similarly, one participant points that the tool 'presents areas being missed out'; whereas another one adds that it provides 'the structure to cover most categories of risk' (*Q2, p.C10*). The participants agree during the discussion that the tool may therefore be used as a checklist, as the users may go through the categories one by one. Subsequently, one participant finds that it helps consider all risks that could prevent the project from failing; and hence aid towards the better management of the project (*D1, p.C15*).

However, such holistic perspective towards risk modelling appears to also receive some negative feedback. There are several underlying flaws that come with this tool. A participant clearly argues that it can be too generic, and quite equally it cannot include every possible risk category (*GA5, p.C8; GB2 and GB5, p.C9; Q2, p.C10; D1, p.C15*). That is because there are always project-specific risks and it is virtually impossible to uncover them, unless there is some kind of mechanism for that. Then again, as one puts it, the tool may not be that holistic after all since personal experience always comes into place (*D1, p.C15; D3, p.C16*). And such experience refers to both the actual tool designer that has to devise the model, as well as the user in terms of which risk categories to choose from. Finally, although the tool looks at risk holistically so that it can help avoid overlooking any areas some argue that it may actually achieve the opposite effect (*D1, p.C15*). The whole risk identification (through the use of this tool) may end up into a tick-box exercise, and hence risk areas will be

overlooked (especially the project-specific ones); killing any risk identification by rendering it into a formality.

4.7.3.2 RISK IDENTIFICATION

Perhaps the most apparent tool capability that the workshop's participants find is the identification of risk. Throughout the workshop the participants discuss about this tool with some kind of inference to the identification of risk. That comes in various 'flavours' from direct reference to identifying risk to the categorisation of risk, and from providing the means to support the process of risk identification to the actual problems that such tool ability may introduce.

In a number of occasions the participants directly state that the risk modelling tool helps identify eService project risks. For example, one states that it is 'useful for identifying risks in all potential areas' when asked how useful the tool is (*GA3, p.C7*). At some other point, the participants are asked on the relevance of the risk modelling tool in assisting the feasibility of the project. There, at least four out of seven directly infer that the tool helps to identify risks (*Q1, p.C10*). Similarly, in a direct question on whether the risk modelling tool provides a way of identifying risks all participants return a positive response (*Q2, p.C10*). For example, one says that it 'provides the opportunity to identify areas where action is required at an early stage in any project'; whilst another one states that 'the tool enables you to identify risks to quite a high extent'. Later in the workshop one participant writes that 'the tool identifies risks that will help the project succeed' (*Q7, p.C12*). And another one adds that such a tool would be used at the feasibility study in order 'to identify risks before deciding whether to embark on a project' (*Q10, p.C13*). Interestingly and quite relevant to this tool's capability somebody argues that is good because it identifies the risks at different levels, from micro to macro level (*D1, p.C15*). The results of such risk identification make the tool useful at the feasibility study stage, as some participants find. That is because it identifies 'whether areas and development stages need more detailed risk analysis' (*Q3, p.C11*). Similarly, it 'forces a variety of issues to be considered' (*GA1, p.C7; GB1, p.C8*). That makes the risk modelling tool 'useful for a project manager or a workshop of stakeholders', as one clearly states in the beginning of the workshop (*GA4, p.C8*).

Apart from direct references to the risk modelling tool as a means for risk identification, the participants imply at various instances that the tool helps towards that way. For example, one participant finds that the tool could identify likely issues 'depending on how it is used: -not if just categorising risks; -yes, if it is going through risk categories to identify new risks' (GA1, p.C7). Also at a further point the same participant adds that it would be more useful if the tool would be further expanded down from the high level (GB1, p.C8). Similarly, at some other instance one participant finds that the tool's ability to identify risks extends to the high level foreseeable risks (Q2, p.C10). And that makes the tool appropriate for 'generic' projects, as another one adds. Moreover, the tool is 'excellent in initiating the risk analysis' process and 'helps focus the project group' (Q2, p.C10). Finally, one participant uses the word 'showstoppers' instead of risk, adding that the tool is capable of identifying them (Q4, p.C11).

The workshop reveals other abilities of the tool that are related (though not limited) to risk identification. Overall, the risk modelling tool could be used at the feasibility study stage as a guideline providing a good starting point for further risk assessment. As one states it provides 'good prompts for thinking' (GA3, p.C7). Such thinking happens under a number of headings and therefore it provides a standard approach towards risk identification, presenting areas that could otherwise be missed out (Q2, p.C10). The participants find that it shares some similarities with existing practices; such like risk registers (D5, p.C17). In fact, a participant argues that 'it would form the initial risk log to inform the feasibility of a project and be used as the basis for more detailed risk analysis at a later stage' (Q3, p.C11). Apparently, some other participants agree that that's one of the main strengths of this tool; informing the basis for risk assessment in further stages (Q8, p.C13). At some other point a participant states that the tool may be used as an evolving template for risk identification. The tool seems to be a good way to categorise any identified risks, making it very helpful for further risk assessment. There also lies another strength that is that association of risks with specific eService elements. Potentially, that has three fundamental advantages as the participants discuss. First, any potential duplication across areas with the same risk would trigger attention on the severity of the risk (D4, p.C16). Equally, the categorisation of risk under several eService elements may help towards finding single solutions for several

risks (*D4, p.C16*). And thirdly, by looking at specific eService areas the tool helps identify responsibility for the risk (*D4, p.C16*). That, in effect, will increase accountability as responsibilities can be channelled.

However, in various cases the participants appear to prompt for caution when using this tool. Indeed, the afore-mentioned abilities of the tool may also lead to problems. Perhaps, the most striking criticism on the tool lies in the 'generic approach' that it takes. As one explains, 'trying to make risk modelling completely generic is probably a flawed approach' (*Q2, p.C10*). That attitude towards risk identification may in fact lead to overlooking certain areas. That is because a standard risk identification approach would prompt the users to consider only specific categories (*for example, GA2, p.C7*). As one puts it, 'I find a standardised way of identifying risks possibly slackly' (*GB1, p.C8*). The tool does not encourage lateral thinking and may evolve into a 'box ticking' exercise. Similarly, one states that it will always need to be modified for special processes/projects (*GB1, p.C8*). Finally, a few participants expect to see what will eventually happen with the identified risks. In a couple of occasions participants note that although the means to identify risk is OK, the tool lacks the ability to further analyse the risks (*Q3 and Q4, p.C11*). The workshop's discussion divulges at some point that there is a constant underlying danger that hundreds of identified risks be dumped somewhere without any further action taken (*Additional Comments, p.C15*).

4.7.3.3 FURTHER PROJECT STAGES PREPARATION

Within this workshop the participants are asked on how useful the outcomes are of using the risk modelling tool to further project development stages. Primarily, some participants explain that the tool can actually initiate a common discussion on eService risk (*Q3, p.C11; Q8 and Q9, p.C13; D2, p.C16*). That is particularly useful (according to one participant) since 'sometimes in the public services it can be convenient to put off thinking about risks' (*Q8, p.C13*). In fact, as one participant argues, 'the outcomes would certainly provide a platform on which to back further discussions' (*Q3, p.C11*). Consecutively, that may be used as the basis for more detailed analysis at a later stage. That is because it prompts thinking under a number of headings and provides a standard approach. And as such it is very useful initiating any further risk assessment. Moreover, the risk modelling tool may be helpful to the

further project stages by providing a framework for everyone interested in looking at the project's risks. A participant states that the tool 'formalises risks' and 'forces risks to be spoken' (GA1, p.C7). As a result, the tool also helps in presenting areas that are probably missed out. In the discussion part of the workshop somebody also mentions that because of this tool previous risk lists may be re-used. Consequently, the corporate knowledge on risks is enriched. Therefore, the decision-makers are indicated of what actually needs to happen at a very early stage. Throughout the workshop there is evidence that the risk modelling tool could potentially influence decisions at later stages. For example, one participant says that it 'makes risk management completer' (GB5, p.C9). Specifically, one argues that the tool should be used at the feasibility study since the earlier risk is identified the better it is. That is because 'sometimes so much resource has been committed to the project that when you identify risks later on, they don't carry the same weight they would have at the project feasibility' (Q10, p.C13). Equally, another participant states that the tool is very helpful as 'it would uncover lots of issues upfront' (Q7, p.C12; Q9, p.C13). However, some argue that after a certain amount of time when the same people use the same tool then it becomes a routine (Q2, p.C10; D1, p.C15; D2, p.C16). That could actually have the opposite effect and disassociate people's interest for further risk discussions. Also, the participants state that for the tool to become more useful to any further project stages it should be able to show what the next stages are (D2, p.C16). That implicitly dictates (once more) the need for the addition of further risk metrics functionalities to the tool.

4.7.3.4 COST/BENEFIT ANALYSIS

This workshop also explores the potential that this risk modelling tool may have towards assisting any cost/benefit analysis. Overall, this workshop does not reveal any significant contribution of the tool to such analysis. In fact, one participant clearly states that this tool definitely cannot analyse cost or benefits, neither is clear how it could help towards such analysis (Q7, p.C12). More importantly, another participant argues that costs are not fully known at the feasibility study stage anyway (Q7, p.C12). Normally the benefits come from the business case, and hence the tool cannot assist in that manner. Someone else also explains that there are already some very well established project tools that can contribute to that purpose, and the tool has to compete

with those (Q7, p.C12). The participant adds that the tool is subjective anyway, whereas a tool like NPV for example is not. And therefore it is implied that the risk modelling tool would struggle to compete against other more appropriate tools. Another one states that the tool could potentially contribute to such analysis; however more detail is needed (Q7, p.C12). Finally, two participants can see some vague cost/benefit contribution on the tool's behalf, if risks identified affect the business case later on (Q7, p.C12).

4.7.3.5 PROJECT IDEA REVISION

Largely due to its afore-mentioned capabilities this risk modelling tool may provide some input towards modifying (for the better) the project idea. The identification of risk through this tool offers the opportunity to pinpoint areas where action is required at an early stage. Most participants reply more or less in the same fashion in the question of how useful the tool may be in identifying changes that are needed to the project idea. Due to its holistic perspective towards risk this tool 'might in turn lead you to re-evaluate the project idea', as one participant says (Q4, p.C11). Another one adds that the 'tool should help focus users identify changes' (Q4, p.C11). Also during the discussion stage some state that the identification of risks that can be found 'right across the board' can then lead to questioning certain areas and examine if they can threaten the course of the project (D1, p.C15). However, for all that to be true, the participants explain - once again - that some conditions need to apply. Although the tool may help users identify changes, implementing change in the public sector appears to be cumbersome (Q4, p.C11). Similarly, modifying project goals/ideas at an early stage presupposes that the users of the tool are allowed to do so. That is often not true since the project goals/ideas are handed down from the leadership and the project development teams implement (Q4, p.C11).

4.7.3.6 PROJECT CANCELLATION

This workshop cannot suggest that the risk modelling tool can provide the rationale for cancelling a project during the feasibility study stage. However, there is some feedback from the participants which states that the tool may be helpful towards that process. First of all, this workshop divulges that the project development team is not in a position (especially at this early stage) to cancel a project or not (Q5, p.C12). Apparently, it is quite often that the team

does not consult the eService users or the departments where the system will be put into place; neither is responsible for marketing the project (Q5, p.C12; D3, p.C16). The eService project is simply imposed on the team and it has to be developed. Therefore, if the tool is to be used for backing any project cancellation, it should be exploited by senior management officials (D3, p.C16). They are the ones that have the power to discuss whether a project should be closed or not. If the above is true then the risk modelling tool has some relevance to that purpose as it 'has the potential to identify showstoppers at an earlier stage', as a participant notes (Q5, p.C12). However, even so, projects are cancelled for lots of reasons and risk plays only a part in it. In fact, some other drivers (politics, for example) are so strong that risks are often 'excused' (Q5, p.C12; D7, p.C17). Therefore, although risk may certainly contribute to the collection of evidence for cancelling a project, it cannot be the sole reason for doing so. Apparently, one participant clearly says that there are more significant tools that can achieve that (Q5, p.C12). However, some participants do find that the risk modelling tool could potentially have some relevance in providing the rationale for cancelling a project at an early stage. That lies in the fact that the identified risks may be used as reasons for 'killing' a project (D1, p.C15). But to achieve that the tool should be capable of providing some risk metrics as well. In other words, the senior management officials should be able to see that the risks identified are such they cannot be effectively managed (Q5, p.C12). That could potentially form some rationale for cancelling an eService project at an early stage.

4.7.3.7 BUSINESS ENVIRONMENT SCOPE

The workshop also explores whether the risk modelling tool may aid towards better scoping the business environment. Three out of the seven participants clearly state 'yes', and another one provides some positive feedback (Q6, p.C12). Their argument lies in the fact that the tool may provide some output of what is required, as well as identifies any areas of the eService project where more work is required. 'This may include changes to the shape of the environment' as one participant adds (Q6, p.C12). However, at some other instance one participant argues that the tool 'can help the scope if all risks, strategies, capabilities of the organisation have to be accepted and influence the vision. Private sector is based on cost/profit/times. The driver is not the same in the public sector (Q4, p.C11).' That participant carries on at a later

stage by saying that 'the business environment in the public sector is not always what the end user or final customer wants', referring to political nature of such projects (Q6, p.C12). Along the same lines, another participant explains that the 'business environment is usually a given', and therefore 'it is difficult to see how a risk modelling tool could have this much effect'. Finally, a participant adds that better scoping the business environment through this tool 'would depend on who was using the tool' (Q6, p.C12).

4.7.4 EMPLOYING THE RISK MODELLING TOOL AT THE FEASIBILITY STUDY STAGE

The feasibility study stage workshop provides some considerable feedback on the actual utilisation of risk modelling in the field. This part of the chapter will discuss on the findings about the status of risk modelling -in practice- at the field (more precisely, where the workshop participants were employed at the time of the workshop). Following such discussion, this section will conclude with an elaboration on the findings in regards to whether a risk modelling tool would actually be used during the feasibility study stage of potential eService projects for the government.

Perhaps the most striking result of this workshop is the view, which most of the participants appear to share, that the nature of the public sector is different to the private one and therefore the drivers that dictate the development (or not) of eGovernment service projects are rather different. In various instances of the workshop relevant comments are expressed. For example, one states that 'the business environment in the public sector is not always what the end user or final customer wants' (Q6, p.C12), and another one argues (Q5, p.C12) that 'excuses in the public sector may override issues' (such like risks). Interestingly, one participant adds (P1, p.C21) that in cases when benefits (also implicitly referring to risks) are difficult to measure, 'the true costs and benefits are marketed, based on an assumption and pressure to make it happen (the real driving force for the project is evaded or masked, for example due to politics)'. At some point during the workshop, a participant expresses (Q4, p.C11) that 'the private sector is based on cost/profit/times' and that 'this driver is not the same in the public sector'. Such driving force is implied to be any political decision(s) affecting the course of eService project development. That nature and drivers dictate whether any risk modelling at an early stage (the feasibility study in particular) will actually happen and how its outcomes

will be further exploited. More in particular, a participant argues that 'risk identification in practice is not always welcome' (P1, p.C21). And that participant continues by saying that 'there is often pressure or organisational drivers to force the focus on the desired outcome for benefit realisation (P1, p.C21). Identifying sensitive or cultural risks and bringing them to the fore is often seen as subversive.' Therefore, a participant argues that risk modelling is useful depending on how it is used (Q4, p.C11), and another one adds that risk modelling at the feasibility can aid the scope of the project if the identified risks are accepted and that practice actually influences the vision of the project (Q4, p.C11). However, in practice 'the driver for the change may and does override the possible problems and risks' as another participant explains (Q5, p.C12). In fact, this workshop suggests that for eGovernment service project development at the feasibility study level the political driver is critical. The project development staff - and basically anybody below executive level - do not really do much at that stage, and the project requirements are just parachuted in. One workshop participant expresses very graphically that the 'city council is risk averse, but not risk averse in doing projects' (D5, p.C17). In fact, it is implied that once management staff receive funding they then find ways to spend it, without necessarily having planned for. Very often, the national government (in this case the Scottish Executive) officials look at the trends and award money to local government eGovernment departments to implement projects they haven't planned for.

Realistically speaking - due to politics - local government establishments bid for several projects, and once they secure the funding for their development, they proceed as they are told by central government policy. Apparently, it is argued that if they (the eGovernment department in the city council) do not do so they will be punished as 'future funding decisions can be affected' (D3, p.C16). And any way, as one points 'risk plays a part, but only a part' (D3, p.C16). Therefore, any risk modelling at the feasibility study has no practical influence. Primarily - this field research reveals - that risk is always seen from its downside. It is 'not uncommon that leadership supersedes risk and very little planning takes place' (D5, p.C17). Projects have to be developed no matter what, often skipping standard practices like risk assessment or even the business case. Apparently, one participant clearly states that risks are seen as reasons for not doing a project which has already received its funding (Q13,

p.C14). Seemingly, the participants report that it is often the case that feasibility studies do not really happen. Moreover, some argue (*Q11, p.C14*) that risk modelling at the feasibility is not sustainable since most projects are initiated at central government level anyway. In other words 'projects are authorised prior to risks' (*Q11, p.C14*) as one participant puts it. And the participant continues by saying that 'risks are identified in the process'. Similarly, one explicitly states (*Q13, p.C14*) that the project development teams implement rather than initiate eService projects and their input to project initiation is minimal. Moreover, the 'futility' of risk modelling at such early stage is also found on the basis that senior management can sometimes be reluctant to 'kill' (*Q13, p.C14*) a project once any time has been spent on it. Paradoxically, some participants note the peculiar situation of employing basic risk assessment so as to better present the case and secure the funds for potential eGovernment projects. That workshop reveals (*P1, p.C21*) that it is often the case that further stages like the business case present identified risks in a certain manner portraying them as manageable. As some participants express the national government offers very tempting funding opportunities for eService project development. Therefore, the local government establishments bid for such funding anyway (*D3, p.C16*), no matter how much needed (or not) a particular eService is, and with no regard to the severity of the potential risks' impact that such project may have.

The workshop participants give in a couple of instances real examples that depict the afore-mentioned situation. One such case reports (*D5, p.C17*) on an 'entitlement card' project that was scheduled to start in 2006 at that local government establishment. However, a ministerial statement urged that such project should go live by the end of 2005. As such, the city council eGovernment development team was further awarded £100,000 so as to circulate cards by the end of 2005. Another example that this workshop divulges (*D3, p.C16*) is the case of the 'Authentication' eService project. The eGovernment project development did a feasibility study and identified serious risks that rendered the project idea unsustainable. To do that project anyway, the project development team renamed the project to 'Authentication - Proof of Concept' and successfully received the funding for it. The first example instantly depicts the political nature of these projects, whereas the latter case highlights the current culture and approach towards management practices

that currently exists (at least at that local government establishment). Both of the above-mentioned examples render any honest approach towards risk modelling at such early stage rather useless or at least a formality.

Apart from the afore-discussed topics, the workshop provides some further feedback on the employment of risk modelling at the feasibility study stage of an eService project. With the wider political context - influencing the decision-making process - in mind, any risk modelling practice appears to be useful. However, the participants stress in few occasions, that such practice is subject to organisational culture and trust (GA2, p.C7; D6, p.C17). Project development staff involved in any risk modelling will have to be honest and open. Additionally, the participants (Q12, p.C14) seem to agree that any risk modelling output would have to feed into some kind of other process (such like risk assessment/management) in order to make a positive impact. Also any risk modelling results have to somehow influence consecutive re-examination of the project idea (Q5, p.C12; D3, p.C16). If such preconditions exist, then - according to the field research participants - risk modelling would be adopted at the feasibility study.

The participants find that risk modelling is useful - in general - at the feasibility study stage. Actually, one participant points (Q1, p.C10) that risk modelling could offer leads to the following areas as well:

- 'The As-Is state of each component/category could be defined - then the To-Be enabling a GAP analysis of the change required by all components.'
- 'To identify and categorise tasks in the project plan.'
- 'To identify and categorise cost components.'
- To identify and categorise drivers and benefits.'

Equally, one participant explains that risk modelling would help keep a focus on risks, as 'in the public services it can be convenient to put off thinking about the risks' (Q8, p.C13). Finally, most of the participants state in different instances that currently they do use - infrequently - risk modelling in the form of high impact risk logs (Q11, p.C14).

In regards to the actual adoption of the risk modelling tool at the feasibility study stage the workshop divulges similar results. Overall, the tool appears to be another potential tool for helping the project development team to take any decisions (*D4, pp.C16-C17*). However, it is not 'revolutionising' as one puts it (*Q8, p.C13*). It would be used in order to initiate any risk assessment exercise. Similarly, it would be used because it can provide the basis for risk-based guideline (*GA3, pp.C7-C8; GB3, p.C9*). As such it would be used in order to allow project stakeholders better appreciate lots of issues upfront. However - and as discussed earlier - the above is valid under the assumption that risk exercises are not 'just a formality', and that stakeholders have access to the 'info from the analysis and the tool' and 'they would/should be involved with powers appropriate to stakeholders'. All participants reply positively to the question whether such tool would be used at the feasibility study (*Q10, pp. C13-C14*). And as one participant states, 'it is very good at covering the ground'. Provided the project undergoes a feasibility study, the following are the reasons why such a tool would be adopted at that stage:

- To create more detail to support decisions.
- To understand risks before committing to the project.
- To identify risks at an early stage.
- Because risk should be upfront and constantly reviewed throughout.

At that local government establishment, where the workshop participants were employed at the time of the field research, a risk modelling tool project was underway (*Q11, p.C14*). Generally, such tool would help the project development team(s) identify risks and complete the risk register. At the feasibility study stage, at that city council they usually implement an initial risk log, which - according to the discussion with the participants - is at the same level of detail as this risk modelling tool (*Q11, p.C14; D5, p.C17*). One participant states that this risk modelling tool 'compares fairly well' to existing risk modelling methods (*Q12, p.C14*). Another one states that it 'allows a more structured method to identify risks' when 'current methods tend to be around brainstorming' (*Q12, p.C14*). Similarly, another workshop participant finds the tool 'much more effective at identifying risks'. However, one says that this tool requires experience from its user(s) in order to be effective, as well as

experience is needed of dealing with eService projects when creating such tools (*D1, p.C15*). Moreover, another participant finds that the identification of risk through this tool is done a little mechanically. Therefore, there is an underlying pitfall that such risk modelling can be too generic and consecutively a flawed approach. Equally, stemming from a comparison to existing risk modelling practices, the participants state that it is expected that such tool(s) would also provide some kind of fundamental risk assessment. 'Ranking risks in both likelihood and frequency' would make the tool 'potentially very useful', because 'it would give the project staff specific risks to concentrate on' (*Q3, p.C11*).

4.7.5 SUMMARY

The three afore-mentioned parts of the Workshop Conclusions section within this chapter may be summarised in Table 4.3. The first column ('expediency') of Table 4.3 briefly annotates the workshop's participants' comments on what the tool was to found to do and/or what it should do ideally. Equally, the 'design' column summarises the main comments made during the course of that workshop in regards to what the tool appears like and/or what it should look like. The third column, called 'adoption' includes the main workshop participants' opinions in regards to whether this tool would be (or not) used in real life contexts, and of course highlights the existing trend as is now. This table, in conjunction with similar ones presented earlier in this thesis, will aid towards replying to the thesis' research question, as well as further examining the research hypotheses at a later stage within this thesis.

Table 4.3: Feasibility Study Research Reflection

EXPEDIENCY	DESIGN	ADOPTION
It poses a holistic risk-based guideline for project understanding.	In terms of usability it can be confusing at a first glance.	Due to the nature of the business environment in the public sector, risks sometimes tend to be overlooked on purpose.
It identifies areas that could be overlooked.	In terms of detail, the tool is fairly complete.	The perception of risk and indeed the true purpose of the feasibility study stage are often blurred in public sector environments.
It focuses decision-makers' ideas.	A generic tool like that cannot include project-specific risks.	In practice, risks at the feasibility study stage are often muted or portrayed as manageable, so as to secure project funding.
It helps to identify and categorise risks.	Various risk factor categories could still be added to make it more complete.	In principle, this tool is useful if: <ul style="list-style-type: none"> • The people using it can alter project goals, • A means for risk identification is needed, • It is to be used as part of a wider feasibility exercise, where issues other than risk are examined.
It helps to re-examine a project idea and assign responsibility.	It could become closely aligned to recognised project management methodologies, such as PRINCE2, by altering the terminology used.	Risk on its own and hence the use of a risk modelling tool as the sole means for project idea cancellation can not be valid. That is because risk is only one aspect that is considered when discussing about a project idea.
It paves the way for subsequent risk assessment.	Risk ranking metrics and management plans could further enhance the tool design.	This tool would be used pending the 'openness' of an organisation's culture.
It should provide basic risk assessment functions.		It compares well with other register-like methods, but would be more appropriate if it contained more risk assessment capabilities.
It could end up being a 'box-ticking' exercise, and hence areas could be overlooked.		

4.7.6 REMARKS

On principle, the participants find that the risk modelling tool is appropriate for the eService projects' feasibility study exercise. More in particular and as explained earlier in this section, the research tool is relevant to the feasibility study stage for at least two reasons. First, the risk modelling tool is found by all participants to be useful in identifying (and by some, categorising) risks. Such risk identification could initiate and inform risk assessment done at a later

stage. Moreover, the risk modelling tool appears to provide a holistic framework of issues needed to be considered at an early stage, such as the feasibility study exercise. Similarly, some participants find that the risk modelling tool, could - under certain conditions or to put it better, in an 'ideal world' - contribute towards the rationale for cancelling a project idea. Though, the participants stress that such 'cancellation' reasoning should be supported by other tools/reasons as well, since risk is only one aspect - amongst many - that needs to be considered when deciding on the fate of a particular project idea at the feasibility study.

Of course, as every prototype tool this one needs some further modifications to become more useful at the feasibility stage. Apart from some minor updates to the risk taxonomy, two more additions are proposed by the workshop's participants. The first modification has to do with a closer alignment to the PRINCE2 methodology, so that the results from the use of the tool can be easily transferred to later stages of eService project development. The second optimisation for the risk modelling tool (according to the participants) would be the addition of further risk assessment with the inclusion of metrics, such like 'risk owner', 'risk frequency', 'risk impact'. Once again, it has to be stressed that as such addition would be targeting the 'next stage' of risk assessment - which is out of the scope of this research - it shall be considered as future work. Therefore, the update version of tool shown earlier within this section does not add any risk assessment functionalities.

In practice, the situation is quite interesting. It appears that the project development team has no real powers to decide whether or not a particular idea is feasible to become a project and is worthy investing on. As such, irrespective of the type of decision support tool (such like the research tool) the project development team has, it seems futile using it. According to the participants, the 'political environment' is usually stronger than any project development routine/method and the project developers are 'implementing' rather than 'initiating' projects. On the bright side of things, still such a tool could be used at an executive level, but still it all depends on the public authority's culture.

4.8 CONCLUSION

This chapter presented the findings from the field research. The discussion started with the feedback retrieved from four interviews with key eGovernment domain experts. Possibly the most important highlight of that first field research stage is the addition of several new risk categories at the taxonomy component, as well as some restructuring of the FRaMES model. Such feedback contributed to the creation of an updated form of the risk modelling tool's components, which are also presented within this chapter. Amongst the various other findings, perhaps the most striking findings relate to the fact that the risk modelling tool may help to bring a focus to decision-making discussions at the feasibility study stage of eService projects, as well as help to avoid waste (time, financial, and human resources). The findings from those interviews also reveal that for the risk modelling tool to be effective and practically used at the business case stage, risk metrics are needed so as to support risk assessment functionalities. Finally, the first section of this chapter also divulged that any risk modelling at the feasibility study stage of 'politically-imposed' projects would be a formality; however, that may not be the case for choice-based projects.

The second section of this chapter dealt with the presentation of the findings gathered during a workshop about risk modelling during the business case stage. Conceivably, the most remarkable result of that workshop is the merger of the two tool components and the formation of an integrated version of the research tool. Quite notably also, the findings from that workshop include suggestions that the tool contributes to the business case of an eService project by identifying and categorising risks. However, once again it is spotted that use of such tool would be limited unless there was the added risk assessment (and management strategies) functionalities. Also, one other striking finding of that workshop is perhaps the fact that usually no thorough and standardised risk modelling or even risk assessment occurs at the business case; such issues are normally catered for during the full-blown project management lifecycle.

The findings from a workshop on risk modelling during the feasibility study stage were presented in the final part of this chapter. The biggest part of that

workshop was probably consumed on the adoption of such tool and risk modelling in general during the feasibility study of eService projects. Broadly speaking, the results of that workshop are similar to the findings from the earlier field research, when it comes to the actual functionalities/abilities of the risk modelling tool. Again, it is stressed that the addition of risk metrics would be beneficial. Moreover, in terms of design there are a few minor updates; perhaps most notably the alignment of the tool to the PRINCE2 terminology. A large chunk of that workshop's results revolved around a discussion on the 'political' nature of such projects and the impact that such situation has on the adoption of risk modelling at the feasibility study stage.

CHAPTER 5 - RESEARCH SYNTHESIS

5.1 INTRODUCTION

Following on the presentation on and discussion of the findings retrieved during the field research stages, as it was discussed in the previous chapter, this fifth chapter will ground the findings into the research literature. Ultimately, that discussion will lead to the contributions that this thesis provides to the pertinent body of knowledge.

As it was previously presented in Section 1.2 this thesis aimed to provide a suitable reply to the question of how relevant risk modelling is at the pre-proposal stages of eService projects for government. As it is going to be shown later in this chapter, that could be answered by looking into three different aspects that affect the perceived positive outcome that such practice may bring to the decision making process during that phase. Such aspects revolve around the way risk modelling is done, when it takes place, and the role that the user/initiator of such practice has.

Broadly, this chapter elaborates on the research findings about the various research issues drawn earlier during the literature review stage. Such elaboration is realised in the form of a conceptual framework that will be presented later in this chapter. Ultimately, this chapter reflects on the empirical evidence of this research and contrasts the findings against the theoretical issues as they were prompted during the literature survey stage.

5.2 DISCUSSION ON THESIS ISSUES

The section that follows discusses about the thesis issues as they appear in the field research. To elaborate on that task, the findings retrieved from the field research are compared and contrasted against the earlier theoretical findings, based on the literature review.

5.2.1 THE ROLE OF RISK IN THE EARLY ASSESSMENT OF PROJECTS

Earlier in this thesis (*Chapter 2, p.90*) it was discussed that considering risk at an early project development (or even better pre-development) stage has a role to play. That issue was mainly conceived after having considered the purpose of risk in planning (*for example, read Cresswell et al., 2005*) as well as in the ex-ante evaluation of eGovernment projects (*for example, read Irani et*

al., 2005). The field research explored the potential of such issue and divulged a rather mixed response. Briefly, it is revealed that considering risk at an early stage (such as the pre-proposal phase) may play a supporting role in decision making by providing a 'bigger picture' of issues, as well as organising the project discussions. However, in practice it appears that any risk considerations at the pre-proposal stages of eGovernment service projects are somewhat futile. So let us look into such matters.

The potentially supporting role of risk modelling

It is found that considering risk at an early stage could support the decision-making process by organising the discussion of issues that are likely to arise in the future. That can be achieved in various ways, for example through the use of risk based checklists (p.170). Moreover, risk-based tools (like the thesis' one) may categorise risk (pp.170-171; p.184), as well as dissect eGovernment systems and analyse their risks (p.171). Therefore, such tools could be used to support brainstorming sessions amongst decision-makers (p.171), and hence eventually enhance the whole decision-making process. Equally, this research reveals that the decision-making process may be enhanced by looking at the bigger picture (p. 172) of an eGovernment project, based on risks. Looking into risks in a holistic manner appears to help in avoiding potential 'single-mind' approach (p.170), which could play a role especially at the business case stage by providing a holistic understanding of eService projects and their issues. Ideally, when considering risk at the business case it would be particularly useful to look into the various interactions and relations between various risks and their impacts (p.164). Finally, during the feasibility study of a specific project idea tools that support risk identification are seen as useful. Considering risks in order to support decision-making at the early project stages may help towards the qualification of a particular project idea and therefore assist towards avoiding waste (p.148). Similarly, considering risks during the pre-proposal stages may ultimately lead to better results (p.148).

The futile nature of risk modelling at the pre-proposal phase

Interestingly, the findings of the field research also provide a rather contradictory story. Although in an ideal world the consideration of risk at the pre-proposal stages of eGovernment service projects is portrayed as helpful, the reality is different; risk is considered seriously mostly during the actual

project development lifecycle and not before that. It is suggested that the political nature of the environment within which eGovernment services are developed, catalytically impacts on the way decisions are taken at the pre-proposal stages. The field research suggested that the current norm is that eGovernment project ideas come (to the eGovernment project development staff) directly from political leadership (*p.156*). In fact, it is highlighted that the business environment in the public sector is not necessarily the same as in the private sector in the sense that it is not always what the end customer wants. That defining difference ultimately leads to situations where 'excuses' can override issues and political leadership often 'supersedes' any risk considerations, and hence little planning really takes place at the pre-proposal stages (*p.190*). The strong political influence at the early decision-making for eGovernment projects consequently leads to the depreciation of the importance of risk at such stages. Since risks are often seen as reasons for not doing a particular project, and therefore clashing with the 'high up' political mandate, it is convenient to not consider risks (*p.192*). Actually, it is often the case where any identified risks are simply muted or 'masked' in a manageable way (*p.177*). That is particularly interesting, because it tags along the same lines of relevant research in other domains. For example, Williams (*p.18, 1994*) portrays risk registers as the façade that the project tenderers employ in order to secure funding for future projects. Moreover, the field research divulged that the consideration of risk as a sole reason for stopping an eGovernment service project during the pre-proposal stages cannot be justified (*p.188*). That is because other factors, such as costs/benefits and of course political commitment, are more important at the early stages. Risk is useful as part of a wider exercise, but not the sole deciding factor, in order to cancel a project at a very early stage (*p.188*). Finally, it was stressed during the field research (*p.185, p.194*) that the template-like consideration of risk (like the risk modelling tool of this thesis) can often lead to situations directly opposite to the required ones. Considering risk with the use of 'standard' models may pose a routine-like operation, and eventually lead into a box-ticking exercise that has to be done. That situation may not encourage lateral thought and eventually leads to issues being overlooked.

5.2.2 RISK CONSIDERATION DURING THE PRE-PROPOSAL STAGES

This thesis earlier argued (p.90) that the consideration of risk is integral to the pre-proposal phase of the eService projects for the government. That stems from the literature which reports that risks should be identified and described at the business case (for example, read OGC, 2002; CIPFA, 2000). Equally, as previously described (p.66) the feasibility study stage is seen as a smaller 'business case' looking at the potential project from a higher level; and hence areas like risk could be covered as well. The findings from the field research showed that considering risk is associated with both the feasibility study as well as the business case discussions of eGovernment service projects. Though, the field research also stressed that such practice occurs erratically.

Risk consideration is associated with pre-proposal stages

Looking into risks and taking them into account is perceived as common practice during the feasibility study stage (p.156, p.193). Such practice is particularly vivid during the discussions of choice-based projects that are not statutory dictated. It has to be stressed that the field research showed that any risk consideration (usually the very top risks) during the feasibility study stage is done in an ad hoc manner and is not standardised at all. Equally, that is very much the same situation for the business case; in a rather more structured way. In principle, during the business case stage the PRINCE2 guidelines are followed in order to tackle any risk issues (p.172). Therefore, risk registers are developed and used (p.158). Such risk registers incorporate risks attached to their likelihood and impact. The population of those risk registers is often based on past experience and current knowledge.

Considering risk during the pre-proposal phase happens erratically

Although the consideration of risk appears to be associated with the decision-making process during the pre-proposal phase, the information retrieved from the field research also suggested that such discipline happens infrequently and really depends on existing local practices (p.172). Such practices are dependent on the individual organisation's culture, which should ultimately promote honesty and openness (p.192). In fact, there are instances where risks are not explicitly investigated and is hoped that they are captured within the project requirements documentation (p.172). Practically, only the big impact

risks are looked at in the business case. In effect, the risk registers are used on a random and non-standardised basis. Usually the reason behind such situation is that project members simply do not have the time for such considerations (p.172).

5.2.3 BETTER INFORMED TOOLS AT THE PRE-PROPOSAL STAGES

The literature stated that eGovernment is relatively new, lacking standardisation (Moon, 2002; Jaeger, 2003; Basu, 2004) and hence the issues of projects in the domain are rather not completely explored (CIPFA, 2005a). At the same time, it is suggested (*for the business case, CIPFA, 2005a; for the feasibility study, Irani and Love, 2002*) that appropriate mechanisms may be needed to support decision-making at the pre-proposal stages. Based on the above, this thesis presented earlier (p.90) that at the pre-proposal stages there is a need for better informed decision making during the business case and feasibility study. The research suggested that the use of such tools during the pre-proposal phase is - at least - useful in providing more information. However, such proposition can only be true if the tool users are in a position to actually influence the decision making process. For instance, the field research indicated that sometimes project requirements are 'parachuted in' by the political leadership (p.190).

Tools that assist in decision making are welcome

The field research, including the domain experts' interviews and the two scenario-based focus group workshops, indicated that tools supporting the decision-making process at the pre-proposal stages are indeed useful. Broadly speaking, tools that can help qualify an idea at the feasibility study stage as well as identify and provide answers to likely issues at the business case are required by decision-makers (p.170, p.183). More specifically, such issues usually involve discussion on where the benefits lie, who will sustain the costs, and what the ongoing costs are (p.157). The decision-making process can be better informed through the use of tools in a number of ways. It is revealed that a tool like the one proposed in this thesis could actually help identify pertinent questions and get the components down for discussion (p.157). In fact, it is indicated that especially risk-based tools could help alleviate the lack of understanding of risk, which is perceived to be a major project failure factor (p.172). Equally, similar tools could support decision-making at the pre-

proposal phase in order to ensure consistency. That can be achieved by breaking the issues down and passing the idea(s) through a consistent set of criteria. Therefore, potential areas that could be overlooked may be identified and dealt with (p.170). Better informed decision-making is welcomed at the pre-proposal phase in order to convince the project sponsors that there is an actual business case worthwhile investing into (p.157). Therefore, tools that can contribute towards such aspect are particular useful. In fact, such tools are already being used, as the field research revealed, identifying the future project's main components and the level of detail (p.157). Similarly, tools like the one in this thesis may input into areas that need to be covered by the business case (p.172). Also, such tools can focus thought on key project areas that require extra attention (p.170). However, the more detail such tools provide the better it is. For example, a risk-based tool for the pre-proposal stages would be welcomed to provide risk metrics mechanisms in order to deliver useful information to the decision-makers in terms of risk likelihood and frequency (pp.172-173; p.185; p.186; p.194).

5.2.4 INFORMED RISK IDENTIFICATION AND THE SUCCESSFUL MANAGEMENT OF PROJECTS

The corpus of knowledge that is founded on informed risk identification can help towards the successful management of projects. That statement was revealed earlier in this thesis (p.90) and is based on a number of references from the literature (for example, read Moulton and Moulton, 1996; Chapman, 2001; Love et al., 2005). The findings from the field research went along the same lines. However, it was also pointed that the risk identification alone may not be enough.

Informed risk identification aids in successful project management

Informed risk identification, through the use of a tool similar to the thesis' one, is seen to be used as a guideline that provides understanding of eService projects. Therefore, participating stakeholders can actually better appreciate all issues and examine what could prevent an eService project from succeeding (p.183). Also, the field research indicated that informed risk identification may also lead to responsibility identification and therefore accountability may increase (p.185). Of course, the better informed the risk identification is the better the future risk assessment exercises will get, and therefore the projects

are more likely to succeed (p.185). More specifically, the field research highlighted that during the business case stage informed risk identification (through the use of checklists) ensures that all angles of pertinent issues are covered (p.158). More importantly, the body of knowledge (based on informed risk identification) available to the decision-makers may help in assessing the likely issues (like benefits and costs) of relatively new and unexplored projects, where there is no previous relevant experience available (p.158).

Informed risk identification is not enough

However and putting it within the pre-proposal phase's context, the field research also identified that although informed risk identification can indeed stimulate the discussion on areas that may affect the course of a project (and hence aid towards the successful management of the project), it is also the case that risk identification on its own may not be enough; especially at the business case stage (pp.172-173). In reality only the big impact risks are being looked at during the pre-proposal stages and hence any potential risk identification at that phase is limited (p.173). In fact, it is found that during the feasibility study risk identification is usually skipped (p.189, p.192). Apparently, that seems to agree with similar findings found in literature (for example, Irani and Love, pp.76-78, 2002). Hence the body of knowledge provided by the risk identification during the pre-proposal stages is equally restricted, and as a result the assistance it provides is limited.

5.2.5 THE DIVERSE NATURE OF EGOVERNMENT RISKS

This thesis reviewed the existing literature and produced a list of five different areas of risk that surround eGovernment projects (for more read, p.90). That led to the assumption that eGovernment risks are not only technology-oriented, but may also be found in other areas. Throughout the field research that issue was explored by employing and examining the eService risk taxonomy component of the risk modelling tool. Apparently, such investigation could not disapprove that proposition.

eGovernment risks are diverse

Throughout the field research there were suggestions for several risk categories to be added and further enrich the risk taxonomy component of the tool. Moreover, there were no suggestions to remove any of the non-technological

risk categories. Equally, the risk statement lists that have been collected during both of the focus group workshops included a balanced mixture of risk statements, which were not always technology-related (*for more read the Appendices Section*). The afore-mentioned observations in effect demonstrate that the relevant research issue as was identified during the literature survey is true. Various non-technological risk categories were also suggested. Issues like 'need' (*for example, p.149*) for the proposed eGovernment project and the risks that it entails are surely non-technical. Risks related to training of human resources have also been raised throughout the field research (*for example in p.149*), and have a direct impact on eGovernment projects. To highlight some others, change in terms of policy and/or organisation and/or culture as well as project management issues and suppliers/public authority related risk categories have been proposed (*pp.163-164, pp.192-193*). In fact, it is suggested that non-technological risks (like policy change for example) tend to spark another technological risk (for example user requirements and eventually system specification). Apparently, the field research also revealed that there are cases where during eGovernment project development risks found within the technological realm generate non-technological risks (*p.149*).

5.2.6 THE HOLISTIC NATURE OF EGOVERNMENT RISK MODELLING

Earlier in this dissertation (*p.91*) there was a discussion that briefly presented risk modelling methods for eGovernment that have been found in the available literature. Based on that, it was proposed that eGovernment risk modelling methods should examine risk holistically.

Internal, external and intra-organisational risk modelling coverage

A few times it was referenced throughout the field research that an eService model like FRAMES should look at internal areas (*p.151*); for example, risk that can be dealt with within the government establishment. Equally, such a model should also be looking at external areas (*p.151*), like co-operating private organisations for instance. Moreover, an eGovernment risk modelling method is also expected to somehow depict the intra-organisational level as well, covering risk areas that can be dealt with amongst various government departments (*p.151*).

Template-like risk modelling could be a flawed approach

However, it has to be equally emphasised that throughout the field research there were many comments prompting for the redesigning of the eService model. That situation in itself generates a partial disagreement with the argument stressed in the afore-mentioned issue. The fact that someone (the thesis' author in this case) designed a template-like static model and the actual model users found it insufficient (p.164) may demonstrate that a 'one-size fits all' approach towards risk modelling can indeed be very subjective. In fact, the field research showed (p.182) that it is virtually impossible to achieve a 'one size fits all' approach, because there will always be project-specific risks; rendering such advance rather flawed (p.185).

5.2.7 CATEGORISING RISK WITHIN RISK MODELLING

Another issue that was proposed earlier in this thesis (p.91) argued that risk modelling for eGovernment would usually include some kind of risk categorisation. That arose mainly from the observation that most risk modelling methods (*IEM, Integrated Risk Management Framework, New Models of Collaboration, Design-reality Gaps, Simple Factors Rating*) captured in the literature provide some kind of risk classification. Unfortunately, the field research results were not as fruitful as one would expect in order to supply with a confident reply to the afore-mentioned argument. However, there are two references in the field research work that could possibly uncover a lead. It is expressed (p.171) that the categorisation of risks aids to formulate risks in a way ready for discussion and debate amongst the project development team members. Secondly, it is suggested (p.170) that risk statements could fall under appropriate risk categories. Also, the risk categorisation should cover a wide spectrum or areas spanning from political issues all the way to information technology specific ones, as well as project management related risk categories. More importantly, it is emphasised (p.158; p.181) that any risk categorisation that is template-like and not project specific can never be complete.

5.3 RISK MODELLING AT THE PRE-PROPOSAL STAGES

Based on the previous parts of this chapter this section takes a step further by exploring the implications of the research for furthering the understanding of the research problem. As presented earlier in this thesis (p.3), the research

problem is encapsulated in the following question: 'how relevant is risk modelling at the pre-proposal stages of eService projects for government?' In order to find an appropriate answer to that question this thesis employed a risk modelling tool (the discussion of which is presented on *Chapter 3, pp.119-128*) that was used as a device to divulge pertinent research results. Indeed, the employment of the research tool in the field research stages provided this thesis with valuable findings. Such findings revolved around the thesis' risk modelling tool itself, revealing information about the risk modelling tool's design and what is expected from such tools at the pre-proposal stages of eGovernment stages. Additionally, the research tool was used as a starting point (perhaps, as an excuse) for extracting findings on risk modelling (as a practice) during the pre-proposal stages of eGovernment service projects. On the basis of those two axes, this section discusses about the relevance of risk modelling at the pre-proposal stages of eService projects for the government.

5.3.1 RISK MODELLING ADOPTION

In the earlier section of this chapter there was a discussion on the conclusions about this thesis' issues. The conclusions drawn about the first two (*pp.201-204*) and the fourth (*pp.206-207*) issue brought to the fore - amongst others - some very useful feedback about the current state of risk modelling (and risk consideration in general) at the pre-proposal stages of eGovernment projects. Briefly, it is concluded that in practice it is 'somewhat futile' to discuss about risk at the pre-proposal stages of eGovernment service projects (*p.203*). Equally, it is further pointed (*p.203*) that the pre-proposal phase is a stage too early for risk (and indeed any risk modelling) to be taken into serious account. Moreover, it is found (*p.204*) that any consideration of risk (and indeed risk modelling) occurs erratically even when it is part of the current practice.

More specifically and by looking at the tables (*Table 4.1; Table 4.2; Table 4.3*) presented earlier in the Findings chapter, there are conclusions drawn about the adoption of risk modelling at the pre-proposal stages of eGovernment projects. Such conclusions can be distinguished in those regarding the depiction of the current state of risk modelling and those that explain the current state of risk modelling. This study showed that in practice any risk modelling that occurs comes in the form of a risk register (*p.158; p.185*). However, such risk modelling approach does not always happen (*p.156; p.173*). In fact, it appears

(p.173) that any risks will somehow be captured in the requirements documentation or even at the stages after the pre-proposal phase (p.173). Apparently, at the feasibility study stage the perception of risk within the public sector is so blurry (p.189) that makes any risk modelling rather impractical.

This study found that there are certain reasons why risk modelling and indeed any consideration of risk are not practically adopted at the pre-proposal stages of eService projects for the government. Primarily, such reasoning can be distinguished in 'environment-based' and 'timing-based'. It seems that the political nature of the business environment in the public sector plays a catalytic role in the perception of and attitude to risk at the pre-proposal stages of eGovernment projects. As such, it seems (p.188) that risks are often overlooked as they can be seen as reasons for not doing projects (*agrees with Baccarini et al., p.287, 2004*) that have already been asked (by the political leadership) to be done. In fact, it is often the case (p.191) that when risks (when modelled) are presented, as part of the pre-proposal stages, they are done so in a manner that helps secure the funding for the proposed project (*agrees with Williams, p.18, 1994*). However, it has to be stressed here, that there is indication (p.156) that for projects which are not dictated by the political leadership, but are rather choice-based, then risk modelling appears to be useful in the selection process. Equally, the adoption and success of any risk modelling is dependant (p.173; pp.191-192) on the organisation's culture and how 'open' it is in discussing risk.

On the other hand, there is a 'timing' coordinate that has implications on the adoption of risk-modelling at the pre-proposal stages. This study found that in the field during the feasibility study (at least) considering risk is too early (p.190) and it is often 'muted' as securing project funding is more important; and - as mentioned earlier - risk is seen as a reason for not doing a project. In fact, at the early pre-proposal stages risk cannot be the sole reason for cancelling a potential project (pp.187 -188); and as such the importance of risk modelling at that stage is further diminished. However, this study equally found that at the business case stage risk modelling is adopted (on an ad hoc basis, as is pointed earlier) in the form of risk registers with added metrics, because it can help identify areas that call for further attention (p.172).

Finally, it has to be stressed here that such 'timing' factor - influencing the adoption of risk modelling at the pre-proposal stages of eGovernment service projects - also includes the risk modelling users. In various occasions (*pp.189-190*) during the field research it has been reported that risk modelling would make practical sense only if the user is an actor that can influence the decision-making process.

5.3.2 EXPECTATIONS FROM RISK MODELLING

In addition to the conclusions drawn from this study in respect to the adoption of risk modelling, this thesis presents here its conclusions that reflect on the expectations from such practice at the pre-proposal stages of eService projects in the public sector. Overall, this study found that risk modelling is relevant to the pre-proposal phase as it may provide a series of useful (to the decision makers) features. Most of them have a rather complementary 'flavour' to other existing practices (*for example, see Section 5.2.1 and Section 5.2.3*) and this study does in no way suggest that risk modelling is the panacea at the pre-proposal stages.

This study found that risk modelling may (or is expected to) ultimately lead to better project results (*Section 4.5.1; Section 5.2.4*). That is primarily because by modelling the risks at an early stage it helps the decision makers to better appreciate all relevant challenges that will be confronted with once they take up a project. As a result, the decision makers may be better prepared and they could also identify responsibilities easier. More specifically, this study also found that risk modelling may assist in the project selection and help avoid waste (as expressed on *Table 4.1*). As such risk modelling may be employed to assist in qualifying an idea for a proposed project at the feasibility study (*Section 4.5.5*). Equally, as may be seen from *Table 4.3* it is found that risk modelling may help re-examine a project idea; and perhaps make it better before promoting it as a future project.

Risk modelling expectations are found to further expand along two other axes; the promotion of issue discussion, and the specification of relevant risks. Indeed, this study found that risk modelling is expected to promote discussions about issues affecting the course of a proposed project. That is based on the premise that risk modelling provides a logical structure based on issues upon

which decision-making discussions may commence (see *Table 4.1*). This study found that risk modelling resembles a checklist (see *Table 4.2*) or a 'holistic risk-based guideline (*Table 4.3*) through which the decision makers may visit pertinent issues and improve their understanding of the proposed project. Due to such 'structured way' of discussion, issues may now be tackled in a consistent and standardised manner (*Section 5.2.3*). Issues may be broken down and the idea(s) may pass through a set of criteria. Subsequently, that helps towards avoiding the overlooking of any important issues (*Table 4.2 and Table 4.3*), as well as ensuring that there is a focus on key project areas that require extra attention (*Section 5.2.3*).

Moreover and as pointed earlier, this study divulged that risk modelling is also expected to assist in the specification of risk(s) that is related to the proposed eService project. Indeed, it is found (*Table 4.2 and Table 4.3*) that any risk modelling exercise during the pre-proposal stages is expected to identify, define and categorise risks that are likely to affect the proposed project. Apparently, risk modelling provides a 'standardised' way of achieving that, and hence - it is also found - that it helps to avoid 'narrow thinking' (*Section 4.6.3*) when considering the risks. Additionally, this study also found (*Table 4.2 and Table 4.3*) that any risk modelling done during the pre-proposal stages is expected to provide further risk assessment functions such like estimates on the risks' likelihood and impact. Risk modelling would therefore help to pave the way for the standard risk management practices during any future full blown project management lifecycle.

5.3.3 RISK MODELLING PRESENTATION

The previous two parts of this section presented the conclusions of this research in regards to the adoption of and expectations from risk modelling during the pre-proposal stages of eGovernment service projects. In this third part of the section there will be a discussion on the conclusions referring to the presentation of risk modelling; in other words, how risk modelling is expected to look like during the pre-proposal phase. Broadly speaking, this study concludes that risk modelling should be presented as a risk-based checklist for decision making assistance during the pre-proposal stages of eGovernment services.

Indeed, throughout the field research of this thesis it was apparent that any risk modelling done in the field (when it happens) comes or is expected to come in the form of a checklist (for example, read *Section 4.5.6 and Section 4.6.3*) having a checklist of risks at such early stage may help towards alleviating the problem of high rate failure of eGovernment projects (*Section 4.5.5*). The employment of the research tool during this thesis' field research stage allowed to conclude that it is a useful risk modelling discipline to provide a checklist (or categorisation) of risks that are associated with particular eService functional areas (*Section 4.6.3; Section 4.7.1*). It is equally concluded that any risk modelling-based checklist composition could use terminology that shall be aligned (*Table 4.3*) to existing project management practices (such like PRINCE2), which are going to be employed during the full-blown project's lifecycle management. This study found that a popular way of modelling and presenting risks is the risk register. That is the current practice in the public sector (*Table 4.1; Section 4.6.4; Section 4.7.4*) and therefore risk modelling methods could look alike. Moreover, the inefficiency of the research tool to provide any risk assessment features prompted that risk modelling done at the pre-proposal stages is expected to provide risk metrics (for example, *Table 4.1; Table 4.2; Table 4.3*). As may be seen from the earlier section in this chapter (*Section 5.2.2*), such metrics usually entail the measurement of potential risk likelihood and impact.

However, this study also found that any risk modelling done that is based on a generic template may not be appropriate (*Table 4.1 and Table 4.3*). A 'one size fit all' approach for risk modelling at the pre-proposal stages may not be entirely practical, simply because there are always project specific risks (*p.182*). Similarly, risk modelling done in a template manner and without the provision of some kind of risk identification mechanism is likely to lead to opposite (than the desired) results. This study found that if such approach is taken then it may be easier for issues to be overlooked, since the whole risk modelling exercise may disintegrate into a tick-box event (*Table 4.3*). Therefore, it may be concluded that a template-like risk model can be the starting point. Then it would be expected that there is some kind of intuitive risk identification mechanism (which the research tool does not seem to have, *p.171; p.182*) that may be able to pinpoint project specific risks. There were some suggestions for such mechanisms (for example, risk feedback loops in

pp.164 - 165) to improve risk modelling, however more research is required in that area. This research also found that expressing risks in the form of positive risk statements is very useful (p.171).

Finally, this study concluded that indeed eGovernment risks are not restricted within the technological realm and may be found in diverse areas (for more on that, read *Section 5.2.5*). Equally, the thesis' field research findings divulged that eGovernment risk modelling methods should examine risk holistically (as may be read in *Section 5.2.6*). As a result to the above, this study found that risk modelling for eGovernment service projects should perceive risk in a multi-perspective manner, also looking into risk generating areas that are not necessarily technology-oriented.

5.3.4 A CONCEPTUAL FRAMEWORK FOR RISK MODELLING

Following on from the three sections above, it is evident that the relevance of risk modelling at the pre-proposal stages of eService projects for government revolves around the three afore-discussed areas: i) adoption, ii) expectations, and iii) presentation. Therefore, the relevance of risk modelling at the pre-proposal phase of eService projects may be encapsulated in the following conceptual framework (*Figure 5.1*).

The risk modelling conceptual framework consists of three blocks. The first component of this framework summarises the level of risk modelling adoption within a public sector organisation. It discusses about the current status of risk modelling as defined by the type of risk modelling practice that currently occurs, as well the frequency of such practice. The 'reasoning' part of the block refers to the pre-conditions that need to be taken into account for any risk modelling practice to be successfully adopted. As such, risk modelling adoption is dependent on the 'timing' (who will do it, and when) of the event, the environment (local - department, agency, etc.; and, wider - political leadership) where it occurs, and the attitude (honesty, openness, etc.) towards risk and risk modelling in general. The 'expectations' block rather refers to what is perceived (or even previously experienced) that risk modelling may bring to the pre-proposal phase decision making process.

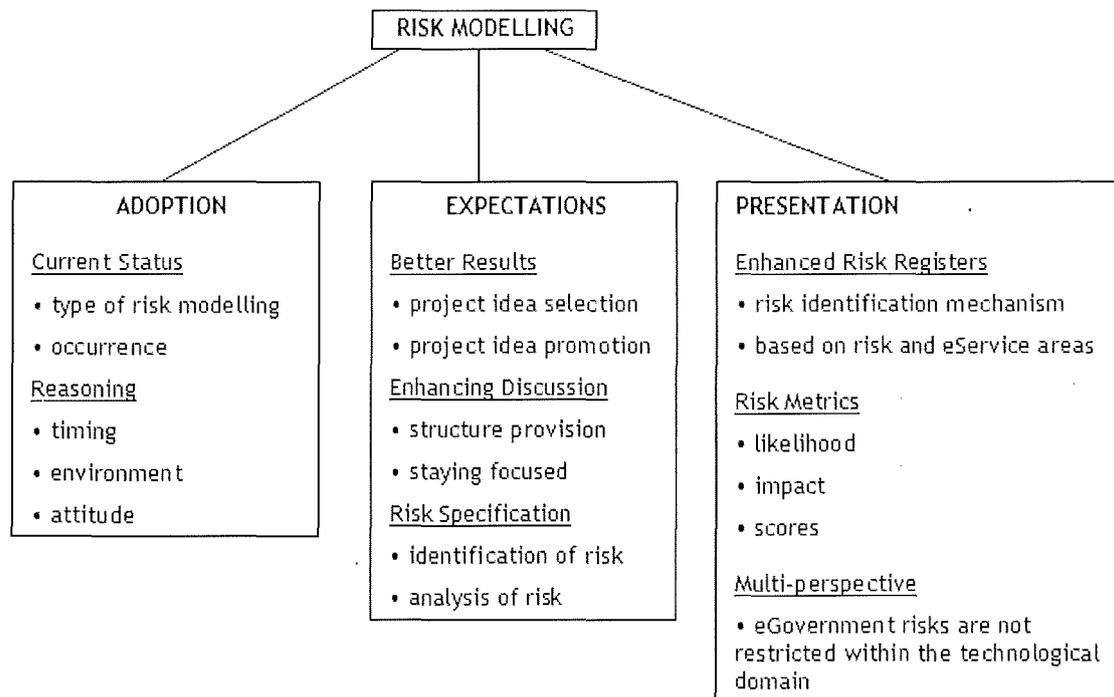


Figure 5.1: Conceptual Framework for Risk Modelling

Broadly speaking, risk modelling is expected to support the delivery of better decision making results, such like project idea selection, as well as the promotion of such idea to a more defined project proposal. Equally, risk modelling is expected to enhance discussion about pertinent project issues. That may be achieved by providing a common discussion basis as well as maintaining a ‘thought’ focus. Thirdly, any risk modelling should normally provide adequate specification of relevant risks. That will revolve around the identification and definition of risk, as well as the provision of basic risk metrics that may ultimately enhance any decision-making process. Thirdly, the ‘presentation’ block amalgamates what risk modelling should look like at the pre-proposal stages. This study revealed that the ideal would be an enhanced version of template-like risk registers. Such risk logs should have some sort of intuitive risk identification mechanism and depict risks - in an organised fashion - against specific eService functional areas.

Equally, it appears that any risk modelling during the pre-proposal stages should provide basic metrics in regards to the perceived likelihood and impact of risk. Finally, the risk-modelling conceptual framework concludes that an

'open - mind' approach towards understanding the source(s) and cause(s) of eGovernment risk has to be maintained. Thus, it is concluded that risk modelling has to be multi-perspective. In a nutshell, the risk modelling conceptual framework provides the grounds towards answering the research problem. The fuller those three blocks are realised the more relevant risk modelling becomes during the pre-proposal stages of eGovernment service projects.

5.4 RESEARCH LITERATURE REFLECTION

The discussion on risk modelling and its conceptual framework that was presented earlier poses almost immediately a reflection on the theoretical suggestions made during the literature review. Such reflection sometimes appears to be vividly opposite to the literature review's propositions, some other times it seems to agree with the existing body of knowledge, whereas in few other instances aspects of such discussion appear to break new grounds.

Right from the outset, the discussion on risk modelling highlighted the futility of risk modelling during the pre-proposal stages of eGovernment service projects. The research suggested that currently risk modelling is not adopted during the pre-proposal stages, mainly because it is a point too early for risk to play the prime role. In effect, such conclusion contrasts the existing theory that stems from the suggestion (*Irani et al., p.74, 2005*) that the consideration of risk is integral to the ex-ante evaluation of eGovernment projects. Moreover, this conclusion also renders rather inappropriate the suggestion of Cresswell et al. (2005) that the consideration of risk is important when planning for such projects.

The research also suggested that the adoption of risk modelling is strongly influenced by the political nature of the environment within which such projects are found. It appears that such coordinate directly affects the aforementioned conclusion and adds to the 'futility' of risk modelling during the pre-proposal stages of eGovernment service projects. The body of knowledge divulged rather subtle results in that regard. Despite that, Dofivat et al. (2004) highlighted the political influence on such projects as a result of micro-politics. Equally, Bellamy (2000) elaborated on the impact on eGovernment initiatives that the various policy agendas and politics (micro or macro) might have. More

vividly, Ni and Ho (*pp.67-68, 2005*) argue that the 'personal zeal of elected officials' and 'immediate political interests' replace any best practices and generate difficulties that potentially lead to project failure. Clearly, this research reinforces such arguments.

On a similar note, this research found that the adoption of risk modelling during the pre-proposal stages is dependent on the actual 'actor' or 'user' that does it. For example, if the actor(s) involved in the risk modelling exercise have no authority (due to their role(s)) to influence the decision-making process, then risk modelling has no applicability. That in effect complements the broader conclusion that risk modelling is indeed futile during the pre-proposal stages of eGovernment service projects. Apparently, the existing body of knowledge did not appear to divulge any suggestions to that direction. As such, it may be said that this research uncovers a new area for possible further investigation. Finally, this research found that even during times when risk modelling is actually happening, it is a practice that occurs on a rather random and infrequent basis. Again, the pertinent literatures did not appear to divulge much in that respect.

In terms of the potential benefits of risk modelling during the pre-proposal stages of eGovernment services, this research's findings move - more or less - along the same lines of the pertinent literatures' deductions. Broadly, such conclusions revolved around three areas. Firstly, this research found that risk modelling at the early, pre-proposal stages may assist towards better project results. Secondly, it is expected to promote a better discussion about key project issues. Finally, it was elaborated earlier that risk modelling is most likely beneficial towards any succeeding risk identification process.

The Office of Government Commerce (*OGC, 2004*) suggests the Successful Delivery Toolkit that is based on risk. According to the OGC risk-based methods at early project planning stages may pinpoint whether the project may actually 'deliver the goods'. Along the same lines, Irani et al. (*p.74, 2005*) discuss that considering risk forms an integral part of any ex-ante evaluation of eGovernment projects. Equally, the Chartered Institute of Public Finance and Accountancy (*CIPFA, 2005b*) includes risk as one of the main issues that should be looked at in order to form the business case of an eGovernment project and

go ahead (or not) towards a full-blown project development lifecycle. Indeed, this research is content with such arguments. Apparently, it did arise that risk modelling during the pre-proposal stages is expected to help revisit a project idea and - if necessary - may also contribute towards cancelling the progression of such idea to a full blown project, and as such help towards avoiding any waste. Therefore, this research found that it is expected from risk modelling to contribute towards better project results. That was indeed prescribed by the pertinent literatures (*read for example, Loukis et al., p.301, 2005; Katzy and Xiaofeng, p.506, 2005; Stoltzfus, pp.334-335, 2005*). The importance of risk consideration and its effect on the overall project results are well documented in the relevant literatures (*Chapman, p.151, 2001; Moulton and Moulton, p.379, 1996; Love et al., p.949, 2005*).

This research divulged that it is expected from risk modelling to promote and - indeed - enhance a better discussion about pertinent project issues right from the start. That stemmed from the observation that risk modelling may provide the structure - a common ground - for such discussion. Such structure may ultimately pose a checklist of issues for discussion; and overall, risk modelling is expected to shape a holistic view. Moreover, this research found that, due to such structured approach, the likely issues are expected to be tackled in a consistent fashion, and thus the overlooking of any important issues may be avoided. The above appear to confirm relevant suggestions formed throughout the literature survey stage. For example, Heeks (*pp.171-172; 2001b*) as well Dawes and Pardo (2002) suggest that the provision of a structured approach, such as prototype models, poses a definite early success factor for eGovernment projects. Equally, Irani et al. (*p.61, 2005*) stress that any ex-ante evaluation of eGovernment projects is expected to form a holistic approach. More specifically, Katzy and Xiaofeng (*p.513, 2005*) argue that the use of risk-based tools may create shared awareness and understanding among the eGovernment project's stakeholders. Williams (*p.19, 1994*) sees that from a slightly wider angle and adds that such risk-based checklists effectively form and help grow a corpus of knowledge that may form the basis for relevant decision-making at present and in the future.

Finally, this research found that risk modelling is expected to improve the specification of risk by identifying, defining and categorising it. Therefore, it

may actually lead to a fuller preparation for any further project stages; and ultimately it is concluded that risk modelling may help alleviate any 'narrow-thinking' when considering the risks. It has to be stressed here that the literature survey did not provide much relevant information in that respect. However, it is suggested that the early risk identification stage (*Chapman, p.151, 2001; Tchankova, p.290, 2002*) is indeed very important for any further risk management exercise. As Stahl et al. (*p.17, 2003*) put it, '*without it the subsequent steps are impossible*'.

The third angle from which this research's conclusions perceive risk modelling revolves around its presentation. Overall, it is concluded that during the pre-proposal stages of eGovernment service projects risk modelling should form a checklist. However, it is also found that such checklist should not be the outcome of a 'static' template. On the other hand, any risk modelling during the pre-proposal stages should reflect the diverse nature of such projects, and as such be holistic enough to cover the gamut of relevant risks.

Starting from the latter conclusion of this research, it has to be stressed that the pertinent literatures are confirmed. In various occasions throughout the literature survey stage it was emphasised that the risks of eGovernment are of diverse nature and therefore any tools or methods employed to model them should be able to accommodate such nature. A whole section (*2.10, pp.67-77*) highlighted - and classed in five distinct categories - a multitude of eGovernment risks. Within that section tens of references to the literature were made that demonstrate the diverse nature of eGovernment risk. The research confirmed that and stressed the need for a holistic presentation of risk within risk modelling.

It is also found that any risk modelling at the pre-proposal stages of eGovernment service projects should form a checklist. Such checklist would represent a risk register, which should also have risk metric functionalities. Ideally, risk modelling should be presented in a way that employs known terminology and the categorisation of risk would be best if it linked to the model's functional areas. The latter two conclusion pose a fresh discovery in the area as the literature survey done within the domain did not divulge any pertinent results. Overwhelmingly, (*for example, read Government of Canada,*

2001; Williams, p.7 1993; Williams, p.19, 1994; Patterson and Nailey, p.367, 2002) the literature suggested that the risk modelling tool of choice is the risk register, which this research confirmed. It has to be further added here that the relevant literature (*as encapsulated within Table 2.6, p.88*) did not clearly prescribe - part perhaps from vague references within the 'Design Reality Gaps' and 'Simple Factor Rating' methods - the need for any particular risk metric functionalities at such early stage. That clearly opposes the conclusions of this research, and probably further investigation may be needed in the area.

Perhaps another interesting conclusion of this research in regards to the presentation of risk modelling during the pre-proposal stages of eGovernment service projects relates to the template-like nature of risk modelling. It appeared from this study that a static 'one size fits all' approach towards risk modelling may be flawed. It was further concluded that, ideally, there should be some kind of intuitive dynamic approach that would allow a more 'organic' risk modelling template. Such findings are distinctively opposite to most of the pertinent literature's findings that called for rather static models (*for example, the IEG, 2.11.1; the Integrated Risk Management Framework, 2.11.2; Simple Factor Rating, 2.11.7*). However, earlier (*Section 2.5.3*) in the literature review section of this book there was a discussion on model based system dynamics theory that described the evolution of eGovernment implementations. Martinez-Moyano and Gil-Garcia (p.176, 2004) based their evolutionary model on organisational learning theory. That is a useful approach that could be followed when considering the design of a rather more 'organic' risk modelling template for eGovernment service projects at the pre-proposal stages.

CHAPTER 6 - CONCLUSIONS

6.1 INTRODUCTION

Following on the thesis' conclusions on the various research issues and the presentation of the risk modelling conceptual framework done in the previous chapter, this sixth chapter will elaborate on the thesis main finding as well as other research related issues. Ultimately, such elaboration - coupled with the Research Synthesis chapter - leads to the contributions that this thesis provides to the pertinent body of knowledge.

As it was previously presented in Section 1.2 this thesis aimed to provide a suitable reply to the question of how relevant risk modelling is at the pre-proposal stages of eService projects for government. As it is going to be shown in the following section, risk modelling during the pre-proposal stages has little applicability. Although there are positive expectations from risk modelling (*as presented in the previous chapter*), this thesis found that the political driver is too strong at such early phase to allow risk play any role in the decision-making process.

This chapter also discusses on the theoretical implications of this research as well as any practical considerations for eGovernment practitioners. After an elaboration on the limitations of this research, this thesis provides a discussion on the author's reflection on the methodology used, as well as any potential implications for further research. Ultimately, this chapter concludes and closes this thesis by briefing on the contributions of this research.

6.2 LITTLE APPLICABILITY OF RISK MODELLING AT THE PRE-PROPOSAL STAGES

It is this study's main conclusion the fact that risk modelling at the pre-proposal stages of eGovernment service projects has little - if any - applicability. Despite the recognition that there are benefits to be reaped from risk modelling during such early phase of eGovernment project development, this thesis' results clearly challenge the need for risk modelling. Overall, the prevailing reason behind the above deduction lies on the political nature of the environment within eGovernment which projects are developed.

This thesis finds that the actual consideration (of any kind) is typically a formality with limited practical applicability. It is not an infrequent

phenomenon that risk modelling occurs and the identified risks dumped somewhere with no further action taken. One reason behind it is that risk modelling is seen more a formality. The interesting thing is that - from what it seems - IS/IT project development teams working in the public sector on eGovernment projects can actually afford to do so. And that is true, despite the fact that risk modelling may actually help avoid waste and assist towards the success of the project. The profound reason why that is the case is the apparent fact that the people involved in the design and development of eGovernment service projects do not have enough input in the decision-making process. As a consequence, any risk modelling output is left somewhere completely unexploited as the users of risk modelling exercise are effectively powerless to decide on the fate (in regards to cancellation or even updating) of the project.

Fundamentally, this research argues that it is really futile discussing about the presentation and expectations of risk modelling when its applicability is rather limited. The futile nature of risk modelling during the pre-proposal stages of eGovernment service projects stems from the fact that the project ideas/goals are almost always handed down from the political leadership and the IS/IT development departments have to deliver. Interestingly, it is more than evident that at least during the pre-proposal stages the main driver behind the decision to commit to a particular project idea is the political one. That political driver has a knock-on effect on the perception of risk, its importance, and the culture within which such projects shall be designed and developed. All these contribute to the futile nature of risk modelling during the pre-proposal stages.

It is found that there is an overarching pressure from the political leadership to the IT/IS development staff to force the focus on the desired outcome for benefit realisation. As a result, that political driver overrides (often artificially) any identified problems or risks during the pre-proposal stages. As one participant highlighted, '*the city council is risk averse, but not averse in doing projects*'. In a way it seems that neither the senior (political) management, nor the IT/IS development management really want to 'talk' about risk; each party for its own reasons. That is deep-rooted in the perception of risk within public sector organisations, where it is seen only from its negative side. Hence, the

more 'risky' a potential project idea becomes the more the potential reasons become for it to be cancelled. Senior management would not wish to be seen as leading an organisation that is not at the forefront of eGovernment service provision, and the IT/IS management do not want to be seen as unable to deliver. Therefore, this research finds, leadership supersedes risk and very little planning takes place. Hence, it is obvious that the role of risk (and risk modelling) during the pre-proposal stages is diminished to a rather decorative point.

This study divulges that the perceived business driver in the public sector is not similar to the private sector one, which is based on cost/profit/times. Usually the business environment within the public sector is a 'given' and the projects do not necessarily aim at particular customer needs. Thus, any risk modelling would have little to contribute since its output would not be enough to alter any 'given' situation.

Due to the negative perception of risk, as well as the politically-affected nature of the business driver there appears to exist a certain organisational culture within which any risk modelling seems to be worthless. From one side, there is the IT/IS management that they do not see the point of doing risk modelling and they perceive it as a formality. Therefore, when they conduct risk modelling exercises, they base them on an assumption and pressure to make the project happen and portray risks in a manageable way; also enabling them to be seen as competent enough to cope with the new project. On the other hand, the senior management when they come across risk considerations they are very reluctant to recognise them, as risks are seen as reasons for not doing projects; in fact, sometimes political leadership exploits the situation by preparing a more convincing case in order to secure project funding. Overall, this research finds that the culture within public sector organisations may not be as 'open' and 'honest' so that risk modelling can have considerable applicability during the pre-proposal stages. Consecutively, despite its acknowledged potential during the pre-proposal stages risk modelling is not perceived to be particularly applicable during such stages, mainly because it is too early for risk to be seriously considered. This study also concludes that during the pre-proposal stages the importance of risk is not too serious to be considered worthy enough to alter the course of or cancel a commitment to a

project idea. Moreover, it appears that there is no point in looking at risk so early as it is something to be looked at during later project development stages; practically speaking, the benefits and costs are the most important issues to be looked at during that phase. In effect, this study finds that in practice risk (and risk modelling) does not appear to have any ex-ante value in forming better plans for eGovernment service projects in the public sector; risks are better dealt with in the process (once they materialise) during a full-blown project development lifecycle on an ad hoc manner. That is a fundamental argument that really renders any risk modelling practice during the pre-proposal stages of eGovernment service projects rather pointless.

6.3 IMPLICATIONS FOR THEORY

Chapter 5, coupled with the previous section (Section 6.2) elaborated on the conclusions drawn based on this study's findings that directly affected the thesis' propositions and the research problem. This section will expand on the research findings impacting on the wider body of knowledge. More specifically, the next couple of paragraphs will discuss about conclusions that relate to theories discussed in the literature survey chapter earlier in this thesis.

Perception of attitude to risk in the public sector

Previously in this thesis there was a discussion on risk and how it relates to the planning process for eGovernment projects (Section 2.9). Similarly, the literature review also divulged (for example, *Baccarini et al., p. 286, 2004; Gerber von Solms, 2005*) that risk (as part of risk management exercises) is important for supporting the delivery of information systems. However, it was equally stressed (*Evangelidis et al., 2002*) that many public sector establishments do not have formal risk - related strategies in place. Indeed, this study can confirm that situation. It was found that risk is seen as an important aspect in the wider project planning process (for example, *Sections 4.2.1; 4.3.4; 4.4.3.3*). Equally, this study found that the consideration of risk during the pre-proposal stages happens erratically and on an ad hoc basis (*pp.156-157; pp.172-173*). Similarly, the literature survey hinted that during the pre-proposal stages (*Section 2.9.1*) the importance of risk is somehow faded as it is often overlooked. Again, this study can confirm that as it can be observed from the findings (*for example, pp.156-157; pp.172-173*). This study can also provide with some deductions on the perception of risk and attitude

towards risk considerations in the public sector. Earlier in this thesis (pp.16-17) risk was briefly examined and defined from different angles. There it was suggested that this thesis adopts the BSI project management definition of risk (*British Standards Institution, 2000*), which looks at risk from a rather neutral point of view. Perhaps, such suggestion may now be revisited since the study findings (*Section 4.7.4*) propose that in the public sector risk is mostly seen from its negative side. In fact, such attitude towards risk has a direct impact on the approach taken in the consideration of risk. Indeed, this study agrees with Baccarini et al. (p. 287, 2004) as it found that risks are perceived as reasons for not doing a project (*Section 4.7.4*).

Mapping of eGovernment projects

Apart from the implications for the theory in regards to risk, this study also came up with a series of conclusions that affect the wider eGovernment body of knowledge. More in particular, the first stage of this study's field research contributed a very useful categorisation (*Figure 4.1*) of the various eGovernment projects. That is a clear contribution to the wider eGovernment body of knowledge, as the literature review (*in the 'Modelling eGovernment' Section 2.4*) did not reveal something similar. It is hoped that such mapping of eGovernment projects may be of some use to eGovernment practitioners and scholars.

Common eGovernment failure factors

The review of the pertinent literatures revealed earlier a presentation of the perceived failure factors of eGovernment, as may be seen on Table 2.3. Amongst many, 'political agendas' as well as insufficient 'project business planning' appear to be sources for failure of eGovernment projects. Indeed, this study found that the afore-mentioned failure sources are hugely interrelated and are true especially at the pre-proposal stages. In a number of occasions (*Section 4.5.2; Section 4.4.4*) this study found that due to the political leadership's influence, pre-proposal project planning is carried out inadequately (in the sense that risk is not carefully considered). In fact, the thesis' main conclusion (*as may be read in Section 6.2*) highlighted that. This research found that there is no serious planning taking place during the pre-proposal stages of eGovernment service projects; and that is mainly because project ideas are almost always imposed by the political leadership, and the

eGovernment development teams simply have to deliver. Therefore, such projects may be prone to failure. As a result, this study confirms the suggestions of Ni and Ho (pp. 67-68, 2005) and Dofivat et al. (p.308, 2005) that eGovernment projects are hindered by political or/and micro-political interests.

Distinguishing further between eGovernment & eBusiness

Perhaps, another addition to the eGovernment body of knowledge that this study provides is the reconsideration of Table 2.2 presenting a comparison between the domains of eGovernment and eBusiness. As it was mentioned earlier in this section, risk in the public sector seems to be seen as something negative. However, relevant literature survey (for instance, *Tchankova, p.291, 2002*) suggests that risk in commercial environments is seen as a threat, but also as an opportunity; that may be added to Table 2.2 as another striking difference. Additionally, it appears that in both commercial environments (and subsequently the eBusiness domain) as well as in the public sector, there is a trend to skilfully mask or mute risks before tendering for a project. This study (as is found for example in *Section 4.7.4*) therefore agrees with similar findings in commercial domains (for example, read *Williams, p.18, 1994; Baccarini et al., 2004*) making that a common 'similarity' amongst the two domains.

Moreover, this study reinforced the fundamental difference between eGovernment and eBusiness (as expressed on *Table 2.2, p.32*); those of 'customer groups' and 'monopoly'. It is found (*p.186*) that the driver behind eGovernment projects is usually politically-oriented and is not equal to the 'cost/profit/times' - one that is found in the private sector projects. That may have a 'knock-on' effect on the 'better customer service' similarity (*Table 2.2*) between the eGovernment and eBusiness domain this study suggested (*p.189*) the nature of the public sector environment prompts for project development that are not always related to what the end customer may want.

Finally, this study found another characteristic of eGovernment projects that may be included in Table 2.2 as differentiating factor between eGovernment projects and eBusiness ones. It is found (*pp.147-148; pp.149-150*) that the sustainability of some eGovernment projects' cost can be a concern, as the return of investment (expected to arrive on a transactional basis) is unclear.

6.4 IMPLICATIONS FOR PRACTICE

Following on the discussions conducted in the previous sections of this chapter, as well as in Chapter 5, this part aims to present practical implications for public sector staff involved in eGovernment project preparations. Such presentation comes in the form of an easy to digest lessons' checklist that decision makers may wish to exploit in the future.

Based on the conclusions drawn in regards to the research issues (*as discussed in Section 5.2*) and the research problem (*Section 5.3*) and by building on the risk modelling conceptual framework (*Figure 5.1*) there are lessons to be extrapolated from this study; which are shown in the checklist below.

Why is risk modelling relevant to the pre-proposal stages of eService projects for the government?

Lesson 1 - Risk modelling may assist in the qualification and communication of a project idea.

Lesson 2 - Risk modelling may enhance consistency in discussing pertinent project issues, by providing a structured overview straight from the outset.

Lesson 3 - Risk modelling that identifies, defines, and categorises risks may better prepare any further risk management strategies during a later full-blown project management lifecycle.

Lesson 4 - Ultimately - and due to the lessons described above - risk modelling during the pre-proposal stages may lead to better project results.

Who should be conducting the risk modelling exercise?

Lesson 5 - It is important that the initiator and main user of risk modelling during the pre-proposal stages should be a key decision-making actor that can strategically influence the course of a particular project idea.

When should risk modelling be happening?

Lesson 6 - The earlier the pre-proposal stage is, the less detail is needed; and the closer the stage gets towards formulating a project proposal the more detail is wanted. Equally, the timing of risk modelling should always be such that may influence the decision making process accordingly. For example, at a very early stage when the feasibility of a particular project idea is at test, risk may not be powerful enough to be the sole reason for dropping that idea. However, at a later stage - and with more detail attached to it - risk modelling may influence stronger any decisions taken in regards to aspects of a proposed project.

How should risk modelling be conducted?

Lesson 7 - Risks should be modelled against eService functional areas in order to support decision making. That should be done in a manner that allows them to be presented next to risk metrics such like likelihood and impact. Risks should be modelled in a multi-perspective fashion, complimented with intuitive risk identification mechanisms that encourage project-specific risks to come to the fore.

Lesson 8 - The organisation's attitude and culture towards risk should be such that allows an open and honest risk modelling approach for any risk modelling exercise to be effective.

6.5 LIMITATIONS

Perhaps the main feature - in fact it is the main driver - of this research was to provide a 'first stab' in an area that (according to this thesis' literature survey, p.68) is relatively unexplored. The prime aim of this qualitative study was to unearth important issues that revolve around the relevance of risk modelling during the pre-proposal stages of eService projects for the public administration. Equally, another major strength of the research programme described in this thesis was the employed research methodology. The design and use of a research tool as a probe for field data extraction through a series

of field research stages carried a number of positive features as expressed earlier (*pp.100-101*) in this thesis. The first stage of the field research elicited expert advice on this research's focus by seeking for the viewpoint of four eGovernment experts. Such participants were at the time actively engaged in the eGovernment domain, and as such have been selected so as to provide an expert opinion on eGovernment. Similarly, the workshops resemble another strength of this research. As it was earlier (*Section 3.4.3.2*) described, that method aimed to simulate an instance of real-life event and interpret the findings deduced from the observation of the workshop participants' interaction with the research tool.

During the progress of this research various limitations became apparent. All four interviews that formed the first stage of the field research were initially planned to be semi-structured face-to-face interviews. However, due to unforeseen circumstances one of the selected domain experts could not physically attend to be interviewed. Despite that, the domain expert was keen to participate in a questionnaire-based email correspondence. The downside of such data retrieval method was that it did not produce rich data in terms of quantity. That was mainly because it was not a truly interactive method, since the interviewee was not physically facing the interviewer. Equally, since the interview was in a written form the interviewee wrote as much as it was convenient at the time to be written. As a consequence, that led to a lack of depth in the information retrieved from that interview.

The sample of this research poses perhaps another limitation. Earlier in this thesis (*at the research methodology description, pp.109-110*) it was acknowledged that a comfortable focus group sample would be three or more. The initial plans for the field research stages included three scenario-based focus group workshops; one for each pre-proposal stage and one generic for the whole pre-proposal phase. The original plan was to carry out the first two workshops at the same establishment and the latter one (about the whole pre-proposal phase) at a different government organisation. Unfortunately, that did not happen because of series of delays and postponements of the workshop's arranged date. It appeared particularly difficult to gather a sufficient number of participants within certain pre-arranged dates, and eventually (after about 3

months of negotiations) the researcher decided to cancel the arrangements for such workshop.

A further delimitating source of this research has in fact appeared in various instances throughout the field research. Both in the interviews as well as during the workshop stages, the participants remarked that there were time constraint-related issues. Such constraints referred primarily to the available interaction time the research participants had at their disposal with the research tool. Potentially, they noted, that may have impeded them from providing their conclusive opinion on certain aspects. Some participants felt that in order to comfortably assess each individual category within the eService risk taxonomy part of the tool more time would be beneficial.

Despite the afore-mentioned delimiting factors it has to be emphasised that they do not detract from the significance of this thesis' findings. For instance, in the case of the email questionnaire-based interview very useful has been collected in a condense form. The feedback received from that domain expert was particularly useful to unveil new eService risk taxonomy categories. More importantly, that participant submitted expert opinion on the wider eGovernment domain that helped to better frame the consecutive field research stages. In regards to the time constraints expressed by some participants it may be said that for that type of research the time was enough to extract an instance of a real-life event (at least during the workshops). For example, that can be experienced by the rich risk modelling tool's risk statement output (the various captured risk statements, as seen in the Appendices section) during the workshops, which demonstrates that the participants interacted with the tool relatively comfortable within the allowed time. As far as the cancelled workshop is concerned, it did not affect examining the relevance of risk modelling at any of the two pre-proposal stages, as both existing workshops covered them. Moreover, as the research methodology chapter discussed (pp.109-110) even two focus groups can sometimes suffice. That is usually the case when the workshop results appear to reach consensus and ultimately lead towards common arguments. Apparently, most of the results deduced from both workshops appear similar (as may be seen at the tables *Table 4.2*; *Table 4.3*). Therefore, it may be argued that any focus group dynamics did not pose a major impediment to the

research output. In fact, there were parts of the workshop methodology (for example, the discussion stage) where group dynamics effects are most welcome, and others (for instance, the questionnaire) where they are alleviated on purpose. Equally and following the research methodology theory (as expressed in *p.109*) the number of workshop participants was sufficient to produce enough feedback for the purposes of this study. To conclude, the strengths of this study do remain and the limitations provide the platforms for future research that will be discussed later below.

6.6 IMPLICATIONS FOR METHODOLOGY

At this point it is worth providing a brief reflection on the research methodology employed for this research programme. There are aspects of the methodology that were particularly successful, but there are also parts of it that were rather cumbersome.

The first stage of the field research entailed a series of semi-structured interviews with domain experts. The main drivers behind that stage (*as explained in Section 3.2*) were to investigate the research problem(s) and narrow down to particular issues of academic interest, as well as exploring the 'realism' of the research tool. Both such objectives appear to have been accomplished. The interviews with the domain experts provided a number of leads to further exploration at the subsequent field research stage. To name a few, on page 156 it is shown that a risk-based framework would be helpful in the qualification of a particular project idea. That is later further explored at the workshop on the feasibility study stage. Similarly, it is stated (*pp.156-157*) that checklist-like methods should be used at the feasibility study, which is equally examined during the scenario based focus group workshop stage. Moreover, the 'realism' of the research tool successfully examined by the domain experts, who contributed with very rich feedback on its design (as may be seen in *Sections 4.5.3.1 and 4.5.3.2*).

Such findings had a direct impact on the evolution of the research tool's design. Indeed that is another successful part of this thesis' research methodology. As it is clearly shown on Figure 3.1, the research tool is conceived during the literature survey stage and from there it is passed through to the different research stages, ultimately generating the stimulus for data

elicitation pertinent to the research problem. As can be seen from the figures in Chapter 4 (*Figures 4.2; 4.3; 4.5; 4.6; 4.7; 4.9*) the research tool evolved all along, proving that the selected methodology can actually help achieve that objective. Equally, throughout Chapter 4 results deducted from the field research participants are presented and discussed. The tool was used successfully as a vehicle to extract useful research output that affected the response to this thesis' research question. Importantly, that aligns with the 'principle of interaction between the researchers and the subjects', as expressed on Table 3.4.

The other successful part of the methodology used in this thesis is the way data were retrieved from the field during the workshop stage. As it was earlier explained (*p.108*) one advantage of the scenario-based focus group workshop method lies in the fact that data are gathered from multiple sources at the same time, achieving increased information productivity within limited time. Equally, the design of the workshops allowed easier information triangulation. For instance, the workshop participants could respond to similar questions at different stages. It may be also said that the workshop method poses an information gathering matrix that blends the perspectives of several individual participants about specific topics (generated by questions) within defined timings ('before use' and 'after use' research tool appraisal) with a series of research methods (for example, A4 grid, questionnaire, etc.). Some of such stages (discussion stage for instance) could be influenced by potential group dynamics, whereas others (A4 grid or questionnaire for example) could not.

That allowed the researcher to explore various research issues from different perspectives. There were several times during which, findings from different workshop parts and different participants were similar; thus helping reinforce a topic of particular research interest. To name a few, information in regards to the merging of the risk modelling tool components during the business case workshop came from different workshop's parts (for example; the 'before-use' appraisal comments on the tool, the A4 grid, and 3 different questionnaire questions). Another similar case discussing on the issue of the risk modelling tool acting as a checklist was triangulated from several different parts (for example; the A4 grid, the first questionnaire, and the first question of the open discussion). A third example demonstrating the perceived success of such

research method may be the discussion on the risk modelling tool being a good way for identifying risks. Information about that was triangulated from a multitude of sources (twice from the A4 grid, from four different questionnaire questions, and from two separate occasions during the open discussion). Details on the findings retrieved during the workshops can be found in the Appendices section of this thesis.

On the other hand there were also aspects of the methodology used for the purposes of this research programme that were particularly challenging. Perhaps the initial and most striking difficulty was to find participants for both stages of the field research. Gaining access to public sector officials can be a daunting task. In order to organise the interviews with the domain experts, the researcher exploited personal contacts and those of his supervisory team of professors. The prime aim at that stage was to secure interviews with senior public and private sector professionals, who had busy schedules and the opportunities for interviewing were very limited. However, by employing appropriate communication skills, such as frequent and tactful contact with the participants, as well as plenty of patience, the thesis' author managed to carry out the interviews effectively. Indeed, such communication skills prior and during one of the interviews allowed the participant to lay the foundations for organising the workshop on the business case. Equally, the researcher faced similar problems when organising the workshops. At that field research stage the difficulty was slightly more elevated as the researcher was trying to set a common date and workshop venue for multiple participants. That activity was time consuming and stressful, since the researcher was not sure whether to carry on trying or cancel the arrangements. It is worth noting that for the arrangements on the business case workshop six persons expressed interest and got involved in the arrangements (that took nearly a month) for the workshop. However, during the actual event's day one of them did not actually turn up. Equally, the negotiations for a third workshop took even longer (about two months). Eventually during the day before the actual workshop date, the main contact from that (potential) collaborating establishment contacted the researcher to announce the cancellation of the workshop. Although at the time there was a pledge (on behalf of the collaborating establishment) for a further workshop date, again there have been severe delays and finally the researcher was forced to cancel such arrangements. A discussion on such research method

shortcomings took place earlier (*Section 3.4.3.1*) in this thesis. It is perhaps also worth pointing here that capturing the interest of key domain persons is equally hard even after they have actively taken part in the field research exercise. After the completion of both of the workshops the researcher contacted (through email) the participants for a few follow-up questions (as can be seen in the Appendices section of the thesis). Only two participants from each of the workshops replied back.

Another difficulty with such research methodology was directly related to the researcher's ability to effectively carry out the field research. In the case of the domain experts' interviews there were moments (that can be seen in the interview transcripts at the Appendices section) during which the interviewer (the thesis' author) could not completely control the pace (and other factors) and scope of the interviewee's feedback. For example, during the first and fourth interview the interviewees spent some respectable amount of time elaborating on some issues that were not within the scope and aims of the interview. In the second interview there was an environmental factor (background noise caused by a facilities staff using a vacuum cleaner) that could have been managed better if the researcher was confident enough to intervene and alter the situation. It has to be stressed here that such factor did not pose a major impediment on the findings of that interview; however the transcribing process took much longer. The above difficulties were related to the researcher's experience in conducting interviews and it may be said that they were part of the research skills development process within the researcher's doctoral programme.

A few more difficulties appeared during the field research stage that revolved around the employment of the scenario-based focus workshop method. During the design and planning process for the workshops it was quite hard to find a topic in order to prepare a realistic scenario. However, to overcome that the researcher explained the situation to the key contact at the collaborating establishment and managed to gather information in order to build the scenarios for the workshops. As such, the scenarios were about actual projects that the field research participants would be dealing with in the very short future. Another workshop-related challenge was the actual analysis process of the gathered data. It proved to be a very laborious task, a fact that was largely

expected from the literature (as described in *Section 3.4.3.1*). However, by employing a customised coding method the data were gathered in a meaningful way producing (and as it is equally portrayed in *Section 3.4.3.1*) findings that were quite rewarding.

6.7 FURTHER RESEARCH

It is this section's prime aim to assist doctoral students and other researchers in the selection and design of future research in similar thematic areas. Therefore this section will reflect on the author's experience gathered in the process towards the completion of this thesis and present the lessons learnt. Moreover, a chunk of this section will be consumed on proposing leads for further research.

Regarding the future use of similar methodology

The research done for this thesis encountered a number of challenges that may consecutively lead to a discussion about potential lessons to be learnt. As is discussed earlier (*Section 6.5 and Section 6.6*) in this chapter there have been issues with regards to the preparation of the various field research stages. Briefly, such problems were either about ensuring that a specific number of participants would actually contribute to the research or about the actual delivery/conduct of the field research. Both during the semi-structured interview stage, as well as the workshop's one, participants did not turn up. It is therefore suggested that in future research employing similar methodology, that contingency plans (for example, a 'stand-by' pool of potential contacts with expressed interest to contribute to the research) are in place. Equally, there were occasions where the lack of relevant research methodology experience on behalf of the researcher was obvious. As may be read in this thesis (*Section 6.6; Appendices Section - Business case workshop, D1, Observations during use*) the researcher did not manage situations to the optimum possible standard. Therefore, it is proposed that doctoral students carrying out field research should be better prepared. That may be achieved - to an extent - by attending relevant seminars or colloquia, as well as carrying out mock interviews/focus groups before conducting the actual ones. Such discussion leads to the development of the following list with the 'do's' and 'don'ts' for researchers (especially doctoral students) that are going to employ similar research methodology.

Interviews

- Do prepare before the initial interview by doing a mock interview. That can be done by the 'real thing' with the assistance of a fellow research student or a member of academic staff.
- Do prepare before any consecutive interviews by building on the experience gained from the previous interview(s). Thus it may be best if some reasonable time gap is maintained between the various interviews in order to better prepare by focusing on how to overcome the shortcomings of the previous interview.
- Do not interfere with the interviewee's flow of speech/argument, but do intervene when the interviewee goes out of the given context.
- Do not allow environmental factors interfere with the interviewing process, but do intervene when there is a need for alleviating environmentally-induced impediments.
- Do not expect that participants will be ever-available and do prepare contingency plans.

Workshops

- Do allow plenty of time to organise and conduct the workshop(s). Scenario-based focus group workshops involve a number of different methods with their own shortcomings. A 'dummy' rehearsal before the 'real thing' is of prime importance, so as to understand and alleviate any pitfalls.
- Do maintain a reasonably close contact with the participants before and after the workshop. That will ensure the best timing for the workshop to take place as well as the clarification of various issues after the workshop is finished.
- Do not take for granted that all participants will turn up at the workshop or that the workshop will take place. Ensure that alternative plans are in place.
- Do not expect the research participants to know everything about the topic or anything about the research. Ensure to introduce them to the research as effectively and efficiently

possible, as well as present the workshop in a very efficient way. Again, rehearsal (through a 'dummy' session) is advised.

Further future research in the area

Once more it has to be stressed that this thesis presents the findings of a study with a sample enough to show the 'trends' and unearth important issues in a relatively unexplored and new area. As such, this study should be seen as the starting point for further research to be done. Along these lines, it is suggested that - ultimately - a positivist survey is required to generalise the research done in the domain. This thesis elaborated on the findings deduced from research done in Scottish local government establishments discussing about risk modelling during the pre-proposal stages. To further advance the body of knowledge in the area, more case studies are needed that will look into the topic within different environments, such like national level government and/or within different countries. Equally, the central point of this thesis' research methodology was the research tool. Future research in the area could either further develop (and exploit) the existing (as it evolved through this research programme) tool, or perhaps could employ a different research tool. The comparison of findings from such research programmes could further expose interesting research output.

Based on the conclusions of the thesis to the various proposed issues (as expressed in the literature review) as well as the conclusions to the research problem (and indeed any parent theories) , this section proposes some areas for further research follow up. Throughout this study's field research there was an apparent call for the addition of risk metrics features to the research tool. That however was beyond the scope of this programme. Therefore, a future research programme could explore (and perhaps compare) the potentialities of qualitative or/and quantitative risk assessment in the area. Additionally, this study demonstrated that off-the-shelf template-like risk modelling methods may be too generic to be reliable for decision making use. Equally, there was a suggestion (*Table 4.2*) for examining potential risk feedback loops. Perhaps, the employment of system dynamics (already discussed in *Section 2.5.3*) to developing a risk feedback loop mechanism attached to this thesis' risk modelling tool could form the basis for further research in the area.

Perhaps the most striking paradox formed throughout this research is based on the perception of and attitude to risk in the public sector. From one hand, this research found that there are indeed benefits to be reaped from risk modelling during the pre-proposal phase of potential eGovernment projects. On the other hand though, this thesis also argued that the consideration of risk does not happen frequently and apparently sometimes it is not welcome. Fundamentally, the reason behind that appears to be based on the politically-influenced nature of such projects. Such defining characteristic may have all sorts of impact in the wider planning and management aspect of the eGovernment projects as opposed to other information systems projects. That situation may generate interesting research questions to be asked.

Consecutively, this thesis' findings and conclusions provide some leads for further - likely to be - positivist research work in the area. Fundamentally, such avenues for further research are built on some 'puzzles' and 'paradoxes' that arose within this thesis. Some of them may be enlisted as per following:

Risk modelling specific

- What is (if such exists) the intuitive mechanism that is not static (template-like) and identifies project-specific risks of eGovernment projects?
- Is there a system dynamics-based method to explore the 'cause' and 'effect' amongst various eGovernment risk factor areas?

Paradox-based

- Does the attitude to and perception of risk in the public sector change as the project progresses from the pre-proposal phase to the full-blown project management lifecycle?
- Why is the practice different from theory when it comes to risk consideration of information systems projects in the public sector?

6.8 EPILOGUE

Contrary to the widely expected belief that eGovernment implementations may positively contribute to the efficiency and effectiveness of public administration programs, it is evidently accepted that a large portion of such projects fails to deliver. It is thus perplexing why such projects fail and how could that situation be avoided. Moreover, it is accepted that looking into risks at an early stage may help towards the better preparation of information system projects. Within that context the research described in this thesis explored the relevance of risk modelling at the pre-proposal stages of eService projects for government.

To answer that question this thesis presented the findings and discussed on the conclusions drawn from an interpretative qualitative study that focused on the case of eGovernment projects within Scottish government establishments. This thesis covered all the required stages of the research process. It first provided the motivation behind the research and prescribed the research problem. That led to a broad discussion of the wider research background based on a survey of the pertinent literatures. Ultimately, that led to the consecutive 'framing' of the research problem in the shape of research issues that were further examined during the field research stages. After an elaboration on the chosen research methodology and its relevant considerations and issues, this thesis introduced a risk modelling tool for eGovernment projects. That posed as the research tool that was later used during the field research stages so as to extract data that would further feed into the thesis' research issues and ultimately provide the basis for the composition of this thesis' conclusions. As such, the thesis presented the various findings drawn from the field research stages where domain experts and eGovernment practitioners took part. Such findings presentation and analysis further informed the last stage of this thesis that involved the discussion of the research conclusions and the response to the fundamental research problem.

This interpretative qualitative study found that risk modelling at the pre-proposal stages of eService projects for government is expected to assist in the decision making process at such early phase. However, the key finding of this

research is the fact that risk modelling has practically no applicability during the pre-proposal stages of eGovernment service projects.

More in particular, this thesis made the following contributions to the pertinent body of knowledge. Bearing in mind the wider frame sketched by this research programme's scope, limitations and methodology implications this thesis found that:

- A. Risk modelling may ultimately contribute during the pre-proposal stages' discussions, by:
 - Promoting the issues to be discussed, and providing with a 'fuller' picture.
 - Specifying and categorising relevant risks.
- B. Although the theory and best practice suggest that risks should be looked at during the pre-proposal phase, the practice unearths the rather futile nature of risk modelling during that phase. That is because:
 - Pre-proposal stages are too early for risk to be taken into serious account.
 - The perception of and attitude to risk is different in the public sector (as opposed to commercial environments).
 - Anyway, the consideration of risk (and indeed risk modelling) occurs erratically even when it is part of the existing practice.
 - The politically-influenced nature of eGovernment projects prompts so.
- C. If however risk modelling is adopted during the pre-proposal phase, it would be more relevant if:
 - It described eGovernment risk in a holistic manner.
 - It formed some kind of checklist that would also incorporate a non-static (non-template like) way of identifying risks.
 - It provided risk metrics in order to further assist in any later decision-making processes.

As highlighted earlier, the thesis main finding is that during the pre-proposal stages the political driver is strong enough to overcome any importance of likely risks. As a result and despite the acknowledged positive expectations from risk modelling, there is practically no need for it at that stage. This research found that the pre-proposal stages are too early for risk to play any important role in the decision-making process. This study also divulged that - at that early stage - the actual decision-makers are within the senior political leadership and as a consequence the eGovernment project management/development staff, which are likely to employ any risk modelling, have absolutely no powers to influence the decision-making process; thus, rendering any risk modelling output pretty useless. Consecutively, any discussions on the expectations and presentation of risk modelling during the pre-proposal stages of eGovernment service projects are rather futile. As a result, this thesis concluded that risk modelling - although potentially useful - has little applicability during the pre-proposal stages of eService projects for the government.

Further to the above, this thesis contributed a conceptual framework for risk modelling of eGovernment projects at the pre-proposal phase. Moreover, this thesis provided a checklist of lessons to be learnt for in regards to eGovernment project risk modelling. Finally, the risk modelling tool that was employed throughout this research may arguably pose another contribution, since it may form the basis for a more fully designed and tested decision support tool in the arsenal of eGovernment managers. It is hoped that such thesis contributions may be exploited and further evolved by interested parties within the eGovernment sphere and beyond.

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APPENDICES

APPENDIX A - DOMAIN EXPERTS TRANSCRIPTS
**Domain experts' Interview 1
BT Headquarters, 21/10/03**

So, so, what is your current position?

Hmmm....current position?...this is a difficult one...so is...**just a brief one**...erm...head of business solutions. **Head of business solutions?** Yeah....ok

What is your experience in eGovernment projects? A brief one

Erm...I have experience in eGovernment projects over probably the last four years and everything from transactional...transactional solutions...through to total management solutions...erm where...sorry transactional from the government to the end user...**end?** yes...so I have that experience...and...erm...also in eGovernment in terms of ... in terms of like a CRM-type of environment **alright** right? **Yeah** CRM outsourcing...erm...what other chapters do come in? a bit of desktop, a bit of application hosting stuff like that...yeah? **EGovernment or in general IT in the public administration?** Erm probably a wee bit of both..erm..eGovernment I mean what is your definition of eGovernment? Just to make sure we are talking about the same thing. **Erm...well the usage of IT for services in the public administration...right...where the end users can be either the citizens, either businesses...yeah...the private sector or other government departments.** End users with end users use the services purely electronically or with the government operator using the services electronically and then the citizen interacts maybe?...**either** or whatever? **Either** yeah...ok.

At the end of the day with the experience that I have had it's probably it is very much...it is very much around the end user using them both on a pc and locally over the phone talking to somebody who is linking the disparate systems. **Call centres are included?** Yes.

**What are the main areas of concern when developing an eGovernment project?
Very high level areas?**

Very high level areas?...basically, making sure that we are addressing the business needs of our customer and those also time with the business needs of their customer. So it's very much the three leg of stool if you like that it's not point us addressing what we perceive or what we agree to be the business needs of the customer but the customer has addressed the business needs of their customer **uhuh** you know what I mean? So it needs to actually before we can start ... if you are my customer...before I can start addressing your needs...I need to then review and make sure (what are your customer) you are identifying with your customer business needs are in eGovernment sphere. So that , so how does that translate with you and your business and then how can we actually help you. It's not the case of saying to you 'I know what you want, you want a call centre and you want people to come in do that and the next thing.' It's a case of saying 'ok, you

want your customers – the citizens or other businesses to be able to interact with you through a contact centre. **Hmmm** good, so in theory it's the voice side for them and what they need (it's not) coz' in practice they interact with you through voice, but then you need to be able to call off the information for them on your operator screens and how much information do they expect you to be able to call them, what is going to be frustrate them, if they have to keep repeating. What information can be avoidably repeated. Yes? **Yeah**. So it's understanding, it's making sure that you 've got a full understanding of the pros and cons even the psychological interfaces with your customer, the citizen, so it's such that we then know the right way to interact with you to address your customer's needs. If you, and sometimes we can help if the situation allows it, we can help you address even identify and then address your customer's needs. **When you say 'you', mean?** You mean being my customer. **Ok** yeah? And so we can take it as far ... I've been involved in projects where we have [...] position to identify what it is your customer's needs at the end of the day, what has been made in real life really easy for your customer. Meet them, what they use-effectively your services. What services is it that they want to use to be able to interact properly with you, it's maybe the other way of putting it. **Yep** does it make sense? **Yes ... just keep on talking...**

Is there something unique in eGovernment projects? Compared to other kind of projects? Any...specifically....eGovernment projects if you compare it to IT projects?

No, because at the end of the day maybe the most important thing for me in all these things is the customer or the customer's customer. That is...that is something that if we don't take it if people don't consider that, then they are not hiding nothing. It's the same as the...the same as Michael Hammer, the business process reengineering?...he wrote his book 12 years now...13 years ago and he came through a lot of criticism...I don't know if you know the book? **Well, I don't know the book all I know is that it was a bit of a hype at that moment...yeah! but now it's changing..ERP?** the reason it's changed for me is – my theory – but the reason it's changed is that too many managers have said 'I'll have a couple of pounds or a couple of kilos of BPR. That seems fantastic!'. That's the story and you are right...big hype at the beginning. It really teared off and the reason it teared off if that 80% of BPR projects fail. They don't fail because BPR is wrong or whatever, they fail because people think that it's something they can buy a couple of kilos of and just say: 'I as a manager I want business process reengineering to do it all for me', but it's not as easy as that. It's the whole culture changes. **So you think the same thing applies to eGovernment as well?** Yes, I think so. **Just another project?** I think it will fail if it's seen as another project. I think people need to think for what it is and what it can do for them and the citizen. If they look at it properly with wide open eyes not just [...] vision within all the aspects...this is what it can deliver. Then yes, it can be a success in every, it could be a success for every person, it could be a success for us as the supplier if you like or the partner...**from you rpoint of view you don't see it as something unique? It's like ... you don't see any uniqueness in eGovernment projects compared to other kind of projects? As a developer?** No, I think it is evolution. I don't think it is the uniqueness I think ... I think! It should be seen as an evolution. **Ok** erm...maybe it's just...I am working ...everything I am doing it's doing is

around eGovernment these days and has been for few years...so it has lost any uniqueness that it ever had. No, I don't ... if we are gonna be working in the eGovernment sphere properly ourselves and the customers are working properly...I don't see any uniqueness in it. I think the days of uniqueness have moved on. We now have to consider it as evolution.

Now, do you see any different types of eGovernment projects?

Yes, there is the type that the end-user pays for. As you mentioned before transactional. This type is based on the transactional basis. The type is based on a central basis. So, government by its very nature is meant to take the money that raises in taxes or whatever and pays for services. But there are certain government services that depending who you speak to and when you speak to them it can be whatever, but in reality there are services that the citizen pays for to the government department. Easy ones: passports and disclosures, disclosures of criminal history are two easy examples of that if the government has got a service that...a recognised service that they can charge for on a transactional basis like passports or disclosures of criminal history then...then that's one aspect of it. But there are other things that the government would want to ... would want to...it would be in government's interest to...say ...as in the tax office and the tax returns online to encourage people to do it that way...saves...saves paperwork, saves space of the final paperwork, that stuff...**ok, thank you. So you distinguish between various different eGovernment projects? You say there are different kind of projects...yeah...ok...**

Now, if we assume that this situation exists-obviously for you it exists-do you find any different risks in different projects or do you think there are the same risks everywhere?

I'll say that there is a difference. If you go down to the PPP/PFI...errr...there are...there is a risk in every project...the risk...the big one is PPP/PFI. We as a company if we go forward to the partner and that...we inject millions of pounds at a project and if that money...that money...is not realised because the PPP/PFI by its very nature means that you recover the money through – whether it be transactional services or some sort of rent or whatever from the end user – if there is not a recognised way of any payback then that money starts to costing you money. **Hmmm....**there is the cost of the money if you like in terms of interest of whether you whichever way you wanna play it the risk there is that you don't get **Is it a financial kind of risk?** ...yeah, yeah, you don't get On that type where that money is recovered on a transactional basis you got your return of investment is...that's a big gamble, that's a big risk and how you mitigate that and the other ones, the other projects, the other types of risk are...hmmm....immediate risk is for someone who trusts people...this may sound weird, but the risk is in fact that the project evolves through its life and the original intend within a contract can actually be read differently by new people [...] and what the lawyers can make [...] at the end of the day the intend behind a contract be changed by technology, by...by...by need, by **people** yes, yes

ok-ahhh-now a very generic one. What are the main sources of risk?

Sources of risk in eGovernment? **In eGovernment projects.** Hmmmm....change of policy, erm mmm faceshift between policy and implementation management there is a big risk ... and....if go back to the transactional side of things...take up...if it's...it hasn't gone back to what was said originally but looking at the customer and the customer's customer – that hasn't - these considerations haven't been taken into account and the end-user, the citizen, doesn't want to use it then it's gonna be a project that will be seen to fail. No matter how good...no matter how good a platform has been provided, it will fail, because nobody wants to use it...**hmmm**...it's like designing...it's like designing a new car. When Ford turned round and designed the [bed...] all these years ago and nobody bought it...nobody wanted to buy it! And...so it could have been the best thing going but it will be seen to be a failure...**do you see any political factor in that?** What? In take up? **In the case of the success of a project.** I would put it back in the policy and implementation management. If that isn't considered early on, recognised for what risk could be there and could be done to mitigate it and actually support the real- the alignment of that faceshift if you like then...erm...then that itself will be worth of it...that should be addressed as fast as possible....**ok**...does this make any sense? **Everything makes sense!**

Now, erm, this is a generic framework for risk assessment targeting services and we fragmented it into three let's say parts, where we have the eService which has a back end and a front end.there is one relationship here between the public authority which we call it organisational level and communicates with the back end – they are the ones who are developing the system...uhuhhh....and this is a sociotechnical relationship or subprocess because the whole system is seen as a sociotechnical system, right? So we have another subsystem here for the intraorganisational level...where...within the government or within PPP we have relationships that work together to implement that eService...uhhuhuh...so we have another subprocess here. And we have another subsystem here-sociotechnical again- which is the front end of the system and the end users basically yeah! And we assume that if you do risk assessment here, here and there then eventually you can cover most of the generic risks of the eService as a project hmmm right....So this comes out of the theory right...now do you think that what you see may cover all aspects of risk – generic sources of risk – or generic issues of risk let's say for an eService project?

I 'll ask for a clarification here to make sure we are talking about public authority here or governmental / non-governmental. Are we talking about an individual here or the public sector organisation? **Let's say that here are is your customer and you are developing the eService for him. But here we have maybe this customer with other governmental services that interact with that customer to supplement the crosscutting phase yes! Ok.** The only thing that is missing for me here then is the policy level that just talked about a few minutes ago. And...**what do you see here if you could see something?** That's the kind of picture that I need to have it here or to have it as a bigger circle that encompasses both, ok? **So, let's say this could be...yeah! A bigger circle bigger oval, yeah, yeah, and would name it policy level. Ok ad what are the main**

stakeholders here then? I mean who supervises that altogether? If you view Scotland as a model, the Scottish Executive at a policy level, they will set a policy and every ministerial position is a crosscutting position. **So you are talking here basically about the political factor?** Yes... **high level decisions for the project?...yes ok alright anything else?** No, nothing jumps to me... **do you see it the whole picture as something feasible?** Yeah ok yeah. **So you wouldn't change or subtract something?** **Ok ...erm...this picture works for me.**

Now, if you had such a framework where and when would you use it? If you would use it? ...erm...don't be afraid to speak your mind....I wouldn't use it ... I would use it at a very top level. Yes but if we are talking using it in regards of risk assessment/risk analysis the for me ... erm... that is a good picture for how the different groups interact...what it doesn't...where I would use it from a risk point of view it would have...it have to come down a level...yes erm...this is the high level picture yes that's what this interview is all about at the moment. We assume that you do risk assessment here, there and there and the n we describe how this risk assessment process will take place great so this is the rather low level and this is the high level and the question is, if you would use it in your whole decision making process as a manager and when would you use it? If we were using it properly and if everyone had the time, and other pictures were on, we would use it when...erm... There is two ways you can get involved in a project, probably a lot more...One is you come up with an idea and you take it to your customer and you develop that idea with your customer and then have to go to tender and they bid on it. The other way is that the customers themselves – whichever public sector organisation that is – they say we want to do something and it goes to a project and you bid on it. If you get involved in that your decision...look at the first one first ...as soon as you develop an idea you've got your own perception of how that runs through. You immediately start to assess possible risks. Every type of risk. There is risk for what time? Who do you take it to? Whether the competition is developing faster and they are coming with a strategy, coming round the back and totally destroy you? So you have got to look at the rest...what the competition might do and...also what the customers will do with it? Who is in the right area of the customer to take it to? Who is supportive? Who is not supportive? Do you want it supported no matter what? Or do you want truthfully...a truthful analysis of whether that suits our organisation? Erm...to me you want a truthful analysis of whether that fits the organisation, but you want want to know, you wanna know have you identified the right people within the organisation that can give you that truthful analysis? And recognise that...in recognise the worth of what it is to you are taking it to? That's all...if it's your idea...that's all upfront before any of the normal processes happens. Once you are into areas that the government customer has recognised the worth of a particular project...you then need to look at the...to look at the what it is...start from top...what is their minister's agenda? What is their organisation's agenda? And how is that affected by the individual players in their organisation? Because you could have ... let's take an example. If we have a chief executive or a chairperson that it's got a year and a half to go before they take retirement. They might want to get a particular job through and hold it up as a flag. The other type of the individual who has got a year and a half to go before retirement to say....stuff it! I am going to play golf when I am finished. I don't want ... I

can't care less than this. The first individual player [...] as a non executive director or whatever afterwards they just want to make a name. It's down to those types of personal agendas as ... why is someone working under this project that...that everyone aren't [any help worth] but why aren't any help? Is it one that we just want to get through as a sale under our belt and guess our guys could deliver it? To come back to what I said earlier. Is this a project that we want to be associated with? Is it a project that could be good for us and we would choose it as a reference for other projects or that we could emulate in other areas? These are all questions that would be answered – hopefully yes –but if not then – why not? And assess the risks. **So this would be the stage before you submit your proposal let's say?** Yeah, yeah, ideally it should be. Invariably in practice coz' everybody is so busy here the initial proposal might well go in, because of the whole proposal process your initial proposal might go in almost as a declaration of interest....**hmmm**....to give you breathing hopefully breathing space to then do your own risk assessment or qualification of why are you going for it, why are you cutting [...] and has market research been set properly to check the end customer needs.

Would you use such a framework for a particular eGovernment project as a template or would you just go – I am referring to risk now – or would you just go and confront the risk ad hoc?

Rather than saying whether I would do it, erm...it would be better to take it on a generic level and say would organisations try and sell it to the governments? **Uhhhuh** my thought on that is it depends on the culture of the organisation and it depends on....**you mean the organisation that is developing the system?** Yeah, the...let's call it the private organisation...at what point in their own lifecycle..erm...are they in? are they in the point that they are fresh into government...in the public sector...and they want to make [...] of themselves to put under their belt...are they at the point where they have been a couple of times and they have lost money? Therefore, they are standing back and they give a wee bit more circumspect? **So in general you refer to culture and reputation?** Yeah **do you want to add something? No? ok.**

Now, this is a taxonomy, hmmm, this taxonomy tries to – let's say – put an order to various risk issues that surround such projects. And it doesn't doesn't mean that this is above all it's just a sketch. So you have these four main categories: people, design and implementation, strategy and deployment and acceptance. Now what is your opinion as you see it from a your personal view on these four main categories without looking at the subcategories? Do you think they cover generic risk issues, these four categories?

Very generically, yes. **don't look at the subcategories.** No. **would you add something else or would you clarify, or would you...** there are immediately things that come at the top level. Then I started looking at your top level and for instance I thought at the beginning 'customers' but they could be under 'people'. And a lot of the things that jump out to me that you should consider could actually fall into – you don't need actually separate categories – they could fall into these categories....erm...no...everything I think of without looking at the smaller ones **no yes so you would say it is something**

workable usable? It's not something out of this world? It's something that exists? These four categories?...could be useful let's say? Yeah, yeah. There is something...something, I can't quite put my finger on...err...no, that's fine...that's the project right-through and that's the influences and factors on it. Erm... maybe 'strategy'. That's...those are the projects from design through to deployment and acceptance. People influence what's gonna happen no matter what type of person you are bringing, customers, influencers, whatever. In terms of ...(maybe strategy)...**would you rephrase strategy? Feel free, would you defrag it?** Erm...I would bring it down to three actually. **Ok, take strategy out.** I would put three at the top level, because people can cover so much. And...really, it is people determine strategy, isn't it? That is where I am coming from. Maybe that's why I am seeing this...maybe strategy it should be a subset of people....**ok...**it's just a thought...a thought. I am taking it purely from a project management point of view and taking someone through ... in fact...actually, suggestion; take people and strategy together and put them under influencers...**ok...coz'** it's ...it's ...influencers not as in people, but influencers as enablers maybe **ok** who...who might be [...] different people see different things. That itself as the project that's quite straight forward. And what else? What else say the project and it's a generic type of [...]. Because then people with all the subsets of people and strategy with all the rest of it [...] because it's probably so heavy on the project from design through to implementation that maybe ... **so what you have in mind is you have these, like, the project lifecycle and the influences, which cover strategy and people surrounding the project, something like that?** Yeah, yeah...

ok, now in the people here we have these two subcategories and then you know further one subcategory...IT management. So we have staffing and skills...errr...in staffing you have risk issues ...you know surrounding...whether you have expertise...you know developing the system or you know the skills more or less are the same and you have all sorts of categories that erupt from staffing and skills in people. Would you add another category in people?

Yes, I would add two or three. Could we take a break?.....**You were about to add two or three other categories here.**

Erm...in the customer side of things you want decision makers, influencers. They all have to be taken account of. It's perceptions, agendas, erm...and drivers, organisational agendas, people's agendas from an organisational point of view from personal point of view, likes-dislikes...erm...people being people...erm...and different types of people you get....what you need to...have you done any behavioural psychology? Stuff like that? No? you get...example...Young's concept of individuation in which it identifies all different types of people and it's recognising the different types of people and how they would accept [?conceptuation?] **for the project?** Yeah. That's it! You get the type of person that jumps straight in totally enthusiastic and you think great! But the truth of matter is you need ...that is the right type of person at a certain point of time. But you also need to take along the [...] the people that are right into detail that want all the facts and figures in front of them before they make any decision. Coz' if you don't manage them along at the same time...not even to try and sell something to them but just in terms

of a successful project. You don't manage this type of people as well then it could well be someone somewhere attempts to make a decision that they are not qualified to make because they do not have all the information they feel they need and it can actually just throw the project out of the water as far as times goes or whatever. So you need to take people into account; not just skills, you need to take account of personalities and as I said personal agendas, organisational agendas. It comes down to you as an individual... **personal agendas in what sense?**, erm... **each individual?** Yeah, each individual. Organisational agendas as the individual sees them as well. You as an individual might... let's say you are absolutely brimming over with integrity and all the rest of it. And for you the loyalty factor is it you would work it in an organisation as really really high. So any decisions you make your personal life would almost be put on hold. Or you attempt to what you need to do to make sure that the organisation wins. Your best interests are the organisation's. That's taking it to one extreme. Thinking of the other extreme, you are maybe someone who is very very selfish for your own senses, for your own family, family time, and the rest of it. So if the organisation needs someone like you but you say hold on a minute. I finish at five o'clock tonight, I am not... yes, this is going to fail if I am not going to finish it but hold on my family comes first. Yes? **yeah** rather than someone who is obviously... personal agenda might be that... it might be that you are trying to persuade me about to take a project that you want to get through and both work at the same organisation, but... hmmm... you tell me about this project in a way that somebody else who came before you tried and with that I got the biggest embarrassment going because I hang on to it and it failed and I am not about to step into that again when all the things I am hearing from you sound the same... **hmmm...** through your own enthusiasm. So that is the personal agenda. It's knowing the situation of people are in or have been in and it's going to trouble to find out that sort of stuff. Because that is all risk at the end of the day. If you don't know who the players are. And I don't mean just from a selling point of view but from making something work. If you don't know the players and their backgrounds what their like and dislikes are. **You refer to the customers as well?** Customers, but first your own internal people as well. **Yes, of course, your team, but your customers as well?** Yeah. **Find out why they want to go for that project?** Yeah that's right. To find out... it might be... I am trying to persuade you to go as a customer to go down a certain route. And you'll say; ah! That's fantastic! I am working for that idea. Great! You signed on and we are really going to work well on this, I can see a real strong project. What I don't know is that you don't have any power in your organisation. You tell me you have and you are saying all the right words. But the truth of the matter is that the person who can make things happen in your organisation is actually talking to my competitors. And I'll get all these nice feelings when I talk to you, meanwhile all the business is getting done by somebody else. And... so you need to be aware of these things... **any other issues?** Yeah, big one, same word I used in the beginning, it's customers. Not just you as my customer, or me as your customer, but the citizen as the end-customer of the project. And it comes down to underpeople, the citizen... must be a need there in terms of what is happening there and have their considerations really taken account of? Yes? **yeah**.

Now, erm... we go to that class now, design and implementation. The same question here... uhuh... what do you think about it? ...[silence]... just to remind you of

something, these are main categories, out of them we have all sorts of risk statements that will appear on, you know, on risk assessment questionnaires...so these are not the risks themselves...they are rather classes of risks...uhuhh...so...

I'll tell you where I come in...to me that makes an assumption. It makes an assumption that is right that it needs to be designed and implemented. There's a question saying...is it right? **You are totally free to subtract anything you like...yeah...no it's right!** Everything you've got there is right, but I think it needs to...there's a question that comes before design and implementation ... **which is?** It can be a subset, it can be part of what it is included...and that is need...**need?** Is there a need? Is there a business need? Is there a citizen need? If there's no need, it's just not nice to have it at the end of the day. **So let's say we could put another class, a class of need, something like a fifth class let's say...** no, I'll keep it under design and implementation **put it under design and implementation?** Yeah **maybe need overlaps with people sometimes?** Yeah, I can see that happen. Yeah, in fact you could have need in there and come right through this as well...but no, people need to see there is a need. People need to recognise that need and what it is all about. **That's why we have somewhere marketing I think requirements?** **Erm...yes and we have marketing somewhere erm...and it is to market the project...uhuhuh...that's for me ...** marketing is interactive communications that keep everybody switched on and on for a project and keep it a high profile. In terms of need – for me- that's testing the market in the first instance and make sure that there is a market, which at the end of the day ... it's not just a great idea that you had and because I have a budget for that I am going to push it through coz' I think it's the way to go. It's knowing that there is an actual need. **So you would put that in the design and implementation let's say?** I would. If it's needing something and implementing something you need to look at usability, interactivity, integration, but you need to look at...**need...**what is the end-use? **Anything else there in that class?** No, nothing jumps at me just now.

Ok, so strategy? Same question here again.

On need, just a quick ... **yeah ...on need you probably need a subheading like business need, end user need ok, so let's say we could make a class of need and then two subclasses like here, yeah ok, alright.**

Strategy? **Yeah.** The only question I have got is...If we are talking about this overall...is you know...assessing risk and all the rest of it, why we've got risk management under strategy? **Yes, because so far we have seen from city councils in particular that when they are developing local eGovernment projects they don't take seriously risk management at all and they just confront risk ad hoc.** Right! **If they ever confront them. So that's the question really, whether they have such schemes or not?** Uhuhh! That's [...] coz' I wasn't looking at the subheadings before. You have customer requirements there and I was putting customers under people **doesn't matter, maybe it overlaps** yeah. No, we talked about crosscutting before. Whether that's in strategy I think that [...] in eGovernment has to include crosscutting. I am not sure whether it is in strategy or not, butit's a thought for you. In terms of...yeah...you've got support in there...but apart from it's crosscutting...bringing in economies to scale across different

sectors and to support these sectors. You go for...erm you go for something within health and that ...that immediately brings in the social services...**yeah, I see...** that type of support, not just the political support but the operational support, the crosscutting...**so, to see holistically how far it goes?** Yeah, yeah. **Ok.**

Then, the last one here is deployment and acceptance.

Pretty much, I think that information, culture and security are pretty much something like that apart from the obvious project management side of things. On the whole, because of the part of deployment these three information, culture and security I 'll argue they come more under acceptance. **Acceptance? Ok.** Yeah. Deployment, to me deployment is, it's right... you 've got design and implementation...**uhuhuh...** I mean what is the dividing line between deployment and implementation in this model? **Implementation is to do with something technical let's say and again implementation is when you use it as an end project and you know whether you have issues like digital divide affecting the whole project and deployment is the technicalities behind it. You know when you develop it you know what sort of resources technical resources....** That immediately brings to mind another one might be evolution. **Evolution?** You don't just...For me the big thing about eGovernment just now is not taking the [...] thing. It's something that's got to be there, it's got to be right. **Are you referring to maintenance?** No. I am talking about evolution of the service. **Continuous support? Something like that?** Evolvement of ideas **alright yeah? Yeah. To keep it up to date?** Yeah. I mean the evolution comes through from policy changes, because let's say the tax law is changed, so the service change. That is just a small, that's just like a tweak within the system. The big one made the small one. In terms of eGovernment...I am trying to think of an example...that...if you think of eGovernment businesses just now...and...it's taking some big steps in evolving a service to the citizen...In stead of just....look back let's say 100 years ago?! The civil servant is almost like some sort of authority to people. And people sort of didn't [...] there was this thing about this authority. But now it's...people recognise there is a service to the citizen, very much the whole consumerism type of thing...that...that, to me there, there is a faster evolution path now...these services to see evolving [...] are they gonna be outsourced, tested, what happens? I mean, take a council that has a customer contact centre. That council is responsible to its citizens...emptying the bins once a week. But at the end of the day it outsources that to a private sector company. And the council still keeps authority. That private sector company might come in with new ideas for the people still to come through the contact centre. I would argue yes! but how do you then bring in new ideas and establish the best value in the worth from new ideas coming from the private sector? **So they are the main categories, would you put something like a subcategory or something?** I would suggest under deployment and acceptance, continuous evolution or service evolution something like that. **Is it important for you as a project manager? Yeah! Even if the project finishes?** I am not looking it as a project manager, I am looking it as...I tend to...**as a successful project?** I don't look at it as an individual...I don't see anything we do as an individual project. I am looking at it...I 'll give you an example... We are putting in...without actually mentioning any names.... We put in... We both construct a contact centre for a government department. To interact with the citizens of this country ... that for me it's just one part...that accepts

the citizens calling in. **Yes.** but I see it as an actual evolution to that is there are specialist people that are operators and then semi-specialist people in smaller numbers supporting....**to support?**...yeah. What all these people are doing in their downtime, it's maybe the operational management to keep the productivity high or something but what these people are doing in their downtime is ... or can these people actually by increasing the number of these people in there can they provide a proactive outbound service to the citizen that actually takes pressure off another part of the government? And in itself actually achieves a kind of a skill that just effectively thinking is [...]. Wait a minute! If we tackle this through outbound calling proactive calling can we actually do something with it? And that for me is an evolutionary service...that it's... **added value isn't it?**...it's added value. It wasn't a project to make call centre accepting inbound calls, the project was to establish a service for the citizen and how we can evolve how can we build on that service and add value to that service, such that it will help other areas or it might even...might even...even maybe it is a stupid example, but instead of people cycling, somebody invented the motorcar and there are hundreds of cars passed every day. Chances of that is none of us would work in a place like this if we were all still be on bikes. It would have been a much shorter journey to and from where we live. So the whole way of doing business has evolved in that sense because of something like that. I don't know if that is a good example or not. For me that's evolution of the service. You don't just stop worth. To me it would be actually worth stop a project if that project can't move on, try repeat it or try something else. It would be a case of something say...ok, what lessons have we learned, how can we do better? How can we use fine-tune it? How can we add value to that? Ok?

Now from what you have seen so far do you think there are risk issues or risk areas that we didn't talk about, risk issues /areas that you feel should be added somewhere, somehow? Risk areas in here? Anywhere! Either here or there or you know or in our discussion just to mention....[silence]...hmmm...that are striking to you as a manager?

The main risk areas are to me from what we talked about are: qualification of the idea and intention. So if you qualify the idea properly qualify the intention, the commitment of all individuals concerned. Then that qualification is going to – by its very nature – identify some risk that you think, wait a minute! This could be it, people not committed to it, if they don't believe in it, they got their own agenda, it means they see this as a threat. So they will fight this. They might say that they are in for it, but there's a risk. That's a risk [...] yes, I would keep them ... For me without saying this covers it all but for me it's qualification of intention and need and from that the risks for that type [...] should be more apparent...ok.

How may a qualitative multi-perspective risk assessment framework contribute to eServices? If any contribution?

It should serve to...at the end of the day it should serve to qualify the idea, the opportunity more fully and avoid waste. So let's say if we don't assess risk properly we could take ... take the tangent even that will create so much waste that both people's time and resource, but particularly money. **So you would say that here as well like in any**

other project, in eGovernment projects we also have time resources, and costs as the main success factors? Or issues? Issues, not success factors, but certainly considerations...**ok...**there is too much work for everyone at the moment anyone from customers, partners, competitors, there is too much on the go. Technology is probably to blame, it's pushing us all faster and faster to cope with more and more but as a result people need to know to stop at the roundabout and get off and take a look at it and say that's the [...] I want to get back to it or whatever. It's not a case of staying, it's not a case of just keep going round and round all the time, people need to stop at it and have a look at what's all that at the roundabout and see if they want to create something different. And we do need...stopping at the roundabout for me is...means that we can and should be more rigorous in our qualification. And that ... for that qualification bring into that a bit of risk assessment and say instead of saying taking this [...] approach and say we are going to go for every project that comes up we actually qualify properly and say there are varying degrees of risks in different areas. As a result, we are going to look at that one and that one and the rest of them we are going to say no. And we are going to do them properly and if they fail, they fail; at least we have chosen them for the right reasons. And risk is a big factor in qualifying out the ones that we don't do. Ok?

Ok, thank you very much.

Domain experts' Interview 2
City of Edinburgh Council
17/11/2003

[...terrible sound of hoovering in the background!...] so...would you like to keep this interview confidential? Ermm....no...not at all, no...

Ok, so what are the main areas of concern when developing an eGovernment project? The main areas of concern...erm...our first area of concern is to design services that people will use...aha...[hoovering...]...are you referring to the end user?... yes...so the end user...the customer...and I suppose that this strategy has to be useful to the people who [...] it might be a citizen, but it also might be the staff in the council...hmmm...it could be elected members, the elected officials ...depending on what application that is to make sure that all the stakeholders are happy with it...erm...our second concern could probably be around ...how much is it gonna cost?...the budget? ... how can we find the money to do it? How can we make it pay for itself? [...]erm...probably our third concern is technically whether we can deliver it [hoover starts again] ...and to check our ability to...in terms of information...or in terms of systems that might work [...] that gives you three big issues... aha...budget... stakeholders...yeah...project...technically can we do it? That's one not so difficult usually ... most things are possible...

aha...so according to your experience so far do you think that there is something unique in eGovernment projects?...compared to IT projects or any other...you know...compared to most projects they are unique because they are customer focused...erm...in terms of [there are more citizen citations] in most IT projects when undertaking the public sector. I think they are also unique because they are cross boundaried. If you look at how IT has developed in the public sector...you are referring to crosscutting?...yeah...crosscutting projects... previously we developed most IT to deliver a specific problem in a specific area, where now we are trying to break mould, so let's tackle something which isn't very narrowly defined. So they are much wider ended projects...

ok...erm...now...according to your experience so far...are there any different types of eGovernment projects? Yeah...erm...I'll give you a copy of our strategy which we developed in Edinburgh. We looked at focusing the projects in five different themes...aha...there are eGovernment projects which are about becoming more effective in the way we work as an organisation...so internal projects. We have projects which are about [...] between different agencies...we have...within the government? ... within... yeah, within different parts of government...we have projects which are about active citizenship, which are engaging the citizens in decision-making processes, so that turns the citizen – customer which has been involved in the democratic processes ... participation? Yeah...and the fifth area is the projects which are around tackling citizen inclusion...so how can we make ...make technology widely available to everybody in the city...aha... which is working with communities....so...these five themes...sometimes a

project may hit two or three of these themes at the same time. But it is quite interesting to look at our strategy...that project is very much internally focused or this one isn't...

so would you distinguish between different eGovernment projects?...yeah....

do you find different areas of concern or different risks in each of them? Absolutely! Absolutely, the risks in a project such as the smartcard project we are doing. The difficulties for our staff around the technology which is a new technology and no one has [...] working, around trying to come up with a sustainable business case and involving all the different partners to our smartcard scheme. Whilst another project...I'll give an example...we are replacing...putting an e-procurement system....this is not so much around the technology. It is technology which has proven technology now...erm....but it is about how we can change our processes internally...uhuhuh...so depending on the...the problem will depend on the nature...both of the technology and how you are going to apply it...uhuhuh...ok...

so what are the main sources of risk? Hahaha! Yeah! I think ... at a very high level...high level?...yeah...mmm! I guess...I would start up with the risks around the technology...there's the risks around managing the stakeholders in terms of the expectations...hmmm...the requirements making sure we understand their requirements...making sure we develop something. There's project management risks...so we can get suppliers...there are different suppliers....and work together...in such a way...effectively on budget within the timescale....yeah...there's risks associated with ... delivering organisational change...delivering the change within the organisation ... but then we have again another type which is environmental risk...so, we spend £10 million putting in an e-procurement system and we think it's going to deliver £50 million of benefit. What if our organisation changes so we now outsourced part of our organisation....then we can't make the benefits which we anticipated so the environment has changed...so are you referring to the evolution of the system?...erm....frankly the organisation in its wider context. For instance, one of our projects at the moment anticipates us increasing our income from some property certificates and a legal challenge has come saying....you really shouldn't charge for this service. This has nothing to do with the IT system or eGovernment. It impacts on our ability to pay for a new system. So legislation may change...yes...or...policy...policy change and therefore the technology systems and business case taking forward are changing as well. So that [phones are ringing] that is...is...the more difficult risk to that sometimes...uhuhuh...

now, this looks like smartgov actually and ... we see eservices as sociotechnical systems...yeah...so we split an eservice to the back-end and the front-end and we have three kinds of relationships. The front end interacts with the user...yeah...the customer...yes...yeah...so we have another sort of sociotechnical subsystem here...uhuhuh...and the back-end is interacting with the public authority, which is actually the responsible organisation for the whole system and you also have the intraorganisational level which is basically the crosscutting...yeah...so we have these three relationships...these three subsystems...sociotechnical...so we assume that if we do risk assessment in these three areas...uhuhuh...we should be able to cover most of the

risks – at least the high level – surrounding...absolutely...the eservice. Yeah! So...just see that...we call it FRAMES...you believe FRAMES covers all risk areas? So, I think ... yeah! We've talked about the risks making sure where stakeholders are involved. Whether they will use the system...we've talked here...this is the one that interests myself here...there's actually risks involved in developing this in itself...you mean here?...so there's risks within the development of this [he refers to the eservice]...alright...uhuhuh...and who would you say is responsible for these risks...I mean are there any stakeholders here? Traditionally, this would be internal to the IT department...hmmm...in Edinburgh's case we may negotiate the contract so that the supplier, such as ORACLE or someone took this risk and implemented the system on our behalf...so in some ways...that risk which we circled there could be managed in many different ways... It is the system development risk...system development?...yeah...and developing the system in the first place....ok! so you wouldn't put it for instance here or there? No! I think these are ... it's quite separate I think it is...there is risk just in developing this. If you look at something like our e-procurement system, which is another interesting one to see. There are probably no risks here...yeah...because this doesn't exist in an e-procurement system – the customer/the businesses...yes. This could be our suppliers, our private sector, the supplier so this may be our intraorganisational level...it may be governments, NGOs, it may also be the private sector yes in some situations as well...I think...I like that! Ok yeah ok. I think that's a good model...you think it captures...? Absolutely! Would you for instance...let's say fragment this area and this area uhuhuh in smaller parts?... I think the one area which I talked about was the policy change and ... you know there's a legal challenge and...or say we introduce the Euro...yeah...how would that impact on this? This would not be a risk here or here or here...but it would be a wider...uhuhuh...society of risks...so would you for instance make a bigger circle around here and call it something like...yeah...I would make a circle around here ... say this is a wider policy change, policy level change and who is responsible here? The chief executive and so on? They are but in some ways the organisation is responsible for managing these risks for understanding the environment it operates and making sure that it understands that the Euro may be introduced in the future and mitigating it. The chief executive cannot take responsibility for the delivery of every service.

Ok...we covered that...so if you had such a framework when and where would you use it? Ok...erm...we have a sort of...we use a project management methodology which is based around PRINCE2....so...I am sure you've heard a lot of it! And...what we do...before...we start any major project...we put together an initiation document and we develop a risk register, which is...is it like risk analysis?...well it's sort of...I'll give you an example to take away and you can have a look at it, ok? Ok but it really underlines who is responsible...what are the risks...whether there is a high probability or a low probability and the impact of those risks and identifies approaches we will take throughout the project in order to minimise any risks we have and then we will monitor those through project boards we set up for each project so this kind of risk assessment/management approach is it more of a qualitative approach? Yeah! It's a qualitative approach. We do not put numbers [hoovering back again!...so annoying!] [...]not at that level...yeah...yeah...and who would use it? Is it like a high level

management tool?...yeah...yeah...a high level management tool so it would be useful for the project manager and it would be good to look at it...say...what has happened here?...[hoovering stops] what has happened...have we used the strategy within a project...make sure...hmmm...would you also use it to communicate...about the same terms? Absolutely. The example of the [...] council making a big decision about spending millions of pounds on a new system and the directors in the council say ... we would like to see a risk analysis to see what risks are in this project and how are we going to approach the management of these risks? Uhuhuh...it takes responsibility ... the suppliers of the new system take responsibility or do we take responsibility commercially to those risks...and...so...they get used in different situations when someone wants to understand how a project works...in Edinburgh we have no internal IT department so all system development is outsourced, but ... which makes it more important to you to understand really who is responsible in risk terms because you are dealing with commercial suppliers...that's why you are interested in that really...yeah, I am interested in that development risk...yeah...and making sure we keep that We transfer that to someone else ... right...yeah...not easy to do all the time! Because it interrelates with this risk...yes...uhuhuh...yeah! right...

now...the taxonomy...straight from literature and from past experience...from past research we came up with these categories of big risks let's say ... they are not risks themselves but they are areas of risks....yeah...uhuhhh...and from the there you create risk assessment questionnaires...so these are four main categories...yeah...that are surrounding services let's say...so what's your opinion on these four main categories?....ok...you've got people...yeah...no I think that's a...good categories...hmmm...feel free to say...yeah.... I think...ahh! For a start just concentrate on the four categories not the subcategories...yeah ok...I mean would you add something else? Yeah...I mean...I think...think...technology was one of the risks I talked about, which you have talked about in the design and implementation, which I think it's probably right because it's more around how you design...for you ...without seeing that, would you put technology as another category because it's so important?...yeah...no! I probably wouldn't...no...ok...no...I think ... one of the other one of the things which we would consider differently is...for instance on the people side you have the skills almost in terms of project management or IT management, staffing, which is maybe around the project. What we would have in a number of projects is also the change which requires to be embraced within the user community itself. Which...internally or externally?...may well be both...so maybe in other organisations need change how they work...might be in a part of the council...so when you refer to change...you would put it under people? I would put it...there is a requirement for organisational change in for people to embrace the new...the user community to embrace the new system...hmmm...which is not really covered in deployment...could...it's really around the acceptance of the system isn't it?...but I think ...speaking your mind...these two...these two are related...yeah...so...hmmm...i mean would you put it under people?...change?.... I think there is an organisation change element which we need to embrace within ...either...between deployment and acceptance or people...uhuh! There may well be that there is a way of having parts of it in both information...I think it's a useful approach...so when you are referring to that particular class...organisational

change...can you give us an example? Ok...so...one of the systems we are implementing is an electronic document management solution into our tax collection area. And the business case is predicated on people using the new system and no paper circulating in this new office. But you know ...[...]...it is unless people actually stop paper going around the new office and filling paper themselves...then the system will not be considered to be a successful system...so therefore I would suggest that probably ... there's a people issue but in many ways it's around acceptance of the new way of working...that's why ... people...I think the other area I saw from here...is you said it's around design, which is around integration and there's a lot of projects interdependent on other developments, coz' we are trying to take forward lots of projects at the same time...then one project might be interdependent on the outcome of another project...so one of the things we are trying to do is to have all of our projects use a common address for a piece of land or a property in the city...so one of the interdependencies in lots of projects is to have this common address available...so one of our first building blocks is having the building blocks from elsewhere in eGovernment strategy available...and I think this...you could say this is about integration but I think it's a much more of an issue of interdependency with other eGovernment projects, which maybe isn't included...yeah thank you...uhuhuh!

so...now...it's about the people class here, which I have divided into two categories...what's your opinion on that? Basically, in general...yeah... in general...I think that this is like the two key issues...do we have enough people working on the project? Do they have the right skills? I think...hmmm...the other axis which is important is...from the people perspective...is do we have the backing from the senior managers? So...are the senior people in our organisation committed to deliver against the project...and...I would say that it's generally the last one which is the most important ... it's the senior managers...if they are not committed to the project or... Are you referring to the politicians? Ermm...the politicians, or the most senior The chief executives or the directors [...]...if they don't know about the system then ...really it is unlikely to be a success...yeah...so maybe this may be a third dimension to it...which is the senior management internally?...yeah...what about the customers? Would you...would I put them in there? Yeah... we've talked about it a bit in terms of the deployment and acceptance...while we were saying if the customers don't buy into it and I think that's where we could either expand on acceptance or people...so we've talked about it a bit so I would say it's probably...should be somewhere in here as well which is more related to the organisational change. Will they accept the change rather than do they have [the skills]. It may well...the end user may well require new skills as well rather than just IT and management...like...what?...well when we first developed an intranet so that ... in the council we found that many staff didn't have the knowledge on how to use the Internet Explorer...so we had to...train totally, how the...how the intranet worked, but also how to use Internet Explorer...uhuhuh...which was a surprise to myself...now, that happened 3 or 4 years ago...maybe not now...too recent!...uhuhuh!hmmm...interesting ...ok...

now same question for deployment and acceptance...yeah...well...yeah...under the deployment side...I think I mmm [hoovering starts again!] the area you probably need to

think about in terms of deployment...is about the use of community ...community...erm the end user...the person who is going to use the system right and so the most probable place to put the user is here or here? Hmmm...because of the word acceptance of it? Because of the word acceptance I think it should be here.... I think there are issues around training which should be put here, around acceptance...is more...I think around accepting the new way of doing things...the new business processes [hoovering stops]. So you have got cultural process...I think you could have business process as well...so there's the culture, which is just the way we do things around here and the business process be it more...this is the way...this has happened and most eGovernment projects will have some business process change which has to be enabled in order them to be successful...uhuhuh...and you know...one of the problems we have in government is ... if you go to.... If you go to ten social work officers in the city and you ask the same question you will probably be...you will probably be taken to a different process in all ten officers and this is the power of...the power of the chair?...the individual...power to change ...do things in different ways. You'll probably get exactly the same outcome in all ten officers in the ways things are done...different ways in terms of bureaucracy...sometimes you need to see a cohesion...yeah...generally, when you put in place a new government project ...generally there would be only one model of doing business in the future...and there's cultural change issue there...that people have to say well no! I don't have to take responsibility to defining how this is done in the future [...] [...] yeah...i mean this kind of framework this kind of framework...this is...yeah...we have tried to do this in number of places...but the acceptance of that new business model is important to us as a cultural change in itself...and if people find ways of doing this in a different way then it's not acceptable ...to them... a very difficult issue I think...it is cultural...but the whole issue of the business model...so you found difficulties there? Yeah very much so...security, I think is...interesting...as technical...the definition of it...but I think it probably does fit with the British standard of information security, which is probably where you've taken it from...no...well I put it there in acceptance because we assume-obviously it's a technical issue-but if you ...if it doesn't ...if it's not secure and if the citizens find that out you lose the trust to the system, so it's got to do with acceptance...yeah..yeah...absolutely...and...no! I think that one is good. Apart from the business process one there we could add...anything else you would add here? No, that's fine...

what about the strategy now? The strategy side... I think that it is very ... very vague isn't it?...it is kinda vague... I think we've talked a bit earlier in this one about the wider society...and so ... if you can look at strategy as...as something which might change the society, which ... such as the introduction of the Euro or... I don't know...we call it a policy change...a policy change...yeah...which may impact on the system...people stop having children...there are schools suddenly empty...something like that...yeah...and...I think...there could be something...some dimension in that around it...I think the support in the customer requirement might be that the end customer requirement would be...would not be a strategy issue as much as a design issue...customer requirement...uhuhh...so I would put this maybe there... at a strategic level we would be...maybe looking at the customer needs or our customer's aspirations or wishes or...something at a broader level and then when designing something we would get into

the specific requirements. So I do think customer needs to be in strategy but at a higher level. So you distinguish between the requirements and the need? Yeah, I think so...I would say a customer's needs were at a very very very broad [...] level, but a a a a customer need might be...I would like to build you a planning application for the house...now...erm...a customer requirement may be...no! that was the requirement...the customers would like to have more accessible...more accessible access to planning applications...uhuhuh...and requirement may be ... the actual delivery of planning applications through the Internet into that level of detail and at the strategic level we need to understand the motivations motivations?...the motivations...what people want...[...] what do they actually want to do with the council...what...what is it that makes someone to contact the council? That type of stuff...here for instance the political support...yeah...erm...from past experience I noticed that there is the situation where you have a city council here and another one there and they don't want to collaborate for...you know...cultural reasons. Is this happening? Yes that happens a lot in Scotland! I was referring to Liverpool! [laughs] [laughs] we have it and this happens between departments as well...oh right!... information systems can be used to find organisational Intraorganisational boundaries...so...for instance...East Lothian council wants its own identity, its own identity its own structure so we have to use a system in Edinburgh to... a city council system, which may not be politically acceptable...they would even pay to create their own?...they would even pay to create their own ... I am using it as an example...ok...but you know any agency which wants to create its own identity will develop its information system to support its organisation. That is a very important one. Not just as a political put with a capital 'P' an elected politician but also at a board level. An administrator within an organisation. Reputation, hmmm...I am not sure that this one should fit into strategy too much myself...i mean if you create an eservice...right? As a city council and this actually does damage to your reputation....That's very important...the impact of the system to the reputation is important...so I can see that ...that side of things...yeah definitely...for instance reputation can also be enhanced because of an eservice...the actual political leadership...you know...the Council...would be reelected...yeah...ok...and the risk management...is because we noticed that there is no formal risk management in place...[...].no...[...].yeah...should should that be out in the public? It should...be easier ways of people to understand this...i think that's important...hmmmm this is for everybody who develops each project in understanding this...they may be missing something from this...yeah...ok...

the final one now... design and implementation...In usability it's quite linked to acceptance...hmmm in a sense...because if it's not useable it won't be accepted...so you would put it in here? Yeah...project scale...I think this is also linked to the...you can have scales in terms of being a very large system hmmm but also scale in terms of complexity. So you may have a very simple system but it has huge reach or you might have a very complex system which you are now reaching the scale of it... Service requirements [...] and technology ... maintainability...integration...I think that the integration element is very important for eGovernment. Would you expand on that? I mean... [...] our strategy is to say ... at the moment we have 80 different application services across the council and they all have their own dataset. One of the things which I have been driving forward is that we should have a common dataset, which every

application uses in land and property...People; coz' if you look across these 80 systems they all have people in them, they all have ... and you want to align them? ... well we really should.... I mean we should have one address and everyone should be referenced in the same way. So when you look at your [letters] it should be the same across all the systems. So I think that the integration element is maybe wider in terms of...data...data! Strategy, but also integration between applications as well. Because if integration is actually referring to the actual systems – legacy systems etc. ... I think in terms of design now, information data, strategy layer as well which needs to be pulled out. Do you find there...let's say a research niche? Around that? Yeah... there must ...because the way you are describing it sounds as if you need some kind of ontology...yeah...There certainly is a very well developed ontology for land and property information because of the huge amount of work in the GIS type of work around an ontology people-data that doesn't exist and it's something which everybody is quite fond of. So what should be our common reference for an individual? Should it be... a vocabulary? A common vocabulary for how we describe the person, not very easy to do... hmm...but that is the key to [...] in eGovernment projects to come [...] definition. And I think apart from that you covered... you covered most of the areas I would expect to see...would you add something then?... erm... I think in terms of the appropriate technology this is something where we would... a strategy will simplify... erm...in terms of different technology in the organisation and to reuse each technology in the organisation and come up with specific layers. So within a popular technology you can expand that into quite a detailed technical strategy to implement, but I think at this level appropriate technology [...] is fine. Umm good now...erm...are there any things that you feel should be added in general? We've talked about... we've talked really about the area where actually I'm quite weak at the moment which is around the user... how the user at the system, by the citizens be the people in the tax office whatever... I think there's a whole set of issues which is quite on the peoples side and slightly on the acceptance side which you probably need to start looking at... which... which...and you'll probably see it from the risk register I'll give you...that's an area where we have been looking at. Ok...

now if you have this bit and this bit how would you apply it? Or would you add like a middle level- a lower level that would be were useful, coz obviously this is very vague? As a manager? How would it help? I think it would...erm whenever we look at developing a risk register we would of first of all brainstorm and I think the way I would develop this into almost a handbook in so I could have examples of the types of risks...erm... at this level and at this level to allow people to say... well do we have this in our project? Does it exist? What are the risks? How are we going to manage that? Actually... what would you like to see? A checklist... checklist? Yeah something like a checklist that would help you in the decision making? Absolutely. I think the other thing which is interesting is that a lot of these risks they need managing them, but when you look at managing them the same intervention way help two or three of us. So there is quite an interdependency between some of these things. If one of them happens might effect this, this and this and therefore a checklist doesn't work so well in these situations would you expect to see... well would you like to see these interdependencies? And how they interact? Absolutely! I think the interdependencies are difficult to manage but it would be far more academically interesting to...where in a real life situation a checklist

would be very useful for a manager. But I think for a very complex project it would be interesting to see the interdependencies which a checklist couldn't deal with...

hmm...ok...

and now basically this question... I mean... we just had... how may a qualitative multi-perspective risk assessment framework contribute to electronic government transactions? Could you give an answer to that? Yeah... how would it contribute? I think it would make it would make delivery of projects... probably better in some ways. I've been involved a few years in this and delivering projects on time, within budget and according to customer expectations doesn't really ever completely happen. So I think any framework which helps people to manage these risks during the lifecycle of the project, its likely to lead to better results, I couldn't say how much better results but I would say that... so going back to the usage of PRINCE2 you said you use it yeah... is there a particular reason why you are using it, obviously it is the standard... but its not for risk management do you for anything else for risk management? No... would you expect something to happen in terms of risk management? Yeah... we would expect we used parts of this methodology [...] within our project so we would probably have a process of a [the porter] cycle which builds a checklist or some model, which every couple of months we would review in the board to see what has changed have we... so you are referring to the actual checklist now? Yeah, this is what we've done and we could say this is happening or is it not and we can... I would like to see that regularly reviewed by a [project team] and send forward. So therefore its got to be something simple to use because we don't want it to be cumbersome, we have limited resources [to deliver] these project anyway. We need to make sure that some simple tool that people to have as well as that [...] between [...] documents which can produce something like this and to wove forward.

So just to finish the interview... what is your current position, just for the record... head of eGovernment in the city of Edinburgh council

and what is your experience on eGovernment projects? Hmm that's interesting... I started in eGovernment in terms of negotiating the actual [...] of our IT department as a councillor. Maybe five years ago... and since then I've been involved in developing the strategy for the council and managing many projects which have been delivered through that... so I have around 5 years experience from project management perspective I've got about 12-15 years experience, but in the IT area only 5. Ok, thanks that's it really! Good. Thank you.

**Domain expert's Questionnaire
With Participant 3
14 December 2003**

1. *Would you like to keep this interview confidential?*
No, on the contrary I would like an acknowledgement as appropriate.
2. *What are the main areas of concern when developing an eGovernment project?*
 - service-oriented perception of the project by all stakeholders
 - proper focus on the real business problems and objectives
 - realistic timeframe and well-planned priorities (it is always good to have something that works in real cases within approx. 6 months and then let the project continue as appropriate)
 - mature, stable and user-friendly technology (performance comes afterwards)
 - interoperability with other systems, openness to standards, non-commitment to specific providers
 - favourable attitudes by public servants
3. *Is there something unique in eGovernment projects?*
 - the IT paradox (too much investment for marginal productivity or quality gains) is much more intense in e-Government projects
 - they have to cope with extremely complex business processes
 - at the bottom line, they are judged by the end-service result which also depends on many critical non-IT and/or extra-project factors
 - on the long term, they are very sensitive to changes in political management and priorities
4. *Are there different types of eGovernment projects?*
 - I would distinguish between infrastructure (hardware, networking, basic office automation and back-office applications) and service-oriented projects (development of end-to-end IT-enabled business processes that result in G2C/G2B e-Government services)
5. *Are there different kinds of risk in these different types of projects?*
 - infrastructure projects are less risky than service-oriented ones, as they do not tend to change bureaucratic procedures and business priorities
 - service-oriented projects are clearly more risky, as they try to re-engineer the "mission and vision" of public administrations
6. *What are the main sources of risk?*
 - ill-defined priorities, due to lack of clear business objectives
 - misconceptions about IT, considering the IT infrastructure as the final outcome of a project and failing to produce added value from the operation of technology
 - management by IT people, instead of domain experts
 - changes in political objectives which bring the projects to a standstill

-
- misconceptions about the project itself, which is considered as something to “own” rather than as something to “serve”
7. *Does FRAMES cover all risk areas surrounding eGovernment transaction services?*
N/A
 8. *Would you add/subtract something?*
 - how do third-parties fit in the picture? what about “supporting service providers” such as banks, postage handling, XSPs, PKI CAs ?
 - how can one-stop services (1 front-end to N back-ends) and middle-tiers (N front-ends to 1 middle-tier to N back-ends) be modelled ?
 9. *If you had such a framework when and where would you use it?*
 - to provide an organisational sketch, but not for a technical or operational architecture
 10. *What is your opinion on the 4 main classes?*
 - I think they are OK
 11. *The ‘people’ class is divided into two categories, what is your opinion on that?*
 - I would add “leadership”, which is different from management, and “training”
 12. *The ‘design/implementation’ class is divided into eight categories, what is your opinion on that?*
 - I would specialise “appropriate technology” with “maturity”, “stability”, “openness”, “performance”
 13. *The ‘deployment & acceptance’ class is divided into four categories, what is your opinion on that?*
 - maybe some of the suggestions for the “strategy” class (14) better/also fit under this class
 14. *The ‘strategy’ class is divided into six categories, what is your opinion on that?*
 - I would add “change management”, “contingency planning”, “service level management” (i.e. what are the levels of performance, availability etc) and “business level management” (i.e. what are the levels of business transactions actually served through the system)
 15. *Are there any risk issues that you feel should be added?*
 - what about interoperability to other systems ?
 16. *How may a qualitative multi-perspective risk assessment framework contribute electronic government transaction services?*
 - it depends on your vision about how to use it, see the questions in (19)

17. *What is your current position?*

- e-Gov researcher with the University of Athens and e-Gov consultant with the General Secretariat for Public Administration and Electronic Government of the Hellenic Ministry of Interior

18. *What is your experience in eGovernment projects?*

- since 1997, I have been involved with the planning and management of a number of projects as well as with e-Gov R&D

19. *Would you like to ask me something?*

- are all the sources of risk equally important ? can you derive and express priorities ?
- are there some means to derive the overall “risk factor” of a given project ?
- are there some means to estimate impacts of risks ?
- are there some means to perform root-cause analysis of an identified risk ?

Domain experts' Interview - 4
City of Edinburgh Council
22/09/04

So what is your position and your main responsibilities?

My role is ICT client and development manager and prior to the outsourcing of the council, I was development manager inhouse in the IT services. Since that...it was outsourced to BT..**Syntegra?**...uhuhuh, Syntegra...my role is management contract under the eGovernment division, where Andrew is head at...**So technically speaking you are the middle man?**... I am the middle man yes [...] by both parties! **That's interesting actually...**

So what is your experience in the area?

I've been in computing for many many years **public sector computing?**
...yes..yes...**alright!**

And would you like to keep this interview confidential?

No, I don't think...**Well, if you deem that...yeah...I 'll mention it...**

Just a brief introduction....Umm...good, good...my research is about risk and risk modelling not necessarily risk management or risk assessment I am before that. So I am trying to model risk across the public sector and particularly the eservices and my main question that I am looking at...is how relevant it is to model risk in the formulation of eservices for government. By saying formulation I mean two things; the one is to qualify an idea for a particular project and the other one is how to plan for this project...and then we actually go to the project management...so I am talking before the actual project management...so my first question is...how are you assessing an idea to qualify for a potential project?

The initial ideas are worked up in some sort of a feasibility study, which would cover at a very high level the normal cost-benefit side...but I think over the past few years...and I think there has been a general awareness within the public sector certainly here that risk...which I think is possibly [...inherited...] before, but I think it is more overtly now...and that would be the extend of the initial feasibility...**uhuhuh...study...uhuh...** I think it is also the fact that so many of...currently...so many of the ideas in the work area...are still areas that...within the public sector there is not a lot of choice...you've got to do them!...**right...may I ask why you've got to do it?**...In terms of the statutory legislative obligation...**so it's the politicians who prescribe that let's say?...**yes...yes...obviously in the local authority there are a number of things we must! do...and getting systems to support those mandatory services...you know if some of the ideas failed the feasibility test...we still got an option to say it's failed we better do nothing...but I think as we progress and we complete more of the mandatory items...and over the next probably three-four years we are moving to muc h more choice-based, our

own choice-based items **uhuh...** so that's where the risk ... sorry... **no no it's ok you don't have to have risk always in mind...** yes ok...yes..yes...obviously what is not...is it ok to...[...] over the past few years? **You are free to say whatever!** Ok...**I am not a journalist...**hahaha...you see I am not sure what you 've already been through with Andrew...if we look at where we were in April 2001...that was the date when we outsourced and moved the assets and staff over to BT Syntegra. At that stage we...one of the things we did actually outsource was...this council came altogether from two previous councils...there was a local government reorganisation in 1996 and...there was...a two-tiered local government...you follow that? **Yeah...yeah...**so we had a larger organisation looking after Edinburgh and three surrounding district...**Leith?** No, East Lothian, West Lothian and Midlothian **Ah...ok...it was more like a prefecture kind of thing?** It was the main ... can I? Can I draw here and you can take...just to try and illustrate? **Yes ...** so we 've got Edinburgh sitting here and that's the West ... and.. so we've got a council here... a council there... a council here called Midlothian and a council here called East ... **so they were all brought together?** ... and all that area .. there's one authority called Lothian **alright!** And Lothian is the unity authority which ran education, social work and council tax...these kind of things...but below that each of them had their own ... a further council ... called the district council .. so you had Edinburgh district, West Lothian district...and their responsibilities was housing, environmental **cleaning** yeah, that lot... So it was split to make each of these a big authority... so Edinburgh instead of just doing housing, environmental, education, social work ... so everything was split... so, if you look at that at that time we had an IBM mainframe in Edinburgh district...We had an ICL mainframe in the region and as we split up, Edinburgh inherited the ICL systems and also the IBM systems. It just happened...But because of the lack of money at that stage we couldn't say do that [...] it was just really tagging along ... so strategically it was a mess ... **in '96?** In '96 and as we recognised in '97, '98 it became clear that the council needed financial investment to move away from... I mean it wasn't just the mainframe ... the two networks were different ...And there are two ways of doing things; you could bet the region would have one way and the district another way. So in terms of a strategic model for delivering IT services it was a mess. So we needed...the way out of this mess was to get investment...we needed money ... the council didn't have any money ... and that was one of the drivers to outsource ... and part of the outsource arrangements was that the outsourcers would take over what we had here and ... take over the services and deliver a number of key components...The oursourcer's own plan had recognised this...recognised that by investing some money on new systems they could relieve themselves of all costs associated with internal ... the two mainframes...so we needed this outside investment...and that's really what's been happening for the last few years...and from that we migrated onto a new open-platform systems...predominantly housing systems. And in this one all the local revenue taxes systems will be here, as the payroll, discount. So we just got over the last 3 years a major migration exercise to get these...to leave Syntegra to implement it...they put in a big enterprise server to accommodate this need...[...I say a lot of this because...] there were mandatory systems...we 've got to run housing, we've got to run taxes ... it was difficult to do it. But one of the ... [...] working in an outsourced regime we were able to speak to the council ... the council must take a much more participative stand ... **you mean the ICT?**

Yes, and the user community **alright! User community...the citizens?** No! the users of the services...the users of these computer systems...And this tag along with risk...The council, in-house, it was very difficult to get the staff in the specific departments, that you are delivering a system to it, it's very difficult to get one to participate in acceptance testing. In this arrangement with Syntegra we were [...quite insisiting...] of realising and coming to the contract with the council themselves had obligation of implementing systems. That's a way we could never do that under in-house regime. So the staff in the one mainframe used that mainframe and because of the migration to the new they were much more involved in the migration work, in particular the level of testing that we got to do far exceeded anything that we could have got under the previous regime. So that is maybe the way where we recognised that that was always a risk and I think that seems quite common in inhouse arrangements. **Uhuhuh...** So that's ... and because of that we 've got a [...] work that's got to do with moving ... we've got a new network in, we 've got new open-platform, we 've ... we are just at the end of the migration ... **you are referring to gov-gov systems?** Yes, aye aye it's sort of the basic systems we 've got to run. Over the last probably, year or so we've started moving to the citizen-focused; the contact centre is now working and being further developed.

So, I think ... maybe you answered it... I don't know... do you have any particular methods to assist you in that qualification of the idea?

Erm...**forget about the risk...any...yes...erm...systems** I think the methodology ... we know we are going to go through looking at what the system is looking at, what the options are, looking at what the cost – the current [...cost...] is. This kind of indicative [...rough order...] cost of what the new thing would be, what will be involved, what staff benefits what benefits could be identified by this new system. And what risks are there? what... remember this is all a very high level ... **yes...yes. so in general would you say that you are using past experience and you see...** I think we are using past experience, we are using the awareness of the general background of IT not just here but generally...I think ... I think everybody talks about failures and indeed very high-profile failures and I think what that done...is to allow us to spend time on areas where we wouldn't have [...allowed...] to spend time on before. Because before it was too much 'let's do it' because that was what the politicians want, but again I am not speaking in here...that was very general. So I [...] we are recognising is that there is a need now that in fact it is acceptable to spend time and effort at the earlier stages...**when you say time and effort...apart from that is there a need for the use of a methodology maybe formal?** ... I think yes... yes... I think there is ... and what we are working towards there is a high level ...almost checklist...when identifying what are the main components that should be part of what this test...**yes because for instance...especially the customer-focused kind of projects maybe apart from a strictly project management perspective you know like cost ...time...effort...yes...there is also the need of the citizen will they use it?** ...yes..yes...I think there's the two sides...there's the hard evidence [...] and which is easier to get there; the softer side of particularly the interaction with citizens; what would be the take-up? What is the take-up like...yes...to get you the cost-benefit I think that's where I think the... the research in what others...getting that there are so many people in the public sector moving in the same

direction looking at good practice, looking at how other areas have carried...how they promoted it...again I think it's [...whether...] the issue that is different from a kinda internal system... Which we didn't have to promote it because it was part of the job that we had to do...A lot of the more interactive systems with the citizens they have a promotion element...**how to market it?** ... yes, yes, which is maybe not something that councils would have to really spend much time and effort before. We don't have to promote the fact that people have to pay with our council tax system...hahaha...Whereas in the planning & building control project, it is an indicative example of a project which has created an approach that is much beneficial to the citizens. We have actually gone out and promoted it. That promotion has contributed to the success in terms of the citizen and also in terms of the solicitors and estate agents who also can use for...[...]

So, have you ever considered in using risk models in the qualification of the ideas? By saying risk models I mean the risks in any shape and form.

Probably, not in the way that you are referring to. In terms of, you know,...I think what we've done is we followed an approach but I couldn't pull a copy of that approach to show you...**no, no...** maybe I didn't understand your question...and we haven't got a document that says that this is...**no, I am not looking for hard evidence but I am actually looking at what happens...** yes, but I think what I am suggesting is that...it is maybe wrong for me to say that yes we go through risk modelling, as opposed to what we go through is you know, identifying some of the high-level key risks...**yes that's what I am referring to!! Is risk involved?...** yes it is...**when you are discussing about a particular idea...yes it is...at a very high level...is it risk modelling/assessment whatever based on past experience?...** on past experience here and in the general market sector and best practice. **When you say market you mean SOCITM?** Yes SOCITM and looking at case studies what other people are doing and you know active members of SOCITM and we use that experience and obviously any kind of research from some of the government websites and so on. There is more and more information starting to become available.

So, now let's proceed to risk modelling for...I'll show you that in a moment...this is a model that I have developed and you can call it a framework, whatever, and this is trying to capture what's going on an eservice...so what it is...is you have an eservice, which has a back end and a front end and you have these relationships. The front end communicates with the customer, the customer can be another government, another citizen whatever. There is a relationship here; the name doesn't matter, you have some sort of relationship between the front end and the back end, and then you have the public authority that is responsible for that eservice, the crosscutting where everything happens for that eservice to happen, so I assume that if you do risk assessment into these four areas/relationships...risk assessment or risk modelling you can actually say that you can do risk modelling for the whole of it, so something like that...ok?...the way you see it...is a very high level...could it be helpful in the qualification for an idea?

Yes, yes!...erm...it would help the area to some sort of [...techno-stake...] what is...the areas that should be looked at and again it's where we are at the cycle, coz' it's so very early in the cycle. How much detail one would know at points is a question probably. However, I think here we could identify what are the likely issues here and maybe in this one that in the data integration and it may be...and here...and yes...ermm...ah...as a model...**As a model would it be used one way or another? Yeah, there must be a need for that kind of thing?** [...] yeah, absolutely, absolutely it's getting the components down and it may not deliver answers, but identifies questions...**we are at the qualification...**absolutely absolutely, but even the identificational questions is helpful within ... **yes...yes...it needs some further expanding somehow?** I think what it would probably do is that it would expand at the next...assuming that the idea was, got through the first sort of test ... **yes...**then I would see it to qualify at the next stage...so that would allow...**so as the idea progresses then this should progress in much more detail...**yes...in much more detail...[...] ok.

Now, **this one has something that sticks in it... so this is a risk taxonomy and these are the risk areas that have been classified according to these four categories...uhuhuh...and imagine that placed into each of these areas and imagine that as a tree and...the people who are looking at each particular area they are looking at that as well and they are taking...how this applies into this relationship ...so yes, if not why not...so how would this help together with that of course into the qualification of the idea stage?**

I think that what you've been doing here is is...what I said earlier about...is that what is that is important here is that we have consistency in how we are doing things here and I think this approach is breaking it down in such that we would know that the idea went through a consistent set of criteria or [...] either with experience, and not in here again (*he means the council*) I mean the market there may be other issues that we crossed up with ... that keeps that with the model... **so you would say it is a functional tool?** Yes, yes and if we assume that there is some sort of mechanism of re-updating...then it can be useful? Yes...yes...sorry can I just have a look? **Yes yes...this has been made from past experience in the previous years, literature review and also through interviews, one with Andrew, so ... I asked people and followed the literature and these kind of classes have arisen...these are risk areas they are not the risks themselves...yes I know...I understand...if you had any comment on that it would be very useful...** yeah ... I am just scanning down the risks ... I am looking at an idea...and ... how I could go through the box here...**actually it would be very useful if you had a particular project or something like an idea as you said that you could share with me so I could put next to that and see how this applies... it can be fictional as well, if you like...** [...] at this minute I couldn't with what I am involved with...I could ...uh...erm...so walking through it...I am not sure of an idea ... at a specific instance...but actually [...] about what I was saying earlier we have a [...] because I think it is one of the areas where historically local government public sector wasn't particularly good at recognising [...that this was attached...] to this particular...to bash on! Without recognising that we didn't have the appropriate skills and [...for the questionnaire...] one example would have been in the two years prior to the millennium

the Y2K...**the bug?**...yes, as a government ... in the local government sector in Edinburgh, we just couldn't buy staff. Because all skilled...professional IT skilled...we had ...there's a big financial sector in Edinburgh who are paying any money...and so I think what that did that made a risk on us at that stage, which [...fired out...] and I am very sensitive to recognising that the obligations on the council one of the issues is to be getting these obligations to identify at the very early stages...what the impact of not having the appropriate skilled staff with IT skills and [...equally...] from the customer side is important to us...**and whether you can train the current...**yes and I think one of the other aspects to identifying here is what the impact in extent of training the user actually is...again in the exercise we are just finishing in the migrations the amount of training this time has far exceeded anything we've had previously...where we didn't necessarily train as well as well as we would have liked to...again...it's a financial thing...it's... [...] property...you need to take people out of their day-to-day you need to [...back forward...] the risks here. If you are doing [...the training with a trainer...] still [...] with things like identifying accommodations to allow training. One of the systems we are putting just now is about an efinance system and the Oracle efinance business suite. So that hurts so many people in the council there is a new accounts payroll and procurement now online, so we've got the technical issues, but the training issues ... where are we training 2000 people? **Where are you gonna put...**exactly...how are you going to train these people? We could use e-training to some, but you can't...to the key user...so you actually have-suddenly- the risk is on you need to find accommodation....Where do you find accommodation in Edinburgh? You need to...work out the appropriate technology, you need to start getting these people out of the departments, the department need to think about how they are going to manage while these people are out...so and I think as we move to the more online type of systems rather than the traditional data to data processing systems the training becomes I think more important...so I think that...I am very pleased to see that...that kind of thing and maybe there's a thing in there an area about training technically that you need to consider **so you would put it as a different class?**...no, but certainly as a heading ... **by the way, there was a question in a conference about...erm...in the financial cost, in management about funders, who is gonna fund?...**uhuhuh...the identification of funding is it important? **Should I add it as a heading? Because the funder is not always the politician...**uhuhuh...or maybe under financial cost...there could be a breakdown under financial cost to say level of cost, identification of funding...**yeah...**and I would add another element on that one and it's the sustainability...it's where you put a system on...and...erm...you get funding, yeah? From the Scottish Executive just got it for 4 year, what happens in the fifth year? **Is that the evolution?** Alright! You've got that, ok. **It's very important, what if the government changes? Yeah? And you are in the middle of your lifecycle what happens?** Yeah, ok I would think it would be more helpful to know of that ... under that stage is there an issue of sustainability? In this training? What goes in...**on-going training...**this is for? **The users ...** on-going training, right ...yeah, that's fine... can I just go through a certain issue? Is this definition during this phase? **Don't see them as phases actually, because all four categories can be applied at any...** yes, at any situation...yes...anywhere...yes, **it doesn't matter really...but the evolution is like...the evolution of the actual service...I mean what it was before [...]** what it is now ... how it will go further ... right... I see... and

whatever that entails... ok...so the access...this is another though ... uhuh... so where are we getting the actual scope of what this idea is? So it's not like... is there something that says how we manage scope and ... do you understand what I mean by that? ... no... ermm...I think I know what you mean...is it like ... if there is a function to preselect an idea ... am I right? Ok, we 've got this idea and...to..to...whatever....and how do we make sure that my view of that ... whatever... is the same as your view of that whatever... I don't have that... I am not actually focusing on that area... I am focusing on the situation where you have the actual people discussing about an idea ... like the politician ... the manager ... the head of egovernment [...] authority ... and each of them from their own perspective they see risks... [...] ...yeah...because for instance the staff risk for you...the manager...could be important...for the...politician...he doesn't care...sure...for him the risk is small for you it's high...yeah...I absolutely...I understand that...but I am looking at...how do...how...if you are applying this to this idea how do you know...[...] no!...how do you know that I am viewing the idea and the scope of the idea the same as you are? **Alright!...so do you say that...this idea...ermmm [...] **a common understanding?** A common understanding...so that...ermmm... I am trying to get an example...erm....oh dear dear dear...let's find an example...erm...a new system...I don't know...enrolling the children for school ... ok... online... how do we ensure that what I say... looking at the risks...you may find it's for applying children as a first [...combi...] school...so we ask ...[...]....just picked a bad example! I just...is there something in there...? **a common understanding?** ... a common understanding...**maybe an answer to that is what my next question is...ok...so... I understand what you are saying but I cannot give you an answer to that. But maybe the next question will give...ok...I am just trying to...[...]** yes...yes...I think it's good...very good! Erm...size...complexity...**of the project...ok...so I am ... guesss... I am looking at the scope of the project where the project stops and there's a clear view of that...[he is thinking]...ok...****

So would this be useful to you at this stage? ...yes...yes...

Ok, now further down this we have the risk statements ... now these are not all of the risk statements you can get, but it is an example of the risk statements that can arise in a risk assessment questionnaire for instance...so what I 've done...from the literature review I found some risk statements and these are the risk statements in italics and then I translated them using this ontology ... uhuhuh....now, the point of this ontology is to have a common understanding about the risks because people from different departments...yes!...they are talking about the same thing but using different terminology ... yes...so my question is...is the risk ontology...could help as it stands in the qualification of an idea? In the communication about issues? I think ... and I go back to what I said earlier when we were talking about the scope...where I was concerned that they were both talking about the same thing...yes... so I think what this is...it is a device...a mechanism that would ensure that people are talking about the same...obviously they have different views and perspectives and so...I think from that example...that would be a helpful...**otherwise because it is very high-levelled could you say that it also shouldn't be used?** Erm...I think...so if it was a politician would he necessarily look at it?...no...I understand that!

Yeah...[laughs]...however, however...if he...[...].it could help perhaps ease out or ensure that there is clarity so...yes I understand....that [...a person wouldn't necessarily go back to this...] but I am sure it could be done within the professionals...you know...the professionals' toolkit...**yes...yes...so it should be part...you know...this is feasible?...**yes! I mean I didn't see it as...we are going to sit with this and laugh...I think it is probably the kind of thing that if people are discussing an issue going through here it would help to identify...can I just take a point? When you say that? Are you meaning? How are you envisaging?...**yes..yes...so it would enhance common understanding?** Yes, I think so...yes...ok...**so because you could say that this could be further formalised...in the sense of a standard in the future...so maybe people could discuss following that standard?** I think so...**even within the organisation...even within the organisation...just to get you through...this is an informal ontology...yeah, I understand...so, I am just thinking of an example...it is a very good example actually, coz' ... 'public', 'customer', 'people', in conversations looking at ideas they could be interchangeable where in fact they shouldn't be interchangeable so it is very helpful.**

So going back to the risk statements...the traditional ones...let's say...and the translated ones with the use of the ontology. Now, would these be of any use? At that stage? The qualification of the idea...

erm...in as much as identifying clarity of this common understanding...it would help there...I am hesitating a wee bit here, because I don't want to say yes it would and find that...I think what would happen is...that people would have an understanding of these and it would help as I said before...**in reaching awareness?...**uhmm...it may bring awareness in the fact that a common word...a common **phrase** could be misinterpreted or interpreted differently for the best of reasons...it could ensure better clarity...and I think the fact that an idea...maybe...a fairly small...I am not talking about a huge system ...you could be talking about something that is fairly small...and...but...yeah...it could be quite prescriptive in terms of you know...going through it...but what it would do I think...I think...this would raise the issue that the fact if implemented within our organisation it becomes understood by the professionals so that...if we are in a conversation about an idea with a politician with another agency we can say...we can...just pause and say...when you are saying customer are you meaning this? Therefore, if one of the risks was customer and [...his personal details are stored...] we are talking about that...so...ok!

Now, how relevant would this framework be in the qualifying process? When I am talking about framework I am talking about the whole lot...you know...here...how relevant would it be? You know...in the qualifying process...

I think I have answered this a number of times...it's it's... **to recap...**yeah...in terms of providing the organisation with a consistent view of how how it's done, with providing a logical way through it, identifying areas that could be missed, coz' you couldn't miss them by going through that... and I don't think it would necessarily and particularly [...honour...] this task to go through it therefore I think that it would be relevant and it may be that it's...it would be ermmmm....excuse me...it would be adapted if the idea

was particularly small it would probably...we checked that...we checked that...we checked that...where if it was a longer thing it would call for...[...]...you know...let's go through this and this...

And now...any other form of risk modelling do you see in the qualification of the idea? I mean theoretically speaking, in your mind if you ever thought about would you use something different and if not and if yes how different? Erm... the way this looks how would you...how would it...be more useful to you? The way this is?

So, let's go back to what I said before...I don't think we paid enough attention to this side of things, but if we did it [...] and again we are no different to other people...and...so I see this as [...] we are building on our own recognition here that we had to develop our...within the process...a recognition of identifying risk and putting it in the proper place. And I think what this is doing is doing all that and giving us the method, the technique, the guide and to go through that. So, and as I said before [...without making relevance...], it's an application a proper application in our very small idea, you know the one how can people go through to the bigger idea...ok?...**ok ok**

Ok, now going back to the actual planning now, how would you plan for an eservice?

Erm...we [*hesitates & coughs*] we have multiple streams **yeah, generally speaking generically...we've got ... erm... this 'ideas' bucket if you like...uhuhuh**; we have a work program established, but I guess some of the things are not in the work program yet, because clearly resources are finite and there is also the...the issue of what the Scottish Executive [...makes...] into their Modernising Government fund bids, which are now becoming more focused with perhaps the MGF fund bid it's just about to come out. So they get a view on which areas they would like to see being taken forward. Things like Andrew...say the first bidding in MGF1 Modernising Government 1 was to put ideas in and funding, but ten government realised that [...local authorities...at certain times...]. So that also feeds into the planning process. **More specifically...when you have the idea, how do you actually plan for that idea?** Plan for that idea? Well, it's actually looking at very much like this kind of things. We've got that idea, what's the [...new...] for that idea? [...] and Social Services linking up with health and so on. Prior to that we would look at where the funding would come from...that's probably quite upfront, does it align itself with the Scottish Executive's view. So I think, I think probably the funding one is...is very...it's up there! So one of the early ones, which you would expect. **So it's the typical project management issues?** Erm...[*coughs*] it's probably before...it's ... ok... we've got this idea...come in...we have the...**money**...we identify where the money is coming from then we can take it to the...from that...certainly feasibility maybe into the business case and work in a full blown business case for that...so you are building on this up...yeah? **Yes...ok...**

Now, erm...do you have any particular methods? To assist you in this process?

Erm...in the business case...we...yes...in the development of the business case we have ... a technical term...**internally {or informally} made or is there some kind of a formal way?** It's....it's a bit of hybrid of internal and what Syntegra [...] developed, what components are, what level of detail and so on to deliver a business case...erm...which hopefully will allow to ... politicians...persons of the...management team to...politicians to accept [...]. And obviously it's also very helpful to show that there is an actual business case where there is benefit here hopefully who will sustain the development cost and ongoing running costs...so it takes that stage and a decision point there which then moves it onto development.

Have you ever considered using risk models? At this stage?

There are risk models within the business case, would have...**in what shape or form? What do they look like?** It would...they are like...this...the risk...**is it like a risk register?** It is more like risk register-based...yes...yes...with the probability...the impact and the...**is it quantitative? Semi-quantitative like high-low? Yes you don't have any...no no...it's very much like that...and this is coming from past experience and whatever?...**what it would be...what comes from case studies...and what other people experienced...etc.

Now, this one now again, again now the same question. How would it help in that particular...if any help...stage...the actual planning for the eservice?

I think what I could do...again...I see it as a checklist of [...] **uhuhuh...**that would it be like...**would you see it in a more detail here? I mean would you expect to see something more in here?** We are still on the business case? **Yes, the planning. Not the project management...the planning...yes...so we haven't done anything yet? no...** I am sure we wouldn't actually go much further below this because I think what this is...I think my concern would be if you go below this [...] you need much more aligned to that specific [...] **so it wouldn't be like a template anymore?** I just want to...a template may be too...generic. If you are [...delving...] down [...] to having too many templates...and...So...I...I would use [...] instead of using it again. But maybe that will be that the work done go to a different level. **Work done, you mean you are going to use the risk statements? Yes...yeah or just use the taxonomy?** Erm...yes...or...still talking about the taxonomy, but I would use it from a different point...perhaps I would narrow it down or you know...from the idea stage and work up here...ok, we've worked the idea, we are in the business case now, so it's ... what do you mean by...you know...what are the issues in systems integration? Where before you said ... yes there is risk associated but they are manageable or not manageable. So I think it's about different level... **I see, ok... so would you think this would be efficient for this kind of phase?** Yes! Yes!

So, the next question is how could the risk taxonomy help?

I think I've answered that...yes...

And...then how about the risk statements?

I think the risk statements are...yeah... I think what we would end up doing is look at these risk statements and their applicability for this particular project and what other risks do we feel need identifying [...] with these and obviously I don't know...ultimately it would be something or not...**of course yeah...yeah...that's a prototype...yeah** I understand...

so, would you also say that, I mean to make it clear for instance [...] At the previous stage, in the actual qualification of the idea you could use the statements just for your own benefit to communicate the idea better, to the politician for instance? But here at the actual planning of it maybe you would also put some number next to it? Yes, yes...I think so...and...and...and this would be the difference between the two stages? I think so...yeah...yes...I think we are talking about a time difference...you wouldn't have that amount of time...yeah...

ok...and...yeah...what about the ontology?

Erm...in terms of...and again is...it's ensuring clarity of things...so I would [...see it as a part...] as well...**uhuhuh...as part of?...yes...yes...**

Erm...now how relevant would this be in the planning process? The whole lot? As a framework...

Erm...it has relevance...it's the same reasons as I said before. We 'll be working at a different level with it...erm...but it still it would still be equally relevant given...we need to ensure we are covering all the angles with each process. So ... and it could also help develop our business as well, because there will be times ...that...that it's [...the iterations...] of this...**yes...so you can see some sort of need for that particular thing...uhuhuh...yes...yeah...i can see it being [...] to the process...yeah...**

And how relevant would be any other form of risk modelling in the planning in particularly?

In terms of...something like a risk register or...? **Yeah, anything...I mean you have this and if you do have that you know what else could you have?** It would have to be the risk register...we...we...I mean...*[he hesitates]* **I'll make it simpler...if I had to evaluate this one for my research what should I put it against it? The risk register?...yeah...yes...the answer is yes...because there has been a talk about PRINCE, so ... but this is for later stages...? I would say PRINCE comes in...the project management? Aye! Yes...**

Erm...now, do you have any documentation related to whatever we discussed about? Anything...or you could find in the future...erm...erm...[hesitates]...I could probably give you some kind of risk register that I've taken from a project...that would be helpful? Yeah one of the projects that we 've... it's just moved from business case into development...and...the development started last month and it's a big development

...so... It's a new social work, social services, social work department...it's moving onto the...[*hesitates*]...a recognised product...well there are two products...two main products in social work in the country...it's one of them. It's a big implementation...[...].as change management as well as ... the technical side is one side...getting the system developed...a lot of change management within the department...and what I have here is ... and this is once we go on to the 7-tier governance...we have other projects with a project manager from a development site...Syntegra...[...present...] project manager and they report to a board ... major projects board, which I chair... They also report to another board...board for each project...but we also have a major projects board and the aim of the major projects board is to ensure that...not in terms of projects, hopefully it adds some value there, but to ensure we get the crosscutting that...that strategically cross the council ... yeah... and we have reports that the then...and...[...].generic reports...I just say this, which is probably past your field of work because I think it does...it just shows the status....And one of the main issues and also the top risks...coz' I don't know if...these would have come from the business case and will be managed as the project progresses...I don't know if this is helpful?...yeah? **I 'll find some use for it!** [*laughs*] **yes yes it should be helpful!** So, I'll deliver it to you through email...yeah...ok...

Now...erm...I want to show you something...erm...we have this case of the inhouse project ...uhuhuh...ok...and this is like a stakeholder diagram...it's not a stakeholders analysis...it's rather informal...so I try to identify people within the case study ...who is involved and does what...in the development of an eservice...so I say that you have the leader...you know the politician let's say...then you have the responsible department for that service and then everything goes through the head of eGovernment of the city council, he then assigns a project manager and the project management team ... uhuhuh... who actually deliver the service...is there something missing here? Is ther...[...].and how far from reality is this? At a very high level again ... what are the main stakeholders? erm....probably the department...is the main stakeholder...I understand! All that is been done from there...erm...is there...[*hesitates*] is this very much from an IT perspective, is it? **Maybe...that's my background** [*laughs*] ... no what I am wondering is...so maybe...the eservices...the eGovernment services...the IT system, but the amount of change management...so what are you saying?...so...is there a need to say here that one of the stakeholders...is a change manager here...a change manager? Ok...yeah..yeah...the reason why I am asking that is because I need to identify people to ask ... so I need to find someone like a project manager, a software analyst ... whatever... yeah yeah... a business analyst who will communicate the business case and a politician, obviously I cannot talk to him...but...and maybe a change manager?...yeah yeah...if such a person exists...[...]. I think in this, coz' any way you look at it you'd think...it's back to this now...yeah...it's an IT service and [...] yeah...particularly eServices the amount of change to how the back office works...the new systems come in...it's not just the new systems, it's what other processes...you know...the traditional processes...so if I actually have [...] in here...there's...there's there could be a person for that...yeah...but I think you know...ensure to identifying that the change management is a key role. **Ok, change manager... OK.**

APPENDIX B - BUSINESS CASE WORKSHOP MATERIAL**WORKSHOP INFORMATION SHEET****Miss****[Title]****[Address]****29th October 2004**

Dear Miss,

I am working on a Doctorate degree, under the supervision of Prof. Ann Macintosh and Prof. Elisabeth Davenport, in the field of eGovernment. The main aim of this research is to assess the relevance of risk modelling tools in the pre-proposal phase of a potential eService project for the public administration. There is evidence that a form of ontology-based risk modelling, at the early stages of the formulation of a potential eService project, could help decision-makers in avoiding waste.

Therefore, I believe it is crucial to receive some feedback from the real users in the field observed whilst operating in the field within a simulated real-life event. As such, I am looking for about 7-10 volunteers, who are usually involved in the planning of eGovernment projects; ideally they would be project managers, business analysts, software analysts, or change managers. The focus is on how (and whether) the decision-makers would use a risk modelling technique to assist in their planning exercise. I would be obliged for your help in bringing the project to the attention of your colleagues. If you approve, we shall arrange access to your department or the University at a suitable time for you, whether during or after office hours.

Focus group participants will be invited to look at a framework containing risk models together with a semi-formal eService risk ontology. They will be asked to participate in a 'simulation' of a real-life scenario about the planning for a project proposal, where they will use the risk modelling framework. They will be asked to give me their feedback on their experience and in particular of whether such framework is relevant (and to what extent) to their decision-making process. They will be asked to attend for [2 hours], with a break. I also hope they will give their comments on my conclusions from the workshop, by email or post after attending the group.

Risk modelling at the pre-proposal phase could be very helpful in better formulating an eGovernment project or – indeed – any other project in general. Although this framework is only a very basic prototype designed especially for research, I do believe that this workshop is learning opportunity that may enhance the ongoing professional development of the participants.

I will contact you before the end of the first week of November to see if you and your colleagues are in principle available to participate in this workshop, and hopefully to

arrange in more detail. Please also find enclosed a draft agreement for your approval, which of course you may alter if you wish. I would very much appreciate your support for the project, which will be acknowledged in my PhD thesis. Meanwhile, I would be happy to answer any questions you or your colleagues may have about the project.

Yours sincerely,

Adrianos Evangelidis

Research Student

Room C35, International Teledemocracy Centre, Napier University

10 Colinton Road, Edinburgh, EH10 5DT

Tel.: +44 (0) 131 455 2790; Fax.: +44 (0) 131 455 2282; Email:
a.evangelidis@napier.ac.uk

WORKSHOP CONSENT FORM**AGREEMENT FORM**Project: **Risk Modelling Framework for eServices in the Public Sector****Name:****Title:****Contact Details:**

		<i>Please Tick</i>
I consent to my views being used for the project (and only that) named above.		<input type="checkbox"/>
I consent to my views being audio recorded		<input type="checkbox"/>
I consent to my views being video recorded		<input type="checkbox"/>
Signed: _____	Date: _____	
Researcher's Signature: _____	Date: _____	

The project aims to explore the relevance of risk modelling in the decision-making process at the pre-proposal phase for a potential eGovernment project. Adrianos Evangelidis (a doctoral research student) from the International Teledemocracy Centre at Napier University, under the supervision of Professor Ann Macintosh and Professor Elisabeth Davenport, is carrying out the research.

The research involves individual and group discussions about the relevance of risk modelling in the pre-proposal phase of a potential eGovernment project, and trying out a technique (expressed on paper form) for that purpose.

I understand that if I give my consent to be involved in one part of the research project it does not commit me to being involved again, and I can at any time choose not to take part in it any further.

If my views are quoted in any research publications, my full name will not be used. I understand that the researcher may want to audiotape and/or videotape the discussion. Any recording will only be used to ensure that views are accurately recorded for the purpose of this project. I understand that I can choose not to be recorded, and can change my mind at any time.

If I have any questions about the conduct of the research project, I may contact the researcher at: C35, Napier University, 10 Colinton Road, Edinburgh EH10 5DT, a.evangelidis@napier.ac.uk

WORKSHOP PROCEDURE

This section outlines the whole workshop procedure step by step. In the beginning there is a presentation of the scenario that was given to the participants to follow, and after that a demonstration follows of the workshop process and what each of its stages was. Moreover, the feedback process section describes the methods employed in order for the researcher to extract information, which would help him draw research conclusions. At the end of the section, there is the complete schedule of the workshop with the main tasks and aims.

THE “BUSINESS CASE – THE E-SCHOOL PROJECT” SCENARIO

The following is the scenario that the participants had to follow before using the research tool. More details about the research tool and its structure/purposes can be found at an earlier chapter in the thesis.

Business Case – The e-School Project

Purpose A: *To provide a common high-level understanding of eService projects.*

Purpose B: *To provide a standardised process of identifying specific risks for eService projects.*

For the tool, please give us a comment on the following:

- Does it identify likely issues?
- Does it identify areas that could be overlooked?
- How useful is it?
- How usable is it?
- How complete is it?

A project development team is having a meeting at the city council’s corporate services headquarters to discuss on the business case of the e-School project that the city council’s leaders have asked for. The e-School project has already passed the feasibility stage; a level where some of the current team participants were involved; such like the Project Manager, the Project Sponsor, and the Business Consultant. Together with those people, the User Community Representative and the Technical Consultant will discuss about the business case of this potential project for the city council.

The new project’s aims are to provide a web-based tool to support automate pupil and teaching staff management processes, as well as to integrate other related services under one ‘umbrella’. More specifically, it shall provide a centralised (the e-School) web-portal that shall deal with pupil administration, pupil/staff management and other related information. Basically, the proposed new eService shall integrate the current (soon to become obsolete) pupil/teaching staff information system and the current (about to be changed) central pupil database at the Council Education Department. On top of the old applications that will be completely transformed, the e-School project will incorporate other disparate systems containing pupil information. Ultimately, the main aims of the

system are to integrate the replacement system(s) with a variety of other existing/new systems to enable more information on a child to be available to relevant professionals from pre to post school years. Additionally, the new eService should open up and improve management information access and manipulation across the city council.

In this meeting, the key project development team members are to discuss about risks and where they are likely to be found. Ultimately, this discussion will be part of the wider 'Risk Analysis' phase, whilst taking decisions in regards to the business case of the e-School project. To support this, the team members will use a risk-modelling tool. The main purposes of this tool are (a) *to provide a common high-level understanding of eService projects*, and (b) *to provide a standardised process of identifying specific risks for eService projects*.

This risk-modelling tool comprises two main components. First, there is a high-level framework called FRAMES (*figure B.1*) and second, the other module is the eService Risk Taxonomy (*figure B.2*). FRAMES may be used to: (i) *provide a holistic view of the risk areas associated with an eService*; (ii) *support risk assessment during the pre-proposal phase (in this instance, the business case) of the project*; and (iii) *generally enhance consistency in the decision-making process*. On the other hand, the main benefits of the eService Risk Taxonomy are to: (i) *express and put an order to potential risk factor generating areas*; (ii) *enhance communication amongst decision-makers*; and (iii) *act as the basis upon which risk assessment may happen*.

The Framework – FRAMES

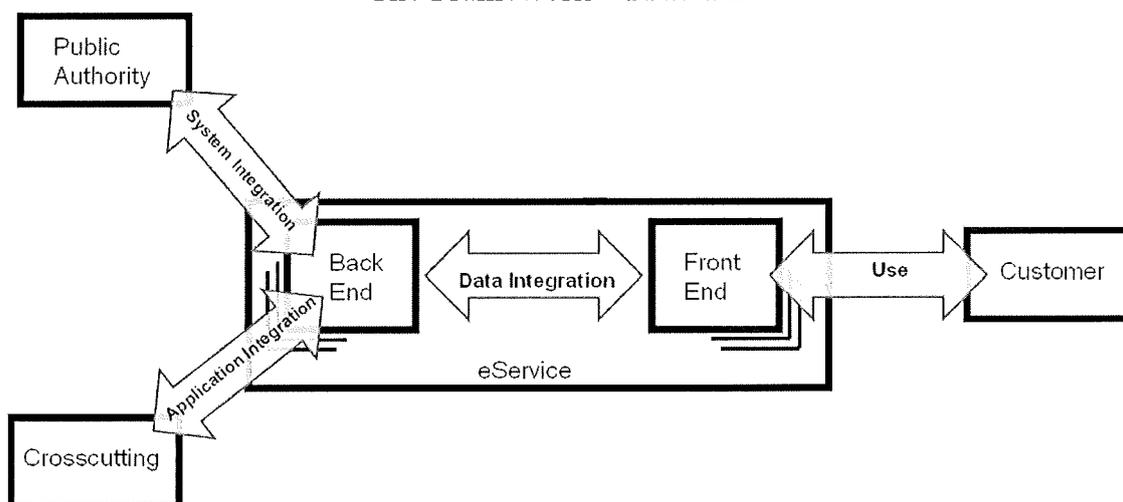


Figure B.1: FRAMES

In this meeting, the decision-makers will apply FRAMES to the e-School project. More specifically, they shall explore (from their own perspective, based on background/experience) potential risk areas of the e-School project. In FRAMES, there are four different relationships between typical components (risk areas' components) of eServices for the government. The meeting's participants (each of the separately) will apply the eService Risk Taxonomy to each of those relationships. It is more likely that

depending on the participants' background and experience, some categories (or subcategories) may apply whilst other may not. Then the meeting's participants will enlist risks that can be found under the taxonomy's categories when applied within each of the FRAMES relationships. After they have done that, the decision-makers will express such risks in the form of positive risk statements. Those risk statements are simple sentences that may follow the sequence '*source-risk-effect*'. At the end of that exercise, all of the participants will discuss about their lists of risk statements and relate them to their decision-making process.

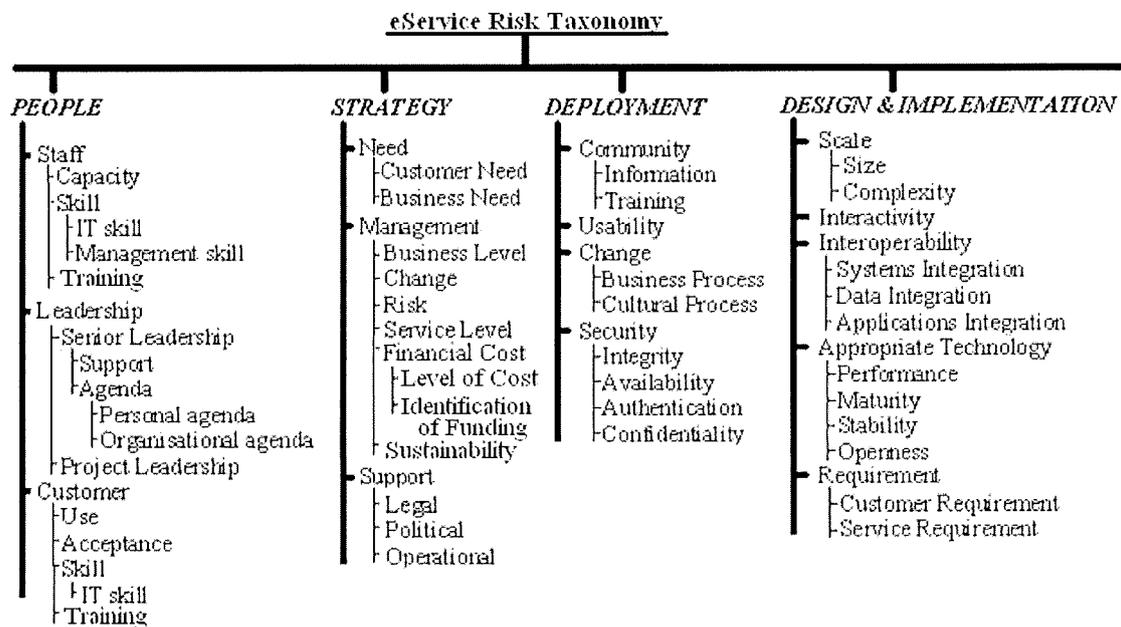


Figure B.2: eService Risk Taxonomy

FOCUS GROUP PROCESS

The focus group workshop was structured around three phases, each of which is described below. These were:

- Presentation
- Interaction
- Discussion

During the interaction phase the researcher took notes to record the behaviour and any potential points raised by workshop members. Also, during the interaction and discussion phases, the participants were video and audio taped, so as to capture as much data as possible throughout the workshop.

Presentation

The first phase of the workshop lasted for about 30 minutes and encompassed the following segments:

- An introduction to the project aims and the role of the research
- The ground rules for how the focus group could help and the filling of the agreement forms
- The rationale behind the research tool and its potential benefits, including a presentation of its main purposes
- An introduction to the scenario, the criteria that the participants should use to assess the research tool, and the method of applying them

Interaction

At the second phase of the workshop, the participants had 45 minutes to use the research tool, bearing in mind that they were in a situation as described by the scenario. In the beginning of the session, and for about 8 minutes, each participant had the opportunity to familiarise him/her-self with the two components of the research tool. During that stage, the participants were asked to alter/update the components in a manner that felt more suitable. Following that, the remaining session involved the members using the tool and creating output (risk statements) recorded on a supplied form (risk assessment blank forms). Due to the restricting time limitations of the workshop, the researcher, who was asking the partakers to use different parts of the research tool at finite intervals, guided the session. At the end of the session, the participants were allowed time to express their comments about the research tool on sticky notes, following the guidelines presented to them with the scenario. Basically, it was asked whether the research tool fulfilled the following purposes:

- To provide a common high-level understanding of eService projects
- To provide a standardised process of identifying specific risks for eService projects

The participants had to assess whether the tool could satisfy the above purposes, and in order to judge that; the following criteria would be used:

- Does it identify likely issues?
- Does it identify areas that could be overlooked?
- How useful is it?
- How usable is it?
- How complete is it?

The participants could use an A4 grid sheet, where they attached their sticky notes. Figure B.3 below shows a completed such sheet of one of the participants.

Discussion

The third and last phase of the workshop involved two different feedback-gathering elements; a structured questionnaire, and an open-ended discussion. First, the members were asked to provide, in written form, comments on their experience with the research tool. They had to fill in a questionnaire, which comprised 11 questions, all examining the tool from different angles. The participants were given approximately 20 minutes for the task. After that, an open-ended discussion followed, where all the participants could express their views openly in regards to the research tool and the research topic in

general. The researcher was involved by guiding the discussion, using the following general questions:

- How relevant is this tool to the business case of your eService project?
- Does it provide a process of identifying risks?
- What would you like to see in this tool?
- Do you use any risk tools at the business case?

Figure B.3: A completed A4 Grid Sheet

FEEDBACK PROCESS

One of the main aims of the workshop was to receive feedback on the tool from the eGovernment practitioners after their encounter with it. To achieve that, a number of methods have been employed. Let us have a quick look at them.

Comments on research tool

Straight after the presentation of the workshop's aims and structure, the researcher asked the participants to have a look at the research tool. Each member had in front of him/her the two tool components on separate sheets. The partakers were allowed some time to have a look and update/modify anything they wanted on the tool's components. They could record their thoughts on the component's sheet. In a way it was a 'brainstorming' session for each individual to write down his/her thoughts in regards to the tool's structure. This would allow the researcher to capture the first – before use – impressions of the tool users. Also, it would provide, in an unstructured way, additional updates/ideas for further tool improvements.

Research tool use

One of the workshop's purposes was that the participants would actually use the tool. Although in itself it is not a specific research method, it enabled the researcher to observe the users whilst using it and examine if it could in fact provide any results at all. To capture the outputs of the tool use, the participants were asked to record their tool product on the Risk Statement List.

A4 Grid

Immediately after their experience with the tool use, the participants were given the chance to provide their thoughts about the tool using the A4 Grid sheet. At this case, the process was more structured as it provided a detailed way of expressing comments. To achieve this structured feedback process, each member had in front of him/her a blank A4 Grid sheet, which had three columns; the first column had a list of criteria against which the tool was to be judged, and the second and third columns were titled after the two main purposes of the research tool. The participants were also given a block with sticky notes. The A4 Grid sheet feedback procedure was as follows. The participants would use a different sticky note for each tool component and write a brief comment on them following the criterion found on the corresponding row under the criteria column. Such procedure would repeat so as to assess the tool against both of its purposes. This method would allow the researcher to receive a simultaneous, multi-perspective appraisal of the research tool by the members; this time though, the participants would have the prior use experience and would comment on a common basis.

Questionnaire

Another research method for feedback retrieval employed at the workshop was the Business Case Questionnaire. Basically, this method was a structured interview in written format. Each participant was given something like 25 minutes time in order to answer eleven questions that were targeted at the risk modelling tool and the wider research context. Following the feedback received from this method, the researcher should get a broader picture of the users' experience with the research tool, their views on it, as well as how to make it better if possible.

Closing discussion

The last research method used at the workshop on the eService project business case was the closing discussion. The closing discussion lasted for about twenty-five minutes and it was based on four open-ended questions (outlined earlier in the previous section). During the discussion, all the participants openly expressed their views in regards to the use of the research tool at the business case study of an eService project. The purpose of this method was to enable the researcher explore the research area holistically by capturing feedback data that potentially could not be caught by the previous more structured methods.

SCHEDULE

The following is the workshop schedule in a nutshell. It was constructed to allow the researcher keep a strict time format, as the participants could be available for only two hours in total.

Table B.1: Workshop Schedule

TIME	TASKS & AIMS	RESOURCES USED
5m	1. Introductions <ul style="list-style-type: none"> • Introduce group to each other & research team • Reminder of project aims, role of the research 	<ul style="list-style-type: none"> • Data projector or Flip chart (arrange with CEC contact) • Sheets for follow-up contact details • Slide: Introduction, Aims
5m	2. Main aims & How you can help <ul style="list-style-type: none"> • Agree ground rules for group, sign agreement forms 	<ul style="list-style-type: none"> • Agreement forms • Slide: Timetable
5m	3. How it is expected that a risk modelling tool may be relevant to the business case of an eGovernment service project <ul style="list-style-type: none"> • Present a list of purposes regarding the risk modelling tool: <ul style="list-style-type: none"> ○ To provide a common high-level understanding of eService projects. ○ To provide a standardised process of identifying specific risks for eService projects. 	<ul style="list-style-type: none"> • Slides: Purposes, Criteria • Criteria <ul style="list-style-type: none"> ○ Does it identify likely issues? ○ Does it identify areas that could be overlooked? ○ How useful is it? ○ How usable is it? ○ How complete is it?
15m	4. Research prototype components I 'ld like your views on. <ul style="list-style-type: none"> • Familiarise group with tool's parts & scenario. Focus Group: Scenario – Business Case 	<ul style="list-style-type: none"> • Slides for each part • Scenarios • Sticky notes (for quick notes) • Video camera
45m	5. Time to have a go <ul style="list-style-type: none"> • Participants record their 'before use' impressions on the tool • Participants follow the scenario • Use scenario how the tool's parts address their selected questions. • Facilitator (researcher) answers questions, takes notes, guides the process step by step 	<ul style="list-style-type: none"> • Sticky notes (for 1-2 quick comments) • A4 blank pages (for notes) • Video camera • Research Tool's components • Risk Assessment Blank Forms • A4 Grid Sheets
10m	Break	
40m	6. Feedback – your views <ul style="list-style-type: none"> • Questionnaire (20m) • Open discussion (20m) 	<ul style="list-style-type: none"> • Video camera • Questionnaire • Open Discussion Questions
5m	7. What's next Outline follow-up activities: to resolve issues I may send some emails back to the participants	<ul style="list-style-type: none"> • Check contact details (ask for everybody's email address) / use contact sheets

PARTICIPANTS COMMENTS ON RESEARCH TOOL

This section describes the comments expressed by the partakers after having an initial look at the research tool. The participants' views were all recorded on sheets with the component figures, after they have been asked to modify/update the figures according to their like. These are comments based on the members' impression before the actual use of the tool. For reference purposes the following section headings have been coded according this format: Comment = C, Participant = (letter of participant), Component = F (FRaMES) or T (Taxonomy); example CAF = Participant A comment on FRaMES.

FRAMES***Participant A - CAF***

- Participant A suggested that the relationship names appear to be similar to the taxonomy category names.
- The participant needed clarification (seemed confused) with 'Public Authority'; is it discrete departments or the local authority as a whole?
- The participant could not understand the distinction between 'System Integration' and 'Application Integration'; the participant's suggestion was to change 'System Integration' to 'Process/working practices'.
- Instead of 'Crosscutting' the participant suggested 'Inter-Agency' or 'Inter-Departmental'.
- The 'Data Integration' could be changed to 'Middleware'.
- The participant was wondering if the 'Front End' implies 'Web'.
- The participant would like to see a distinction at the 'Customer' between 'Internal' and 'External'.
- The participant would expect to see 'Stakeholders' somewhere in the diagram.

Participant B - CBF

- The participant would like to frame everything together and call it 'eService'.
- The participant would like to change the 'Public Authority' to 'Owners'.
- The participant would like to change 'Crosscutting' to 'Other Agencies (that interact)'.
- The participant would like to define 'Other Agencies' as an external entity.
- The participant would like to change 'Data Integration' to 'System Integration'.
- The participant would like to change 'eService' to 'Public Authority'.
- The participant would like to define 'Customer' as an external entity.

Participant C - CCF

- There were issues with the terminology; not very clear what is what in FRAMES or the titles seem inappropriate.
- The participant urged the need for the various components, especially 'Back End' and 'eService'.
- Under 'System Integration', issues/titles like 'People', 'Processes', 'IT', and 'Culture' may fit.
- The participant suggested that 'Crosscutting' may be separated in 'External/Internal'.
- The box surrounding the 'Back End' and 'Front End' should be called 'Public Authority' instead of 'eService'.
- The participant pointed that the 'Use' term needed definition.

- Instead of 'Customer', according to participant C, it should be better to have 'Stakeholder'.
- The 'Stakeholder' could be further distinguished into 'Internal' and 'External'.

Participant D - CDF

- The participant seemed to have problems with the terminology used; for example, what is the eService?
- The participant found the distinction between 'System' and 'Application' less obvious.
- The participant pointed that the 'Public Authority' could be a 'Customer' too; creating a loop.
- The participant pointed the case where public authorities work together; where would that fit?
- The participant suggested that it would be better for the 'System Integration' relationship to be called 'Data Integration' instead.

Participant E - CEF

- Participant E expressed that there would be no relationship between the 'Public Authority' and the 'Back End'.
- 'Application Integration' should be renamed to 'System Integration'.
- Between the 'Back End' and the 'Front End' there should be three relationships; for example 'System Integration', 'Data Integration', and 'Application Integration'.
- The participant did not understand what 'Use' is.
- The participant suggested that 'Use' should include the following: 'Order', 'Request', and 'Pay'.
- The participant suggested that between 'Front End' and 'Customer' there should also be the following two relationships: 'Data Capture', and 'Exchange Information'.

ESERVICE RISK TAXONOMY

Participant A - CAT

- The participant pointed that the 'Use', 'Systems Integration', 'Application Integration' categories replicate as relationships in FRaMES.
- Under 'People', a category 'Partnerships (3rd party)' should be placed.
- Under 'Strategy' – 'Need', a category 'Statutory/External' should be placed.
- Under 'Deployment' – 'Change', a category 'Technological' should be placed.
- Somewhere in the taxonomy, 'Data Integrity' should be placed.
- Under 'Design & Implementation' – 'Requirement', a 'Functional' category should be placed.

Participant B - CBT

- Participant B proposed to change 'Staff' – 'Capacity' to 'Availability'.
- The participant would like to see, somewhere in the taxonomy, the 'Benefits' and 'Access to service'.
- At the 'Design & Implementation' the participant would like to see 'short and long term'.
- The participant deemed that 'Interoperability' should be changed to 'Integration'.
- Participant B suggested adding 'Existing Infrastructure' with subcategories 'Hardware' and 'Software' at the 'Design & Implementation'.

Participant C - CCT

- At 'People', participant C suggested adding 'Partnership' and 'Supplier'.
- At 'Strategy' – 'Management', participant C suggested adding 'Affordability'.
- At 'Strategy', participant C suggested adding 'Governmental Priorities/Agendas'.
- At 'Deployment', the participant suggested adding 'Benefits'.
- The participant did not understand what 'Interactivity' under 'Design & Implementation' meant.

Participant D - CDT

- On top of the sheet, at the title level, the participant stated that 'as a council, this would be assessed via PRINCE2 methodology'.
- At 'People', under 'Staff', the participant added 'User support (do they want it?)'.
- At 'People' under 'Staff', the participant added 'Project execution (support is a big issue)'.
- At 'People', the participant reckoned that 'Governance' should be there.
- The participant was wondering whether it would be more appropriate to move 'Support' from 'Strategy' and place it under 'Design & Implementation'.

Participant E - CET

- Under 'People', the participant suggested that 'Willingness' should be placed.
- The participant suggested that under 'People', 'Capacity' should be changed to 'Availability'.
- Under 'People' – 'Skill', the addition of 'Business knowledge' may be appropriate.
- Under 'People' – 'Customer', the participant suggested that 'Acceptance' can become 'Acceptance/Satisfaction'.

- At the 'Strategy' category, the participant suggested that 'Sustainability' would better fit under 'Support' rather than 'Management'.
- At the 'Deployment' category, the participant suggested to add 'Organisational' under the 'Change' category.

WRITTEN COMMENTS ON EXPERIENCE WITH RESEARCH TOOL

Comments about the research tool expressed on a written form by the participants are presented in this section. All these comments have been collected straight after the members have used the tool. The workshop attendants wrote their views on the A4 Grid Sheets first, and afterwards the partakers filled in a structured questionnaire.

A4 GRID

The comments that the participants wrote in regards to their views on the research tool, following the criteria and purposes, are outlined below. The positive remarks are marked with a (+), whereas the negative ones are marked with a (-). The ones that have not been commented are marked as (NA) and the ones that are rather neutral are classed as (N). For reference purposes the following format is pursued: Grid comment = G, Purpose = (purpose letter), Criterion = (criterion number); example: GA1 = Grid comment/Purpose A/Criterion 1.

Purpose A: "To provide a common high-level understanding of eService projects"

Criterion 1) Does it identify likely issues? – GA1

i) FRaMES

- (-) Not in its current state
- (N) Some on the framework, but these are replicated in the taxonomy anyhow
- (+) Yes [participant does not distinguish between FRaMES or Taxonomy]
- (+) Model helps
- (-) Does not resemble relationships in an e-project [participant did not distinguish between purposes]

ii) Taxonomy

- (+) Very comprehensive (especially for feasibility study stage)
- (+) Yes
- (+) Yes [participant did not distinguish between FRaMES or Taxonomy]
- (-) Taxonomy doesn't assist this process
- (+) Good checklist – could be modified (did not distinguish between purposes)

Criterion 2) Does it identify areas that could be overlooked? – GA2

i) FRaMES

- (+) Yes [did not distinguish between purposes]
- (N) Model to me was more a way of conceptualising process breakdown
- (+) Helps, but still relies on a good knowledge of the likely risks
- (+) Potentially yes, depending on current practices & how good they are [participant did not distinguish between FRaMES or Taxonomy]

(-) No

ii) Taxonomy

(+) Yes [did not distinguish between purposes]

(NA) No comment

(N) Could use more descriptive taxonomy headings, e.g. change: i) identity owners of business process, ii) owner agreement to change.

(+) Potentially yes, depending on current practices & how good they are [participant did not distinguish between FRAMES or Taxonomy]

(+) Yes

Criterion 3) How useful is it? – GA3

i) FRAMES

(NA) No comment

(NA) No comment

(+) Good to see an overview of those involved with e-Service [not FRAMES or Taxonomy specific comment] [rather refers to FRAMES]

(+) Model [meaning FRAMES] very good; would be very useful in a presentation [participant did not pay attention to the column heading]

(+) Useful [participant did not distinguish between FRAMES of the Taxonomy]

ii) Taxonomy

(NA) No comment

(+) Taxonomy better/more useful than FRAMES; less likely to be misinterpreted

(+) Good to see an overview of those involved with e-Service [not FRAMES or Taxonomy specific comment]

(+) Taxonomy very good [participant did not pay attention to the column heading]

(+) Useful [participant did not distinguish between FRAMES or the Taxonomy]

Criterion 4) How usable is it? – GA4

i) FRAMES

(+) OK, but...[the rest of the comment applies to the second purpose], [participant did not distinguish between FRAMES or Taxonomy]

(-) Model [meaning FRAMES] less useful than taxonomy; good idea though, needs a little 'fine-tuning' [participant did not pay attention to the column headings]

(+) Easy to understand and use [participant did not distinguish between FRAMES or the Taxonomy]

(+) Quite easy in both cases

(N) The logical process is good, but relationships do not fit [did not distinguish between the two purposes] [probably purpose B]

ii) Taxonomy

(+) OK, but...[the rest of the comment applies to the second purpose], [participant did not distinguish between FRAMES or Taxonomy]

(+) Taxonomy very good; way of assisting risk identified

(+) Easy to understand and use [participant did not distinguish between FRAMES or the Taxonomy]

- (+) Quite easy in both cases
- (N) Difficult to use in practice; although once used to it may be easier [did not distinguish between the two purposes]

Criterion 5) How complete is it? – GA5

i) FRaMES

- (-) Needs to be redesigned [did not distinguish between the two purposes]
- (-) A bit too simplified
- (NA) No comment
- (+) 70% [did not distinguish between the two purposes]
- (-) Would like to see redesign of diagram

ii) Taxonomy

- (+) Comprehensive, but does not allow for level of risk to be measured [did not distinguish between the two purposes]
- (+) 90%
- (NA) No comment
- (+) 85% [did not distinguish between the two purposes]
- (N) Some inclusions in taxonomy

Purpose B: “To provide a standardised process of identifying specific risks for eService projects”

Criterion 1) Does it identify likely issues? – GB1

i) FRaMES

- (-) Does not resemble relationships in an eProject [participant did not distinguish between purposes]
- (NA) No comment
- (+) Good at identifying key relationships and/or stakeholders [did not distinguish between FRAMES or Taxonomy] [probably FRAMES]
- (NA) No comment
- (-) No

ii) Taxonomy

- (+) Good checklist; could be modified [participant did not distinguish between purposes]
- (+) Yes, but would require to check it. My EAPs, Deployment & Design/Implementation separation unclear.
- (+) Good at identifying key relationships and/or stakeholders [did not distinguish between FRAMES/Taxonomy] [probably FRAMES]
- (NA) No comment
- (+) Yes

Criterion 2) Does it identify areas that could be overlooked? – GB2

i) FRaMES

- (-) No
- (NA) No comment
- (NA) No comment

- (-) Not sure model [FRaMES] helps this
- (-) Does not resemble relationships in an eProject

ii) Taxonomy

- (NA) No comment
- (NA) No comment
- (NA) No comment
- (+) Taxonomy – V.G.V [very good value?]
- (-) Yes

Criterion 3) How useful is it? – GB3

i) FRaMES

- (N) Would like to see the next stage; i.e. management of these risks [did not distinguish between FRaMES or Taxonomy]
- (+) Very good; would be very useful in a presentation [did not distinguish between purposes]
- (NA) No comment
- (+) Good basic framework
- (NA) No comment

ii) Taxonomy

- (N) Would like to see the next stage; i.e. management of these risks [did not distinguish between FRaMES or Taxonomy]
- (+) Very good; [did not distinguish between purposes]
- (NA) No comment
- (+) Good basic framework
- (NA) No comment

Criterion 4) How usable is it? – GB4

i) FRaMES

- (N) The logical process is good, but relationships do not fit [did not distinguish between purposes] [probably purpose B]
- (-) Subject to some misinterpretation
- (NA) No comment
- (-) Model was less usable than taxonomy; good idea though; needs a little ‘fine-tuning’ [did not distinguish between purposes]
- (N) Would like to see e.g. a matrix that brings both parts together to record risk, etc. [did not distinguish between FRaMES or Taxonomy]

ii) Taxonomy

- (N) Difficult to use in practice; although once used to it may be easier [did not distinguish between purposes]
- (NA) No comment
- (+) Headings cover the areas that need to be considered
- (+) Very good way of assisting risk identified [did not distinguish between purposes]
- (N) Would like to see e.g. a matrix that brings both parts together to record risk, etc. [did not distinguish between FRaMES or Taxonomy]

*Criterion 5) How complete is it? – GB5*i) FRaMES

(NA) No comment

(+) 70% [did not distinguish between purposes]

(NA) No comment

(-) Doesn't explain process too well – need supporting discussion [did not distinguish between purposes] [probably purpose B]

(-) Needs to be redesigned [did not distinguish between purposes]

ii) Taxonomy

(NA) No comment

(+) 85% [doesn't distinguish between purposes]

(NA) No comment

(-) Doesn't explain process too well – need supporting discussion [doesn't distinguish between purposes] [probably purpose B]

(+) Comprehensive, but does not allow for level of risk to be measured [doesn't distinguish between criteria]

QUESTIONNAIRE

For reference purposes the section follows this format: Q = Questionnaire & Question Number, i.e. Q1 = Question 1.

1. How relevant do you think is the risk-modelling tool at the business case stage? – Q1

A) Taxonomy can provide a checklist of potential risks, ensuring no gaps. We have found some of the inclusions need explanation – perhaps an accurate example against each would be useful. Taxonomy can input into areas that need to be covered by the business case, and the approach to the project, and the costs overall.

B) I think the tool is an excellent method of dissecting systems and analysing the risk elements within the system. It's very relevant, because the lack of understanding of risk and failure to protect and mitigate against risk is a major cause of project failures.

C) Risk modelling tool relevant at business case stage as it helps to identify the areas that will require further analysis. Helps identify at each stage some of the problems to be overcome.

D) Should be used at this stage (maybe not always in practice!). Not sure about the level of detail.

E) With some changes to the framework, the tool is quite relevant at the business case stage. However the tool does not allow for the level of risk to be assessed. It can be assumed that most large projects will have the majority of risks listed, but level is crucial. The taxonomy does not seem to take account of benefit realisation; this is crucial in a business case.

2. Does this risk-modelling tool provide any value? – Q2

A) The tool does provide value, particularly in identifying risks. However, the value is at the feasibility stage and not the business case stage.

-
- B) Yes – helps to formulate risks in a way for discussion and debate. Could take some time to complete – slight concern over this aspect.
- C) Yes, the headings in the taxonomy help to focus thoughts on the key areas.
- D) Yes, by subdividing systems into key components – a more precise risk analysis can be performed. Saving time and resource usage in the future and minimizing the failure likelihood of the system delivering its objectives.
- E) Yes. Could be more integrated? [Mesh] diagram and taxonomy?
3. *Does this risk-modelling tool provide a process of identifying risks? – Q3*
- A) Yes, but the process would be slicker if the diagram was accurate.
- B) Yes, I especially found the taxonomy very useful. One suggestion would be to tailor the taxonomy to match each of the model categories.
- C) It helps with the process of identifying the risks.
- D) Yes, relatively structured process.
- E) The taxonomy is particularly good at helping you to identify and categorise risks. I think this is the main strength of the tool.
4. *If this risk-modelling tool does not provide a process of identifying risks, what would you expect to see? – Q4*
- A) No comment
- B) No comment
- C) More of a link between taxonomy [refers to FRAMES headings] headings and other taxonomy headings, e.g. Data Integration is linked to Security and Confidentiality and System Integration is linked to appropriate technology.
- D) The tool does provide a means of identifying risk – however, it can be ‘fine-tuned’ – e.g. I think the division between ‘Public Authority’ and ‘Crosscutting’ should be merged.
- E) No comment
5. *How helpful do you find this risk-modelling tool? – Q5*
- A) No comment
- B) Very useful – although there are other models (not so detailed) e.g. in the PRINCE2 methodology.
- C) Very helpful as the basis to direct discussion on the likely risks.
- D) Fairly helpful, but tendency to focus on risks that you are already familiar with (maybe just because of the time pressure/circumstances)
- E) Helpful in identifying risks at a feasibility stage.
6. *How could this risk-modelling tool become more usable? – Q6*
- A) The framework needs to be re-designed. Terminology needs to be defined. Some form of scoring system needs to be introduced.
- B) Better explained – maybe a bit more complex (too simple). Maybe in the form of a matrix of some sort?
- C) Maybe to be able to add risks under each taxonomy heading.

- D) Merge 'Public Authority' and 'Crosscutting'. Not sure about difference between 'Application' and 'System'. Customer can be a public authority, hence creating a loop. – This could be a very interesting research study; feedback risk loops –
- E) No comment

7. *How applicable is FRAMES? – Q7*

- A) Applicable and understandable – but not representative! Generic enough to be usable across different implementations.
- B) Highly applicable to projects in eGovernment e.g. eCare project – (check Scottish Executive website).
- C) Generally applicable to most eGovernment projects.
- D) On a basic level, quite good.
- E) It is not really applicable in reality.

8. *How complete is FRAMES? – Q8*

- A) Not complete. The main emphasis is on using the technology and integration of the technologies. There should be greater emphasis on the internal change process and internal people issues.
- B) Doesn't reflect reality (compromise between simplicity and over-complex).
- C) More description of the key areas would be useful, i.e. expansion of front and back end – what is included in these areas.
- D) 75% - requires fine tuning (as pre-discussed).
- E) 50%

9. *How applicable is the eService Risk Taxonomy? – Q9*

- A) Covers a comprehensive range of risk areas.
- B) Most useful – in the construction of a risk register.
- C) Very relevant to eGovernment projects.
- D) Quite good.
- E) Very applicable at a high-level feasibility stage, but no further than that. Not specific enough.

10. *How complete is the eService Risk Taxonomy? – Q10*

- A) Not too complete. Need to add 'Partnership' risks, 'Supplies' risks, 'Contract' risks, 'Affordability', 'Benefits Realisation'.
- B) Quite good, but replicates some of the FRAMES diagram. Seems to be missing out on 3rd party aspects (e.g. our ICT partnership) and possibly 'Data Integrity' risks. See annotated diagram for other areas.
- C) 90% - a few additions would help.
- D) 85%
- E) 95% - although would need more time to fully assess each category.

11. Do you use any kind of risk modelling at the business case stage? If yes, how does it compare to this one? If no, why don't you use one? – Q11

- A) More likely to do a risk analysis, using input from previous eGovernment projects (and other previous experience). Have a risk framework (from OGC) currently used in some projects.
- B) PRINCE2 methodology – eCare risk model may be useful. Your model breaks down risk to more details – more of a practitioner's tool.
- C) Risks will be captured in Requirements documents that cover issues such as 'System Integration', but no actual risk modelling process is standard through the council.
- D) Haven't got that far yet! (not sure).
- E) Yes, it is similar, but levels and mitigation strategies are applied in our risk modelling, especially at the business case stage.

COMMENTS FROM CLOSING DISCUSSION

For reference purposes the section follows this format: D = Discussion & Discussion Topic, i.e. D1 = Discussion Topic 1. It also has to be stressed here that this is not a verbatim transcript of the discussion.

What is the relevance of this tool at the business case? - D1

The eService Risk Taxonomy is quite complete and can be used as a checklist. FRAMES does not look very good, as it does not show where the eService fits; the components seem right, but there is something wrong with the relationships and the terminology used. For identifying risks the tool is good, but at the business case this is not enough. At this stage the tool has to include a mechanism for identifying the level (likelihood) of risk. As is, the tool would work better at the feasibility study stage, though a level of risk might be required there too. The tool has to be presented better and explained; an applied example would be ideal.

Does it provide a process of identifying risk? – D2

This tool stimulates the process; to put it on and make people think about risk. It does not identify steps to go through it. As a brainstorm tool is very powerful. It has not been made clear what the actual 'process' of identifying risks with the tool is; it should be better presented. To help the presentation a good structure is needed with an applied example to demonstrate as a guide. The idea of taking a risk and assessing it from different perspectives sounds interesting. It is a good discipline and it would be a strength added to the business case as it helps avoid potential 'single-mindedness' of a single decision-maker and it puts risk consideration at a prompt time. The positive statements are good; it's almost like a GAP analysis. Expressing the risk statements in a positive manner is good, because they are presented as opportunities for further consideration. An example of the afore-mentioned could be that 'staff is not skilled', hence there is an opportunity for 'staff training', rather than 'staff is untrained'.

What would you like to see in this tool? – D3

Further clarification of FRAMES is needed including the definitions and/or terminology used; thus FRAMES needs to be modified. The 'Partnerships', 'PFI/PPI', 'Supplier', and

others in the area are not covered in this tool. It is important for these areas to be covered, because that is where the city council transfers responsibility of risk.

Do you use any risk tools at the business case? – D4

Risk assessment tools are used as the projects go on. Having stated that, there is no standard way of risk modelling/assessment during the business case; they don't have the time to do that. At the business case, in general, the same processes as in project management are used, but to lesser detail. Hence, the PRINCE2 guidelines would be used. A risk register is maintained, but not always and not from everyone; just the project manager. Potentially, the requirements document captures risks as well. Overall, at the business case stage high-level risks would be identified and a project should normally pass if it succeeds in terms of costs. Robust and thorough risk assessment exercise would happen at later stages of the project development and consistency would not be of major importance at the business case stage.

FIELD NOTES & OUTPUT

This section presents the notes taken, based on the researcher's observations, during the interaction stage of the group process; as well as the output that has been created after the participants have used the risk modelling tool.

OBSERVATIONS DURING USE

During the interaction stage of the focus group process the researcher has been recording the behaviour of the participants. Following a chronological order, the observations are enlisted below.

1. [Whilst reading the scenario] Took a couple more minutes than anticipated. {original time was 2 minutes and was extended to 5 minutes}
2. [Comments, before use, on FRAMES part] Participants were very focused on it. Some of them found the time for that task too long {3 minutes}, but they used it.
3. [Comments, before use, on eService Risk Taxonomy part] Participants looked drawn into it; interested at least. A participant looked excited.
4. [Whilst working on the 'USE' FRAMES relationship] Participants seemed confused with the actual relationship name and the homonymous taxonomy category.
5. [Whilst expressing risk statements] A participant seemed bored.
6. [Whilst working on the 'DATA INTEGRATION' FRAMES relationship] A participant commented that there could be loads of risks in that area.
7. [Whilst expressing risk statements] A participant panicked due to the tight time schedule. A participant commented (with humour) on how another participant was into it.

8. [Whilst working on the 'SYSTEM INTEGRATION' FRAMES relationship] Participants looked tired. A participant was contemplating too much.
9. [Whilst expressing risk statements] A participant was looking fed up; whilst two others were contemplating too much.
10. [Whilst filling out the A4 Grid Sheet] All participants appeared to need more time {original time was 7 minutes}.

During the break time the researcher had the opportunity to elicit some rather interesting comments made by the participants. These comments are accounted below:

- At the City of Edinburgh Council they do not have a consistent way of working through the business case.
- The people that are involved in the business case stage are not necessarily the team members of the project development phase.
- The bidding for a project does not compulsorily happen after the 'pre-proposal' phase, though that should be the case! (as the participants stated)
- Usually, it is the eGovernment manager/head that shall do any risk analysis (this can also be seen from the 'Smart City' document (see below).
- A participant submitted the 'Smart City: Benefits Online – Risk Management Framework' document that presents the risk management strategy set for a particular eService project at the City of Edinburgh Council (this document is attached to the Appendices section).
- A participant proposed the FAME (multi-agency) initiative/project as a good reference for risk modelling/analysis.

OUTCOMES - RISK STATEMENTS AT THE BUSINESS CASE STAGE

All five participants were able to use the tool and extract risk statements that according to their like could affect the business case. In total, 73 risk statements have been developed, but some of them seemed identical amongst the participants and thus have been removed. Two things can be said after having a quick look at the output created. The first thing is that despite the limited time the participants had, a substantial number of statements has been provided. Secondly, by closely following wherefrom each statement came, the researcher could actually draw conclusions on how to best integrate specific taxonomy categories to certain FRAMES areas/relationships and make the tool more complete. The result of this integration can be seen later at the end of this chapter.

'USE' Relationship

1. Customer has access to IT infrastructure
2. Customer has IT expertise to use the system
3. Customer is trained to use the system
4. Customer has a need for the system
5. Customer can afford to use the system
6. There exists a user authentication policy

7. There exists a data protection policy
8. Staff has IT expertise to use the system
9. The system owner provides training for the customer
10. The system owner provides training for the staff
11. The system is easy to be used by the customer
12. The system is easy to be used by staff
13. Assistance for the use of the system is available to staff
14. Assistance for the use of the system is available to the customer
15. The system is stable under high customer use situation
16. The system has fast response rate to customer input
17. The system satisfies the customer requirements
18. The user interface is always available
19. The user interface has accurate information
20. The user interface is in the right place
21. The user interface is secure

'DATA INTEGRATION' Relationship

22. Data integrates easily
23. Data does not require to be cleansed
24. Corporate data model is defined
25. System data model is defined
26. The data integrity is kept up to date between front & back end systems
27. Data will be matching on all systems
28. Applications are open systems
29. The front end will be able to operate with current/legacy internal IT systems
30. Systems can be integrated using technology
31. Full analysis of all the feeder systems requirements, including size and complexity, performed
32. Integration software is timed to run at correct points
33. Full financial plans & resources exist for developing the data matching & integration functions

'APPLICATION INTEGRATION' Relationship

34. Applications are integrated to support a simple business/service area
35. The applications have the appropriate maturity
36. Applications are integrated to be user friendly
37. The integration of applications can happen within the security model
38. Applications run on compatible operating systems
39. Use will not affect data integration
40. The appropriate technology exists for the eSchool system to talk with externally owned systems
41. Data can be transferred external to firewall
42. Use by external agency will not affect data security
43. Authentication of the external agency will be reliable

44. Cross-functional teams strategic direction/policies are synchronised to enable information sharing
45. Key staff will ensure that the project is developed at full awareness of all info-related developments
46. Systems will be developed with an 'ethos' of cross-function information sharing at mutual benefit realisation
47. Users have a common authentication process applied throughout and across agencies

'SYSTEMS INTEGRATION' Relationship

48. Guardians of feeder systems are open & agreeable to sharing their data
49. Data protection information sharing protocols are in place
50. There is a strong culture of deploying systems which enables data sharing
51. Users are confident that security allows sharing of confidential information
52. The technology exists to integrate the systems
53. The skills exist to integrate the systems
54. There is sufficient knowledge of different systems to design accurate internal software
55. Compatibility exists between supplier products
56. The security model allows integration between proposed systems
57. The data model allows integration between proposed systems
58. The integration meets the service requirements
59. Integration does not reduce confidentiality
60. There is high level political support for sharing systems between services
61. Business processes do not need to be changed

FOLLOW-UP ACTIVITIES & CONSIDERATIONS

During the data collection process, the researcher found that there have been some information gaps that needed to be closed. As such, the researcher compiled and sent out clarifying questions to the participants. Follow-up questions have been sent to four out of the five participants, and two of them have replied. The questions together with their answers (where applicable) are enlisted here.

Participant A

Question 1:

"In the eService Risk Taxonomy you have suggested the need for an additional category of risk termed 'benefits' or 'benefits realisation'. Could you please provide me with a couple of risks under such category?"

Reply:

I suggested the addition of a category titled 'Benefits Realisation'. Some risks that could be associated with this category are:

Data - Performance Indicators, Reporting
Process Improvement - Productivity, Efficiency
Quality of Service - Service Improvements etc.
Economic - Cost Savings etc.

Question 2:

“You have been asked to reply to the following question: ‘Do you use any kind of risk modelling at the business case stage? If yes, how does it compare to this one? If no, why don't you use one?’ Part of your answer included the following comment: ‘...but no actual risk modelling process is standard through the council...’ Could you please express your view why this is the case?”

Reply:

Introducing standard methodologies across the various departments can be challenging, as each department will have their own ideas on how things should be done. Within our department (eGov) we do not have a standard but do provide access to examples of different methods of analysis used previously by our experienced consultants. This allows us to ensure a range of ideas & methods can be considered.

Participant B

Question 1:

“You have been asked to reply to the following question: ‘How could this risk-modelling tool become more usable?’ Your answer included a very interesting suggestion/idea. You pointed that a customer can also be a public authority, hence creating a loop; a feedback risk loop (the customer being the public authority, whilst the public authority is also the owner of the eService). Is it possible if you could expand on that? How do you envisage such loop(s)? (specifically or generally) Have you seen something similar somewhere? Is it possible to refer a source of any kind?”

Reply:

I was interested in the interconnection between customers for example in the council the eGovernment department may deliver a solution for the Corporate Services department. Risks associated with this project could affect the project delivery - which will affect the Corporate Services budgets, Corporate Services funds eGovernment hence a funding shortfall may affect eGovernment - endangering the original project. I thought this feedback loop would make an interesting theoretical model - but I haven't seen anything like it.

Question 2:

“You have been asked to reply to the following question: ‘Do you use any kind of risk modelling at the business case stage? If yes, how does it compare to this one? If no, why don't you use one?’ Your reply indicated that you use the PRINCE2 methodology. I do understand that you are referring to the actual project management phase. Do you also use such method at the business case stage as well? And if not, why don't you use one at that stage?”

Reply:

Not specifically, PRINCE2 provides a framework for managing risk at all stages in the project including business analysis.

APPENDIX C - FEASIBILITY STUDY WORKSHOP MATERIAL

WORKSHOP PROCEDURE

This section outlines the whole workshop procedure step by step. In the beginning there is a presentation of the scenario that was given to the participants to follow, and after that a demonstration follows of the workshop process and what each of its stages was. Moreover, the feedback process section describes the methods employed in order for the researcher to extract information, which would help him draw research conclusions. At the end of the section, there is the complete schedule of the workshop with the main tasks and aims.

THE “FEASIBILITY STUDY STAGE – THE BACK OFFICE INTEGRATION PROJECT” SCENARIO

A senior project development team is having a meeting at the city council’s corporate services headquarters to discuss on the feasibility of the ‘Back Office Integration (BOI)’ project idea. The main discussions output at this stage will be the feasibility study report that should explain the reasons why that idea can (or cannot) qualify to become a potential project that the City Council would want to invest in.

The rationale behind the BOI idea is to cover the need for integration of disparate systems’ business processes, and the data that underlines them. Also, full integration across systems and services will need to be an evolutionary process. To achieve that, the main system architecture involves the integration of the Master Customer Database (MCD), and the Corporate Address Gazetteer (CAG) with existing Council eServices, such like the Social Services and Waste Management. The main users of the new eService will generally be of two kinds. One such user type will be the information services personnel that support all information systems across the Council. Also, the other typical users of this new eService shall be the system administration users from individual eServices. The major objectives envisioned for this new project are as follows. To use the CAG and MCD as the ‘Single Authoritative Source’ for person and property information in order to maintain the consistency and accuracy of relevant information across all systems. To provide an infrastructure and framework to support more detailed integration between systems as needs arise. Another service objective is to develop processes and procedures to manage updates to information systems for person and property information. Also, the new eService should support services through the implementation of these new processes and procedures. And finally, ensure the framework to be implemented facilitates onward linking to national projects and initiatives in line with the Modernising Government Fund (MGF) agenda.

In this meeting, the project members will use a risk modelling tool to support the discussions on the project idea feasibility. By sharing a common understanding (the tool as a template), the decision-makers may identify areas that need to be examined to support (for example) their cost/benefits analysis. Also, the project members may exploit the tool in order to identify risks, and thus support any further risk management exercise. For example, likely areas that may be assessed could be whether the project would be

used by the customers, or whether the Council has the actual technological capacity to undertake such a project.

To use the tool, each participant identifies a particular area of concern and writes it down on the risk statement list (under 'eService Area'). In this case one could use 'Internal Systems', since the BOI project is mainly government-to-government and most systems are under the command of the City Council. Then, each individual decision-maker selects any corresponding risk category and puts it down on the risk statement list (under 'Category'). In this case, one could select 'Training' as his/her risk category. Finally, the project decision-maker writes a sentence – or more – (on the risk statement list) that reflects his/her idea of how such a risk could materialise in this case. For example, one potential risk for the BOI project idea could be the following: 'The Social Services staff can use the CAG front desk interface'. It has to be stressed that there is no standard way of expressing the risk statements, though they have to be written in a positive manner, ie. '...staff can use...' instead of '...staff cannot use...' Of course, this exercise can be repeated as many times, for as many different areas of concern each individual member wants to do so. At the end of the session all participants have a list of potential risks that can surround the new project idea, and based on that information they can further proceed with the discussion about the feasibility of the BOI project idea.

FOCUS GROUP PROCESS

The focus group workshop was structured around three phases, each of which is described below. These were:

- Presentation
- Interaction
- Discussion

During the interaction phase the researcher took notes to record the behaviour and any potential points raised by workshop members. Also, during the interaction and discussion phases, the participants were video and audio taped, so as to capture as much data as possible throughout the workshop.

Presentation

The first phase of the workshop lasted for about 11 minutes and encompassed the following segments. First, the researcher presented a short introduction to the research programme and the main aims of the workshop. Also, the ground rules for how the focus group could help were demonstrated. Finally, the participants were asked to fill in the agreement forms and to read the scenario guiding the focus group. At the end, the researcher asked the participants if they wished to ask something before proceeding to the following phases of the workshop meeting.

Interaction

At the second phase of the workshop, the participants had 39 minutes to use the research tool, bearing in mind that they were in a situation as described by the scenario. In the beginning of the session, and for about 9 minutes, each participant had the opportunity to

familiarise with the research tool. During that stage, the participants were asked to alter/update the components in a manner that felt more suitable. Following that, the remaining session involved the members using the tool and creating output (risk statements) recorded on a supplied form (risk statements blank forms). Due to the restricting time limitations of the workshop, the researcher, asked the participants to produce around 10 risk statements each.

As soon as this session finished, there was a 10 minute break for refreshments and relaxation.

Discussion

The third and last phase (lasted 60 minutes) of the workshop involved three different feedback-gathering elements; the A4 Grid, an open-ended questionnaire, and a probed discussion. First, the members were asked to provide, in written form and within 10 minutes, comments on their experience with the research tool. Basically, it was asked whether the research tool fulfilled the following purposes:

- To provide a common high-level understanding of eService projects
- To provide a standardised process of identifying specific risks for eService projects

The participants had to assess whether the tool could satisfy the above purposes, and in order to judge that; the following criteria would be used:

- Does it identify likely issues?
- Does it identify areas that could be overlooked?
- How useful is it?
- How usable is it?
- How complete is it?

The participants could use an A4 grid sheet, where they input their brief comments. Figure C.1 below shows a completed such sheet of one of the participants.

The second segment of the 'Discussion' stage involved the completion of a questionnaire, which comprised 13 open-ended questions, all examining the tool from different angles. The participants were given approximately 20 minutes for the task.

After that, an open probed discussion followed (lasting about 30 minutes), where all the participants could express their views in regards to the research tool and the research topic in general. The researcher was minimally involved by guiding the discussion, using the following probes:

- How relevant is the risk modelling tool at the feasibility study?
- Does the risk modelling provide common understanding of eService projects?

- How useful would the risk modelling tool be in formulating the feasibility report?
- How does the risk modelling tool compare to any existing practices at the feasibility study?
- How could this tool be better?

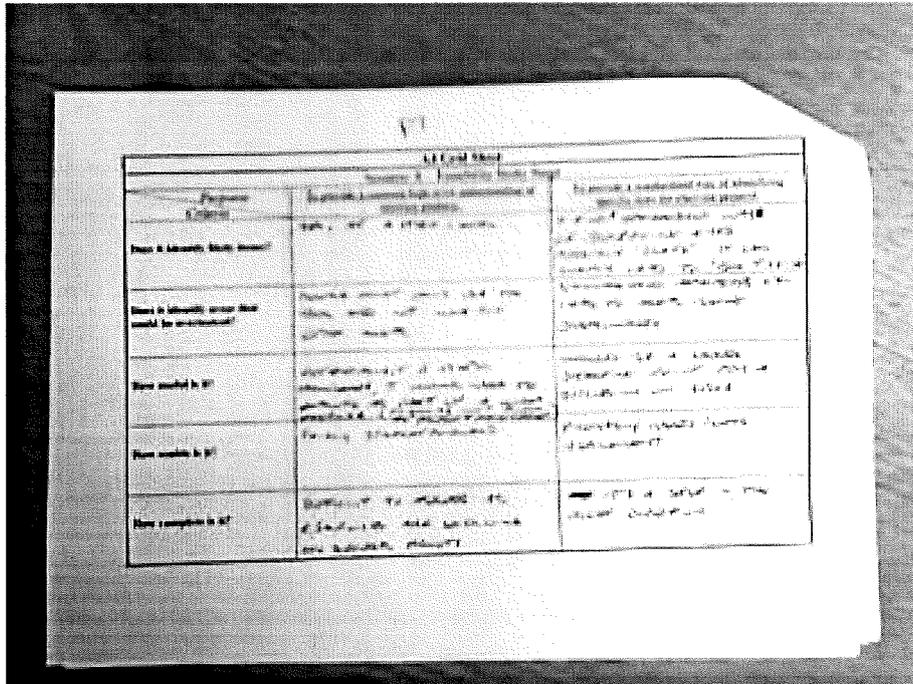


Figure C.1: A Sample A4 Grid Sheet

FEEDBACK PROCESS

One of the main aims of the workshop was to receive feedback on the tool from the eGovernment practitioners after their encounter with it. To achieve that, a number of methods have been employed. Let us have a quick look at them.

Comments on research tool

Immediately after the presentation of the workshop's aims and structure, the researcher asked the participants to have a look at the research tool. Each member had in front of him/her the tool on a sheet. The participants were allowed some time to have a look and update/modify anything they wanted on the tool's components. They could record their thoughts on the component's sheet. In a way it was a 'brainstorming' session for each individual to write down his/her thoughts in regards to the tool's structure. This would allow the researcher to capture the first – before use – impressions of the tool users. Also, it would provide, in an unstructured way, additional updates/ideas for further tool improvements.

Research tool use

One of the workshop's purposes was that the participants would actually use the tool. Although in itself it is not a specific research method, it enabled the researcher to observe

the users whilst using it and examine if it could in fact provide any results at all. To capture the outputs of the tool use, the participant's were asked to record their tool product on the Risk Statements List.

A4 Grid

Immediately after their experience with the tool use, the participants were given the chance to provide their thoughts about the tool using the A4 Grid sheet. At this case, the process was more structured as it provided a detailed way of expressing comments. To achieve this structured feedback process, each member had in front of him/her a blank A4 Grid sheet, which had three columns; the first column had a list of criteria against which the tool was to be judged, and the second and third columns were titled after the two main purposes of the research tool. The participants would put a note outlining a brief comment on the tool following the criterion found on the corresponding row under the criteria column. Such procedure would repeat so as to assess the tool against both of its purposes. This method would allow the researcher to receive a simultaneous, multi-perspective appraisal of the research tool by the members; this time though, the participants would have the prior use experience and would comment on a common basis.

Questionnaire

Another research method for feedback retrieval employed at the workshop was the Feasibility Study Questionnaire. Basically, this method was an open-ended written interview. Each participant was given something like 20 minutes time in order to answer thirteen questions that were targeted at the risk modelling tool and the wider research context. Following the feedback received from this method, the researcher should get a broader picture of the users' experience with the research tool, their views on it, as well as how to make it better if possible.

Closing discussion

The last research method used at the workshop on the eService project business case was the closing discussion. Such discussion lasted for about thirty minutes and it was based on six probe questions (outlined earlier in the previous section). During the discussion, all the participants openly expressed their views in regards to the use of the research tool at the feasibility study stage of an eService project. The purpose of this method was to enable the researcher explore the research area holistically by capturing feedback data that potentially could not be caught by the previous more structured methods.

SCHEDULE

The following is the workshop schedule in a nutshell. It was constructed to allow the researcher keep a strict time format, as the participants could be available for only two hours in total.

Table C.1: Workshop Schedule

TIME	TASKS & AIMS	RESOURCES USED
2m	1. Introductions <ul style="list-style-type: none"> • Introduce group to each other & research team • Reminder of project aims, role of the research 	<ul style="list-style-type: none"> • Data projector • Slide: Introduction
2m	2. Main aims & How you can help <ul style="list-style-type: none"> • Agree ground rules for group, sign agreement forms 	<ul style="list-style-type: none"> • Agreement forms • Slide: Aims, How you can help
3m	3. Introduction to the tool and how it can be used	<ul style="list-style-type: none"> • Slides: The tool
4m	4. Back Office Integration Scenario	<ul style="list-style-type: none"> • Scenario
9m	5. Before Use Observation	<ul style="list-style-type: none"> • Research Tool Sheet • Video Camera & tape recorder
30m	6. Time to have a go <ul style="list-style-type: none"> • Participants follow the scenario • Use scenario how the tool addresses their selected questions. • Facilitator (researcher) answers questions, takes notes 	<ul style="list-style-type: none"> • A4 blank pages (for notes) • Video camera & tape recorder • Research Tool Sheet • Risk Statements Blank Forms • A4 Grid Sheets
10m	Break	
60m	7. Feedback – your views <ul style="list-style-type: none"> • A4 Grid (10m) • Questionnaire (20m) • Open discussion (30m) 	<ul style="list-style-type: none"> • Video camera & tape recorder • A4 Grid • Questionnaire • Open Discussion Probes
1m	8. What's next Outline follow-up activities: to resolve issues I may send some emails back to the participants	<ul style="list-style-type: none"> • Check contact details (ask for everybody's email address)

PARTICIPANTS COMMENTS ON RESEARCH TOOL

Straight after the research tool's presentation to the workshop participants, the researcher asked them to provide brief comments (in the form of additions/deletions on the tool's sheet) on the research tool. For that task the participants were allowed nine minutes. Surprisingly, only one participant actually put additions/deletions on his tool sheet, whilst the others left it blank. Such comments are further explained by that particular participant in the open discussion (read D6 later on). The reason why the remaining participants did not provide any modifications/comments on the tool's sheet is not clear. The researcher did notice that they all understood what was required from them to do. In fact, all of them

seemed to be exploring the tool during those nine minutes, without providing any comments though. Perhaps, they were waiting to add them in the A4 grid sheet later on.

WRITTEN COMMENTS ON EXPERIENCE WITH RESEARCH TOOL

Comments about the research tool expressed on a written form by the participants are presented in this section. All these comments have been collected straight after the members have used the tool. The workshop attendants wrote their views on the A4 Grid Sheets first, and afterwards they filled in an open-ended questionnaire.

A4 GRID

The comments that the participants wrote in regards to their views on the research tool, following the criteria and purposes, are outlined below. The positive remarks are marked with a (+), whereas the negative ones are marked with a (-). The ones that have not been commented are marked as (NA) and the ones that are rather neutral are classed as (N). For reference purposes the following format is pursued: Grid comment = G, Purpose = (purpose letter), Criterion = (criterion number); example: GA1 = Grid comment/Purpose A/Criterion 1.

Purpose A: “To provide a common high-level understanding of eService projects”

Criterion 1) Does it identify likely issues? – GA1

- (+) Yes – formalises risks – forces known risks to be ‘spoken’
- (+) Yes, at a high level
- (+) Good basis, useful tool as a starting point
- (N) Broadly – doesn’t handle political problems or varying requirements
- (N) Generally, though not complete
- (N) Depends how it is used: - not if just categorising risks; - yes if it is going through risk categories to identify new risks
- (+) On the whole. Not sure where project management and associated issues always fit in

Criterion 2) Does it identify areas that could be overlooked? – GA2

- (+) Possibly – depends on culture and how confidential tool – ([...] issues not always welcome)
- (-) People might only use the tool and not look for other areas
- (-) Not really
- (+) Yes
- (+) To an extent, can anything manage as such
- (+) Yes – as above
- (+) Yes

Criterion 3) How useful is it? – GA3

- (N) Risks are known – but hoped they go away

- (+) Potentially it is useful. However, I would need to evaluate as part of a wider exercise.
(Do you require to re-visit model as project progresses?)
- (+) Useful tool that can evolve over time
- (+) Useful to guide a general lead
- (+) Useful as a guideline/prompt
- (+) Useful for identifying risks in all potential areas but not sure the benefits after
- (+) Found it quite useful

Criterion 4) How usable is it? – GA4

- (+) Easy to use.
- (+) Fairly straightforward
- (+) Tool is very usable
- (-) Seems a bit intimidating at first glance
- (-) Creates duplication across areas and categories that might be better as a group
- (+) Probably useful for both; - a project manager identifying initial risks; - or a workshop of stakeholders
- (-) Found eService area a bit confusing. Not always sure where risk statements would fit

Criterion 5) How complete is it? – GA5

- (-) Requires more in depth
- (N) Difficult to assess as eServices are evolving on several fronts
- (+) No tool would ever be complete. But covers a lot of the standard risks that need to be considered. Requires some questions to remind you to consider each situation
- (-) Misses the local / central government. Push / pull on requirements and implementation. Presumably there are more categories.
- (+) Fairly well complete, as anything can be
- (+) About 95% - probably some generic additions and there will always be project specific categories
- (+) Mostly there

Purpose B: “To provide a standardised way of identifying specific risks for eService projects”

Criterion 1) Does it identify likely issues? – GB1

- (+) Yes – although needs to be further [extended] down from high level to be most useful
- (-) I find a standardised way of identifying risks possibly ‘slaky’. It can simply lead to ‘box ticking’
- (-) Risk of overlooking issues, danger of only considering these categories would require to be adapted. Dependant on project.
- (-) Will always need to be modified for special processes.
- (+) Yes, forces a variety of areas to be considered
- (N) Not sure the benefits of categorising risks at this level of detail

(+) Good prompts for thinking. Some areas missed out. Not always sure where eService area the [issue] fits into.

Criterion 2) Does it identify areas that could be overlooked? – GB2

(N) Would depend organisation culture – easy to [void]
 (-) Standardised approaches can lead to areas overlooked
 (-) How do you ensure that all risks are being considered? Danger of complacency
 (+) Yes – it's useful to focus people's thoughts
 (+) Yes, but!
 (NA) N/A
 (+) Yes, possibly could contain more

Criterion 3) How useful is it? – GB3

(N) Again culture. Post mortem risks that have/not don't get addressed
 (+) Would be a good starting point for a discussion on risks
 (NA) N/A [*the participant excused herself and left the room*]
 (+) Good starting point, but will always miss project specific details
 (+) Useful as a guideline/prompt
 (N) Not sure the benefits of categorising risks to this level of detail
 (N) Would be more useful if behind the tool was a number of risk statements that could act as risk list for users.

Criterion 4) How usable is it? – GB4

(N) Open and honesty required
 (N) Possibly need some refinement
 (NA) N/A [*the participant excused herself and left the room*]
 (NA) N/A
 (+) It is usable but could be a bit confusing
 (-) Quite [difficult] to categorise down to a low level through [...]
 (N) Good prompts for thinking although possibly not comprehensive. Some risk statements could fit into more than one category

Criterion 5) How complete is it? – GB5

(N) Requires to be formalised. i.e. how for [example] one [is] to break down [across overall]
 (+) It's a step in the right direction
 (NA) N/A [*the participant excused herself and left the room*]
 (N) Making risk management complete[r]. 'generic' or automatic is probably not possible, completely. Specific project risks are often the hardest to guard against
 (+) Fairly well complete, as anything can be.
 (NA) N/A
 (+) Mostly there

QUESTIONNAIRE

For reference purposes the section follows this format: Q = Questionnaire & Question Number, i.e. Q1 = Question 1; and P = Participant & Participant Number, i.e. P1 = Participant 1.

Q1. How relevant is the risk modelling tool in assessing the feasibility of a project?

P1: Helps identify risks, but what's important is assessing these risks and agreeing what to do about them. Based on the model, senior management must then make a decision whether to go ahead with the project.

P2: It is a useful tool for the initial identification of risks but there are other areas that feasibility must consider. Some of these other areas could be and analysed in a similar framework to form a generic modelling tool. The As-Is state of each component/category (eg customer acceptance) could be defined – then the to-be – enabling a gap analysis of the change required by all components. Could be used to identify and categorise tasks in the project plan. Could be used to identify and categorise costs components. Could be used to identify and categorise drivers and benefits, etc.

P3: Very relevant. The identification of risks and how they need to be categorised have a major impact on whether the project should progress or how it should progress.

P4: Risk modelling in general is very useful at the feasibility stage of a project; and this tool is no exception.

P5: The tool enables you to consider and identify risks but does not really 'assess the feasibility of a project'

P6: I am not sure that the model would [...] the feasibility of a project because a project is based on more than just risk. Risk plays a part, but only a part. The model certainly is relevant on the risk side.

P7: It is relevant. The question remains on how risks identified will handled, e.g. key person risk – will they have a stand in - increased cost implications or hope doesn't [affect them]?

Q2. Does the risk modelling tool provide a way of identifying risks? If yes, to what extent? If no, why not?

P1: Yes – prompts thinking under a number of headings. Presents areas being missed out and provides standard approach.

P2: Yes- by giving a structure to cover most categories of risks.

P3: It does. It provides the opportunity to identify areas where action is required at an early stage in any project. Particularly around 'culture' and 'change management' issues regarding people.

P4: It is very good at covering the ground, possibly a little mechanically. Good to get a coverage of the risk area. However, trying to make risk modelling completely generic is probably a flawed approach. Unique project risks are probably critical to risk modelling.

P5: the tool enables you to identify risks to quite a high extent but does not cover 100% of the risks. However, there would not be a tool capable of this.

P6: Yes, it definitely provides a way to identify risks. Some projects will have more risks than others and so to some extent, this tool is almost aimed at a 'generic' project. There will always be exceptions that [fight] against the context of this model.

P7: it does provide a way of identifying risk. Extent: High level foreseeable risk. Does not encourage lateral thought or unexpected risk – needs more stimulation applied.

Q3. How useful are the outcomes of using the risk modelling tool to further project development stages?

P1: See 1. above.

P2: It would form the initial risk log to inform the feasibility of a project and be used as the basis of more detailed risk analysis at a later stage.

P3: Very useful as it would identify whether areas and development stages need more detailed risk analysis. Areas where risks have been identified may require additional resource to reduce risk.

P4: Potentially very useful. If you went on to rank risks in both likelihood and frequency, then it would give the project (staff) specific risks to concentrate on.

P5: the outcomes are very useful for further stages. Should highlight issues that can be overcome before causing any delay/problems.

P6: They would certainly provide a platform on which to back further discussions.

P7: Risks don't go away! The decision maker who implements project does so [...] for risk – as risks have been identified.

Q4. How useful is the risk modelling tool in identifying changes that are needed to the project idea?

P1: Not sure how useful it is in this respect. Depends how it is used, if management identify risks, come to conclusion on feasibility then re-examine idea if risks too great in certain areas.

P2: To some extent if a significant risk is identified but further risk analysis is required to determine how the risk could be mitigated and the required changes of the project.

P3: The tool helps identify what elements of a project might be a showstopper and if changed at an early stage remain as a viable project.

P4: If you are allowed to modify project goals, then it would be useful at an early stage to modify project goals/ideas. However, project goals are often handed down 'from [...] high' and they can't be modified.

P5: The tool should help focus users to identify changes, however implementing change is very difficult. If you anticipate the problems first this can in some cases help you overcome the problem.

P6: the tool would possibly help you think in a wider context which might in turn lead you to re-evaluate the project idea.

P7: It can help modify the scope if all risks, strategic capabilities of the organisation have to be accepted and influence the vision. Private sector is based on cost/profit/times. This driver is not same in public sector.

Q5. How relevant is the risk modelling tool in providing the rationale for cancelling a project?

P1: Useful in this respect so [...] as mitigation of risk examined and concludes that can't be mitigated effectively.

P2: Again – I think more detailed analysis of the key risks would be required.

P3: Very relevant as it has potential to identify 'showstoppers' at an earlier stage.

P4: If risk modelling is done upfront – potentially very relevant. Again in the public sector, projects are cancelled for lots of reasons – mostly not by the project staff.

P5: The tool should identify if budget/resources are an issue and if so consideration can be given to cancelling before committing further budget/resources.

P6: It would depend on when the tool was used, ie. at which project stage. As long as it was at the feasibility stage it could certainly contribute to the [...] of evidence that might lead to a project being cancelled. However, other tools might also play a significant part.

P7: The driver for the change may and does override the possible problems and risks. 'Excuses' in public sector may override issues.

Q6. Does the risk modelling tool help to better scope the business environment? If yes, to what extent? If no, why not?

P1: Yes, as takes holistic view of the environment from internal and external (partners and customers) perspective.

P2: Yes – by helping identify all areas that are affected.

P3: Yes. The tool identifies areas within the business environment where works will need to be carried out if the project is to be successful. This may include changes to the shape of the environment.

P4: business environment is usually a given, difficult to see how a risk modelling tool could have this much effect.

P5: the tool is more useful in the business environment. Gives a clearer indication of what is required, how to fund, resource the project.

P6: I think this would depend on who was using the tool. You would need to carefully select the people involved in using the tool if it were to be used to scope the overall business environment. [so to check on the whole to rule why not]

P7: Business environment in private sector is profit/cost/train. Business making money for shareholders. The 'business environment' in public sector is not always what the end user or final customer wants.

Q7. How useful would this risk modelling tool be when analysing the costs and benefits?

P1: Not sure how useful it would be in this respect. Could identify economic costs and benefits but would need to do more work to get detail.

P2: Could be used to identify and categorise costs and benefits.

P3: It would be of some use in identifying where cost associated with management if risks identified affect the business case.

P4: Very useful. A proper risk management exercise would give a good upfront cost/benefit analysis to decide whether a project is worth going ahead with.

P5: Don't really see how this will help analyse costs and benefits. The tool identifies risks that will help the project succeed but will not analyse cost and benefits.

P6: useful, but it would be competing with other such as NPV, ROI, and the likes. These are already well understood and accepted by many of the decision makers. Also the tool is highly subjective whereas NPV for example is seen as objective.

P7: Not particular. Costs not fully known at this stage. Benefits come from business case. Benefits to [...] / customer. (organisation/final customer/ or statutory [...] who[...]?)

Q8. How useful is this risk modelling tool in initiating risk analysis?

P1: Very useful – seems to be one of the key purposes

P2: Good for identifying risks, but analysis is very limited

P3: It is useful, particularly the categorisation of risks. Good prompts/guideline.

P4: it's a good 'first stab'. Would be helpful to get the ball rolling.

P5: Excellent in initiating risk analysis, every project requires risk analysis and the tool helps focus the project group.

P6: Very useful. Sometimes in the public services it can be convenient to put off thinking about the risks. This tool would initiate the discussions around risks.

P7: Acceptable but not revolutionising.

Q9. From your perception, does the risk modelling tool allow stakeholders to better appreciate all issues?

P1: Yes

P2: Yes – gives a framework for an holistic view of all risks.

P3: Only if stakeholders are involved in the identification and analysis of risks/issues. Where they are not involved little ownership takes place.

P4: yes, it could uncover lots of issues upfront. This is a very useful exercise at the start of a project. Of course many projects are started for political reasons and a risk exercise is just a formality.

P5: yes – Managing a project is more than providing a budget and resources. You need to consider all the risks that could prevent the project succeeding.

P6: It certainly brings them to the table for discussion. I think appreciates of [all] issues will come from any discussions that takes place rather than [...] 'mechanically' using the tool itself.

P7: Only if stakeholders are given the info from the analysis and the tool. They would/should be involved with powers appropriate to stakeholders.

Q10. Would such a tool be used at the feasibility study? And, why?

P1: Yes, to identify risks before deciding whether to embark on a project but should be revisited throughout a project's life.

P2: Yes – identification of risks.

P3: Yes. It helps create more detail to support decisions on viability.

P4: it would be very useful at feasibility study time, assuming the project undergoes a feasibility study. All risk analysis is useful at feasibility stage.

P5: This is when the tool should be used, before committing to a project you need to understand the risks. Perhaps however the tool could be tailored for a feasibility study.

P6: I think the tool would have to be used at the feasibility stage. The earlier you identify the risks the better because sometimes so much resource have been committed to the project that when you identify risks later on, they don't carry the same weight they would have at the project feasibility.

P7: Risk should be upfront and to constantly reviewed throughout. It is appropriate to use at this stage. Question remains how risks are managed – organisational specific.

Q11. In your department, is risk modelling being used at the feasibility stage?

P1: Risk modelling per se isn't used but identifies high level risks at the Project mandate1 brief stage.

P2: Yes – an initial risk log is compiled by the project manager at the feasibility stage.

P3: Yes, to an extent.

P4: Mostly projects are initiated at central government level; therefore we aren't involved at feasibility. So no it isn't.

P5: the council is currently implementing a risk management tool, however this project is not yet live. The risk modelling tool would assist the council in identifying risks and completing the risk register.

P6: yes, on certain projects

P7: Not specifically – projects are authorised prior to risks. Risks are identified in the process and documented – [opportunities] are never clear.

Q12. If you answered positively in question (11): How does this risk modelling tool (the one used at the workshop) compare to existing risk modelling techniques?

P1: N/A

P2: This tool is much more effective at identifying risks, however the risk analysis is very limited.

P3: It will allow a more structured method to identify risks. Current methods tend to be around brainstorming and a bit [...] at times.

P4: N/A

P5: N/A

P6: I would say that it compares fairly well.

P7: Similar – not tool – the people [are] the [org.].

Q13. If you answered negatively in question (11): Why isn't any risk modelling being used in your department?

P1: Good question! Perception that don't need to spend a lot of time looking in depth at risks at this stage although identify high level ones. I think senior management can sometimes be reluctant to kill a project once any time has been spent on it. Don't really use risk modelling as such at any stage. Complete risk [...] and highlight key risks to the Board but wouldn't consider this risk modelling. Maybe I need more explanation on the term.

P2: N/A

P3: N/A

P4: We tend to implement, rather than initiate. Projects are found and initiated externally. So we only get a small input to project initiation.

P5: the council will use a risk modelling tool in the future and require the risk management system to be live, likely within the next months.

P6: N/A

P7: As risks are reasons not to do the project – funded by doing the project.

Additional Comments

P2: Identifying and listing risks is fine at a feasibility stage, but risks must be actively managed on an ongoing basis. One managed risk is better than 100 listed risks in someone's drawer.

COMMENTS FROM CLOSING DISCUSSION

For reference purposes the section follows this format: D = Discussion & Discussion Topic, i.e. D1 = Discussion Topic 1. It also has to be stressed here that this is not a verbatim transcript of the discussion.

How relevant is the risk modelling tool at the feasibility study? – D1

The risk taxonomy bit provides a complete list and if used as a list that the users will go through one by one, then the tool would be useful for identifying risks in a holistic way. A user thought of risks first and then tried to find within the model, questioning why there has to be a categorisation of risks. Feasibility stage includes the calculation of risk importance and likelihood, as well as mitigation strategies. Hence, analysis of risk is still required, and the tool helps to identify the risks, but not to analyse them. At the feasibility study stage, something like a 'top ten' list with the high priority risks should suffice; there is no need to identify hundreds of risks. The tool is good, because it helps identifying risks, which at this stage may pinpoint what is missing. Also the tool is good, because it can identify same risks at different levels, from micro to macro level. Hence, identifying risks that can be found right across the board can lead to questioning certain areas and examine if they can threaten the project. The potential users of such tool at the feasibility would be senior management officials, which at that stage discuss whether a project should be closed or not. Sometimes they would not do such thing, particularly if time has been invested. This generic risk modelling approach could entail the danger of a tick-box exercise, where users select headings without thinking through and questioning broader aspects. Risk identification happens rather ad hoc, based on personal/past relevant experience. The categorisation usually comes afterwards. Doing both ad hoc identification and comparing against the categorisation might extract missing risks, as the decision-maker can see through all the angles. In the case the tool is custom-built in order to accommodate a certain scenario, and then there is the danger that the model might be incomplete. Experience is needed to use the tool effectively, but having also experience of dealing with eService projects is important when creating such tools. Complete coverage of risks is rather impossible, as there are always project-specific risk categories. Also, it will always be very subjective depending on each individual source for risk

identification. Finally, there is the danger that if someone new working, with such projects, comes in and not looking into other risks. Hence, it would be proper to state somewhere within the tool to point at 'other' areas.

Does the risk modelling tool provide common understanding of eService projects? – D2

The tool would generate a common discussion around the risks. When the same people use the same tool for all projects then that will become routine. The risk modelling tool could be used in finding reasons to kill a project or not. A participant expressed he/she is not sure that the whole tool can be generic, since personal experience always comes into. It is a tool that could be used as an evolving template that helps identifying issues. There is always the danger of identifying hundreds of risks and then dumping them somewhere without any further actions taken. It would be better if the tool would show what the next stages are to ensure the management of the risks. Sometimes, similar risk lists, from previous projects, are re-used for new projects whereby the user is trying to see which ones apply again. Funding for eService projects often comes before the feasibility. Money is given to the project management team to do things without allowing the team members to have any say. Very often central government officials (Scottish Executive) look at the trends and award money to city council eGovernment departments to implement projects they haven't planned for. After they received funding, the project management people try to find ways to spend it.

Could you use the tool to justify reasoning behind the cancellation of a project? – D3

Cancelling a project at the feasibility requires a number of different information, such like business case drivers, political drivers. Risks are important when cancelling a project, but they are just one part of the equation. The main point here is that the project management/development team cannot have a say towards cancelling a project. The team does not consult the users of the eService, does not consult the departments where the system will put into place, does not market it; the eService project has to be imposed on them. The eService customer, who is the project authoriser is the central government (Scottish Executive), hence the development/management team does not care about cancelling the project or not. An example of how things work with the Scottish Executive and funding for projects is the 'Authentication' eService. The project management did a feasibility study and found serious risks that could make the project fail. To do it anyway, the project management team renamed the same project to 'Authentication – Proof of Concept' and got the funding for it. The reason why the council goes for such projects is that it receives something for nothing. Even the business case is done in a way that presents identified risks in a certain way that poses them manageable. The government presents very tempting funding offers for certain projects. Although the risks are high, the council goes for such projects to receive the funding. In fact, if the council does not apply for such project money, future funding decisions can be affected. Risk analysis can help, but it's not being implemented properly because the councils need the funding. In fact, certain organisations have inherent risks, but they are muted in order to get new projects.

How useful would the risk modelling tool be in formulating the feasibility report? – D4

At a theoretical level, the tool is very useful as added tool to existing ones. It is useful because of the way it is grouped in categories. Risks are associated with certain elements of the eService, which indicates decision-makers of what actually needs to happen before

it all starts. It is useful for identifying risks, to cover all the basics, but not clear how the categorisation might be further exploited. Another participant replied by adding that the categorisation is quite good, as it might allow having several risks within one area, which can be all killed off later with one solution. Also, there is plenty of potential duplication across areas with the same risk, which according to another participant this adds weight to the severity of the risk.

How does the risk modelling compare to any existing practices at the feasibility? – D5

At the feasibility stage, the city council is implementing an initial risk log, which is at the same level of detail as the tool. Also, the risk log states the impact of the risk, the owner of the risk and the mitigation measures. It is not used as a framework, only as a tool for the project manager or the key stakeholder. The risk log at this stage is usually a top ten list, rather than every risk possible. The city council is financially risk averse, but not risk averse in doing projects. Within the council, risk is always seen from its downside. Implementing change within the council faces barriers at all points. It is not uncommon that leadership (political) supersedes risk and very little planning takes place. Projects have to be developed no matter what, often skipping business case or risk analysis. An example of that is the 'entitlement card', which would start in 2006, but a ministerial statement pointed that such project will be live by the end of 2005. Hence, the city council was awarded £100,000 to circulate a million cards by the end of 2005. This risk modelling tool helps to identify responsibility for the risk. By using the tool to identify problematic areas, responsibilities can be channelled and accountability increased. Another participant added that the way the tool is, it may easily be aligned to the PRINCE2 methodology and map fairly easily project board areas.

How could this risk modelling tool be better? – D6

All the boxes of the tool actually align to the PRINCE2 methodology, so it would be nice to make it look like a whole package rather than an add-on. Another participant stated that there is some sort of familiarity between this risk modelling tool and PRINCE2 and EFQM. The participant added that there could be a potential tier between them. That familiarity lies in the fact that EFQM (and this tool) takes the processes approaches and then it is drilling down. It would be nice to have a recognised explicit mapping onto PRINCE2. Possible similarities are the following: 'senior supplier' = 'internal systems'; 'senior user' = 'internal customer'; 'executive' = 'owner'. The language used in the diagram [*referring to the eService areas*] is found to be more intuitive than PRINCE2. Improving the model depends on the organisation. Such organisation should welcome challenges and have an open thought. Also, any changes to be made depend on culture and anonymity might be best. A potential update to the categories might be the following. In the 'public authority' and under 'need' could be added 'statutory need' and 'political need'; also, 'vision' and 'corporate strategy' could be put.

Any questions? – D7

A participant wanted to contribute the following remark, which appeared to find most participants agreeable. According to that participant, in eService projects, and at that level, politics is critical. Usually, the project management/development team does not do too much at the feasibility stage, and the requirements are just parachuted in. Politics

suggests that if a city council needs the money for such projects, they should bid for several ones and once they get one they have to do as they are told. Risk modelling approaches – which sometimes do not happen at all – should be done at the executive level.

Additional Note

After the first five minutes of the group discussion, a participant was notified that her daughter has been admitted to the hospital. As such, she excused herself and left the room.

FIELD NOTES & OUTPUT

This section presents the notes taken, based on the researcher's observations, during the interaction stage of the group process; as well as the output that has been created after the participants have used the risk modelling tool.

OBSERVATIONS

During the interaction stage of the focus group process the researcher has been recording the behaviour of the participants. Following a chronological order, the observations are enlisted below.

- In the beginning, all participants seem very into it, though a few seem a bit unhappy.
- Half way through, two participants are thinking, one seems very puzzled, one is very into it, one is reading, and two are trying to find risk statements.
- Five minutes before the end, some have finished and checking on others, then trying a bit more.
- At the end, some of the participants have started chatting to each other, looking relieved, whereas others count their risk statements.

All seven participants used the tool comfortably and extracted around 10 different risk statements (as asked by the researcher) each. The richness of the output, compared to the limited amount of time given to the participants, suggests that the tool can actually produce risk statements. Also, it is interesting to note that all risk statements are almost equally distributed across most of the tool's areas of concern, except one; the 'eService'. The reasons behind that could be all sorts. The researcher's deems that it is highly likely that the participants perceived the 'eService' area as a very high-level (executive level), at which they have no authority.

Off the record, just at the end of the workshop the following comments have been expressed:

- Senior management do not get a risk modelling tool; it is more front-line.

- The political part is more important in such cases, especially as you go higher up the line – politics take precedence.
- A participant stated that issues such like trust, softer skills and user acceptance seem to be missing from the model. Other participants argue that some of that is already there.
- The issue of the ID cards project proposal was brought forward as an example of a typical example of a project, whereby the mandate (political) will be challenged by the acceptance (user community).

OUTCOMES – RISK STATEMENTS AT THE FEASIBILITY STUDY STAGE

eService Area: Public Authority

1. The authority must embrace change.
2. Senior management will need to support the project.
3. That the public authority takes notice and works with personal agendas.
4. Senior management understand the benefits of the project.
5. The strategy for the project and how it fits into the eGovernment strategy is well defined.
6. The project has been planned effectively and resources are available to complete within timescales.
7. All staff will understand the purpose of the project.
8. The authority complies with its legal obligations regarding information sharing.
9. Management teams understand where benefits and savings fit in.
10. Return on investment and realisation of benefits.
11. Fit of solution in IT infrastructure, vision and strategy.
12. Direction of Scottish Executive may change.
13. Leadership and drive from senior management.

eService Area: Internal Systems

14. IS staff must have IT skills to implement the BOI.
15. IS will need to make resources available for the project.
16. System requirements are user friendly.
17. Adds value to their area.
18. That the internal systems are supported by sufficient staff.
19. That the internal systems will integrate as expected/promised.
20. Immature product market (tools need to be built).
21. Resistance from existing system personnel.
22. Requires new technologies (skills shortage / training).
23. CAG/MCD conflict with existing property / people systems.
24. Integration difficulties with existing systems (technical / personnel).
25. Insufficient functionalities in MCD/CAG/BOI.
26. CAG/MCD products proprietary tied to single system, lacking openness.
27. IT staff have the skills to implement the project.
28. Staff know how to use the new system in dealing with customers.

29. The tools implemented will be able to support all requirements.

eService Area: Public Authority Department – Internal Customer

30. Users must receive adequate training.
31. Customers will need the skills to use the system.
32. Public authority departments change.
33. That our internal customer agrees that there is a need for the project.
34. That our internal customer believes that the new system will perform as promised.
35. That the new system takes account of the internal customer's existing customers.
36. Philosophical difficulties ("What's the point? We have what we need").
37. The technology that has been purchased to support the project is 'fit for purpose'.
38. There will be leadership from management to support implementation.
39. Demand for solution by internal customers.
40. Ability of council staff to implement new system and change culture.

eService Area: External System - Collaborating External Agency

41. There has to be open communications with external agencies to ensure their support.
42. Require trust [...] data integrity.
43. IT pace changes at integration speed.
44. Difficulty getting personal information.
45. Software suppliers are working to the same objectives as the council.
46. All information systems will be able to integrate.
47. Willingness of existing suppliers to cooperate.

eService Area: Public Authority Department – The Owner

48. Users will need time to support the project.
49. The authority will have to make sufficient funds available for the project.
50. Decision process is agile.
51. Organisation culture past risks are resolved.
52. Not core business.
53. Matching vision to capability.
54. Quality meets vision.
55. That the owner is properly motivated to use the new system.
56. That the owner will have the necessary skills to use the new system.
57. That the owner delivers the necessary process improvements.
58. Scale of the project and associated dependencies are well known at the start.
59. Operational managers in individual service areas understand how the project will impact on them and are committed to the project.
60. The business adopts the new group of information sharing at all levels.
61. Ability to secure internal funding.

eService Area: External Customer

62. The BOI solution needs to fit the needs of the customer.
63. Authorisation to use details.
64. Like idea of government "contact".
65. Access system = what want.

66. Bespoke [...] or groups = cancellation.
67. That our external customer accepts that what we are doing is in their best interest.
68. That our external customer reflects the needs of the community.
69. Inconsistent political drivers.
70. The project will provide improved access to the external customer.
71. Staff groups understand how this underpins support to the customers.
72. Services understand why services are being joined up.
73. Staff groups deliver joined up services.

Additional Comments

A participant stated: 'Could fit more than one category'; 'Not always sure which eService area fits into'; Helpful if risk statement list to back up tool – pick and choose'

FOLLOW-UP ACTIVITIES & CONSIDERATIONS

The participants have been contacted to provide some clarifications on the following questions: 'How different is risk analysis between the stages of feasibility study and business case? Do you do more than identifying risk at the feasibility study? To what extent?'. The purpose of such questions was to clarify, the reason why some participants suggested that further risk analysis capabilities may be added to the risk-modelling tool. So far, two participants responded and their replies are provided – verbatim – as follows.

Participant 1 (P1)

I consider that:

- risks and benefit are linked - more risk more benefit
- a risk is an identified problem that has yet to occur
- Risk analysis is identifying, assessing probability, severity of occurrence and developing counter strategies.

Risk identification in practice is not always welcome, there is often pressure or organisational 'drivers' to force the focus on the desired outcome for benefit realisation. Identifying sensitive or cultural risks and bringing them to the fore is often seen as subversive. I think this is the major difference between risk analysis at feasibility and business case. Feasibility is about looking forward through the 'windscreen' to capture both risk and benefit (ideally). The business case is, more often than not, about adjusting the view, for future rear view mirror justification - in practice.

Identifying risks, at feasibility often assumes acceptance of generic risk (or ignoring) e.g. 'software development has a high delivery window' (in percentage terms the odds are against a software project coming in on time, to original standards/functionality. Similarly, key person risk is often avoided, due to cost, or?..... but it happens a lot!

At business case, the feasibility has been accepted - because we don't talk about difficult risks - there is an undeclared 'acceptance' without a counter strategy. We move on to more quantifiable risks, which can be evaluated, avoided or mitigated - using tools like ROI, cost benefit and justified by budget and forecasts. I do note, that when benefit is difficult to measure (when it's not simply about £ or \$) the true costs and benefits are

marketed, based on an assumption and pressure to make it happen (the real driving force for the project is evaded or masked e.g. politics,).

Personally, I do more risk identification at the feasibility and declare all known risks up-front insisting on 'acceptance'. In the Business Case we then focus on the benefit and mitigate or avoid risk through business tools, for acceptance based on business risks and benefit.

"To what extent" - the organisation requires more time to be spent at business case to mitigate or forecast benefit.

Participant 2 (P2)

At the feasibility stage we simply try to identify potential risks. We don't go into any great detail at that stage. When we develop the business case we develop the detail around the risks at the same time. It's at this point that we would carry out any analysis.