

**An analysis into the factors affecting the uptake of  
applications of e-procurement, within the UK public  
sector**

By

Daniel J. McConnell

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degree of

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## CERTIFICATE OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this thesis, that the original work is my own except as specified in acknowledgments or in footnotes, and that neither the thesis nor the original work contained therein has been submitted to this or any other institution for a degree.



..... ( Signed )

14 December 2009

( Date)

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## An analysis into the factors affecting the uptake of applications of e-procurement, within the UK public sector

**Key Words:** electronic procurement, issues, inhibitors, facilitators, benefits, technology, process, people, compliance, Local Government, Central Government, United Kingdom.

### **Abstract**

Electronic procurement (e-procurement) has been widely adopted across the private sector, and as such various aspects of its adoption has been researched. The adoption of e-procurement in the public sector is not as widespread, especially in relation the UK Central and Local Government sectors, and accordingly there has been limited research into the factors affecting the adoption of e-procurement technologies, within this context. Consequently, this study, which has been undertaken with five case study organisations spread across the UK Central and Local Government sectors, aims to add to current published literature, and in particular provide an understanding of the relationship between the factors identified which have affected adoption, and the extent of adoption of e-procurement solutions.

This research provides a number of significant contributions to current published literature including a comprehensive definition and conceptualisation of e-procurement and a holistic research framework which facilitates understanding the relationships between the level of adoption by the case study organisations and the factors affecting their decisions. Additionally, this study demonstrates that there is a high degree of commonality between the case study organisations in terms of their levels of adoption, and the factors that have affected such adoption. Of these factors, there are four that are particularly important, as they haven't previously attracted much attention in the literature. More specifically, this research highlights the importance of understanding an organisation's procurement landscape, the impact (both negative and positive) of public policy on adoption, the impact of enhanced organisational standing and the need for vision and leadership from senior stakeholders.

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Over the past 39 years many people have inspired and encouraged me on this journey, none more so than my wife, Nuala, who has, over the past 7 years put up with late night and weekend working, without her understanding, support and caring for our children, it would not have been possible to complete this journey.

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## Glossary of Terms

ABC	Activity Based Costing
ANSI X12	American National Standards Institute
BACs	Bank Automated Clearing System
BASDA	Business Applications Software Developers Association
BVPI	Best Value Performance Indicator
CAD	Computer Aided Design
CHAPS	Clearing House Automated Payment System
CIPS	Chartered Institute of Purchasing & Supply
COPE	Centre of Procurement Expertise
CPA	Comprehensive Performance Assessment
CPD	Central Procurement Directorate
CPU	Corporate Procurement Unit
CPV	Common Procurement Vocabulary
CSR	Comprehensive Spending Review
DFP	Department of Finance & Personnel
DLO	Direct Labour Organisation
EDI	Electronic Data Interchange
EDIFACT	Electronic Data Interchange For Administration, Commerce & Transport
ERP	Enterprise Resource Planning
GRN	Goods Received Note
HMT	Her Majesty's Treasury
IDeA	Improvement & Development Agency
IT	Information Technology
LAA	Local Area Agreements
NAO	National Audit Office
NDPB	Non Departmental Public Body
NePP	National e-Procurement Project
NICS	Northern Ireland Civil Service
ODPM	Office of the Deputy Prime Minister
OGC	Office of Government Commerce
OJEU	Official Journal of the European Union
P-Cards	Purchasing Cards
PO	Purchase Order
PPI	Prompt Payment Initiative
QUAL	Qualitative

QUAN	Quantitative
QUANGO	Quasi Non Governmental Organisation
RFQ	Request For Quotation
SCM	Supply Chain Management
SMEs	Small & Medium Enterprises
SMT	Senior Management Team
TRADACOMS	An early standard for Electronic Data Interchange
UK	United Kingdom
UNSPSC	United Nations Standard Products & Services Code
VAN	Value Added Network
XML	Extensible Mark-up Language
Zanzibar	Zanzibar is a web-based purchase-to-pay and electronic marketplace solution, providing a common hosted platform for e-Purchasing and e-Invoicing which has been developed by OGC and government organisations

# 1.INTRODUCTION

*"Research shows that you begin learning in the womb and go right on learning until the moment you pass on. Your brain has a capacity for learning that is virtually limitless, which makes every human a potential genius"*  
(Michael J. Gelb)

## 1.1. Introduction

Dai and Kaufmann (2000) note that *"to buyers in supply chain management, procurement systems and B2B (business to business) electronic markets are perceived as a new procurement channel enabled by the internet and new technologies of the World Wide Web. Adoption of these technologies and the corresponding business models associated with them, are of great significance to the success of many businesses in a spectrum of industries"*. One important sector that, in recent years, has seriously begun to evaluate and adopt e-procurement technologies is the UK's public sector.

A recent publication by the Office of Government Commerce "e-Procurement in Action" (OGC, 2005) identified that the UK public sector spends over £175 billion per annum on bought-in goods and services. Furthermore, this publication noted that the Government, through an Efficiency Review undertaken by Sir Peter Gershon (July 2004) set a target of achieving more than £20 billion of efficiency savings for delivery by 2007/08. This OGC (2005) publication noted that UK public sector bodies who have not already done so will need to review the way that they buy goods and services and:

- *improve purchasing processes*
- *maintain best practice in purchasing*
- *reduce order error rates*
- *establish improved relationships with suppliers*
- *reduce timescales for purchasing and tendering activity*
- *collect and report on spend activity*

- *make real cash savings on prices paid*

The OGC publication goes on to note that the UK Government has been driving the adoption of e-commerce across the public sector since 1998 and a core element of this should be e-procurement. From a public sector aspect, e procurement is today "*seen as a key enabler to achieving greater public sector efficiency, which is high on the government's agenda and the goal behind Sir Peter Gershon's review of the public sector published in July 2004 and commissioned by the Prime Minister*" (Independent Review of Public Sector Efficiency, 2004).

This focus on e-procurement in the UK Central Government sector is mirrored by similar studies undertaken in the Local Government sector. One of the most significant reviews to be published in recent years by the Office of the Deputy Prime Minister (ODPM) "National Procurement Strategy for Local Government (October 2003)" indicated that the UK Local Government sector as a combined organisation spends approximately £40 billion per annum on bought-in goods and services with over 400 separate councils buying on behalf of UK citizens.

It is therefore evident that this increasing focus on procurement within the UK public sector is driven by a combination of the need to reduce costs and to extract efficiencies through the development and implementation of new business processes, underpinned by modern information technologies.

## **1.2. Background to the Research**

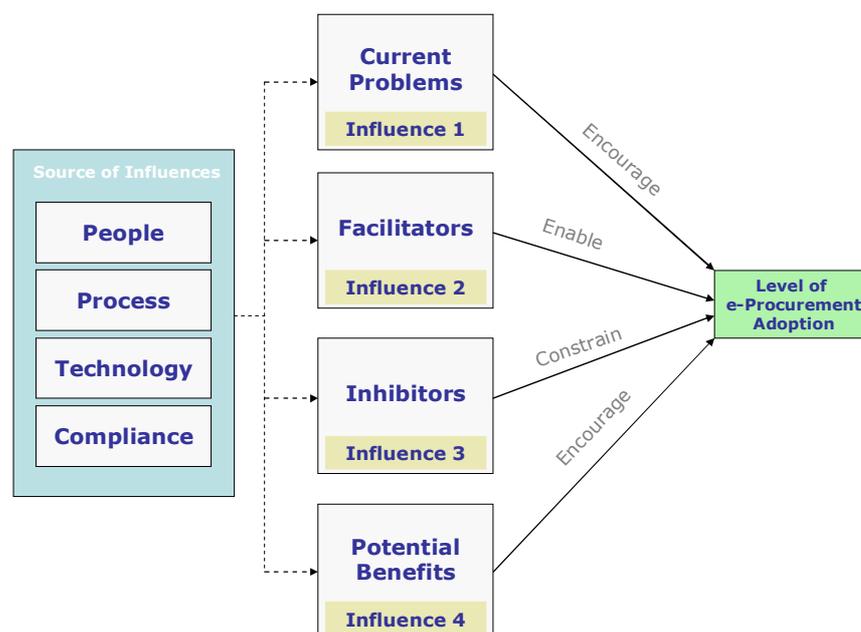
The primary focus of this study centres upon the fundamental questions that are being posed to Central and Local Government organisations in the UK, and indeed throughout Europe, namely: "how can your organisation benefit from the experiences of the private sector in implementing e-procurement to deliver significant efficiency and effectiveness gains?", and: "what are the organisational risks and rewards associated with the implementation of e-procurement within a

public sector environment?”. More specifically, the overarching aim of this study is to fill the gap in the existing literature by investigating the key factors that are affecting the adoption of e-procurement within the UK Central and Local Government sectors.

At the outset of this research, it was envisaged that published academic literature coupled with the experiences of private sector organisations, where e-procurement solutions are already commonplace, would provide a framework for examining how the UK Central and Local Government sector could embrace e-procurement, taking account of the nuances of a public sector environment.

Given the above context the objectives of this study are illustrated by Figure 1.1 and detailed in the following bullet points.

**Figure 1.1: Theoretical Framework**



1. To identify an appropriate definition and conceptualisation of e-procurement applicable to the UK Central and Local Government sectors.
2. To investigate the extent to which public sector organisations have adopted, or are actively planning to adopt, a range of e-

procurement technologies.

3. To explore the issues and problems associated with traditional paper based procurement and to determine the extent to which they have acted as drivers for the adoption of e-procurement.
4. To explore and understand the inhibitors and facilitators to the adoption of e-procurement to the UK Central and Local Government sectors, and to determine the extent to which they have affected (and will affect) the adoption of e-procurement.
5. To explore the actual and potential benefits that can be achieved by the UK Central and Local Government sectors, through the adoption of e-procurement, and the extent to which the achievement of these benefits have (and will) affect the adoption of e-procurement.
6. To develop an explanation of the behaviour of public sector organisations, in terms of their adoption of e-procurement.

In addressing objectives 3-5, the research will be seeking to compare and contrast the public sector organisations adopting e-procurement with private sector organisations, as identified through the literature review. Additionally, this research will be seeking to review and examine an appropriate theoretical lens to understand how the factors identified have affected the adoption of e-procurement within the selected case study organisations, thereby addressing objective 6.

### **1.3. Significance of the Research**

The introduction of appropriate elements of e-procurement to all aspects of the UK public sector, including Central Government, Local Government, Education and the Health Sector is perceived as a critical aspect of driving efficiencies.

The basis for the identification of e-procurement as the “cure” for the current inefficiencies associated with all stages of procurement is primarily founded on the success achieved to date within the private sector (Reason & Evans, 2000; Telgen, 2001; Caldwell et al, 2002; de Boer et al, 2002; Bartezzaghi & Ronchi, 2003; Muffato & Payaro, 2004; Tatsis et al, 2006; Bof & Previtali, 2007; and Teo et al, 2009). This success, which is well documented and researched, indicates that there is the potential for similar benefits to be realised in the public sector (e.g. MacManus, 2002; Panayiotou et al, 2004; and Croom & Brandon-Jones, 2005). However, there has, to date, been very little empirical research to explore whether this is actually the case, particularly given the very different regulatory, economic, social and political environments in which public sector organisations exist.

There is a paucity of research into the use or applicability of e-procurement to the public sector, with the exception of limited research in Europe, Australia and the United States. Sheng (2000) noted that *“e-procurement had been the subject of a great deal of research, but this tends to focus on the development of inter-organisational electronic networks”*. Tonkin (2003) draws a similar conclusion to Sheng (2000) noting *“there is little history of extensive e-procurement use in the public sector except perhaps in certain entities in the military and public health sectors. As would therefore be expected, the academic literature covering public sector e-procurement is very limited”*. This statement is borne out by a study undertaken by Schoenherr & Tummala (2007) who reviewed 157 journal articles over the period 1997 – 2007 and concluded that only 13% of the research into e-procurement in these journals related to the Government sector.

This research aims to redress this imbalance through examining a cross section of the UK Central and Local Government organisations to assess the actual and planned levels of e-procurement adoption, and the factors that have driven this adoption. Through the collection, collation and evaluation of quantitative and qualitative information

relating to five sample organisations (three in the Local Government sector including two Unitary Councils, a two-tier Council and two from Central Government including a Non Departmental Public Body and an Executive Agency) this research aims to provide practitioners in both these sectors with invaluable assistance and guidance on assessing the deliverable potential of e-procurement for their organisation.

#### **1.4. Nature and Type of e-Procurement Literature**

The literature review found that prior to 1999 there was a limited number of published academic articles on e-procurement and since then the majority of articles published have had a strong private sector bias. However, in recent years a limited number of academic studies have been undertaken into the use of e-procurement within the public sector across Europe (e.g. Greece and Republic of Ireland), the United States, Australia, Singapore and Hong Kong.

Given the current dearth of academic research into the use of e-procurement in the UK public sector, many non-academic sources, in the form of books on traditional and electronic procurement, have also been reviewed. This literature reviewed, during the course of this study, has also included reports on public sector procurement projects and includes reviews by Peter Gershon, Sir Ian Byatt, the National Audit Office review and HM Treasury. Additionally practitioner cases studies have been examined. This material is non-academic in nature and is generally published by public sector organisations within the UK Local and Central Government sector who have implemented aspects of e-procurement as part of a broader e-Government initiative or as a result of Government funding, e.g. Invest-to-Save. These organisations, which are predominately within Local Government, include Brent, Cheshire, Dudley, Essex, Haringey, Huntingdonshire, Kirklees, Lewisham, North Tyneside, West Sussex, Cambridgeshire, Leeds, Newham, Slough and Staffordshire.

In summary, the literature review highlighted a gap in the published academic literature in relation to the applicability of e-procurement to the UK Central and Local Government sectors.

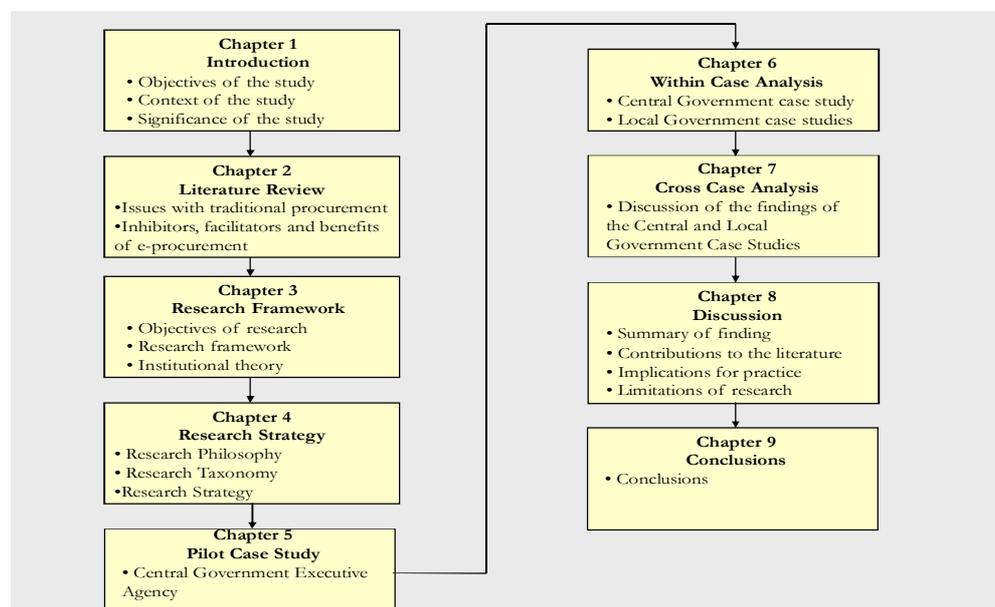
## 1.5. Organisation of the Research

The content of this thesis is organised in nine chapters. Figure 1.2 provides an overview of the research process and corresponding chapters.

Chapter one provides an overview of the thesis, the identification of research problems, the reasons for undertaking the research, and the significance of the study.

Chapter two reviews the published academic literature related to e-procurement. This includes definitions of e-procurement, issues with traditional procurement and the inhibitors and benefits of implementing e-procurement. Each aspect was examined using literature from a number of sources including academic research into e-procurement in the public and private sectors, books relating to e-procurement and supply chain management and reports produced by analysts, consultants and suppliers of e-procurement solutions.

**Figure 1.2: Structure of the Study**



Chapter three discusses a definition and conceptualisation of e-procurement, develops a research framework based on the outcome of the literature review and examines the use of institutional theory as a lens to explore the factors affecting the adoption of e-procurement.

Chapter four discusses the research philosophy, the lifecycle of the research and provides details of the research method used including a discussion of the case study organisations and the reasons for their selection.

Chapter five provides a review of the pilot case study which is based on a Central Government Executive Agency. This organisation is analysed using the framework developed from the themes emerging from the literature research.

Chapter six presents the results of the qualitative, 'within-case' analysis (Miles & Hubermann, 1994) conducted on the data collected at the remaining four case study organisations.

Chapter seven presents the cross-case analysis of all five case study organisations, and discusses the key themes and insights to emerge from this analysis.

Chapter eight provides a discussion on the outcomes of the research in terms of its key findings, the contributions to the literature, the implications for practice, the limitations of the research and potential areas for future research.

Finally, Chapter nine draws together the conclusions from the research project.

## 2. LITERATURE REVIEW

*"The only means of strengthening one's intellect is to make up one's mind about nothing – to let the mind be a thoroughfare for all thoughts. Not a select party"  
(John Keats, 1819).*

### 2.1. Introduction

The broad aim of a literature review is to critically review the relevant literature with respect to the area of interest – in this case e-procurement – to identify key themes and general areas of concern, and in so doing, to identify productive avenues for further research. Additionally, the review process should produce an understanding of important inter-relationships between the specific the subjects of interest (Hart, 1998: p 27). As Miles & Huberman (1994) note, *'every researcher, no matter how unstructured or inductive, comes to the fieldwork with some orienting ideas'*, as drawn from the literature. In this case, because of the relatively modest amount of academic literature, explicitly addressing the applicability of electronic procurement to the UK public sector, this review also draws upon practitioner and governmental sources regarding the business benefits, business models and technical architectures for e-procurement.

The overarching aim of this review is to thoroughly examine the published literature with respect to the adoption and utilisation of e-procurement. To this end, the chapter commences by exploring the meaning and defining characteristics of e-procurement, before contextualising the study, via a brief summary of the uptake and application of e-procurement. The review continues by addressing each of the substantive research issues to be addressed in this study, namely: the problems associated with traditional procurement, the inhibitors/facilitators of e-procurement and the benefits to be realised through e-procurement. The final sections of the review present an overall critique of the literature, which highlights the opportunities for

further research, and provides a point of departure for the study's research objectives and framework, as presented in Chapter 3.

## 2.2. E-Procurement: Definition and characteristics

Before examining in detail the definition and characteristics of e-procurement found in published academic literature, it is important to understand the research methods used for these publications. Schoenherr & Tummala (2007) undertook a review of 157 published articles relating to e-procurement over the period 1997 – 2007, and Table 2.1 provides a summary of their findings in relation to the research methods used.

**Table 2.1: e-procurement research: research methods used**

Research Method	Frequency Used
Simple survey of what is being done	31%
Survey	21%
Single case study	18%
Mathematical	13%
Multiple case studies	8%
Conceptual theory extension	4%
Simulation	2%
Content analysis of websites	1%
Secondary data analysis (from databases)	1%

As noted above the research methods used in current published literature is varied, and the definition and characteristics of e-procurement noted in these papers is equally varied, which has arisen as a result of:

- authors reviewing different economic sectors and geographies and as such having different perspectives on the definition and scope of e-procurement. Examples to illustrate the diversity of research into e-procurement range from Muffato & Payaro (2004) which compared the introduction of e-procurement in the motorcycle industry where the organisations reviewed were Aprilia and Ducati, to the

research undertaken by Hawking et al (2004) with 166 Small and Medium size Enterprises (SMEs) in Australia examining the inhibitors to the adoption of e-procurement in this sector.

- authors focusing on discrete aspects of e-procurement thereby developing definitions to provide a context for their research. Examples from the literature include Subramaniam & Shaw (2002) in relation to the value of B2B e-procurement, Yen & Ng (2003) in relation to the e-commerce procurement process, Croom & Brandon-Jones (2003) in relation to the classification of e-procurement transactional structures, and Carr & Smeltzer (2002) in relation to the impact of e-procurement on buyer-seller relationships.

The absence of a consistent definition of e-procurement has led to a plethora of definitions appearing in recent years and has led to confusion within organisations seeking to pursue e-procurement. This confusion has in fact been identified by a number of authors (Henry, 2000; Heywood et al, 2002; Vaidya, 2003; Yu, 2003; and Soar & Turner, 2003) as one of the key inhibitors to its adoption. MacManus (2002) also acknowledged this confusion as well as the confusion between "purchasing" and "procurement". As noted by Dooley & Purchase (2006), it is highly important that a consistent definition is used to avoid *"each potential respondent having a slightly different conceptualisation of e-procurement"*; therefore it is vitally important, as suggested by Schoenherr & Tummala (2007), that *"e-procurement is defined explicitly and unambiguously at the beginning of the study to avoid confusion"*. Schoenherr & Tummala (2007) also suggested that this can be accomplished by *"adopting or adapting an established definition from past research, or developing an own characterisation of how e-procurement is understood"*.

In an attempt to distinguish between "purchasing" and "procurement" MacManus (2002) explains "procurement" as denoting *"... the combined functions of purchasing, inventory control, traffic and transportation, receiving and inspection, storekeeping and salvage &*

*disposal operations*". MacManus (2002) further defines "purchasing" as *"the act and the function of responsibility for the acquisition of equipments, materials, supplies and services"*. She concludes that *"purchasing describes determining the need, selecting the supplier, arriving at a fair and reasonable price and terms, preparing the contract or purchase order, and following up to ensure timely delivery"*. This simplistic definition of procurement is enhanced by Przymus (2003), who introduces e-procurement to the discussion by suggesting that *"e-procurement is the acquisition of goods and services without the use of paper processes"*. Similarly Teo et al (2009) who define e-procurement as *"the streamlining of corporate purchasing processes by eliminating traditional paper based documents such as purchase orders and requisition forms"*.

These early (and some not so early) definitions focused largely on technology, others which supported this approach were Reason & Evans (2000) which focused on the technology solutions that are available in the marketplace. This approach to defining e-procurement was reinforced by Knudsen (2002) who added electronic data interchange (EDI), e-sourcing, e-tendering, e-informing and e-collaboration as mechanisms for delivering e-procurement. Their research concluded that e-procurement is *"simply aspects of the procurement function supported by various forms of electronic communication"*. This technology focus has been supported by various other researchers including Caldwell et al (2002), de Boer et al (2002), Telgen (2001) and Davila et al (2002). In essence, they conclude that the mechanisms for delivering e-procurement provide a comprehensive definition of e-procurement.

Minahan (2001) also focused on a technology based definition and included a process dimension by proposing that e-procurement is defined as *"the process of utilising web-based technologies to support the identification, evaluation, negotiation and configuration of optimal groupings of trading parties into a supply chain network, which can then respond to changing market demands with greater efficiency"*.

The extension of the definition of e-procurement to include process was also identified by Bartezzaghi & Ronchi (2003), who proposed that e-procurement is simply *"activities mostly used for purchasing low volumes of high frequency MRO (Materials, Repair and Operating materials) items, thus excluding two key aspects of e-procurement namely e-sourcing ("the increase of supply market efficiency through the use of technology solutions such as public electronic catalogues, electronic exchanges and electronic auctions" and e-collaboration as "the use of technology to increase collaboration among organisations including inventory management, demand management, production planning and control"*. Similarly Tatsis et al (2006) define e-procurement as *"the integration, management, automation, optimisation and enablement of an organisation's procurement process, using electronic tools and technologies, and web based applications"*. This definition reflects an earlier definition by Alaniz & Roberts (1999) who define e-procurement as *"internet solutions that facilitate corporate purchasing"* and Morris et al (2000) who define e-procurement as *"a series of steps, from formulation of the corporate purchasing strategy to the actual implementation of an internet-based purchasing system"*.

These technology and process focused definitions are challenged in earlier and later literature given its exclusion of procurement related activities (e.g. e-sourcing and e-collaboration). For example, Dai & Kauffman (2001) concluded that *"a typical e-procurement system affects the whole requisition process"*. Similarly Panayiotou et al (2003) who defined e-procurement as *"the procurement process covers a wide spectrum of activity from routine ordering indirect goods, where there is a good fit with automated e-procurement marketplace solutions at one end, through to more complex procurement of out sourced services, where e-procurement can support the integration of entire supply chains and collaboration with partners"*.

Within a public sector context, this holistic definition is supported by the Local Government organisation *BuyIT* (2001), where e-procurement is defined as "*the electronic management of all procurement activities: it is the use of web communications to 'e-enable' your purchasing processes and strategy, and part of the wider 'e-commerce' solution*". Similarly, the Central Government's Office of Government Commerce (OGC) defines e-procurement as "*the use of web-based technologies and communication in the purchasing cycle from requisition and approval through to receipt and settlement*".

These broader definitions are supported by Muffato & Payaro (2004) who postulate that within e-procurement there are two main processes of:

- a) procurement which includes the following activities:
  - specification of the goods or services
  - notification of potential suppliers
  - tendering procedure
  - evaluation of tenders
  - agreement and acceptance and contract signature
  
- b) fulfilment which includes the following activities:
  - receiving the order
  - managing the transaction
  - delivery of the goods/services
  - acceptance of the goods/services
  - invoice and payment

Additionally, they suggest that the confusion in the marketplace referred to by Henry (2000), Neef (2001) and Heywood et al (2002) arises from the positioning of solutions by technology providers within the above two main processes. Their research concludes by indicating that there is potentially a spectrum of e-procurement which includes the following:

- 1) **e-Notification:** this involves an organisation electronically notifying potential suppliers of a future tendering opportunity.

Typically this is facilitated through on-line notification systems, for example, within a UK Public Sector context, the Office of Government Commerce (OGC) website.

- 2) **e-Tendering:** this involves an organisation having the capability to electronically receive tender submissions from potential suppliers. Typically this is facilitated through on-line tender receipt systems, similar to that used for tender notification.
- 3) **e-Awarding:** this involves secure tender opening (e.g. being only able to open tenders that have been submitted by the closing date and time), tender evaluation and tender award. Typically this is facilitated through similar systems to those used for e-Notification and e-Tendering.
- 4) **e-Contracting:** this involves the establishment of an agreement with a supplier and can arise as a result of the e-notification, e-tendering and e-awarding stages or can arise through other technology solutions, for example, an e-Auction which typically involves suppliers bidding for the supply of goods based on a tender specification prepared by an organisation. Unlike conventional auctions (where the price generally increases), e-Auctions are commonly referred to as reverse auctions as the price quoted by suppliers generally decreases.
- 5) **e-Ordering:** this involves an organisation raising orders of agreed contracts or catalogues (following on from the stages above) and the transmission and acceptance of these by suppliers. Early e-procurement technology solutions focused on this aspect of e-procurement (e.g, Electronic Data Interchange (EDI), e-Catalogues and e-Marketplaces) as this was perceived as the area where maximum efficiencies could be achieved. Leading technology solutions in this area include Ariba, SAP, Oracle, ICG Commerce, Katera Technologies and Perfect Commerce.

- 6) **e-Invoicing:** this involves an organisation electronically receiving invoices from suppliers and following electronic matching (e.g. against the purchase and goods received note) making electronic payment via a Bank Automated Clearing System (BACs). The electronic payment of suppliers (via BACs) has been identified by many organisations as a “quick win” in relation to e-procurement, given the processes and activities.

This spectrum approach suggested by Muffato & Payaro (2004), whilst advancing the overall definition of e-procurement, remains focused on the two dimensions of technology and process and appears to reflect the need to automate current largely manual processes. Consequently, whilst prior definitions and conceptualisations may be comprehensive from a technology and broad process aspect, they do not take account of the critical role of people. The input of procurement personnel will be critical to the effective re-engineering of procurement processes, prior to implementation, as well as the operation and management of e-procurement systems, once they have been adopted. Whilst the role of people may have been rather neglected in the academic literature, their importance was acknowledged in a recent report by the UK National e Procurement Project (NePP, 2004), in which it was stated:

*“e-procurement can act as both a driver to improve procurement and as a tool to enable organisations to do so. It acts as a catalyst and provides the information and control to encourage better procurement. The changes and improvements come from people who purchase better. Inevitably, making improvements will require many people to change the way they work. It may lead to changes to existing supplier-customer relationships, leading to resistance and dissatisfaction”.*

Another rather neglected aspect of e-procurement is compliance, which Bof & Previtali (2007) in their research into the pre-conditions for e-procurement in the Italian health sector, categorises as one of the potential organisational impacts of e-procurement, the other being

better information, reduced paperwork, reduced inventory and improved accuracy. In this research, Bof & Previtali (2007) note that improved auditing and controls (compliance) which enables staff and auditors to verify and track the movement of orders throughout the system, and to investigate off contract procurement (e.g. maverick spend) is a key organisational impact of e-procurement.

The need for a comprehensive definition of e-procurement prior to commencing this research reflects the view of Schoenherr & Tummala (2007), who reviewed 157 e-procurement related articles over a 10 year period (1997 – 2007) and concluded that *"most articles do not have a formal discernible definition of e-procurement, instead e-procurement was described in rather general terms, mentioning facets of it as illustrations"*. Schoenherr & Tummala (2007) also state that *"no formal definitions or conceptualisations of e-procurement have been developed yet"*, and where examples exist, they are more characterisations, than formal definitions of e-procurement, and conclude that *"e-procurement should be defined explicitly and unambiguously at the beginning of the study to avoid confusion, which can be accomplished by adopting or adapting an established definition from past research, or developing an own characterisation"*.

Consequently, before commencing this study of the factors affecting the uptake and application of e-procurement, it will be necessary to define a comprehensive and multi-dimensional definition for e-procurement. In particular, it will be important to draw together the following key themes, identified in the literature, to develop this revised definition and conceptualisation of e-procurement, which will be provided in Chapter 3:

- Technology - Reasons & Evans (2000), Caldwell et al (2002), de Boer et al (2002), Telgen (2001) and Davila et al (2002).
- Process - Neef (2001), Deloitte (2001), Bartezzaghi et al (2003), BuyIT (2001), Dai & Kauffman (2001), and Panayiotou et al (2003).

- People and Compliance - NePP (2004) and Bof & Previtali (2007).

### **2.3. The problems with traditional procurement**

One of the aims of this review is to identify and consider the significance of issues associated with traditional procurement in order to develop a better understanding of the problems that might affect whether and how an organisation decides to adopt e-procurement. To understand these issues, the broad definition of purchasing used by Zenz & Thompson (1994) has been used, which divides procurement/purchasing into the three basic steps of information, negotiation and settlement.

Given the importance of procurement, most organisations want to manage procurement with the lowest possible levels of risk and investment whilst ensuring adequate quality, avoiding duplication and waste, and sustaining the organisation's competitive position and outside image (Perlman, 1990; Zenz & Thompson, 1994). However, as pointed out by Hawking et al (2004), the management of risk and investment is difficult to achieve given that traditional procurement is acknowledged as being based on slow manual processes and even slower processes for handling transactions. As a result purchasing officers are forced to handle errors in ordering, costing and invoicing which are often time consuming and costly to trace. This theme of non-value added activities within procurement was highlighted by Kothari et al (2005) in their research into the supply chain within the hospitality sector. Their research concluded that "*non-value added activities such as data entry, correcting errors in paperwork, expediting delivery, or solving quality problems result in insufficient time for corporate buyers to pay full attention to the procurement of high-value or high-volume goods and services*".

Research by Yap et al (1994) into the public sector highlighted similar issues as they note traditional public procurement is facing many deficiencies similar to those identified by Hawking et al (2004) and

Kothari et al (2005), however, additional issues with traditional public sector procurement included:

- complicated procedures and extended relationships
- excessive state intervention
- bureaucratic dysfunctional ties
- lack of flexible centralised control
- lack of information quality
- resistance to change

Similar issues were identified by Panayiotou et al (2004) in relation to procurement within the Greek public sector to those identified by Yap et al (1994). This research by Panayiotou et al (2004) provided quantitative details of a number of the issues previously identified by Yap et al (1994) including:

- 650 activities within the procurement process, of which a high percentage were non-value adding
- 98 different documents used in the procurement process
- 100,000 transactions for each tender process (this included internal and external transactions)

Research by Nolan (1999), Bales & Feron (1996) and Croom & Johnston (2003) identified a number of less tangible issues associated with traditional procurement. These primarily relate to the purchasing function being held in low regard by the internal customer who perceives the function as bureaucratic, difficult to deal with, sometimes remote and generally delivering poor service. Croom & Johnston (2003) succinctly summarised the purchasing department as the "back water" of the organisation which is often considered as the "Cinderella" activity of the organisation and promotion to procurement is often seen as a retrograde step into the organisational backwater.

In addition to the negative perception of the procurement processes and function within the organisations researched, the measurement of service delivery of the function has been a difficult area for management to gauge. Qualitative information, like the level of customer satisfaction or the quality of supplier relationships are emphasised by corporate managers and match strategic requirements, however, they are relatively hard to measure. Many purchasing managers prefer more operational transaction-oriented measures like cost, speed of reaction, or delivery time (Fearon & Bales, 1997). Although the biggest payoffs are usually achieved when different methods such as organisational changes and information technology are used together to comprehensively reengineer a process, the bottom line results might still be gauged in terms of quantitative measures such as cost and lead time (Taylor, 1997; Hammer and Champy, 1993).

Many prior studies have sought to measure the performance of procurement teams (e.g. Lamming, 1993; Hines, 1994; Sheng, 2002; and Croom, 2000a), and have come to the conclusion that purchasing is a high cost activity where there is much unnecessary paperwork, high material costs and too many errors. As a result, it has been suggested that a 10% reduction in purchase costs could easily lead to a 50% rise in profit margin, Kaufman (1999).

The need for change in procurement has been driven by a combination of the issues noted with traditional procurement as well as the need for private sector organisations to deliver sustainable competitive advantage as global markets become more competitive. Presutti (2003) notes that *"there is a move away from the typical transaction focus of purchasing, where price and availability were the key factors to be considered, to a more strategic view of procurement including a comprehensive understanding of target costing, value engineering, supplier development and electronic procurement"*.

This changing focus of procurement and supply chain management (SCM) is echoed in related research Skjott-Larsen et al (2003) and

Smeltzer & Carr (2003), where it is noted that SCM has moved from a low profile ancillary concern to a recognised strategic component with tangible positive impact on the firm's bottom line. Additionally, it notes that SCM is currently taking centre stage in business planning as there is a need to find and deliver sustainable competitive advantage given the increasing competitive nature of global markets. This research concludes that the Internet is an enabling force for SCM as it offers efficiency and cost reduction to business processes across nations and industries.

Presutti (2003) echoes these conclusions in his research into value creation in the supply chain. In his paper he notes that "*e-procurement technology will boost competitiveness and profitability and will also focus on the costs incurred by an organisation on procurement*". This conclusion is elaborated on through his discussion on the way that e-procurement will impact cost reduction and in particular the fact that it (e-procurement) starts with e-design (e.g. specification) thereby facilitating real-time collaboration across all internal members of the firm's cross-functional buying teams as well as with suppliers. This initial collaboration should assist with overcoming one of the key issues of traditional procurement, that is, after-the-fact issues in production arising from poor specification, purchasing and delivery which previously created inefficiencies and competitive challenges.

A good early example of this value creation identified by Presutti (2003), and an early example of e-procurement in action is the use of Electronic Data Interchange (EDI). Spinardi et al (1997) noted that EDI typically involves the exchange of business transactions (e.g. orders, acknowledgements, invoices and sales figures) through the use of structured messages sent from one organisation's computer system to that of another using a Value Added Network (VAN) or public telephone line (Emmelhainz, 1993). EDI, which is considered as a forerunner to e-procurement, provided a number of benefits to users including (i) faster transmission of information to business

partners, (ii) a reduction in the cost of transmitting information, (iii) enhanced management of operations within both transmitting and receiving organisations and (iv) enhanced positioning of the organisation through the use of EDI. These benefits have been identified and examined by a number of researchers including Banker & Kauffmann (1988), Benjamin, De Long & Scott-Morgan (1988), Bergeron, Buteau & Raymond (1991), Bergeron & Raymond (1992), Clemons & Row (1988), Crowston & Treacy (1986), Lederer & Sethi (1988), Porter & Millar (1985), Rackoff, Wiseman & Ullrich (1985), Vitale, Ives & Beath (1986) and Spinardi et al (1997).

The introduction and use of EDI, whilst used across a number of public sector organisations in the UK (e.g. HMSO) and Europe (e.g. Commission of the European Communities) is however recognised as having a number of challenges or issues. These issues which have been documented by Cox & Ghoneim (1996) and Spinardi et al (1997) include, (i) different messaging standards including EDIFACT, TRADACOMS and ANSI X12, (ii) data harmonisation challenges, (iii) challenges in obtaining organisational commitment and (iv) political differences between organisations.

As discussed above earlier precursors to e-procurement had a number of challenges and as such the potential for e-procurement addressing short-comings of traditional procurement is a theme of research by Wyld (2004) and Bartezzaghi et al (2004). In his review of research articles from 2001-2003, Wyld (2004) concludes that previously little attention was paid to procurement and manual, paper-based processes prevailed. These processes, in addition to being labour intensive and harbouring a considerable error potential encouraged the by-passing of the purchasing department and resulted in off-contract buying (e.g. maverick purchasing). As a result of poor processes and procedures, organisations undertook a number of additional non-value adding activities which will be overcome with the transition to e-procurement.

Wyld (2004) concludes that the majority of issues associated with traditional procurement, such as those identified by Hawking et al (2004), Yap et al (1994), Panayiotou et al (2004), Kothari et al (2005), Nolan (1999), Bales & Feron (1996) and Croom & Johnston (2003) should be overcome by the introduction of e-procurement. This conclusion is supported by Bartezzaghi et al (2004) who also concluded that "*the Internet could streamline inefficient procurement processes by removing the manual paper-based, administrative and bureaucratic elements inherent in traditional procurement systems*". Similarly Croom (1998, 1999 and 2000) concluded that:

- e-procurement costs are approximately one third the cost of traditional maintenance, repairs and operating (MRO) procurement costs
- e-procurement provides greater visibility of the procurement process
- e-procurement provides improved management information for purchasing decision-making
- e-procurement will impact on the structure of supply chains through supply base reduction and the requirement for suppliers to be e-enabled

Published academic research has identified a large number of issues with traditional procurement where the focus of the majority of this research is however the private sector, with the exception of Yap et al (1994), MacManus (2002), Panayiotou et al (2004), and Croom & Johnston (2003).

Based upon this review of the literature, it can be concluded that, whilst a significant number of studies have already addressed the problem of traditional procurement, few have developed coherent and comprehensive frameworks of these problems. Moreover, the existing body of work has tended to focus on the private sector. Finally, and most importantly, no prior studies have explicitly addressed the

relationship between the problems of traditional procurement and the adoption of e-procurement.

#### **2.4. The uptake and application of e-procurement**

Before conducting an investigation into the factors affecting the adoption of e-procurement it is important to review the extant literature with regard to the uptake and application of e-procurement.

During the last decade use of digital technologies in procurement processes has become more widespread. Indeed, Gebauer et al (1998) concluded that *"emerging technologies, such as the newly commercialised Internet are raising hopes of finally changing the picture of costly, time-consuming, and inefficient procurement processes by enabling major improvements in terms of lower administrative overhead, better service quality, timely location and receipt of products, and increased flexibility"*. This conclusion is based on earlier work by Zenz & Thompson (1994) and Killen & Earmuff (1995) who noted that with most (private and public sector) organisations spending at least one third of their overall budgets to purchase goods and services, procurement holds significant business value. Nelson et al (2001) supported this conclusion by noting that purchasing accounts for the majority of organisational spending and as such the advent of web-based e-procurement has been heralded as a "revolution" because of its potential to reduce the total cost of acquisition (Croom, 2000; Essig & Arnold, 2001; deBoer et al, 2002; Wyld, 2002; Ria & Tang, 2006).

Research into the uptake and application of e-procurement has focused on a number of themes, as identified by Schoenherr & Tummala (2007) who noted that early research into e-procurement focused on EDI (Ramasehan, 1997), the automation of formerly manual to automated processes (Gebauer & Schad, 1999; Putland et al, 1999) and the impact on the business environment (Klien & Teuber, 2000; Schmitt & Beeres, 2000; Orr, 2000).

Articles appearing in 2001 dealt primarily with market transformation issues inherent in the electronic revolution (Barua et al, 2001; Scacchi, 2001; Segev & Gebauer, 2001), advantages of e-procurement (Olig & Spears, 2001; Oliveira & Amorim, 2001; Roche, 2001), and recommendations and advice on successful implementations (Attaran, 2001; Rajkumar, 2001).

Articles published in 2002 focused on the continued adoption of e-procurement technology (Deutscher & Gruber, 2002; Gottschalk & Abrahamsen, 2002; Kheng & Al-Hawamdeh, 2002; Osmonbekov et al, 2002; Yen & Ng, 2002), recommendations and prescriptions for success (Boyer & Olsen, 2002; Kim & Fom, 2002; Mabert & Skeels, 2002) as well as the impact on and the changes experienced in how business is conducted (Bircher et al, 2002; Johnson & Whang, 2002; Mukhopadhyay & Kekre, 2002). With the continued adoption of e-procurement by organisations (especially in the private sector), more models and frameworks were developed, which were the focus in 2002 (Devadoss et al, 2003; Garcia-Dastugue & Lambert, 2002; Goldsby & Eckert, 2003; Kinder, 2003; Knudsen, 2003; Skjott-Larsen et al, 2003; Swaminathan & Tayur, 2003), with overseas trends and practices being provided by researchers such as Lancioni et al (2003).

Research over the period 2003 – 2007 focused on more specific aspects of e-procurement and more consideration of the strategic importance of e-procurement in supply chain management (SCM). This research included electronic reverse auctions (Carter et al, 2004; Emiliani, 2004; Millet et al, 2004; Teich et al, 2004), marketplaces (Eng, 2004; Le et al, 2004; White & Daniel, 2004; Zabel et al, 2004), and other e-procurement systems (Cheung et al, 2004; Kauffman & Mohdati, 2004; Kim & Shunk, 2004; Panayiotou et al, 2004; Zabel et al, 2004).

From a sector perspective, Schoenherr & Tummala & Tummala (2007) noted that a diverse range of sectors have been researched, see Table 2.2, however, it is interesting to note that only 13% of articles relate to the government sector.

**Table 2.2: An analysis of sectors researched**

Sector	%	Sector	%
None	32%	Services	4%
Multiple	15%	Logistics	3%
Manufacturing	14%	Construction	3%
Government	13%	Libraries	2%
Health care	5%	Other	4%
Retail	5%		

Of these articles a number provided a general insight into e-procurement in the sector (Croom & Brandon-Jones, 2005; Oliveira & Amorim, 2001), military organisations (Liao et al, 2003), large organisations such as the European Union (Carayannis & Popescu, 2005). A range of further topics were researched including implementation (MacManus, 2002; Vaidya et al, 2006), usage (Dooley & Purchase, 2006), e-procurement systems (Panayiotou et al, 2004), reverse auctions (Settoon & Wyld, 2003), strategic alliances in government e-procurement (Kumar & Peng, 2006), accessibility of public e-procurement websites (Bruno et al, 2005), e-government initiatives (Devadoss et al, 2003) and a model for growth of e-procurement in US state governments (Reddick, 2004).

Within the context of this research, the UK public sector, procurement is a central focus given that it is estimated that UK public sector organisations spend annually over £175 billion<sup>1</sup> on external goods and services, with Local Government, health and education organisations spending £103 billion of this. Given the importance of procurement in general, and the potential adoption of e-procurement, it is interesting to note that, to date there have been few, if any, academic studies to determine the uptake and application of e-procurement within the UK Central and Local Government sectors.

## 2.5. The inhibitors/facilitators of e-procurement

Given the issues and weaknesses with traditional procurement, it is surprising to find that the transition to electronic procurement (in its

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<sup>1</sup> Operational Efficiency Programme: Collaborative Procurement, May 2009, HM Treasury, page 3.

various forms) has not taken place en masse. This reluctance, by many organisations across all sectors, to migrate to e-procurement, is simply not a matter of cost or technology but a complex array of inhibitors which have been examined in a number of published academic research articles, again, primarily in relation to the private sector (Deise et al, 2000; Attaran, 2001; Min & Galle, 2003; Liao et al, 2003; Hawking et al, 2004; Muffato & Payaro, 2004, and Teo et al, 2009). Although discussion of inhibitors surfaces very frequently in the literature, the emphasis switches to facilitators, in circumstances in which e-procurement solutions have been adopted (Trent & Kolchin, 1998; Eyholzer & Hunziker, 2000; Rankin, Chen & Christian, 2006). However, as facilitators tend to be the opposite of inhibitors<sup>2</sup>, for the purposes of brevity, in this thesis, the discussion will only address inhibitors.

Recent research by Schoenherr & Tummala (2007) on e-procurement related publications noted that published papers were spread across 80 journals, where a dominant journal was not identified, and almost 66% of the journal titles were represented only once (e.g. 52 of the 80 titles). This research highlights the diverse nature of research into e-procurement, which has undoubtedly influenced the unstructured nature of the inhibitors identified in current literature.

Additionally the research by Schoenherr & Tummala (2007), notes that published papers relating to e-procurement examine the subject from a private sector perspective, the exceptions being research into the US, Australian and Greek public sector by MacManus (1992), Bright (1994), Gordon (1996), Kock & McQueen (1996), Arrowsmith & Arwel (1998), Peters (1999), Sinclair (2000) and Panayiotou et al (2004).

Given the breadth of the publications, and the sectors focused upon, it is not perhaps surprising that the inhibitors identified in the literature reviewed, are wide ranging, and therefore potentially suffer from a

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<sup>2</sup> For example, public policy is often quoted as an inhibitor (MacManus, 1992), whilst drive for change provided by public policy is clearly a facilitator (Panayiotou, 2004).

lack of focus and structure. For example, a number of general inhibitors (e.g. sector independent) have been identified by a range of authors (e.g. Deise, 2000; Hearn et al, 2001; MacManus, 2002; Ramfos et al, 2003; Min & Galle, 2003; Bartezzaghi & Ronchi, 2004; Puschmann & Alt, 2005; and Carayannis & Popescu, 2005) these inhibitors include the security implications for an organisation transacting over the internet, the lack of interoperability with existing solutions (e.g. Enterprise Resource Planning) and the unwillingness of suppliers to embrace this aspect of e-commerce.

Alongside these general inhibitors a number of specific inhibitors have been identified which relate to a specific sector. For example Panayiotou et al (2004) has noted that the inhibiting factors affecting the adoption of e-procurement in the Greek public sector includes the complexity of goods/services procured, the need for transparency in procurement, the challenges posed by public policy and the regulatory and legal constraints faced by public sector organisations. Another example is Hawking et al (2004) who noted in their research of Small and Medium Enterprises (SMEs) in Australia that one of the main inhibitors was the absence of a single e-procurement solution, which led to a lack of procurement standardisation (e.g. a number of procurement standards exist for the categorisation of goods and services including UNSPSC and CPV), a lack of supplier adoption and therefore expensive e-procurement solutions.

A number of these inhibitors were also identified by authors such as Attaran (2001) and Wyld (2004), where their research related to general manufacturing and the hotel industry respectively. The diversity of current published literature illustrates the fragmented nature of the research undertaken in relation to e-procurement to date. This fragmentation is further illustrated by researchers (e.g. Deise et al 2000; Attaran, 2001; Min & Galle, 2003; Liao et al, 2003; Hawking et al, 2004; Panayiotou et al, 2004; Bartezzaghi & Ronchi , 2004; and Teo et al, 2009) who identified a number of cross sectoral inhibitors reflect organisational culture including an unwillingness of an

organisation to re-engineer their procurement related processes, the resistance to change within the organisation and an inappropriate culture (e.g. absence of strong leadership or unwillingness to undertake change) within the organisation. This research, which was undertaken across public and private sectors, across a range of geographies (e.g. US, Greece, Singapore and Hong Kong) and using a range of research methods, reflects the fragmented nature of published literature relating to e-procurement.

With respect to the above, the literature (Andersen, 2004; Henriksen & Mahnke, 2005) reveals that these barriers and requirements tend to increase within the public sector, mainly due the impact of different economic and social factors, which influence the public domain with respect to the private sector (Gichoya, 2005; Maniatopoulos, 2004; Tonkin, 2003; Zulfiqar et al, 2001). These differences have resulted in a number of specific regulations and standards that have been developed for public e-Procurement: which requires that a bureaucratic procedure be followed due to the nature of the institutions involved (Leukel & Maniatopoulos, 2005; Somasundaram & Damsgaard, 2005) and embraces audit, accountability and compliance standards with national and international rules to ensure supply competition and transparency in the awarding of contracts (NAO 1999; OGC, 2005).

The literature review indicates that there is a significant amount of research that touches upon the factors that are either inhibiting or facilitating the adoption of e-procurement. However, the focus upon inhibitors / facilitators tends to be incomplete and fragmented. Consequently, it is unclear what constitutes a comprehensive and coherent taxonomy of inhibitors / facilitators for e-procurement adoption, and which of these factors are most applicable to organisations within the UK Central and Local Government sectors.

## **2.6. The benefits of e-procurement**

The focus on the potential benefits which can be derived from the introduction of e-procurement is a direct result of the fact that the

purchase of goods and services represents the largest single cost item for any given enterprise.

The importance of procurement in the cost of an organisation was researched by Kaufman (1999) who concluded that *"procurement is more significant than sales in terms of its influence on company figures. For example, a case study at Mercedes Benz identified that a 10% increase in turnover had the same effect on the operating results as a reduction in material costs of 0.518%, due to the leverage of procurement costs"*. The impact of procurement on the "bottom line" was also noted by Kalakota & Robinson (2001) who concluded that *"more capital is spent on the purchase of materials and services to support the business's operations than on all other expense items"*.

Given the scale and significance of procurement expenditure and the "bottom line" impact of reducing the cost of procurement, it is not surprising that over the past decade there has been an increasing focus on the cost of procurement within both private and public sector organisations. This focus has resulted in the identification of innovative and alternative procurement mechanisms which will provide real business benefits to organisations.

E-procurement is central to this and the potential benefits which may be obtainable from the introduction of e-procurement have generated a significant amount of debate within published research. This is especially the case for material published by software and service organisations seeking to provide solutions to organisations experiencing problems with traditional procurement discussed above.

The literature review identified a number of key benefits arising from the introduction of e-procurement which are cost related, these include reduced price (of goods and services), reduced administration costs and reduced inventory costs. These actual and potential benefits have been identified by a number of researchers including (Attaran, 2001; Minahan & Degan, 2001; Min & Galle, 2003; Presutti, 2003; Hawking et al, 2004; Croom & Johnston, 2003; Yen & Ng,

2003; Muffato & Payaro, 2004; and Puschmann & Alt, 2005). The potential of savings (or reduced costs) from the adoption of e-procurement varies according to the sector in which the research was undertaken.

For example Muffato & Payaro (2004) researched the motorcycle industry (Aprila and Ducati) and concluded that savings of 5 – 10% can be achieved in the cost of goods, with savings of the order of 30 – 65% can be achieved in relation to administration. Croom & Johnston (2003), in their research of e-procurement in the UK public sector estimate that savings of the order of 5 – 20% are achievable in the cost of materials, with savings of the order of 50 – 70% can be achieved in relation to administration. More recent research by Puschmann & Alt (2005), in the private sector, noted that the introduction of e-procurement resulted in administrative savings of the order of 50 – 80%, however, they conclude that this range of potential savings may not be applicable to other sectors (e.g. the public sector) given the difficulties in reducing staff numbers.

Another example of the diversity of opinions regarding the scale of potential e-procurement cost savings relates to inventory. For example, Min & Galle (2003) estimated that inventory could be reduced by 20 – 25% and that order cycle times could be reduced to 5 days. Presutti (2003) concurs with this level of potential savings by noting that sourcing cycle times could be reduced by 25 – 30%. However, Croom & Johnston (2003) suggest even greater savings in this area with processing times reduced from 5 days to 2 hours through the use of e-procurement.

A number of other benefits have been identified in the literature review arising from the introduction of e-procurement, although a number of these appear to depend on the sector reviewed. For example, Attaran (2001) and Minahan & Degan (2001) in their research of adoption of e-procurement by manufacturing organisations concluded that that an improvement in the relationship between suppliers and buyers will lead to improved visibility of the supply chain

and ultimately increased accuracy of production capacity. However, this potential benefit is not identified by any of the researchers who have reviewed the public sector, e.g. MacManus (1992), Bright (1994), Gordon (1996), Kock & McQueen (1996), Arrowsmith & Arwel (1998), Peters (1999), Sinclair (2000) and Panayiotou et al (2004), and as such it is difficult to determine if this benefit is applicable to the public sector in general, and the UK Central and Local Government sectors in particular.

A final group of benefits have been identified in the literature reviewed which relate to improvements that an organisation can make in relation to management information, financial control and contract compliance. Again these potential benefits have been identified by a number of authors across a range of sectors and research themes, for example, Attaran (2001) in relation to manufacturing, Muffato & Payaro (2004) in relation to motorcycles, Min & Galle (2001) and Minahan & Degan (2001) in relation to e-procurement adoption in the private sector.

In a similar vein to the discussion on inhibitors, the literature, with respect to the benefits of e-procurement, is rather too private sector oriented, it also tends to be fragmented and it therefore lacks coherence and comprehensiveness. It is therefore unclear if these are applicable to organisations within the UK Central and Local Government sectors, and the extent to which they have influenced such organisation's to adopt e-procurement.

## **2.7. Factors affecting the uptake of e-procurement**

Whilst there has been much explicit discussion of the problems associated with traditional procurement and the potential inhibitors, facilitators and benefits of e-procurement, there have been far fewer attempts to empirically investigate how such factors have affected its uptake. Indeed, recent research by Schoenherr & Tummala (2007) suggests that only 14% of the current research focuses on the factors affecting adoption, and a good proportion of this is conceptual, rather than empirical.

Moreover, the empirical research that has been conducted in this important area tends to have a number of significant drawbacks, as summarised in Table 2.3. Most prior studies have conducted questionnaire-based surveys of private sector organisations, focussing upon a narrow conceptualisation of e-procurement, and only addressing a narrow range of potential adoption factors.

**Table 2.3: An analysis of prior studies of the factors affecting the uptake of e-procurement**

Contribution	Sector	Research Method	Study Themes	Focus of study
Min & Galle (2003)	Private	Questionnaire, Survey	Organisational size, sector and a restricted range of benefits and inhibitors	Internet EDI
Davila et al (2003)	Private	Survey	Barriers and benefits of adoption	Adoption of e-procurement by 168 US organisations
Hartley (2004)	Private	Questionnaire, Survey	Organisational size and a restricted range of benefits	E-auction
Muffato & Payaro (2004)	Private	Case study	Benefits of e-procurement and fulfilment	e-business model
Kothari et al (2005)	Private	Survey	Applicability of e-procurement to the hotel industry	Adoption of e-procurement in the hotel industry
Fu et al (2006)	Private	Questionnaire, Survey	Potential benefits and organisational characteristics	Electronic markets
Teo et al (2009)	Private	Questionnaire, Survey	Small range of potential benefits and organisational characteristics	Web based e-procurement
Gunasekaran et al (2009)	Private	Survey	Perceived barriers, critical success factors and perceived benefits of e-procurement for Hong Kong companies	Adoption of e-procurement

Whilst prior studies may have all conformed to a fairly similar *modus operandi*<sup>3</sup>, they have generated a number of interesting insights. More specifically it has been found that there is a limited body of research into the factors affecting the adoption of e-procurement, particularly in the public sector; the research methods tend to focus on survey or questionnaire; the themes of the studies are varied and range from the level of adoption to the organisational impact of e-procurement; and the factors influencing adoption are primarily process and technology focused.

Against this backdrop there is a pressing need for further empirical studies of the factors affecting the uptake of e-procurement, which adopt alternative methods, focus upon different contexts and offer more comprehensive and coherent conceptualisations of both the dependent and independent variables, to be measured.

## **2.8. Summary and Critique of the Literature**

The literature reviewed and discussed above, which is primarily focused on the private sector, identifies a number of potential factors that might affect the adoption of e-procurement within the public sector. However, it has become apparent from this review, that there are a number of significant gaps in the current literature in relation to the uptake and adoption of e-procurement. More specifically, the following important gaps have been identified:

- Current studies of e-procurement have tended to adopt rather narrow definitions and conceptualisations of e-procurement.
- There have been few, if any studies which explicitly focus on the public sector, in general, nor the adoption of e-procurement by UK Central and Local Government sector organisations, in particular.

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<sup>3</sup> It should be noted that one recent study has been found that addresses adoption factors qualitatively in a not-for-profit sector. Whilst this study by Bakker et al (2008) of the introduction of e-commerce, in the public healthcare sector, shares a small number of superficial similarities with the focus of this thesis, it was not published early enough to influence the design of this study. However, it does provide a useful counterpoint, against which the results of the study can be interpreted, in Chapter 8.

- There are a number of studies that identify factors that might affect the adoption of e-procurement, but they tend not to be empirically tested. Moreover, such studies do not provide complete and coherent taxonomies of the problems with traditional procurement, or the potential benefits of, and inhibitors / facilitators of e-procurement adoption.
- Where empirical studies of the adoption of e-procurement, have been conducted, they tend to be questionnaire-based, private sector-oriented, focussing on a restricted set of adoption factors and a narrow conceptualisation of e-procurement. In particular, it is important that more case studies are conducted, so that the issue of causality can be more explicitly addressed.
- The existing empirical literature tends not to explicitly draw upon theory, to help interpret their results. Consequently, the extent to which an organisation's adoption practices might be explained through the use of an appropriate theoretical lens, such as Institutional Theory, have not been widely explored.

Against this backdrop, a study was initiated to investigate the factors affecting the uptake and adoption of e-procurement within five case study organisations across the UK Central and Local Government sectors. Whilst this study explicitly builds upon the factors identified in prior studies, it was envisaged that it would provide a far deeper and richer data set, upon which to draw conclusions. The following chapter demonstrates how the extant literature was used to develop a research framework, to help guide the conduct of this study.

## 3. RESEARCH FRAMEWORK

*"There is nothing without a reason"  
(Gottfried Wilhelm Leibniz, 1646 – 1716)*

### 3.1. Introduction

The purpose of this chapter is to build on the gaps in current literature which were identified in Chapter 2, and from this to develop a research framework which will be used to study the case study organisations across the UK Central and Local Government sectors.

The literature review discussed in Chapter 2 identified a number a number of key themes including:

- Current published academic research into e-procurement has tended to adopt rather narrow definitions and conceptualisations of e-procurement.
- Of the published e-procurement focused literature, there are a limited number of studies which explicitly focus on the public sector, in general, nor the adoption of e-procurement by UK Central and Local Government sector organisations, in particular.
- A number of studies identify factors that might affect the adoption of e-procurement, but they tend not to be empirically tested. Moreover, such studies do not provide complete and coherent taxonomies of the problems with traditional procurement, or the potential benefits of, and inhibitors / facilitators of e-procurement adoption.
- Where empirical studies of the adoption of e-procurement, have been conducted, they tend to be questionnaire-based, private sector-oriented, focussing on a restricted set of adoption factors and a narrow conceptualisation of e-procurement. In particular, the case study approach has not been extensively used, so that the issue of causality can be more explicitly addressed.

- The existing empirical literature tends not to explicitly draw upon theory, to help interpret their results. Consequently, the extent to which an organisations adoption practices might be explained by through the use of an appropriate theoretical lens, such as Institutional Theory, have not been widely explored.

Taking account of the gaps in the literature identified above, the key aims of this chapter are:

- To identify the study's objectives.
- To develop a holistic definition of e-procurement that is appropriate for use in the public sector, and which will then be used to study the case study organisations across the UK Central and Local Government sectors.
- To formulate a research framework that will then be used to guide the conduct of the study.
- To introduce Institutional Theory, which will be used as a theoretical lens for exploring and explaining the behaviour of public sector organisations, in terms of their adoption of e-procurement.

### **3.2. Objectives of the research study**

Taking account of the gaps in the literature review summarised above and discussed in Chapter 2, the objectives of this research are as follows:

1. To identify an appropriate definition and conceptualisation of e-procurement applicable to the UK Central and Local Government sectors.
2. To investigate the extent to which public sector organisations have adopted, or are actively planning to adopt, a range of e-procurement technologies.
3. To explore the issues and problems associated with traditional paper based procurement and to determine the extent to which they have acted as drivers for the adoption of e-procurement.

4. To explore and understand the inhibitors and facilitators to the adoption of e-procurement to the UK Central and Local Government sectors, and to determine the extent to which they have affected (and will affect) the adoption of e-procurement.
5. To explore the actual and potential benefits that can be achieved by the UK Central and Local Government sectors, through the adoption of e-procurement, and the extent to which the achievement of these benefits have (and will) affect the adoption of e-procurement.
6. To develop an explanation of the behaviour of public sector organisations, in terms of their adoption of e-procurement.

Objective 1, which is discussed in the following paragraphs, relates to the absence in current literature of an appropriate definition and conceptualisation of e-procurement which is applicable to the UK public sector, and particularly the Central and Local Government sector.

Objective 2 involves understanding the current (and planned) uptake of e-procurement by UK Central and Local Government organisations. This objective will be met through understanding the current (and planned) level of adoption of the case study organisations.

Objective 3 relates to gaining an understanding of the issues and problems with traditional procurement, which effectively are the drivers for the adoption of e-procurement. This objective will be met through considering the drivers for the adoption of e-procurement by the case study organisations, and seeking to understand if there are any differences between these drivers and those identified in the literature review for the private sector.

Objective 4 has been formulated to deepen our understanding of the inhibitors and facilitators to the adoption of e-procurement by UK Central and Local Government organisations through studying the case study organisations, and in particular to understand if the

facilitators and inhibitors for UK Central and Local Government organisations are similar to those identified in the literature for private sector organisations.

Objective 5 seeks to develop our understanding of the potential benefits which can be obtained by UK Central and Local Government organisations through the adoption of e-procurement. Again, this study will examine these benefits to determine if UK Central and Local Government organisations have identified similar benefits to those noted in the literature review for private sector organisations.

Objective 6 relates to gaining an understanding of the reasons for the adoption (or not as the case may be) of e-procurement by the case study organisations drawn from across the UK Central and Local Government sectors, where the theoretical lens used to explore and explain this will be Institutional Theory.

### **3.3. A definition and conceptualisation of e-procurement**

As noted above one of the objectives of this research is to address the gap identified in the literature review in relation to the absence of a comprehensive and holistic definition of e-procurement which is appropriate for the public sector, and in particular the UK Central and Local Government sectors.

The need for a standard definition for e-procurement has arisen for two main reasons, which are:

- Prior definitions have been tailored to different economic sectors and geographies and as such have adopted radically different perspectives on the definition and scope of e-procurement. Examples to illustrate the diversity of research into e-procurement range from Muffato & Payaro (2004) which compared the introduction of e-procurement in the motorcycle industry where the organisations reviewed were Aprilia and Ducati, to the research undertaken by Hawking et al (2004) with 166 Small and Medium size Enterprises (SMEs) in Australia

examining the inhibitors to the adoption of e-procurement in this sector.

- authors focusing on discrete aspects of e-procurement thereby developing definitions to provide a context for their research. Examples from the literature include Subramaniam & Shaw (2002) in relation to the value of B2B e-procurement, Yen & Ng (2003) in relation to the e-commerce procurement process, Croom & Brandon-Jones (2003) in relation to the classification of e-procurement transactional structures, and Carr & Smeltzer (2002) in relation to the impact of e-procurement on buyer-seller relationships.

In addition to developing a definition that was well suited to the needs of this particular study, it was envisaged that in establishing a more coherent and comprehensive conceptualisation of e-procurement, it might also be of use in a wide range of future studies.

As noted in Chapter 2, the absence of a consistent definition of e-procurement has led to a plethora of definitions appearing in recent years and has led to confusion within organisations seeking to pursue e-procurement. This confusion was interestingly identified by a number of authors (e.g. Henry, 2000; Neef, 2001; and Heywood et al, 2002) as one of the key inhibitors to its adoption.

To address this confusion, it is important to build on the definitions provided in current literature, where the two main themes postulated by various authors, as follows:

- a process theme, which focuses on the activities undertaken from the identification of need to the settlement of the final invoice, as proposed by a range of authors including MacManus (2002), Przymus (2003) and Teo et al (2009).
- a technology theme, which focuses on the various e-procurement technologies used by organisations, as proposed by a range of authors including Reason & Evans (2000), Knudsen (2002),

Caldwell et al (2002), de Boer et al (2002), Telgen (2001) and Davila et al (2002).

Additionally a number of authors (Alaniz & Roberts, 1999; Morris, 2000; Minahan, 2001; Dai & Kaufmann, 2001; Bartezzaghi & Ronchi, 2003; Panayiotou et al, 2003; Muffato & Payaro, 2004; and Tatsis et al, 2006) developed definitions which combined a process and technology theme.

These multi themed definitions of e-procurement, whilst comprehensive from a technology and broad process aspect do not take account of the need to re-engineer the underlying processes before “e-enabling” them and as a result they ignore one of the most important elements of procurement process, namely people. Moreover, it is essential that any comprehensive conceptualisation e-procurement recognises the critical role of compliance: the procurement process must take account of all recognised standards and practices (NePP, 2004; and Bof & Previtali, 2007).

Given the current limitations in the current definitions of e-procurement contained in e-procurement related research, it is considered, as suggested by Schoenherr & Tummala (2007), that a revised holistic definition of e-procurement should be developed as part of this research. This holistic definition should draw together the themes identified in current research of technology, process, people and control/compliance.

Taking account of this, the definition of e-procurement that will be used for this research is:

*“E-procurement is the streamlining of the publication to payment process by enhancing the input of people, through the use of technology and the adherence to controls”.*

This revised e-procurement definition and conceptualisation, which builds on the earlier research of Muffato & Payaro (2004) and Schoenherr & Tummala (2007), is illustrated by Figure 3.1. This

revised conceptualisation illustrates how the core procurement process (e.g. publication to payment), is delivered through a range of technology solutions, underpinned by supporting technology, process, people and compliance considerations

**Figure 3.1: Conceptualisation of e-procurement**

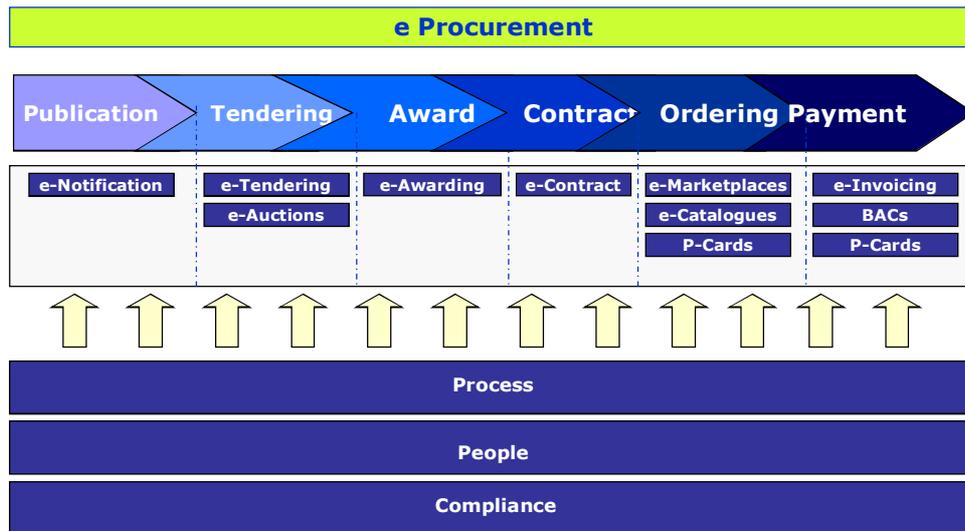


Figure 3.1 shows a model of e-procurement, which will provide a frame of reference for examining e-procurement adoption, throughout this study. This definition of e-procurement will be examined over the course of this research to determine its appropriateness and applicability to the UK Central and Local Government sectors and will be developed to address the gaps identified in current research identified in Chapter 2.

### 3.4. Research Framework

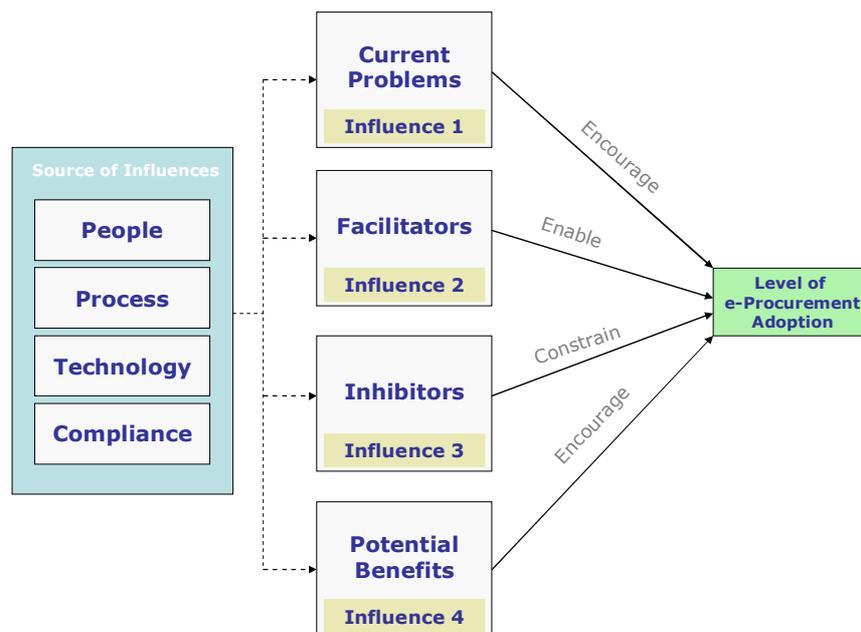
Following on from the definition (and conceptualisation) of e-procurement in relation to this study, Figure 3.2 illustrates the theoretical framework which will be adopted for this research.

This framework builds on the definition of e-procurement, previously presented, in that it aims to consider the four themes identified in the definition (e.g. people, process, technology and compliance) in the

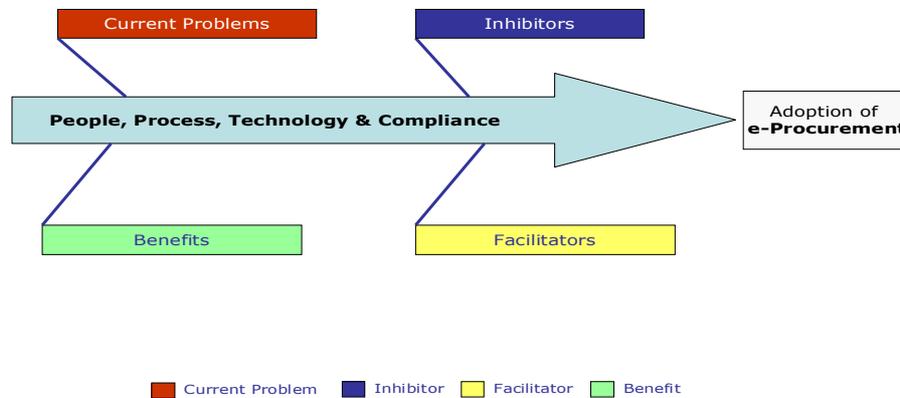
examination of the four dimensions of (i) problems with traditional procurement, (ii) facilitators, (iii) inhibitors to the adoption of e-procurement and (iv) the potential benefits which may be derived from its adoption, by organisations across the UK Central and Local Government sectors.

Using this theoretical framework the remaining sections of this chapter re-examines the problems identified in the literature research with traditional procurement, the facilitators/inhibitors to the adoption of e-procurement and the potential benefits of adopting e-procurement and categorises the factors identified in the literature using the themes of technology, process, people and compliance.

**Figure 3.2: Theoretical Framework**



Each of the four dimensions (e.g. problems, inhibitors, facilitators and benefits) will be examined across the four themes of people, process, technology and compliance, using a derivation of the theoretical framework. This theoretical framework, presented above, has been used to formulate a research framework, as illustrated by Figure 3.3, which will be used to guide the conduct of the study.

**Figure 3.3: Research framework**

### 3.5. Problems with traditional procurement

Taking account of the research framework detailed above, the problems identified in the literature review are re-examined in the following paragraphs to categorise the problems (if possible) into the four themes of technology, process, people and compliance – see Table 3.1 for a summary of the problems categorised across these four themes.

In relation to technological problems, a limited number of these have been identified, primarily as a result of the limited use of technology solutions in the traditional procurement process: the one exception being the use of Electronic Data Interchange (EDI), which has been much discussed in the literature (Spinardi et al, 1997; Emmelhainz, 1993; Cox & Ghoneim, 1996). This EDI-oriented literature has highlighted the following technology related problems: (i) poor data quality; (ii) different messaging standards used; and (iii) absence of data harmonisation.

Process related problems have been a more consistent theme in the literature (e.g. Yap et al, 1994; Wyld, 2004; Hawking et al, 2004; Panayiotou et al, 2004; Kothari et al, 2005 and Rankin et al, 2006), of which the following are the most common: (i) slow manual processes;

(ii) slow transaction processing; (iii) increased handling errors; (iv) large volume of paper generated; (v) difficulties expediting deliveries; (vi) complicated procedures; (vii) excessive state intervention; (viii) bureaucratic processes; (ix) lack of centralised control; (x) too many suppliers; (xi) lack of product standardisation and (xii) lack of buyer influence.

People related problems with traditional procurement are less evident in the literature (Bales et al, 1996; Nolan, 1999; and Croom et al, 2003), with only the following two clear examples being presented: (i) resistance to change, and (ii) low internal regard for procurement.

**Table 3.1: Problems with Traditional Procurement by theme and source**

Issue Identified	1	2	3	4	5	6	7	8	9	10	11	12
<b>Technology Theme</b>												
Poor data quality				✓	✓	✓						
Different messaging standards		✓	✓	✓	✓	✓						
Absence of data harmonisation		✓	✓	✓	✓	✓						
<b>Process Theme</b>												
Slow manual processes	✓		✓				✓	✓	✓	✓	✓	
Slow transaction processing	✓	✓					✓	✓		✓		✓
Increased handling errors	✓	✓					✓					
Large volume of paper generated	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓
Difficulties expediting delivery		✓										
Complicated procedures		✓	✓			✓	✓	✓		✓	✓	✓
Excessive state intervention	✓		✓					✓				
Bureaucratic processes			✓				✓	✓				
Lack of centralised control			✓						✓			
Too many suppliers	✓	✓	✓			✓	✓	✓		✓	✓	
Lack of product standardisation							✓					✓
Lack of buyer influence							✓					
<b>People Theme</b>												
Resistance to change									✓			
Low regard for procurement										✓	✓	
<b>Compliance Theme</b>												
Ignoring strategic procurement							✓					

1. Hawking et al (2004)  
 5. Emmelhainz (1993)  
 9. Nolan (1999)

2. Kothari (2005)  
 6. Cox et al (1996)  
 10. Croom et al (2003)

3. Yap et al (1994)  
 7. Wyld (2004)  
 11. Bales et al (1996)

4. Spinardi et al (1997)  
 8. Panayiotou et al (2004)  
 12. Rankin et al (2006)

From the literature reviewed, the only compliance related problem identified, with traditional procurement, related to buyers ignoring strategic procurement, and engaging in “*maverick spending*” (Wyld et al, 2004).

The use of the research framework developed from the literature review has facilitated the categorisation of the problems with traditional procurement identified in the literature review across the themes of technology, process, people and compliance (see Table 3.1).

The following paragraphs will examine the next dimension of the research framework being the inhibitors to the adoption of e-procurement.

### **3.6. Inhibitors of e-procurement**

Building on the framework detailed earlier in this chapter, the e-procurement inhibitors identified in the literature review have now been reviewed and categorised across the four themes of technology, process, people and compliance – see Table 3.2.

As noted in Table 3.2 the main inhibitors identified in the literature which can be categorised as technology related are (i) concerns about security, (ii) absence of a single e-procurement solution, (iii) lack of interoperability with existing systems, e.g. ERP, and (iv) lack of procurement standardisation. From the literature reviewed, it appears that despite the problems identified with traditional procurement processes, which were largely manual and paper based (the exception being EDI), the drive to adopt e-procurement has been inhibited by these technology inhibitors which potentially are a reflection of the maturity of the e-procurement solution market or mechanisms employed by staff within organisations to resist this change. Given this, it is important that the fieldwork carried out with the UK Central and Local Government case study organisations explores the technology related inhibitors so that an understanding is reached of

the applicability of these factors to this sector, and to explore the presence of other technology related inhibitors.

In relation to process related inhibitors, the key inhibitors identified in the literature review include (i) unwillingness to re-engineer processes, (ii) lack of supplier adoption, (iii) the cost of e-procurement solutions, (iv) the complexity of goods and services procured, and (v) the absence of procurement transparency. In a similar manner to the technology inhibitors identified in the literature review, it is surprising to note that one of the main process inhibitors to the introduction is the unwillingness of organisations to change their business processes, given the manual and paper-based nature of traditional procurement processes. Additionally, the cost and inability of suppliers to adopt e-procurement is surprising, given that the literature review related primarily to the private sector, where the introduction of e-procurement is considered as providing a competitive advantage (first mover advantage) and therefore cost considerations would generally be outweighed by the potential commercial advantage. The environment in which the case study organisations exist is significantly different from the private sector, and for this reason it will be interesting to understand the process related factors which have inhibited the adoption of e-procurement.

The people related inhibitors identified in the literature review included (i) lack of procurement skills, (ii) resistance to change, and (iii) inappropriate organisational culture. As noted above the environment, both in terms of commercial and policy pressures, in which the case study organisations operate is significantly different from the organisations discussed in the literature reviewed, and as such it will be interesting to understand if these people related inhibitors are also demonstrated by the sample UK Central and Local Government organisations.

Finally, the compliance related inhibitors identified in the literature review were (i) negative impact of public policy, and (ii) constraining regulatory and legal controls, both of which were identified by

researchers of organisations within the public sector, both within the UK and outside. Again, it will be interesting to explore the compliance related inhibitors to the introduction of e-procurement through the case study organisations, to understand if there are specific ones that related to the UK Central and Local Government sectors.

Taking account of the relative dearth of research into the inhibitors to the implementation of e-procurement within the UK Central and Local Government sectors and the criticality of those identified by research into the private sector, it is therefore imperative that this aspect of e-procurement is thoroughly researched with the case study organisations identified for this research. This aspect of e-procurement, coupled with the business benefits are critical for public sector organisations to understand given the risk adverse and budget conscious environment in which they operate.

**Table 3.2: Potential inhibitors to e-procurement by theme and source**

Potential Inhibitor	Min et al (2003)	Deise (2000)	Hearn & Gibbons (2001)	Attaran (2001)	Hawking et al (2004)	Bartezzaghi et al (2004)	Puschmann et al (2005)	Various (Note 1)
<b>Technology Theme</b>								
Concerns regarding Security	✓	✓	✓	✓		✓	✓	
Absence of a Single Solution	✓		✓	✓	✓		✓	
Lack of interoperability with existing systems		✓	✓		✓	✓		
Lack of procurement standardisation		✓	✓	✓	✓	✓	✓	
<b>Process Theme</b>								
Unwillingness to re-engineer processes		✓	✓					✓
Lack of supplier adoption	✓	✓	✓	✓	✓			✓
Cost of introducing e-procurement solutions			✓	✓	✓	✓		✓
Complexity of goods & services procured				✓				✓
Lack of procurement transparency								✓
<b>People Theme</b>								
Lack of procurement skills	✓	✓	✓	✓	✓	✓		
Resistance to change	✓	✓	✓	✓	✓	✓		
Inappropriate organisational culture	✓	✓	✓	✓	✓	✓		
<b>Compliance Theme</b>								
Constraining legal and regulatory controls						✓		✓
Negative impact of public policy								✓

<sup>4</sup> **Note 1:** This includes MacManus (1992), Bright (1994), Gordon (1996), Kock & McQueen (1996), Arrowsmith & Arwel (1998), Peters (1999), Sinclair (2000), Wyld (2004), Panayiotou et al (2004), Bulusu (2004), Ramfos et al (2003), Teo et al (2009), Liao et al (2003), Carayannis & Popescu (2005).

### **3.7. Benefits of e-procurement**

Given the scale and significance of procurement expenditure and the “bottom line” impact of reducing the cost of procurement, it is not surprising that over the past decade there has been an increasing focus on the cost of procurement within both private and public sector organisations. This focus has resulted in the identification of innovative and alternative procurement mechanisms which will provide real business benefits to organisations.

E-procurement is central to this and the potential benefits which may be obtainable from the introduction of e-procurement have generated a significant amount of debate within published research. This is especially the case for material published by software and service organisations seeking to provide solutions to organisations experiencing problems with traditional procurement discussed above.

The review of literature which has been undertaken has highlighted that the majority of research into e-procurement, and in particular the benefits aspect of e-procurement, has focused on the private sector and in particular large global organisations.

Building on the framework detailed earlier in this chapter, the potential benefits that an organisation can obtain through the introduction of e-procurement from current literature have now been reviewed and categorised across the four themes of technology, process, people and compliance – see Table 3.3.

As noted by Table 3.3 the literature reviewed did not explicitly identify technology related benefits. Given the absence of technology related benefits in the published literature, it will be interesting to explore with the case study organisations if there are potential technology related benefits with the adoption of e-procurement, and to understand if these are generic benefits or ones specific to the UK Central and Local Government sectors.

The position in relation to process related benefits identified in the literature reviewed is significantly different than that for technology related benefits as the following process related potential benefits have been identified by a number of researchers (i) improved buyer/supplier relationships, (ii) reduced price, (iii) reduced administration costs, (iv) reduced inventory costs, and (iv) improved management information. Not surprisingly a number of the key benefits identified in relation to private sector organisations relate to reducing costs (e.g. reduced price, reduced administration costs and reduced inventory costs) as the achievement of these is one of the key attractions of e-procurement to the private sector. It will therefore be interesting to contrast these "profit related" benefits with the case study organisations where there is not a drive for profit, but a drive for enhanced service delivery. Again it will be interesting to explore the identification of better relationships with suppliers as a potential benefit for public sector organisations, as they operate in an environment which is very focused on transparency and probity.

In a similar manner to technology related benefits from e-procurement, the number of potential people related benefits highlighted in the literature review is limited, and exploration of this aspect with the UK Central and Local Government sector case study organisations will be interesting, given the people focus of most public sector organisations.

**Table 3.3: Potential benefits of e-procurement by theme and source**

Potential Benefit	Attaran (2001)	Minahan & Degan (2001)	Hawking et al (2004)	Muffato & Payero (2004)	Min et al (2003)	Croom et al (2003)	Carayannis & Popescu (2005)	Presutti (2003)	Panayiotou et al (2004)
<b>Process Theme</b>									
Improved buyer/supplier relationship	✓	✓		✓					
Reduced price	✓	✓	✓	✓	✓	✓		✓	✓
Reduced administrative cost	✓	✓	✓	✓		✓		✓	✓
Reduced inventory cost	✓	✓			✓	✓		✓	
Improved management information	✓	✓		✓	✓				
<b>People Theme</b>									
Improved citizen services							✓		
<b>Compliance Theme</b>									
Improved financial control	✓								✓
Improved contract compliance		✓							

For the compliance theme, two key potential benefits have been identified in the literature reviewed being (i) improved financial control, and (ii) improved contract compliance. Again, within the context that private sector organisations operate, these potential benefits are unsurprising, as any solution that increases compliance, and reduces cost will be well received, provided it provides an appropriate return on investment. The case study organisations operate in a “not for profit” environment, and as such it will be interesting to understand if these potential benefits exist.

From the literature review undertaken into the benefits of implementing e-procurement, it is evident that from research undertaken to date, albeit largely with private sector organisations, there are a number of significant qualitative and quantitative benefits, see Table 3.3 for a summary of these by source. However, it is also evident that there is a dearth of academic research into the potential benefits which may be available from the introduction of e-procurement to the UK Central and Local Government sectors. This is particularly evident in the themes of technology and people where the literature reviewed indicates that there are a limited number of benefits to be directly attained in these areas with the introduction of e-procurement.

The absence of identified benefits in these themes is therefore a key area which will have to be examined in the fieldwork which is undertaken as part of this research, particularly as technology and people are central to the design and implementation of e-procurement within an organisation.

Taking account of the differences discussed above in relation to the environments in which the majority of the organisations reviewed in current literature and the case study organisations for this research, it is important that an appropriate lens is used to understand and explain the different behaviour of the case study organisations. The lens that has been adopted for this research is institutional theory,

and a brief discussion of this theory and its applicability to these public sector organisations is provided in the following paragraphs.

### **3.8. Institutional Theory – a lens to explain organisational behaviour**

The research framework provides a very useful backdrop against which the data collection and analysis could be planned and executed, to help understand what types of procurement behaviours have been adopted by public sector organisations. However, the framework does not help to further our understanding of why organisations are engaged in certain patterns of procurement behaviour. Consequently, it was necessary to identify a theoretical lens, which would be helpful in interpreting the research results, and gaining a deeper understanding of the behaviour of public sector organisations.

*'Institutional theory'* was deemed to be the most appropriate theoretical lens, as it is particularly well suited to understanding the behaviour of public sector organisations. As Frumkin et al (2004), noted in their study of institutional isomorphism and public sector organisations, *"governmental organisations were much more vulnerable to institutional forces than for-profits"*. The conclusions reached by Frumkin et al (2004) were reinforced by Ashworth et al (2007) who concluded that *"institutional theory has become a prominent lens through which organisational processes are interpreted and understood"* and they discuss in their research article the consistency of organisational change in the public sector with this institutional perspective. The conclusion of this research by Ashworth et al (2007) is that *"institutional theory provides a useful complement to managerial and technical perspectives of organisational change in the public sector"*.

Given this applicability of Institutional Theory, it will be used to explain the various factors influencing the adoption of e-procurement in the public sector (as opposed to the private sector) as it focuses on the deeper and more resilient aspects of social structure.

DiMaggio & Powell (1983) and Meyer & Rowan (1983) proposed the concept of Institutional Theory and postulated that "*that organisations do not exist in a vacuum, but interact with their environment to achieve their objectives*". Institutional Theory therefore emphasises how institutions shape behaviour through a pattern of social norms that evolve over time and become legitimised within an institution or society (Eisenhart, 1988).

The tendency toward homogeneity was called "isomorphism" by DiMaggio & Powell (1983, 1991), who noted two types: competitive isomorphism arising from market forces and institutional isomorphism arising from competition for political and organisational legitimacy, for example public sector organisations.

DiMaggio & Powell focused on institutional isomorphism, identifying its three major mechanisms (see Paradis & Cummings, 1986, on isomorphism in hospice care; Lai, Wong, & Cheng, 2006; on isomorphism in IT adoption).

- *Coercive*: Pressures to make organisational procedures and/or structure conform to best practices, arising from the demands of actors on whom the organisation is dependent for resources (the "resource dependence model" associated with Pfeffer & Salancik, 1978) or even from outright regulation and mandates (ex., Paradis & Cummings, 1986).
- *Mimetic*: Pressures arising from the drive to reduce uncertainty. Under uncertainty, imitating successful peers is seen as a safe strategy. Haunschild & Miner (1997), for instance, found uncertainty increases mimesis. Note, Mizruchi & Fein (1999) argue that subsequent authors utilising the work of DiMaggio & Powell (1983) have selectively emphasised mimesis over other forms of isomorphism and have used measures of mimesis which are confounded with the constructs of coercive and normative isomorphism.

- *Normative*: Pressures arising from professionalisation, which socialises personnel within the organisation to view certain types of structure and process as legitimate. Socialisation occurs not only through formal education but also through professional associations, trade associations, and professional media.

Powell & DiMaggio (1991) argued that organisational structures are determined by the wider institutional environment and not just by the day-to-day activities of their structures. As a consequence organisations tend to become isomorphic in order to secure resources and legitimacy (Scott & Meyer, 1983:16) which may lead to the incorporation of externally legitimate elements, the employment of ceremonial assessment criteria and a buffering from environmental turbulence (Meyer & Rowan, 1983:22). When conditions for organisational success are difficult to establish, in other words, when: output is difficult to evaluate, organisations tend to depend on stability and isomorphism with institutional rules.

The actual mechanics of isomorphism was set forth by Meyer & Rowan (1977: 340) who noted that *"organisations are driven to incorporate the practices and procedures defined by prevailing rationalised concepts of organisational work and institutionalised society. Organisations that do so increase their legitimacy and their survival prospects, independent of the immediate efficacy of the acquired practices and procedures."*

This survival aspect of isomorphism was also noted by Scott (1995) who highlighted that in order to survive organisations must conform to the rules and belief systems prevailing in the environment (DiMaggio & Powell, 1983; Meyer & Rowan, 1977), because institutional isomorphism, both structural and procedural, will earn the organisation legitimacy (Suchman, 1995; Deephouse, 1996; Dacin et al, 1997; and Dacin, 1997).

The presence of similar policy, legal and regulatory forces on public sector organisations across the UK, irrespective of sub sector (e.g. central government, local government, education, policing and health)

means that organisations within these sectors have to conform to accepted standards and rules, and such institutional theory is suggested as a suitable mechanism for examining the factors influencing e-procurement adoption.

### **3.9. Conclusions**

The literature review undertaken as part of this research and discussed in Chapter 2 identified the need for a comprehensive definition of e-procurement which can be applied to the UK Central and Local Government sectors to provide a framework to understand the factors influencing the adoption of e-procurement. In this Chapter, a clearer definition, and a more comprehensive conceptualisation of e-procurement have been presented, which has four themes of (i) technology, (ii) process, (iii) people and (iv) compliance.

Using this theme-based definition as a point of departure, the current published literature relating to e-procurement has been used to categorise the factors identified (e.g. problems with traditional procurement, inhibitors/facilitators to the adoption of e-procurement and the actual/potential benefits of e-procurement), across these four themes. This review has identified that current academic literature relating to e-procurement has identified a limited number of problems with traditional procurement related to people and compliance, a limited number of technology and related potential/actual benefits from introducing e-procurement and as such these areas which will merit review with the public sector case study organisations.

Additionally, the published literature reviewed and categorised in (Chapters 2 and 3) has not examined the relationship between the factors identified and their influence on the adoption of e-procurement, especially through a theoretical lens appropriate to the public sector (e.g. Institutional Theory) so that an understanding of the cause and effect of these factors, from an organisational and sector perspective is understood. Again, this is an area which should

be explored through the use of both qualitative and quantitative research which is discussed in the next chapter.

## 4. RESEARCH STRATEGY

*"In research the horizon recedes, as we advance, and is no nearer at sixty than it was at twenty. As the power of endurance weakens with age, the urgency of the pursuit grows more intense, and research is always incomplete"*

*(Mark Patterson, 1813 – 84)*

### 4.1. Introduction

The purpose of this chapter is to discuss the project's research strategy. A well-defined strategy provides direction for the research project and in this case this is important given the lack of established research in this area. Furthermore the strategy should be sufficiently flexible to allow opportunities to explore pertinent emergent issues raised during the life of the project whilst focusing on the research objectives.

These issues and their implications on the research strategy are discussed using the following section headings: Research Philosophy, Research Taxonomy & Question, Design of the Research Strategy, Data Collection, Validity of the Research Strategy and Conclusions. It should be noted that this chapter considers issues affecting the research strategy as a whole, whereas methodological issues pertaining to individual activities are addressed in their separate research activity chapters.

### 4.2. Research philosophy

This research project is exploring the factors that influence the adoption of e-procurement by organisations within the UK Local and Central Government sectors. The question of philosophy is important as it underscores other aspects of the methodology (Avison & Fitzgerald, 2003) and also the research strategy.

Considering the philosophical perspective is helpful to make more explicit some of the assumptions about "what constitutes 'valid' research and which research methods are appropriate" (Myers, 1997). The aim of this section is therefore to explain the stance adopted for this research as a basis for establishing foundations for the research

methods adopted and in particular addressing considerations such as validity, generalisability and the role of the researcher.

Orlikowski & Baroudi (1991) refer to three categories of qualitative research: positivist; interpretive; and critical whilst Guba & Lincoln (1994) refer to four underlying paradigms for qualitative research: positivism; post positivism; critical theory; and constructivism. It is beyond the scope of this research to attempt to reconcile the many varying viewpoints. My aim is to establish a foundation for this research based on the work of a number of authors contributing to the debate about research philosophy and methods relating to information systems and processes.

Myers (1997) suggests that the most important philosophical assumptions are those which relate to the underlying epistemology that guides the research. Epistemology refers to the "*the assumptions about knowledge and how it can be obtained*" (Myers, 1997). Myers then focuses on three categories: positivist; interpretive; and critical. In this he is consistent with Lee (1999) who initially focuses on positivism and interpretivism and then introduces the critical perspective as a relatively new development.

Positivist research generally assumes that reality is objectively given and can be described by measurable properties that are independent of the researcher (Myers, 1997).

On the other hand interpretive researchers "*start out with the assumption that access to reality is only through social constructions such as language, consciousness and shared meanings*" (Myers, 1997). Interpretive studies therefore attempt to understand phenomena through "the meanings people assign to them" (Myers, 1997) and interpretive methods of research are "*aimed at producing an understanding of the context of the information system and the process whereby the information system influences, and is influenced by the context*" (Walsham, 1993).

A principle difference of the critical perspective (Lee, 1999) is that critical researchers cannot simply be onlookers but that "*researchers influence and are influenced by the social and technological systems they are studying*". Critical research aims not just to understand and explain but to "critique unjust and inequitable conditions from which people require emancipation" (Myers, 1997).

This research projects adopts an interpretive philosophy and in particular a participative approach. Over the past 7 years I have, through my work, had an opportunity to study a number of UK Central and Local Government organisations first hand. This has provided me with an opportunity to understand their culture, to observe their processes and practices, to obtain operational and financial information, to gain access to staff at all levels, and thereby to gain the trust of personnel within the organisations. Through this access and network, I have canvassed their views, opinions and concerns in relation to the factors affecting the adoption of e-procurement by their organisation.

### **4.3. Research Taxonomy and Question**

Research is about choosing which questions to ask and making decisions about what to study to find the answers. The questions and their context affect the choice of research practices (Nelson et al, 1992). Field & Morse (1992), concur that the research strategy is determined by the research question, which may according to Strauss & Corbin (1998) emerge from personal interest or technical literature. The research question for this project emanates from a combined personal interest with e-procurement and the public sector and the primary purpose was to explore the applicability of e-procurement to the public sector by focussing on this research question:

*To what extent is electronic procurement applicable to the UK public sector and what are the main inhibitors to its adoption, the realistic benefits that can be accrued from its use and the principal barriers and risks to its implementation?*

The literature review has identified that whilst there has been substantial theoretical and practical examples of the applicability of e-procurement to the private sector, the same is not true of the UK public sector, even though its use has been highlighted as a potential solution to public sector procurement deficiencies and a mechanism for delivering efficiencies.

Consequently, the final decision to study the applicability of e-procurement to the UK public sector, with a focus on central and local government, was based on lack of empirical evidence and sector specific research into e-procurement and the need to establish research parameters prior to detailed investigation of the research question.

Having considered the broad aims of the research project the next stage is to explicitly consider the conceptual framework, which will be used to underpin the specific objectives of the research.

#### **4.4. Design of the Research Strategy**

According to Yin (2003), there are five primary research strategies in the social sciences: experiments, surveys, archival analysis, histories and case studies. Based on Yin (2003) each strategy has its own advantages and disadvantages depending on three conditions:

- the type of research question posed
- the extent of control an investigator has over actual behavioural events
- the degree of focus on contemporary, as opposed to historical events

By applying Yin's (2003) reasoning and solely looking at the stated research question, it appears that a survey, archival analysis or case study could fit as appropriate strategies. However, this research is seeking to explore in detail the factors affecting the adoption of e-procurement, and the underlying causal relationship between these

factors and adoption. Consequently, this study will be conducted through the use of case studies, which is generally accepted as superior when answering the "how" and "why" questions about a specific topic.

A case study is an empirical research that investigates a contemporary phenomenon within its real-life context, when the boundaries between phenomenon and context are not clearly evident and in which multiple sources of evidence are used. This definition not only helps us to understand case studies, but also distinguishes them from the other research strategies Yin (2003).

According to Yin (2003), a case study can involve a single or a multiple-case study. The single case study makes an in depth investigation regarding only one entity, such as an organisation. However, when making a multiple-case study, two or more entities are studied which gives the opportunity of comparisons. According to Miles & Huberman (1994), the use of multiple-case studies will add to the confidence of the findings. *"By investigating similar and contrasting cases, the researchers have the opportunity to better understand the findings than if they come from a single case"*, Miles & Huberman (1994).

As a result I have selected the multiple case study approach as my research strategy, which will provide an opportunity to study within and across organisations, and thereby provide richer and deeper insights, as compared to other more quantitative methods. This is the most appropriate strategy as the thesis aims for deeper and detailed study, but at the same time having an opportunity to discover similarities (themes) and differences (trends) between the cases.

#### **4.5. Data Collection**

Yin (2003) states *"a major strength of case study data collection is the opportunity to use many different sources of evidence (p. 91) as by using multiple measures of the same phenomenon, the validity of any scientific study increases. Findings or conclusions resulting from a*

*case study are likely to be more convincing and accurate if based on several different sources of information. The different sources are highly complementary, hence, as many sources as possible should be used".*

Yin (2003) notes that the six most commonly used sources for data collection in case study are: documentation, archival records, interview, direct observations, participant-observation and physical artefacts. The data collection sources that will be used for this research are participant observation (to provide quantitative information), documentation review (to provide quantitative information) and interview (to provide qualitative information).

The qualitative/quantitative research discussion debate (Reichardt & Rallis, 1994) has raged for a number of years with the result being the emergence of the "mixed methods" technique (Brewer & Hunter, 1989; Patton, 1990).

The emergence of the mixed methods as a research framework incorporates both quantitative and qualitative orientations and as such overcomes many of the potential or actual deficiencies associated with a traditional mono-method approach (Cook & Campbell, 1979). This conclusion is reinforced by Howe (1985, 1988) who noted that *"quantitative and qualitative methods are inextricably intertwined, not only at the level of specific data sets but also at the levels of design and analysis"*.

Taking this approach, Greene et al (1989) reviewed 57 mixed methods studies from the 1980's, and proposed that *"such studies sequentially (results of the first method inform the second's sampling, instrumentation, etc.) can expand the scope and breadth of a study by using different methods in different components"*. Similarly, Firestone (1987) suggested that *"on the one hand, quantitative studies "persuade" the reader through de-emphasising individual judgement and stressing the use of established procedures, leading to more precise and generalisable results. On the other hand, qualitative*

*research persuades through rich depiction and strategic comparison across cases, thereby overcoming the "abstraction inherent in quantitative studies".*

Greene et al (1989) listed five purposes of mixed method studies as follows:

- triangulation – seeking convergence of results
- complementarity – examining overlapping and different facets of a phenomenon
- initiation – discovering paradoxes, contradictions and fresh perspectives
- development – using the methods sequentially, such that results from the first method inform the use of the second method
- expansion – or mixed methods, adding breadth and scope to a project

Several authors have attempted to create taxonomies of mixed method design including Creswell (1995), Greene et al (1989), Morse (1991) and Patton (1990).

Historically across the UK public sector there has been a limited focus on the collection and examination of procurement related information, as such it may not be possible to obtain a complete picture of transactional information in relation to procurement. In addition, the published experiences from the private sector, e.g. staff reduction may lead to resistance from staff within the public sector to provide full details of the issues/problems with current procurement processes and practices.

Based on this and given the author's knowledge and understanding of the UK public sector it has been decided that the most appropriate taxonomy for this research is a "sequential mixed method" as described by Tashakkori & Teddlie (1998).

Tashakkori & Teddlie (1998) identified that there are several methods (or formats) for collecting data. These include asking people about the issues/attributes related to them or others, which whilst the most widely used has a number of disadvantages. Other data collection procedures attempt to collect information about individual behaviours and attributes through behavioural observations and analysis of products created by the individuals.

Tashakkori & Teddlie (1998) have summarised these methods as:

- asking individuals for information and/or experiences - where relevant techniques include self-reporting, interviewing, questionnaires, inventories, checklists, attitude scales and indirect self-reports or projective techniques. These techniques can be prone to bias through either poor design of the data collection technique (e.g. questionnaire, interview questions and attitude survey) and can be both time consuming in construction and analysis, this can particularly be the case with questionnaires and interview questions.
- seeing what people do, recording what they do, or making references - where the primary technique is observation, either participant observation or non-participant observation. This technique however is largely affected by the person who is reporting/recording and as such it is generally accepted that this technique should be combined with other methods to increase its usefulness.
- asking individuals about their relationship with others - where the principal technique is sociometry leading to the development of a sociogram which depicts the complex network of interaction or interrelationships between groups and their members. Tashakkori & Teddlie (1998) have identified a number of limitations with this technique including being unable to provide information on the reasons that specific patterns on interaction exist in the group and the complexity of the sociogram increases exponentially as the size of the group increases.

- using data collected and/or documented by others – where techniques include the use of archival data and meta-analysis where the major consideration in pursuing this strategy is the validity and reliability of the “third party” information. Tashakkori & Teddlie (1998) conclude that the use of a meta-analysis approach provides a number of benefits as a variety of sources can be used to obtain both quantitative and qualitative information.

Given the stated shortcomings with the use of standalone traditional research strategies, Tashakkori & Teddlie (1998) have proposed the use of the traditional types of analysis simultaneously or in a sequence in the same study. One of the main strategies in this “mixed method” approach is to convert the data that are collected in one of the traditions into the other tradition such that alternative techniques can be used for analysing the same data. Two aspects of this transformation identified are (a) converting qualitative information into numerical codes that can be statistically analysed and (b) converting quantitative data into narratives that can be analysed qualitatively.

This parallel analysis of two types of data (QUAL and QUAN) provides a richer understanding of the variables and their relationships, however, it is noted that it limits the researcher to one type of data (e.g. QUAL or QUAN) on each subset of data. Tashakkori & Teddlie (1998) propose that it therefore might be possible to gain more insight from the data by:

1. **Parallel Mixed Analysis** - doing both types of data analysis (QUAL and QUAN) on the same data simultaneously.
2. **Concurrent Analysis of the same QUAL data with Two Methods** - confirming/expanding the inferences derived from one method of data analysis (e.g. QUAL) through a secondary analysis of the same data with a different approach (e.g. QUAN).
3. **Concurrent Analysis of the same QUAN data with Two**

**Methods** - sequentially using the results obtained through one approach (e.g. classification of individuals into groups through QUAL analysis) as a starting point for the analysis of other data with the alternative approach (e.g. statistically compare the groups that were identified by QUAL observations). OR

4. **Sequential QUAL QUAN (or QUAN QUAL) Analysis** - using the results of one analysis approach (e.g. initial interviews and/or content analysis of texts) as a starting point for designing further steps (e.g. instrument development) or collecting new data using another approach. A quoted example is that many survey questionnaires are constructed after an initial QUAL study of the appropriate population.

Tashakkori & Teddlie (1998) define a sequential mixed methods research strategy as "*one when the researcher conducts a qualitative phase of a study and then a separate quantitative phase, or vice versa*". The approach that has been used in this research is a sequential mixed method of quantitative followed by qualitative.

Tashakkori & Teddlie (1998) state that because the two phases are already distinct this allows the investigation "*to present thoroughly the paradigm assumptions behind each phase*"; Creswell (1995) called this approach the "*two phase design*".

The approach that will be used therefore mimics that undertaken by Freeman (reported in Freeman & Teddlie, 1996) in that quantitative data associated with procurement within a range of local and central government organisations will be collated initially (QUAN) followed by a document review of each organisation and in depth interviews with a cross section of representatives of each organisation to develop the trends/themes (QUAL) emanating from the quantitative information. Given the exploratory nature of this research (in the public sector) it was deemed appropriate to consider using a multi method approach, which provides the following benefits:

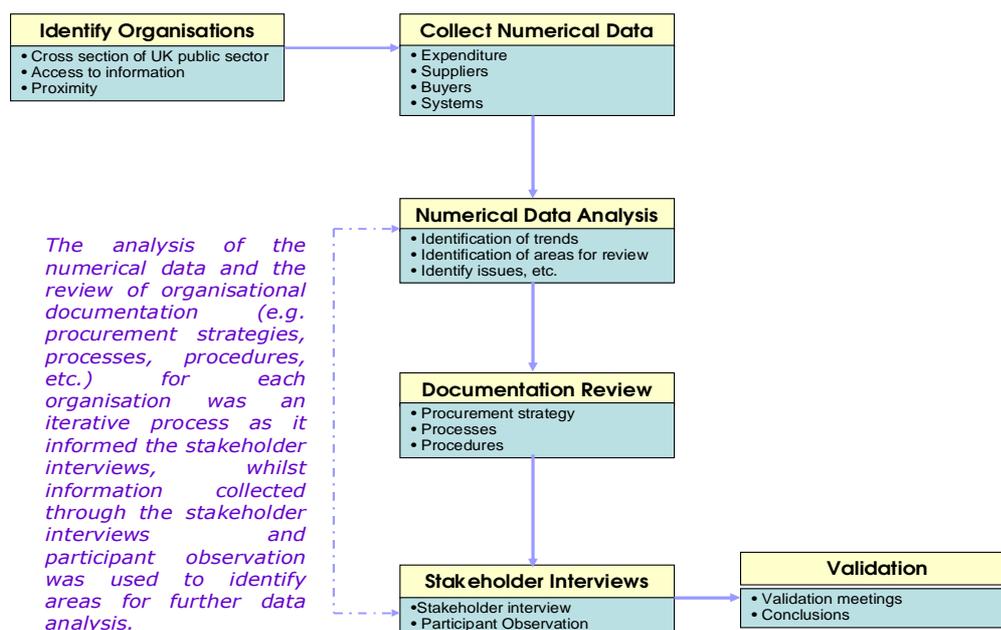
- elaboration and development of the analysis of early research activities into richer and more detailed findings (Rossman & Wilson, 1984; 1991). The initial collection of QUAN information relating to the procurement trends and patterns should provide an indication of the current procurement metrics of each selected organisation. This can then be used to inform the design of the interview questions for the QUAL stage thus enabling explicit probing of the actual procurement environment in the UK public sector.
- corroboration of each activity through triangulation (Denzin, 1978) identified four types of triangulation, two of which were relevant to this research. (a) the use of a variety of data sources to triangulate the data. The initial collation of QUAN information relating to current procurement processes and trends provides a framework against which qualitative information will be collected. (b) by method – each of the research activities uses a different method to examine public sector procurement. The results of the organisational literature review and interviews can be examined in relation to the quantitative information to establish the representativeness and generalisability of the research findings through this type of triangulation.
- explorations of the phenomenon of interest due to lack of empirical research findings (Rossman & Wilson, 1984, 1991). The collation of quantitative information should produce empirical findings but in doing so could raise more unanswered questions about the appropriateness of e procurement in the public sector – leading to further more informed exploration of e procurement.

To assist development of each forthcoming activity, e.g. initial quantitative data should inform design of the qualitative activity and final qualitative stage. The initial quantitative review of procurement across the selected organisations should assist development of the early conceptual framework. More details about the public sector organisations and their procurement processes and practices could provide knowledge to inform the qualitative organisational document

review and in-depth interviews, which sought to elicit information on the perceived/actual inhibitors and benefits to the use of e-procurement in the UK public sector.

The research strategy utilised is summarised by Figure 4.1 and comprises of the five stages illustrated.

**Figure 4.1: Approach for each Case Study**



#### 4.4.1 Stage 1: Identification of Research Organisations

Stage 1 of the research strategy involved an identification of the organisations that would participate in the research and that would provide the author with a representative sample of the types of organisation that currently operate within the UK Central and Local Government sectors.

Across the UK, the structure of Local Government agencies varies, depending on their location as follows:

- England has 27 two-tier Shire Councils, 32 London Boroughs, 36 Metropolitan Districts, and 55 Unitary Authorities

- Scotland has 32 Unitary Authorities which range in size from Clackmannanshire which is the size of a former County Council, to Inverclyde which is the size of a former District Council.
- Wales has 22 Unitary Authorities, although 9 are styled as County Councils, 3 as City Councils and 10 as Borough Councils.
- Northern Ireland currently has 26 Councils, which have varying designations including "District Council", "Borough Council", "City Council" and "City and District Council", however, under the Review of Public Administration this number is to be reduced to 11 by May 2011.

The Central Government landscape is similarly diverse and consists of the following organisations:

- England, Scotland and Wales has 24 Government Departments, each led by a Minister, and of which 3 relate to the devolved administrations of Scotland, Wales and Northern Ireland. Additionally there are 198 Executive Agencies, 410 Advisory Bodies, 33 Tribunals, 21 Public Corporations, the Bank of England, 2 public Broadcasting Authorities, and 23 NHS Bodies.
- Northern Ireland has 11 Central Government Departments, 80 Executive Agencies and 25 Non Departmental Public Bodies (NDPBs) and 39 Quasi Non Governmental Organisations (QUANGOs).

Given the diversity of the organisations operating within the UK Central and Local Government sectors, the primary selection criteria for case organisations was sample representativeness. However, author access and author proximity were also taken into consideration. Ultimately, the following organisations were selected with the characteristics shown:

- Local Government – an urban Unitary Authority
- Local Government – a two-tier shire Authority

- Local Government – a rural Unitary Authority
- Central Government – a Non Departmental Public Body
- Central Government – an Central Government Executive Agency (which would be used as the pilot organisation)

#### 4.4.2 Stage 2: Collation of Quantitative Information

The Quantitative Research Activity (QUANRA) involves the collection, analysis and collation of quantitative (QUAN) information from the selected public sector organisations. The following quantitative information set is based on that used by the Local Government sponsored National e-Procurement Project (NePP) and best practice guidance issued by the Improvement and Development Agency (IDeA) and the Office of Government Commerce (OGC).

This data set was collected from the selected public sector organisations through the use of the data collection questionnaire included as Appendix 1 where the data collected will include:

- value of expenditure on goods and services by commodity group
- value of expenditure incurred on direct goods and service commodity groups
- value of expenditure incurred on indirect goods and service commodity groups
- value of expenditure incurred through contracts
- value of expenditure incurred "off contract"
- value of expenditure by Department/Division
- number of suppliers
- location of suppliers
- number of suppliers by commodity group
- number of purchase orders annually
- number of purchase order lines

- number of buyers
- number of invoices processed annually
- number of contracts
- number of purchase orders raised annually by supplier
- number of invoices processed annually by supplier
- number of invoices by value bands (e.g. £0 - £10, £10 - £100, £100 - £500, etc.)
- value of purchase orders placed annually
- average time to process a purchase order
- average time to process and invoice
- average cost of raising a purchase order
- average cost of processing an invoice
- purchasing system used
- invoice processing system used
- contract management system used
- supplier performance management system used
- management information system used

Additionally a review was undertaken of the procurement related documentation available within the organisation, including:

- existing organisational structures both for the entire organisation and the procurement related population
- procurement strategy
- business procedures and guidance including where appropriate standing orders, delegated levels of authorisation, etc.
- business processes which support procurement
- procedures and processes for maintenance of the supply base, including existing supply contracts, supplier contracts and framework contracts

- performance monitoring arrangements for internally and externally provided services
- documentation relating to existing systems used for the delivery of the purchasing service
- internal efficiency reviews and other structures covering the economy, efficiency and effectiveness of the purchasing function

#### 4.4.3 Stage 3: Qualitative Information

This step involved undertaking a series of structured interviews with a range of personnel within the sample organisations using the interview proforma included as Appendix 2. The actual interviewees were driven by the size of the organisation and its organisation structure, however, the generic “person specification” for those interviewed included representatives from:

- procurement officers
- buyers
- budget holders
- invoice processing clerks
- senior management
- information technology personnel
- financial managers/accountants across the organisation
- suppliers

These interviews, which were typically 2-3 hours in duration and which were held at the organisation’s offices, focused on developing the qualitative (QUAL) trends/themes emanating from the collation of the quantitative information and formed the basis of the Qualitative Research Activity (QUALRA) in relation to:

- inhibitors of e-procurement or efficient procurement; and
- benefits which may be delivered by the introduction of e-procurement or efficient procurement.

#### 4.4.4 Stage 4: Validation

This stage involves validation of the quantitative (QUAN) and qualitative (QUAL) information collated during the previous stages with senior representatives within the sample organisations. Typically this will involve the presentation of the collated information to a Director within Corporate Services, Purchasing, Finance or Information Technology, depending on the location of the purchasing/procurement function within the organisation. The validation exercise was again 2-3 hours in duration and provided an opportunity for a representative (or representatives of the organisation) to challenge the information collated and presented to identify any nuances, outliers or anomalies.

Following validation of the information (quantitative and qualitative) obtained for each organisation with each organisation cross-case analysis will be carried out to identify trends within and across the organisations examined.

Miles & Huberman (1994) note that cross-case analysis is important for the following two reasons:

1. It enhances *generalisability* – Firestone & Herriott (1983) noted that it is important to know something about the relevance or applicability of findings to other similar settings, to transcend “radical particularism” to ensure that the question “Do these findings make sense beyond this specific case?”
2. It deepens *understanding and explanation* – the importance of understanding and explanation has been identified by a number of researchers including Glaser & Strauss (1967, 1970), Silverstein (1988), and Nolbit & Hare (1983, 1988) who succinctly conclude that cross-case work “*must have a theory of social explanation that both preserves uniqueness and entails comparison*”.

#### **4.6. Validity of the Research Strategy**

The research strategy proposed in this chapter involves the collation of organisation specific quantitative information which is followed by organisation specific qualitative information. Following collection and examination of both the quantitative and qualitative information relating to the selected organisations a cross-case analysis will be undertaken to identify trends and recurrent themes.

Given the documented concerns in relation to the availability of robust quantitative information and the willingness (or otherwise) of staff to discuss qualitative benefits of e-procurement in the UK public sector it is proposed that the research strategy will be validated through the use of a pilot case study.

The objectives of undertaking the pilot case study are as follows:

- Objective 1: to evaluate the research framework developed from the literature review (Chapter 2) which considered the current issues with procurement, facilitators/inhibitors and benefits across the dimensions of technology, process, people and compliance.
- Objective 2: to explore the appropriateness of the data collection approach which has been devised to capture and collate quantitative information from the sample of organisations across the UK public sector. This evaluation will include the exploration of trends arising from the data collected via the data collection tool, through interview (using the interview proforma developed from the literature review), observation and review of organisational documents (e.g. procurement policies, procurement procedures, procurement strategy, etc.).
- Objective 3: to identify initial trends and themes, which will be examined in greater detail through case study research across the sample organisations.

- Objective 4: to identify any lessons learned from this pilot case study which will be applied to the remainder of the organisations included in this research.

#### **4.7. Conclusions**

This chapter has discussed the approach which will be used to collect quantitative and qualitative data from the public sector case study organisations. The approach used is a mixed method approach, which will be tested through working initially with a pilot organisation (a Central Government Executive Agency), which is discussed in detail in the following Chapter.

## 5. PILOT CASE STUDY

*"A man may die, Nations may rise and fall, but an idea lives forever"*

*(John F. Kennedy 1917 – 1963)*

### 5.1. Introduction

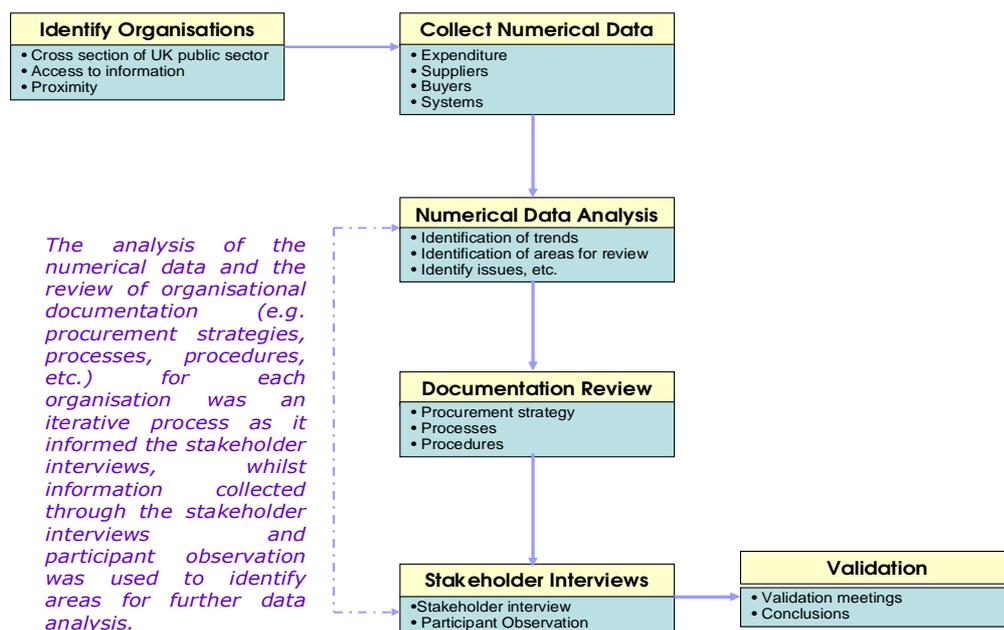
The purpose of this chapter is to test the research strategy discussed in the previous section with a pilot public sector organisation and to present the case, which is used to evaluate/validate the case study approach illustrated by Figure 5.1.

More specifically, the objectives of undertaking this study with a pilot organisation are to:

- test the research strategy and evaluate the extent to which the research framework is applicable.
- evaluate the research framework developed from the literature review (Chapter 2) which considered the current problems with procurement, facilitators and benefits across the themes of technology, process, people and compliance, to identify any gaps in the model or additions which should be considered in later case analysis, and the effect these have on current and planned adoption of e-procurement solutions.
- explore the appropriateness of the spreadsheet based data collection tool (Appendix 1) which has been devised to capture and collate quantitative information from the sample of organisations across the UK Central and Local Government sectors.
- identify trends arising from the data collected via the data collection tool, through interview (using the interview proforma developed from the literature review – see Appendix 2), observation and review of organisational documents (e.g. procurement policies, procurement procedures, procurement strategy, etc.).

- identify initial trends and themes which will be examined in greater detail through case study research across the sample organisations.
- identify any lessons learned from this pilot case study which will be applied to the remainder of the organisations included in this research.

**Figure 5.1: Approach for each Case Study**



Before examining in detail the pilot case study, an overview of the organisation is set out in the following section.

## 5.2. Background of the Executive Agency: Pilot Case

The pilot organisation selected is an Executive Agency within one of the major Central Government Departments in Northern Ireland. This organisation was selected as the pilot organisation for three main reasons as follows:

1. The pilot organisation aligns with the research as it has had a number of attempts to introduce e-procurement, which have had limited success to date, and as such it is considered that it should

provide an insight into many of the factors considered by a public sector organisation considering the introduction of e-procurement.

2. The headquarters of the organisation is based in Belfast, and as such is easily accessible by the author.
3. The author has worked with the organisation in a professional capacity and therefore has easy access to key internal and external stakeholders.

The organisation is organised into seven Divisions, as follows:

- Division 1: Northern.
- Division 2: Southern.
- Division 3: Eastern.
- Division 4: Western.
- Division 5: Headquarters.
- Division 6: Purchaser.
- Division 7: Provider.

The organisation has an annual budget of £200m (excluding notional costs) and employs approximately 2,500 staff. The annual budget is comprised of approximately £70m relating to staff costs with the remaining £130m operating costs.

The organisation provides a range of services in relation to public infrastructure and as such a significant amount of expenditure, approximately 75% relates to expenditure on the maintenance of the existing infrastructure or the development of new infrastructure. The remaining 25%, approximately £30m is spent on the purchase of goods and services unrelated to infrastructure.

### 5.3. Procurement Activities

Procurement across this Executive Agency is currently decentralised with each Division having responsibility for procuring goods and services to support the delivery of their services. The decentralisation of procurement across the organisation has resulted in a large number of staff (30 full time equivalents with approximately another 70 involved in purchase order and invoice approval) being involved in the procurement of goods and services.

Across the organisation there are approximately 47 staff directly or indirectly involved in procurement related activities as follows:

- 14 employees in Division 1 are involved in processing invoices and payments, reporting to HQ.
- 4 buyers order independently across the Divisions 1-4. These buyers are primarily responsible for ordering from pre-determined suppliers through pre-agreed contracts. They are not actively involved in the strategic elements of procurement i.e. selecting suppliers, negotiating and managing contracts, supplier development etc.
- 6 employees in Division 5 are responsible for the receipt and inspection of vehicles.
- 3 employees from Division 5 are responsible for the oversight of "Procurement Service supply contracts". However, this team is not dedicated to procurement, i.e. they are also responsible for other business development activities.
- There are other staff within the organisation (approximately 12) who are responsible for procurement activities. Many do not see procurement as core to their role. Most of these employees have had little or no training in procurement processes.
- There is a Centre of Procurement Expertise (COPE) within one of the Divisions, Division 6 which consists of 8 staff. This unit tends to act independently from other procurement related section in the other Divisions.

Across the organisation, procurement is currently paper based and as such involves a number of manual interventions by staff at all grades. Figure 5.2<sup>5</sup> illustrates the current procurement process which was developed through discussions with personnel across the organisation over the course of the fieldwork. Additional information on each step is included in the subsequent paragraphs, including the linkages between the manual procurement process and the Oracle e-Business Suite (which is used by the organisation for the processing and payment of all supplier invoices).

In relation to the use of technology to support back office processes. The organisation's main back office system is the Oracle e-Business Suite which is used to process all payments (Accounts Payable), capture and report on all transactions (General Ledger) and perform bank reconciliations (Cash Management). Outside of these core modules, the corporate organisation makes little use of technology, the main exceptions being e-mail (MS Outlook) and file & print. Within a number of the Divisions, discrete supporting systems have been implemented these include Computer Aided Design (CAD) and Activity Based Costing (ABC).

When the conceptualisation of e-procurement illustrated by Figure 3.1 is considered, the only technology elements of e-procurement that are currently used is the electronic payment of supplier invoices using BACs, and the publication of tenders on the organisation's website (e.g. e-publication).

#### **5.4. Current Procurement Process**

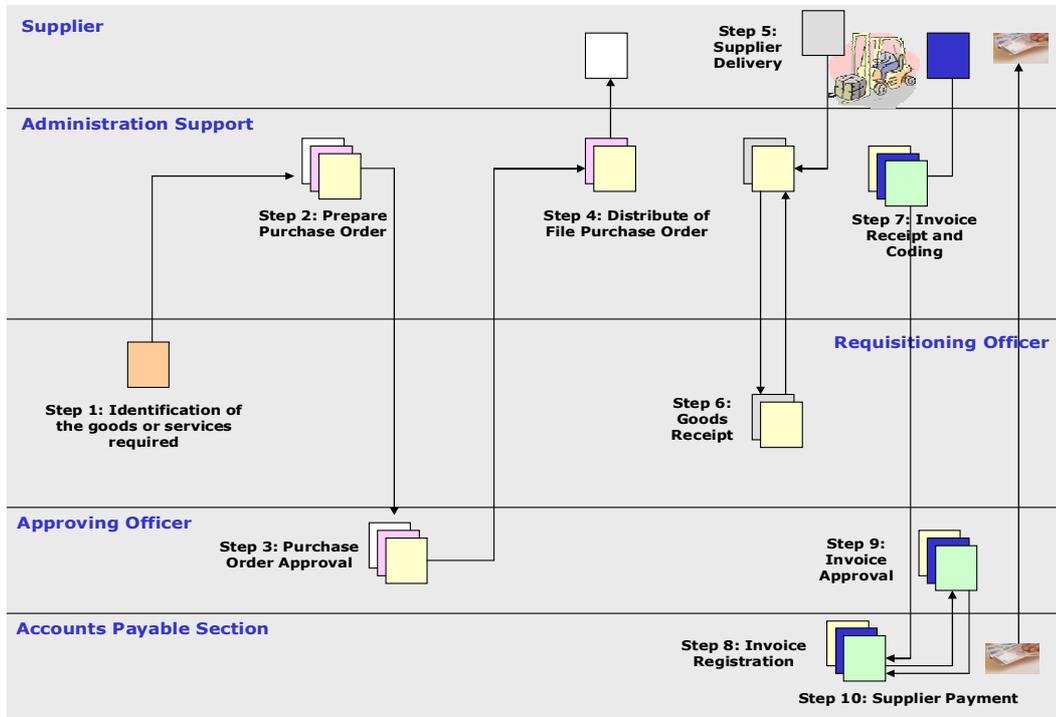
This section focuses on the steps which have been identified in the procurement process of the pilot organisation, to demonstrate the manual nature of current processes, the number of staff involved, the reliance on paper and the large number of controls in place – see

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<sup>5</sup> **Note:** The summary process illustrated by Figure 5.2 is the author's interpretation of the "consolidated" procurement process across the organisation. This "consolidated" procurement process has been derived from discussions with Divisional representatives and it should be pointed out to the reader that the illustrated process reflects, as far as possible common practices, however, it is acknowledged that across the organisation Divisions have variations to this process, with the result that up to 36 steps have been identified in the procurement process for one Division.

Figure 5.2 for an overview of the current 10 step procurement process.

**Figure 5.2: Current Procurement Process of the Executive Agency**



**Step 1: Identification of the Goods or Services Required** – this can involve the following:

- the use of framework contracts which have been centrally let and negotiated by the Central Procurement Directorate (CPD) on behalf of the entire Northern Ireland Civil Service (NICS).
- the use of hard copy catalogues which have been provided by potential suppliers of the goods or services, examples include computer consumables and stationery; or
- reference to previous purchases - this information is either obtained through reference to existing manual purchase order books or custom and practice.

**Step 2: Prepare Purchase Order** – the preparation of a manual purchase order request involves completion of a triplicate purchase order in a purchase order book. Following completion of the manual

purchase order request by the requisitioner, the purchase order is manually approved by either the budget holder (providing they have the appropriate level of delegated authority).

Where the budget holder does not have the appropriate level of delegated authority, the purchase order request is forwarded to a senior officer who has the appropriate level of authority for signature, which may involve approval by the Chief Executive.

**Step 3: Purchase Order Approval** – once the purchase order request has been approved, it is passed back to the administrative support.

**Step 4: Distribute or File Purchase Order** – on receipt of an approved purchase order, the administrative support distributes the various copies of the purchase order as follows - white to the supplier, yellow and pink remain in the purchase order book until the goods/services have been received.

**Step 5: Supplier Delivery** – following receipt of the white copy of the manually generated Purchase Order, the supplier prepares a Delivery Docket and provides this along with the delivery of the goods. For the majority of services provided, delivery dockets are not provided by suppliers.

**Step 6: Goods Receipt** – on receipt of the goods/services, the delivery note (Goods Received Note - GRN) by the administrative support, this is checked against the yellow copy of the purchase order (to ensure that the cost and quantities match) and forwarded to the requisitioning officer for signature that the goods have been received and match those identified in the purchase order.

**Step 7: Invoice Receipt and Coding** – the supplier invoice generally is sent to the administrative support who checks the invoice against the GRN and yellow copy of the purchase order. The administrative support then completes a manual coding slip for the invoice (e.g. identifies the cost centre, account code and potentially project code for the invoice). These documents are then forwarded to the Accounts Payable Section (APS) for keying to the Accounts Payable module of

the organisation's finance system (Oracle e-Business Suite). The pink copy of the purchase order is retained in the order book for reference, and to provide an audit trail.

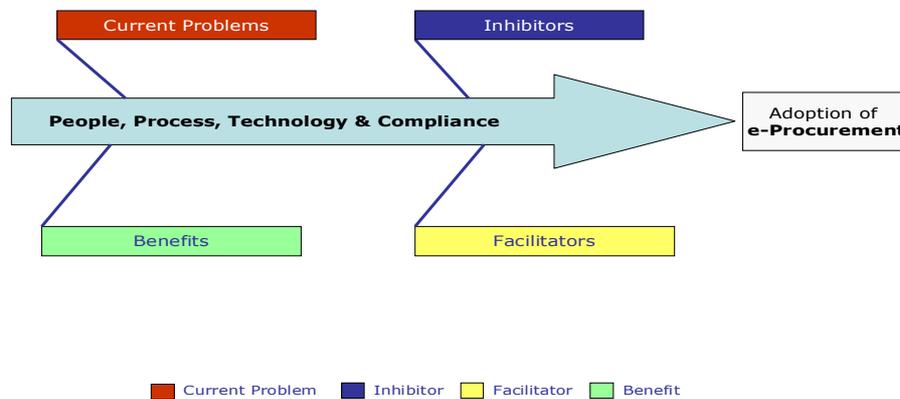
**Step 8: Invoice Registration** – on receipt of the invoice in the APS, the officer registers the invoice on the system (this is a requirement of the Prompt Payment Initiative whereby all public sector organisations are required to pay invoices within 30 days of receipt of a valid and correct invoice). Once registered on the finance system the invoice, coding slip and copy purchase order are sent to the budget holder for approval.

**Step 9: Invoice Approval** – on receipt of the invoice, coding slip and copy purchase order, the budget holder manually approves the invoice (subject to delegated approval limits, this may involve more than one approval depending on the value of the invoice) and returns this to the APS for payment.

**Step 10: Supplier Payment** – the invoice is annotated to show that it has been approved for payment by the budget holder. The invoice is then processed for payment by the APS during the next payment run - these generally take place weekly with all approved invoices being paid (providing they have been approved), irrespective of the agreed supplier payment terms.

## 5.5. Pilot Organisation Review

With a better understanding of the current procurement process within the Executive Agency, it is now possible to review activity in the organisation in conjunction with the research framework, illustrated by Figure 5.3, and discussed previously in Chapter 3.

**Figure 5.3: Research Framework**

To review level of adoption of e-procurement within the pilot organisation, and the factors affecting this, a number of activities were undertaken as follows:

- A review of procurement related documentation of the organisation was undertaken, documents reviewed included financial procedures (which provided details of procurement thresholds for orders, internal approval levels and thresholds for contracting, for example, the number of quotations required from prospective suppliers) and procurement procedures and manuals (where available).
- The information collected using the quantitative data collection tool (Appendix 1) and the interview proforma (Appendix 2) was collated and examined to identify trends, which would be used for the basis of observation (by the author) of representatives of the organisation as well as providing a focus for stakeholder interviews.
- Interviews were conducted with a cross-section of organisational representatives as well as external stakeholders – see Table 5.1 for details of the roles of the internal and

external stakeholders interviewed over the course of this research. This table also includes the identifier code assigned to each stakeholder which will be used in the discussion of the pilot organisation.

- The author observed a number of stakeholders across the organisation undertaking procurement related tasks.

The above activities were undertaken to separately understand the level of current and planned adoption of e-procurement solutions, as well as exploring other elements of e-procurement which the pilot organisation have decided not to implement in the medium term.

**Table 5.1: Pilot Organisation Stakeholders Interviewed**

Stakeholder Title	Identifier
Finance Director	FIN1
Head of Management Accounting	FIN2
Head of IT	IT1
Procurement Officer 1 (Buyer)	PO1
Procurement Officer 2 (Buyer)	PO2
Professional & Technical 1	PT1
Professional & Technical 2	PT2
Professional & Technical 3	PT3
Goods Supplier 1	GS1
Goods Supplier 2	GS2
Infrastructure Supplier 1	IS1
Infrastructure Supplier 2	IS2

### 5.6. Factors affecting the current adoption of e-Procurement

Following completion of the review of material collected and collated from the fieldwork with the pilot organisation, a number of meetings were held with key stakeholders (FIN1, IT1, PO1 and PT1) to:

- Validate the findings of the review, in terms of the various factors identified (e.g. current problems, facilitators/inhibitors and potential benefits).

- Understand the impact of these factors on the adoption of e-procurement across the organisation, at the time of undertaking the initial fieldwork.
- Understand the impact of these factors on the planned adoption of e-procurement across the organisation, and the likelihood (or otherwise) of the pilot organisation adopting remaining elements of e-procurement in the future.

These meetings took the form of a semi-structured discussion, whereby the attendees were requested to identify the key factors which impacted on the decisions of the organisation in relation to their current (e.g. the payment of supplier invoices by BACs<sup>6</sup> and e-tendering<sup>7</sup>), planned adoption of e-procurement, and potential future expansion (or otherwise).

In relation to the current adoption of e-procurement by the pilot organisation, Figure 5.4 illustrates the outcome of the discussion with the key stakeholders regarding the factors which were considered key in the decision making process for the introduction of e-tendering – see subsequent paragraphs for additional information.

As illustrated by Figure 5.4, the introduction of e-tendering to the organisation has overcome a number of problems identified with the traditional procurement process, namely:

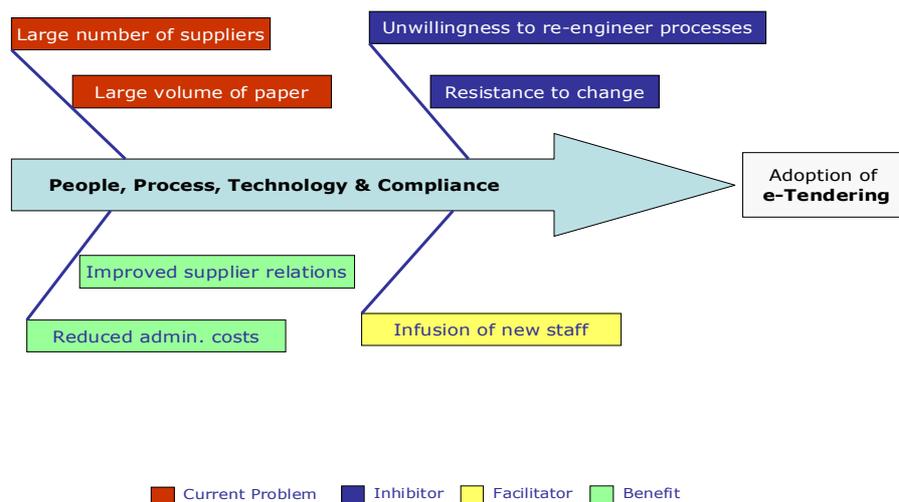
- **Large volume of paper (Process):** across the organisation, a large number of staff are involved in the manual checking and approval of requisitions, purchase orders and invoices (see Figure 5.2). One procurement officer (PO1) noted that *“for each procurement action (e.g. the generation of a purchase order), a minimum of 7 pieces of paper are involved (e.g. requisition note, purchase order (x3), goods receipt note, invoice coding slip and BACs remittance advice), which is*

<sup>6</sup> BACs which refers to Bankers' Automated Clearing System is a UK scheme for the electronic processing of financial transactions. BACs was set up in 1968 to develop the electronic transfer of funds between banks and to avoid the need for paper documents as part of the money transfer (e.g. payment of a supplier invoice) process.

<sup>7</sup> e-tendering in this case, is more accurately described as e-publication, whereby the pilot organisation publish tender opportunities on their website, include tender documents, for access and download by approved suppliers (e.g. suppliers who have already been evaluated against pre-qualification criteria which includes economic standing, health & safety, etc), however, e-publication does not provide the facility for suppliers to submit electronic tender responses to the pilot organisation.

*excessive and which results in a slow process which people try to work around*". The involvement of a large number of staff undertaking various procurement related activities across the pilot organisation, has led to an overall expensive procurement process.

**Figure 5.4: Factors influencing the adoption of e-tendering**



- **Large Number of Suppliers and Invoices (Process):** the large number of manual invoices processed by the accounts payable staff (see Table 5.2) by expenditure category involves the management of a large number of paper invoices and the resolution of a large number of accompanying processing errors (for example incorrect allocation to an account code and under/over delivery). The research data shows that the organisation processes over 55,000 invoices annually from approximately 3,000 suppliers, with 64% of all invoices being derived from approximately 1,050 suppliers across two product categories (materials and administration). This analysis raises questions in relation to the number of invoices presented by supplier, as well as the number of suppliers by product category for the organisation.

**Table 5.2: Expenditure Analysis** (by category)

Product Category	Annual Spend (£k)	% of Total	No. of Suppliers	% of Total Suppliers	No. of Invoices	% of Total invoices
Materials	£8,740	28%	904	33%	15,674	28%
Hired services	£5,700	19%	657	24%	6,818	12%
Administrative	£5,580	19%	598	22%	19,957	36%
Premises	£3,490	12%	127	5%	5,846	11%
Fixed/mobile	£2,930	10%	23	1%	143	0%
Plant/vehicles	£2,400	8%	354	13%	6,290	11%
Computers	£1,100	4%	58	2%	376	1%
Furnishings	£60	0%	1	0%	6	0%
<b>Total</b>	<b>£30,000</b>		<b>2,722</b>		<b>55,110</b>	

As illustrated by Figure 5.4, the introduction of e-tendering to the organisation has overcome a number of inhibitors identified with the traditional procurement process, namely:

- **Lack of Senior Management Support:** this was illustrated by the lack of drive of senior management to develop a corporate procurement strategy. Again, the need to re-engineer procurement processes to facilitate the introduction of e-procurement has been identified by researchers as a key activity for success.
- **Resistance to Change (People):** through the stakeholder discussions (PT2 & PT3) it is evident that the ability of staff to change is considered to be a key impediment to the introduction of e-procurement in the pilot organisation. As noted by one of the professional & technical officers [PT1], "*the procurement function is "bureaucratic" and "out of touch with its customers"*". However, given this, one would consider that there would be a greater willingness to undertake change and to redesign the procurement processes and techniques. However, from these stakeholder discussions it is apparent that this is not the case as there have been a number of attempts in the past to amend the procurement process, however, all have failed, primarily as a result of the inability of management to push through the changes required.

Discussions with the Director of Finance [FIN1] indicated that the introduction of e-tendering was *"not without its problems"*. Across a number of directorates there was a reluctance to change the current ways of working, given that they had been in place for a number of years. However, one of the key facilitators in the introduction of e-tendering was the number of staff who had recently joined the organisation who were well qualified and who have substantial private sector procurement experience. It was considered by the Director of Finance that *"this influx of "new blood" into the organisation, with their fresh ideas and ways of looking at issues, was a catalyst and facilitator to the introduction of the e-tendering solution"*, [FIN1].

The key benefits identified in Figure 5.4 from the introduction of e-tendering to the pilot organisation (as opposed to the previous method of publishing all tenders in the local newspapers) included the potential for reducing the administration costs associated with this aspect of the procurement process, and potentially improving the relationship with suppliers, who (following introduction) knew that there was one complete source of all tenders from the pilot organisation.

The fieldwork undertaken with suppliers (IS1, IS2 & GS1) of the pilot organisation indicated that the introduction of elements of e-procurement (e.g. e-tendering) should *"enhance their working relationship with the organisation, which was already overall good"*. However, they were cautious in relation to the overall impact of introducing e-procurement in totality given the potential negative impact on prices and associated margins.

The second key benefit identified by stakeholders from the introduction of e-tendering was the potential for reducing the administrative costs associated with the tendering process. Finance personnel (FIN1 & FIN2) noted during the discussions that introducing e-tendering removed a number of the manual processes (and costs) associated with the publication of tender opportunities in local newspapers, and that this was a main benefit of e-tendering.

From the above discussion, and as illustrated by Figure 5.4, the introduction of e-tendering to the pilot organisation has addressed a number of previous problems (primarily relating to the manual process) by overcoming people and process related inhibitors (facilitated by the influx of new staff), to deliver a number of tangible and intangible benefits to the organisation.

Figure 5.5 illustrates the outcome of the discussion with stakeholders in relation to the factors which were considered key in the decision making process for the introduction of BACs (Bankers' Automated Clearing services), the second element of e-procurement currently adopted by the pilot organisation.

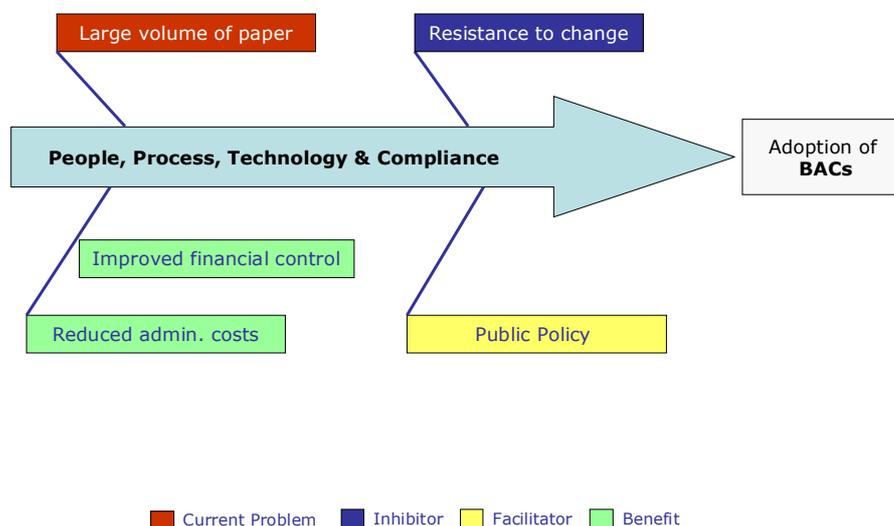
One of the key problems addressed by the introduction of BACs by the pilot organisation was the large number of suppliers, with which the organisation transacted. Over the course of the fieldwork, it was identified that the organisation processes approximately 40,000 invoices<sup>8</sup> annually, and uses approximately 2,000 suppliers – see Table 5.3.

**Table 5.3: Supplier Analysis**

Annual Spend	No. of suppliers	% of Total	Total Spend (£k)	% of Total
Above £2,500	580	29%	£29,205	97%
£1,500 - £2,499	145	7%	£280	1%
£500 - £1,499	390	20%	£360	1%
£100 - £499	540	27%	£140	0%
Less than £100	335	17%	£15	0%
<b>Total</b>	<b>1990</b>		<b>£30,000</b>	

As a result of introducing BACs as the main payment method for suppliers, the pilot organisation started to address the large volume of paper (resulting from a large number of suppliers, and a large number of invoices).

<sup>8</sup> Note: The organisation processes annually in excess of 55,000 invoices from over 2,700 suppliers, however, when the double counting of suppliers and invoices, e.g. arising from invoices relating to more than one Division, are excluded the number of invoices is reduced to approximately 40,000 from approximately 2,000 suppliers as illustrated by Table 5.

**Figure 5.5: Factors influencing the adoption of BACs**

Additionally, the pilot organisation has benefited from reduced administration costs and a compliance benefit of improved financial control, through the introduction of BACs.

The key process related benefit identified was a reduction in the administrative costs associated with the payment of suppliers. This benefit was identified by finance personnel (FIN1 & FIN2) during discussions as they considered that the introduction of BACs, in common with the introduction of e-tendering, eliminated a number of administration activities associated with supplier payments (e.g. cheque printing and enveloping) as well as the cost of managing lost or duplicate cheques.

In terms of compliance benefits, the finance stakeholders (FIN1 & FIN2) felt that with the introduction of this aspect of e-procurement brought with it improved financial control across the organisation through the availability of more timely, accurate and robust procurement related management information. This was also considered by the operational and professional & technical staff as a key benefit, however, they were keen to understand the longer term aspects of this benefit, in particular, they were concerned that this

improved compliance may lead to a loss of control, as one professional & technical officer concluded *“will e-procurement provide better budgetary management for all budget holders or merely provide finance with a mechanism for cutting budgets?”* [PT1].

These benefits were identified by finance staff and the Director of Finance as core to the decision to introduce BACs, with the Director of Finance [FIN1] noting that *“the reduced administration costs and improved financial control arising from the introduction of BACs payments for all suppliers were central to the introduction of this payment method, particularly given the large number of suppliers used by the organisation”*.

Taking account of these benefits, and the policy drive by Central Government to reduce the level of potential fraud arising from the use of payable orders (or cheques) as well as reducing the payment time for suppliers, it was noted by one of the Procurement Officers [PO1] that the task of introducing BACs as a payment method was *“relatively straightforward, once a number of “isolated pockets of resistance (from suppliers) were overcome, given that it is a widely accepted payment method”*.

### **5.7. Factors affecting the planned adoption of e-Procurement**

Having critically reviewed the factors that have affected the initial level of adoption of e-procurement by the pilot organisation (e.g. at the time of undertaking the initial fieldwork), consideration is given in the following paragraphs to the factors that affected the decision of the organisation’s senior management to extend the elements of e-procurement in the medium and longer term.

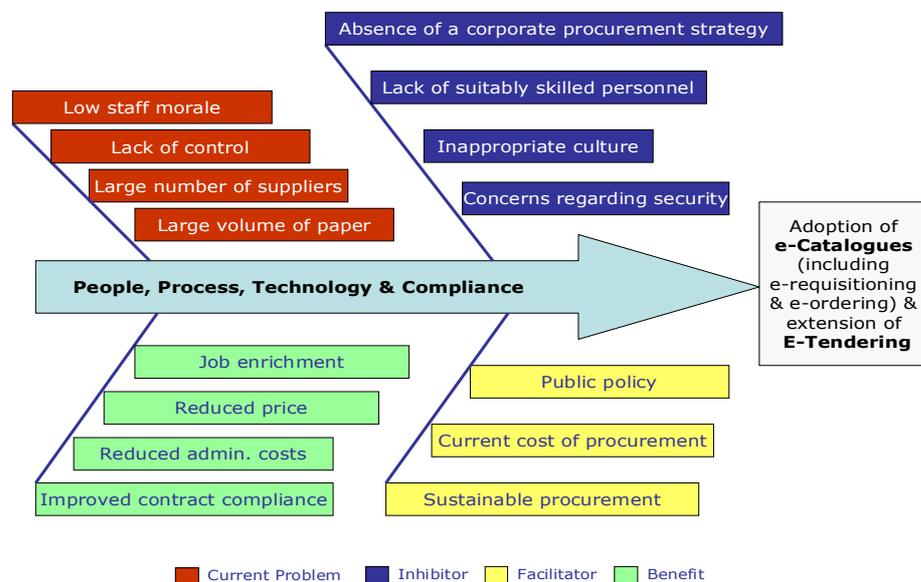
Since completion of the fieldwork, the pilot organisation has agreed to extend the use of e-procurement across the organisation to include the following technology solutions (see Figure 5.6) as follows:

- The introduction of electronic catalogues for the procurement of commodity items, initially this is limited to IT consumables and stationery, where the management and maintenance of the

catalogues is undertaken centrally, by another organisation within the Northern Ireland Public Sector.

- The introduction of electronic requisitioning, where an approved member of staff can requisition goods (using one of the e-catalogues) and the electronic generated requisition is routed electronically for approval, depending on the scale of anticipated expenditure, the directorate to which the member of staff belongs and the delegated approval level of the member of staff.
- The electronic dispatch of purchase orders to suppliers of catalogue based purchases.
- Extending the e-tendering facilities offered to include the electronic receipt of tender submissions from suppliers to tenders published on the organisation's internet site. This is initially limited to the electronic receipt of "standard" tenders, e.g. for defined goods and services and excludes large infrastructure tenders which may include complex bill of materials, retention schedules, complex OJEU procurement, etc.

**Figure 5.6: Factors influencing the future adoption of e-procurement**



One of the key leadership actions by the senior management team of the organisation was to address the fundamental problem of not having a corporate procurement strategy. Through the development of a comprehensive and collaborative corporate procurement strategy,

senior management across the organisation now feel that there is an overall strategic vision for procurement, (which was previously absent) and as such the organisation plan to extend the use of e-procurement to include internal solutions (e.g. the electronic receipt of tenders) as well as solutions provided by other parts of the Northern Ireland public sector (e.g. electronic catalogues for IT consumables and stationery).

The development of a comprehensive corporate procurement strategy for the pilot organisation provided focus for the organisation (in relation to procurement) and raised the profile of it to the highest level in the organisation, and with this demonstrable leadership, it is expected that a number of previously identified people related inhibitors can be overcome. These include:

- **Inappropriate organisational culture (People):** the culture of the pilot organisation was identified by all stakeholders (internal and external) as one of the greatest inhibitors to the introduction of e-procurement. It was felt by professional & technical staff (PT1, PT2 & PT3), and summarised by [PT1], that *"the procurement function is a support function and should not therefore be at the heart of the organisation, even though a significant proportion of the annual budget involved procurement"*. Given this "positioning" of the procurement function and that fact that the majority of procurement staff across the organisation undertake *"menial"* transaction processing activities (arising from the use of manual procurement processes) it was considered that raising the profile of procurement would be difficult and would require senior management sponsorship and support.
- **Lack of procurement skills (People):** the procurement and finance stakeholders (FIN1, FIN2 and PO2) indicated that one additional inhibitor to the introduction of e-procurement is the unavailability of suitably experienced personnel in-house to lead the introduction of e-procurement. This skills gap relates not to procurement expertise (e.g. CIPS), but to project management,

process redesign and system selection and implementation. It was considered by the stakeholder group that this “*skills deficit*” could be overcome through the use of external advisors or consultants, however, there is an overall pressure to reduce the use of consultancy support across the public sector, with the result that the organisation is in a “Catch 22” situation as it does not have suitably skilled and experienced personnel in-house to facilitate the introduction of e-procurement, and it will have difficulty in obtaining external assistance to effect the required changes.

In addition to overcoming these people related inhibitors, the public sector in Northern Ireland as a whole have, following a number of successful pilot studies, introduced a number of e-procurement solutions including the electronic catalogues (for IT consumables and stationery), electronic requisitioning and the provision of facilities to electronically generate purchase orders to suppliers of these items, rather than through the conventional use of faxed or mailed purchase orders. The use of a centrally hosted and managed solution, which had proven interfaces with legacy financial systems (e.g. Oracle e-Business suite) has helped to address fears and concerns (identified in the fieldwork as technology inhibitors) including the absence of system integration and concerns regarding security.

Concerns relating to the security of e-procurement transactions was identified by the Head of IT (IT1) as a particular organisational concern when he noted that “*we already have concerns regarding the security of procurement transactions and have tested this with one e-procurement solution, namely the Government P-card, whilst this test was largely successful in terms of security, the organisation is unwilling to progress the introduction of e-procurement particularly given that any fraud or security breaches would result in the loss of public money*”.

The availability of these centrally provided solutions, provided the pilot organisation with a proven and low risk method of addressing a number of the strands of their corporate procurement strategy, as well

as ensuring the organisation was recognised, in the words of the Director of Finance [FIN1] "*as a leading organisation in the use of technology enabled solutions to help reduce administrative costs*" especially given the pressures on administrative expenditure across the UK public sector.

The planned extension of the range of e-procurement solutions used by the pilot organisation should also contribute to addressing a number of problems discussed earlier in relation to current procurement processes and procedures, namely the large supplier base of the organisation (see Table 5.3 for details) and the large volume of paper arising from the current manual processes (see Figure 5.2 for details).

Additionally, the extension of the e-procurement elements used by the organisation should also address:

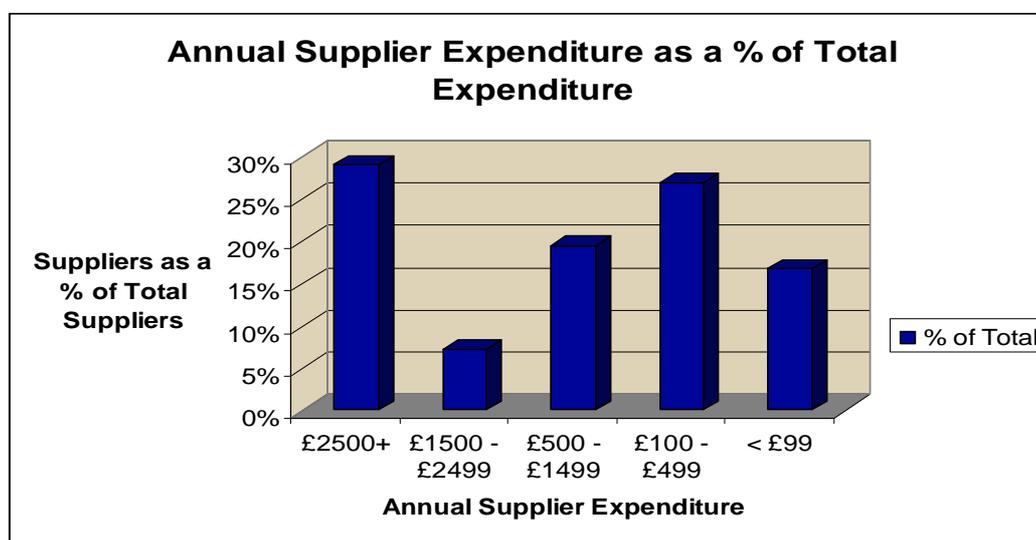
- **Low staff morale:** from the fieldwork undertaken, it was evident that service delivery personnel across the organisation are primarily focused on the delivery of technical services and less concerned with the administrative processes and procedures underpinning this. A number of these staff (PT1 & PT3) noted that the bureaucratic nature of procurement in the organisation was one of the main problems with the current situation and as such procurement activities were perceived as being "*back water*" with the result that procurement related jobs were perceived as "*menial with little prospect for advancement, especially as there are no professionally qualified buyers in the organisation*" [PT3].

The data collection and analysis exercise also indicated that of the 40,000 invoices processed annually, approximately 27,000 of these related to materials, premises, fixed & mobile plant and plant & vehicles. Expenditure in these areas is controlled by technical staff and the large number of invoices processed and the fact that 60% of the organisation's suppliers relate to these category groups indicates that the technical staff may not fully understand the "downstream" implications of their procurement and expenditure patterns. This point

was highlighted by the Director of Finance (FIN1) who noted that “a number of the professional & technical staff across the organisation do not understand the impact that off contract purchasing has on my Finance Department, this is an area that we need to address, by extending our e-procurement footprint”.

From the data collected, Figure 5.7 illustrates that the organisation spends on average less than £1500 per annum with approximately 63 % of the existing supplier base. Given the considerable staff involvement in the current manual process, this appears to highlight the “backwater” nature of the procurement process, as it would be expected that organisations of this nature would focus on the development of staff including job enrichment, never mind seeking efficiencies. However, from Figure 5.7, it is evident that the organisation currently is not focusing on streamlining the procurement process to deliver administrative efficiencies and assist with the development of staff.

**Figure 5.7: Supplier Annual Expenditure**



- **Lack of centralised control:** stakeholder interviews highlighted that the lack of control is a key problem and in particular the staff within the finance function, where one Finance Officer FIN1 noted that the current manual procurement processes have led to different “flavours of these processes being used across the

organisation with the result there is a significant degree of off contract (or maverick) purchasing" which has led to a large number of suppliers (approximately 2000) and a small number of common contracts (approximately 150) – see Table 5.4.

**Table 5.4: Invoice Analysis**

Invoice Value	No. of Invoices	% of Total	Total Spend (£k)	% of Total
Above £2,500	<b>2,100</b>	5%	£19,460	65%
£1,500 - £2,499	<b>1,245</b>	3%	£2,405	8%
£500 - £1,499	<b>5,125</b>	13%	£4,275	14%
£100 - £499	<b>13,990</b>	35%	£3,325	11%
Less than £100	<b>13,990</b>	42%	£670	1%
Less than £0	<b>950</b>	2%	-£135	0%
<b>Total</b>	<b>40,000</b>		<b>£30,000</b>	

This maverick purchasing is also reflected by the number of invoices (79%) where the value is less than £500.

As noted above the extension of e-procurement by the pilot organisation will be facilitated by the development of a corporate procurement strategy, however, a number of external and internal factors should also facilitate the introduction of these additional elements of e-procurement, namely:

- **Public policy (Compliance):** the finance stakeholders (FIN1 & FIN2) interviewed noted that the current drive across the UK Government for sharing services and procurement related efficiencies arising from reviews such as the Gershon review have *"provided significant impetus to revising the procurement processes and practices used by their organisation and should be used to facilitate the introduction of e-procurement and up-to-date procurement processes including strategic sourcing, enhanced collaboration among public sector organisations and the introduction of appropriate supporting technologies"*.
- **Current cost of procurement (Process):** the cost of e-procurement solutions was not identified per se through the

stakeholder interviews, however, based on the current manual procurement process, and through discussions with staff involved in this, it is estimated that the current cost of processing an invoice of approximately £70. Procurement and Finance staff (FIN1, FIN2, PO1 & PO2) felt that this cost was excessive, for two main reasons as follows: (i) the number of invoices processed by the organisation with a value <£100 (42% of all invoices processed); and (ii) research into the cost of processing an invoice generated as a result of procurement via a P-card is approximately £16. The current high cost of processing an invoice is therefore considered by internal stakeholders as a key facilitator for the introduction of e-procurement, given that this would provide the organisation with significant efficiencies.

- **Sustainable procurement (Compliance):** it was considered by the procurement stakeholders (PO1 & PO2) that current public policy and initiatives, particularly in relation to sustainable<sup>9</sup> (or green) procurement may facilitate the introduction of e-procurement.

The senior stakeholders within the pilot organisation recognise that the extension of the additional elements of e-procurement (e.g. e-catalogues, e-requisitioning, e-ordering and e-tender receipt) will provide the organisation with a number of tangible and intangible benefits, including:

- **Improved contract compliance:** the Director of Finance [FIN1] noted that improved contract compliance is an important benefit which should be available through the introduction of e-procurement. Again this was an area of debate with the operational and professional & technical stakeholders as they considered that improved contract compliance was important, however, they stressed the need for a flexible e-procurement solution which would reflect the nature of the environment they

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<sup>9</sup> Sustainable procurement is defined as “procurement which minimises impacts on the supply chain, minimises impacts of the product/service and involves buying resource efficient products/services” by IDeA (Improvement & Development Agency), WRAP (Waste Resources Action Programme) and SOLACE (Society of Local Authority Chief Executives and Senior Managers) in their publication “Sustainable procurement – making it happen”.

work in (e.g. *"we undertake reactive maintenance where it is not always possible to create a purchase order in advance of hiring machinery for an emergency"*, PT2) and the nature of the suppliers (e.g. *"a number of our small and medium enterprises who are geographically dispersed, however, are close to meet our requirements in a timely manner"*, PT1) and the nature of the materials procured (e.g. *"it is not always possible to exactly specify quantities, etc."*, PT1).

- **Job enrichment:** the procurement function, especially non-infrastructure procurement is perceived across the organisation as a "backwater" and accordingly procurement is not seen as being of importance across the organisation. Given this perception, the personnel undertaking non-infrastructure related procurement activities have low morale and do not appear from the stakeholder discussions to have high levels of motivation. A number of stakeholders indicated that they felt one of the "by-benefits" of introducing a corporate e-procurement solution would be the enrichment of the activities undertaken by the procurement staff so that they have a higher profile and get the opportunity to undertake more strategically important activities rather than "backwater" activities.
- **Reduced price:** similar to the discussion above, it was noted that e-procurement should *"significantly reduced the price paid by the organisation, through the use of enhanced procurement related information and the potential for aggregation and collaboration to obtain better discounts"*[PO2]. Discussions with suppliers of the pilot organisation (GS1, GS2 & IS2) identified a number of obvious concerns relating to the potential impact of e-procurement on the costs associated with working within such an environment (e.g. the cost of becoming e-procurement enabled) as well as the potential impact on prices given that the pilot organisation would have more information in relation to procurement which was previously not the case.

## 5.8. Factors influencing future expansion of e-procurement

As noted above, the pilot organisation has made significant strides in the introduction of a number of core elements of e-procurement across the organisation, and is planning four more in the medium term. However, it appears from discussions with senior stakeholders that the scope for extending the range of solutions to include more “leading edge” or innovative solutions (e.g. reverse auctions) will be limited.

For example, despite the benefits achieved through the introduction of e-tendering and BACs payments, and the planned introduction of other elements, the pilot organisation does not intend to extend the use of these elements of e-procurement across all goods and services procured by the organisation. The main reasons identified by the key stakeholders (FIN1, IT1, PO1 and PT1) in the review meetings for not extending the e-procurement footprint (e.g. to include other e-procurement elements such as P-cards, reverse auctions, etc.) across the organisation or introducing future elements of e-procurement are:

- **Complex procurement (Inhibitor):** a number of the stakeholders (PO1, PO2 and PT1) indicated that the diverse and complex nature of operational procurement “*may not be suitable for e-procurement, for example infrastructure contracts*” [PO2]. As illustrated by Table 5.5, the range of goods and services procured by the organisation on an annual basis is varied and often complex (e.g. infrastructure projects), with the result that the professional and technical staff across the organisation are not confident that the current e-procurement solutions can meet the requirements of complex EU procurement, for example restricted procurement and competitive dialogue. This inhibitor of complex procurement is therefore unlikely to be overcome in the opinion of procurement and professional & technical staff, in the near future. As noted by the procurement officer [PO1] “*the cataloguing and procurement of stationery and IT consumables in hindsight was relatively*

*straightforward, given that the solutions were tried and tested by other public sector organisations in Northern Ireland. However, the infrastructure projects which involves multi-million procurements on an annual basis, are not straightforward, and as such it is considered by the organisation too risky to attempt the use of e-procurement solutions in these areas. We would like to understand how other, similar organisations are coming with the demands and complexities of infrastructure procurements, using e-procurement, before we will consider adopting any solutions”.*

**Table 5.5: Expenditure Analysis** (by category)

Product Category	Annual Spend (£k)	% of Total	No. of Suppliers	% of Total Suppliers	No. of Invoices	% of Total invoices
Materials	£8,740	28%	904	33%	15,674	28%
Hired services	£5,700	19%	657	24%	6,818	12%
Administrative	£5,580	19%	598	22%	19,957	36%
Premises	£3,490	12%	127	5%	5,846	11%
Fixed/mobile	£2,930	10%	23	1%	143	0%
Plant/vehicle	£2,400	8%	354	13%	6,290	11%
Computers	£1,100	4%	58	2%	376	1%
Furnishings	£60	0%	1	0%	6	0%
<b>Total</b>	<b>£30,000</b>		<b>2,722</b>		<b>55,110</b>	

- **Resistance to change (Inhibitor):** given the elements of e-procurement already present in the pilot organisation, a normal extension would be the introduction of reverse auctions. However, the introduction of reverse auctions for the procurement of goods in the future is not considered as a practical solution by the key stakeholders. This decision is based on the unwillingness of the organisation to continue to re-engineer procurement processes, given the significant level of change which has occurred in procurement across the organisation over the past 2-3 years. The unwillingness of the organisation to continue to re-engineer their business processes was noted earlier as a core inhibitor, and whilst significant changes have been made to procurement processes

over the past 2-3 years, this inhibitor remains a key barrier to increasing the e-procurement footprint of the pilot organisation.

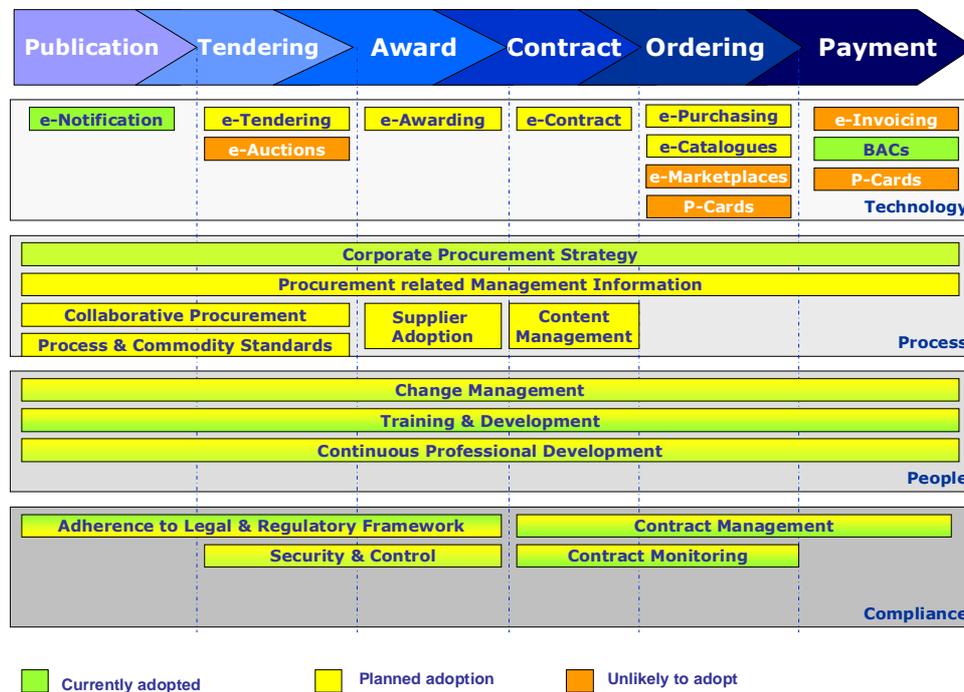
- **Public policy (Inhibitor):** senior management noted that the introduction of reverse auctions to the pilot organisation would potentially have a negative impact on local suppliers. The pilot organisation, like most public sector organisations in Northern Ireland, has a number of corporate objectives relating to economic regeneration and economic development. From the review meetings with senior stakeholders, it was considered *"inappropriate to subject local suppliers to the challenge of reverse auctions"*, as it is felt that reverse auctions favour larger, technically enabled organisations (most likely based outside of Northern Ireland) who have the facility to reduce the price of goods, without materially affecting their profits, which is not the case with small and medium size enterprises based in Northern Ireland. This position was reinforced through discussions with small suppliers to the pilot organisation. Suppliers (GS1 and GS2) viewed their ability to trade electronically as a major inhibitor as they felt they would *"have to undertake considerable investment to "e-enable" their systems and as such this would be a significant challenge, particularly given that they were small rural suppliers"*.
- **Legal and regulatory controls (Inhibitor):** the regulatory, probity and legal constraints associated with public sector procurement was highlighted by procurement stakeholders (PO1 & PO2) as one of the main reasons why an extension of e-procurement may not be appropriate given the rules and regulations associated with public sector procurement, including EU procurement.

## 5.9. Case Summary

Figure 5.8 summarises the current and planned position of the pilot organisation in relation to the adoption of a number of elements of e-procurement, using the e-procurement definition developed from the research undertaken by Muffato & Payaro (2004) and Schoenherr &

Tummala (2007), where the current, planned and “unlikely to adopt” aspects of e-procurement for the organisation are highlighted.

**Figure 5.8: Pilot organisation: summary of e-procurement adoption**



In addition to summarising the progress that the pilot organisation has made with the introduction of e-procurement, Table 5.6 summarises the factors (column 1) which have:

- effected the adoption of e-procurement currently (column 2).
- effected the planned adoption of other elements of e-procurement (column 3).
- effected the decision not to adopt other elements of e-procurement (column 4).

**Table 5.6: Summary of factors impacting the adoption of e-procurement**

<b>Influencing Factor</b>	<b>e-procurement modules already adopted</b>	<b>e-procurement modules to be adopted</b>	<b>e-procurement modules <u>not</u> to be adopted</b>
Current Problem Inhibitor			
Facilitator Benefit			
Low staff morale		✓	
Lack of control		✓	
Large number of suppliers and invoices	✓	✓	
Large volume of paper	✓	✓	
Absence of procurement information	✓	✓	
Absence of a corp. procurement strategy		✓	
Lack of suitably skilled personnel		✓	
Unwillingness to re-engineer processes	✓		
Inappropriate culture		✓	
Resistance to change	✓		✓
Concerns regarding security		✓	
Complex procurement			✓
Public policy			✓
Legal and regulatory controls			✓
Public policy	✓	✓	
Current cost of procurement		✓	
Sustainable procurement		✓	
Infusion of new staff	✓		
Improved financial control	✓		
Reduced administration costs	✓	✓	
Job enrichment		✓	
Reduced price		✓	
Improved contract compliance		✓	
Improved supplier relationships	✓		

As noted from the discussion above, the pilot organisation has made reasonable progress in the introduction of e-procurement solutions and related process, people and compliance initiatives, by overcoming a number of inhibitors, primarily relating to people and processes. However, it is also worth noting that the organisation, whilst planning to expand the number of elements of e-procurement used, does not intend to wholeheartedly adopt e-procurement, given the continued presence of a number of process, people and compliance related inhibitors.

### 5.10. Conclusions

As stated at the outset of this chapter, there were five key objectives of undertaking a study with a pilot organisation. Taking account of these objectives, a number of conclusions can be drawn arising out of the review of the pilot organisation as follows:

- Objective 1 involved evaluating the research framework which was developed from the literature review. The research framework developed consists of three themes of current procurement problems, inhibitors/facilitators to e-procurement and potential benefits from e-procurement and four dimensions of technology, process, people and compliance. From the output of the fieldwork undertaken with the pilot organisation, the research framework would appear to provide a comprehensive and appropriate mechanism to investigate the factors affecting the adoption of e-procurement to UK public sector. This is evidenced by the alignment of a number of problems, inhibitors/facilitators and benefits with those identified in the literature review. Additionally, a number of new inhibitors/facilitators and potential benefits were identified from the fieldwork undertaken with the pilot organisation, including:
  - Public policy (facilitator)
  - Sustainable procurement (facilitator)
  - Influx of new staff (facilitator)
  - Public policy (inhibitor)
  - Legal and regulatory controls (inhibitor)
  - Job enrichment (benefit)
- Objective 2 focused on the appropriateness of the data collection tools and techniques employed to explore if they provided a mechanism for obtaining a comprehensive overview of an organisation. Based on the information collected and collated via the data collection tool developed from the literature review

(Appendix 1) and the interviews (Appendix 2), it is apparent that the tools used provide an appropriate basis for the collection and collation of information relating to the current procurement metrics (e.g. volume and value analysis). For example, as noted previously this approach has assisted in the identification of a number of new inhibitors/facilitators and potential benefits for the introduction of e-procurement. Given that these inhibitors/facilitators and potential benefits were not previously identified in the literature review, they will have to be examined through the other case study organisations to ensure that they are not specific to the pilot organisation. However, in order to maximise the information captured, it was evident that interviews with a cross section of personnel from across the organisation (e.g. finance, procurement, senior management and operational), the review of procurement related documents of the organisation (e.g. policies, procedures, strategies, etc.) and participant observation are critical to understanding the state of current procurement as well as the potential for introducing (or expanding) e-procurement in the future.

- Objective 3 focused on the identification of initial trends and themes for further analysis and exploration with the other public sector case study organisations. The pilot organisation has substantiated a number of the trends and themes identified in the review of academic literature relating to e-procurement emerged over the course of the study. In addition, a number of new themes were identified, particularly in relation to public policy and people related inhibitors, which, subject to validation with the other public sector case studies can enrich current research into e-procurement in the UK public sector.
- Finally, Objective 4 related to the identification of any lessons which could be learned from undertaking the pilot case study. The lessons identified include:

- It is imperative that the data collected and collated through the data collection tool is supplemented through discussions, participant observation, and interviews with representatives of the procurement environment across each organisation (e.g. internal finance, procurement and senior management staff as well as suppliers) to ensure that the overall procurement landscape is properly captured and understood.
- The nature of goods and services procured by the pilot case study organisation varied considerably in nature from simple office stationery to complex infrastructure. As such, it is important to understand the complexities which may arise from the procurement of these varied goods and services and to draw appropriate conclusions on the applicability of the various elements of e-procurement.
- Underlying the procurement related data and documents there are complex issues relating to people and culture which may be more of an impediment to the introduction of e-procurement than the ability of a technology solution to securely facilitate electronic transactions.

Taking account of the lessons learned from the pilot organisation, the next chapter summarises the within case analysis of each of the four case study organisations, across the UK Central and Local Government sectors.

## 6. WITHIN CASE ANALYSIS

*Man concocts a million schemes; god knows one  
(Chinese proverb)*

### 6.1. Introduction

The purpose of this chapter is to build on the experience and lessons learned from the pilot study to examine the factors impacting the adoption of e-procurement with four further public sector organisations across Central and Local Government.

### 6.2. Within Case Analysis

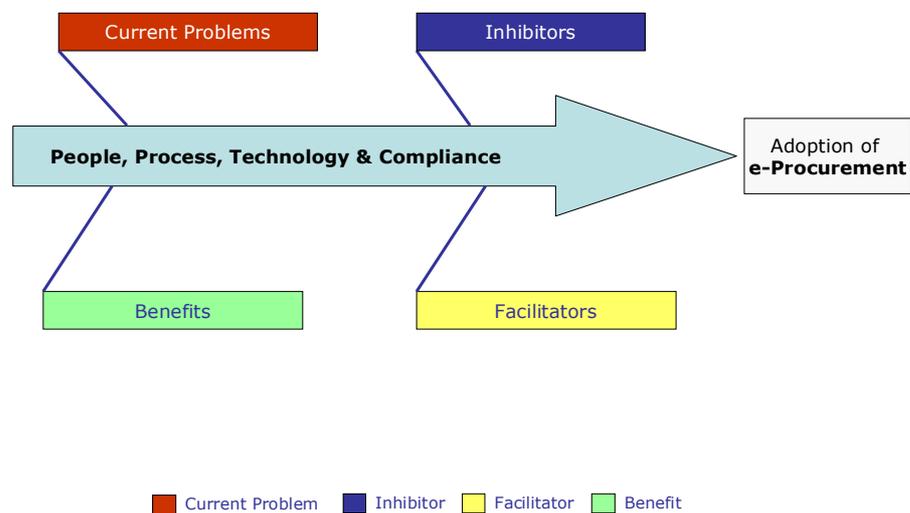
After the collection of information from the four case study organisations, a method of analysis was needed to condense the information into readily analysable pieces. Strauss & Corbin (1988) produced an inductive coding method whereby, data is reviewed line by line to identify individual concepts from which clusters of concepts could emerge giving rise to higher order categories and emergent patterns in the data.

The primary objective, at this stage, was to build on the outputs from the literature research and the pilot case study, to identify emergent factors, which might impact on the adoption of e-procurement in Central and Local Government. However, as noted by Gilovich (1991), explanations can often miss the mark and assign systematic meaning when something "*is really random, chaotic and illusory*". In an attempt to avoid this "within case" and "cross case" analyses were undertaken.

This approach enabled the summation of the information collected through document review, observation or data provision and addressed the challenge of handling the information generated from the interviews, classifying it in a meaningful manner (Spradley 1979). Key benefits of this approach are that they facilitated qualitative analysis of individual information provided by the case study organisations and cross case analysis in multiple layers.

The within case analysis provided a preliminary descriptive understanding of each of the four case study organisations and in particular reflecting how their information related to the research framework developed which considers current procurement problems, e-procurement inhibitors/facilitators and anticipated benefits across the four themes of process, technology, people and compliance, see Figure 6.1.

**Figure 6.1: Research framework**



Initially the information collected was marked with descriptive codes based on the output from the literature review and the pilot case (Lazarsfeld & Barton, 1972) – see Table 6.1.

**Table 6.1: Coding**

<b>Code</b>	<b>Description</b>
TECH/PROB/SYS	Absence of supporting systems
TECH/PROB/INT	Absence of system integration
TECH/PROB/SEC	Concerns regarding IT security
TECH/PROB/SUP	Inability of suppliers to trade electronically
PROC/PROB/MAN	Largely manual processes
PROC/PROB/NUM	Large number of suppliers and invoices
PROC/PROB/STRT	Absence of corporate procurement strategy
PEOP/PROB/PERC	Low perception of procurement
PEOP/PROB/CHAN	Reluctance to change
COMP/PROB/CONT	Lack of control
COMP/PROB/QUAL	Downstream quality issues
PROC/INHI/SUP	Lack of supplier adoption
PROC/INHI/PROC	Unwillingness to re-engineer processes
PROC/INHI/COST	Cost
PROC/INHI/COMP	Complex procurement
PROC/FAC/EFF	Need to deliver efficiencies
PEOP/INHI/SKIL	Lack of procurement skills
PEOP/INHI/CHAN	Resistance to change
PEOP/INHI/CULT	Inappropriate culture
PEOP/INHI/SKIL	Unavailability of suitably skilled personnel
PROP/FAC/STAF	Infusion of new staff
COMP/INHI/LEGA	Legal and regulatory controls
COMP/INHI/SUST	Sustainable procurement
TECH/BEN/SYS	Elimination of ad hoc systems
TECH/BEN/INFO	Timely and accurate procurement information
PROC/BEN/SUP	Enhanced supplier relationships
PROC/BEN/ADMIN	Reduced administrative costs
PROC/BEN/PRICE	Reduced prices
PROC/BEN/MGT	Improved management information
PEOP/BEN/SKIL	Upskilling of staff
PEOP/BEN/JOB	Job enrichment
COMP/BEN/CONT	Improved financial control
COMP/BEN/COMP	Improved contract compliance

The following paragraphs provide a summary of the fieldwork undertaken across the four case study organisations as follows:

- Local Government – an urban Unitary Authority

- Local Government – a two-tier shire Authority
- Local Government – a rural Unitary Authority
- Central Government – a Non Departmental Public Body

As noted in the research strategy, the fieldwork undertaken with all organisations involved the following:

- Collection of procurement related data using the data collection spreadsheet (Appendix 1) which was refined following the pilot case study.
- Collection of qualitative information relating to procurement using the interview proforma (Appendix 2) which was refined following the pilot case study.
- Desk based research including the review of procurement related documentation collected from each case study organisation, for example, procurement policies, procurement procedures, procurement strategy, etc.
- Interviews with, and observation of, key stakeholders across each organisation, see Appendix 3 for details of the stakeholders interviewed/observed and their respective roles.
- Final interviews with key senior stakeholders of each organisation where the objectives of these meetings were:
  - To validate the findings of the fieldwork, in terms of the various factors identified (e.g. current procurement problems, facilitators/inhibitors and potential benefits of introducing or extending e-procurement).
  - To understand the impact of these factors on the adoption of e-procurement across the organisation, at the time of undertaking the initial fieldwork.
  - To understand the impact of these factors on the planned level of adoption of e-procurement, including where appropriate

elements of e-procurement which the organisation has decided not to introduce.

### **6.3. Case Study 1: Local Government, Unitary Authority 1**

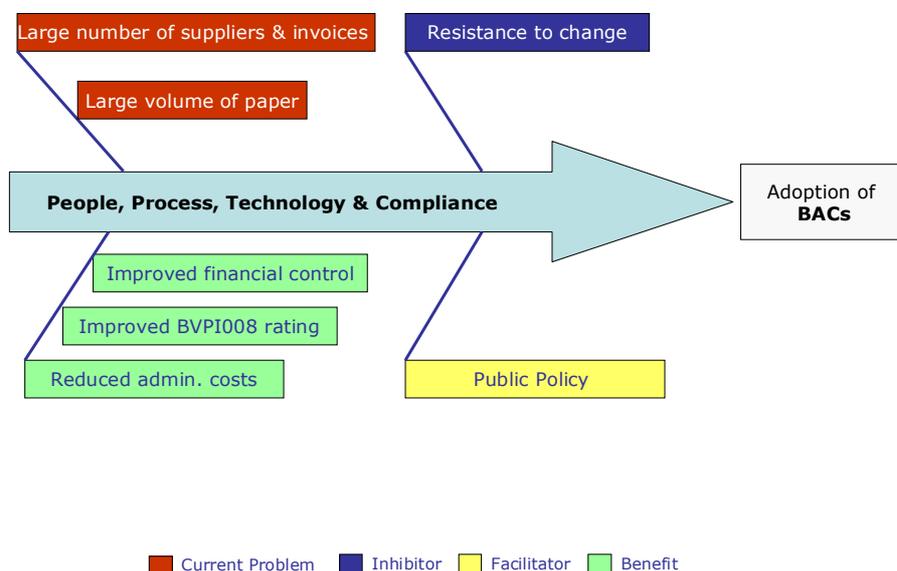
The first case study organisation is drawn from Local Government and is an urban Unitary Authority where the organisation provides a range of services to its citizens including adult services (including housing and health), children's services, community & culture services and environment & regeneration services.

Services are delivered by approximately 15,000 staff across four directorates in the Council, where these four front line service delivery divisions (Property, Social Services, Education and Highways, Transport & Waste Management) are supported by a Corporate Services Division which includes Finance and IT.

The Council provides services to approximately 600,000 citizens and has an annual expenditure of approximately £280m. Procurement across this Council is decentralised, with all Directorates (and supporting corporate functions) having responsibility for their own procurement. Across the organisation a common corporate finance system (Oracle Financials) is used, however, it is primarily used as a general ledger (to capture accounting information) and for accounts payable with suppliers being paid through BACs.

### **6.4. Factors affecting the current adoption of e-Procurement**

The only e-procurement technology solution used by this organisation at the time of the fieldwork was BACs. The factors influencing the adoption of BACs by this organisation, for the payment of supplier invoices are discussed in the following paragraphs – see Figure 6.2 which illustrates the outcome of the discussion with the key stakeholders (see Appendix 3 for details) in relation to these factors with additional discussion provided in the subsequent paragraphs.

**Figure 6.2: Factors affecting the adoption of BACs**

As illustrated by Figure 6.2, the introduction of BACs to the organisation has overcome a number of problems identified with the current procurement process, namely:

- **Large volume of paper generated:** as noted above the Council currently receives approximately 700,000 supplier invoices (on paper) annually. Taking account of the supporting documentation which has to be associated with each invoice (e.g. copy purchase order, goods receipt note and coding slip) the Council generates and stores on average 2.8m pieces of information relating to supplier invoices annually. One of the procurement staff [PRO1] noted that *“the current procedure of filing and storing invoice related paper for 7 years is burdening the Council with increasing document storage costs, particularly as some of this is outsourced to the private sector, and this could be avoided through either the use of electronic procurement, an electronic document & record management system or by changing the current policies and procedures.*

- **Large number of suppliers and invoices:** in common with the pilot case study, staff across this Council indicated that there are “*significant resources dedicated to support the current procurement processes*”. This comment is evidenced through the examination of procurement related data which indicated that across the Council in excess of 300,000 invoices are received and processed annually, and of this 70,000 invoices had a value of £100 (or less), for example the average milk invoice within the Education Division was £6.35.

Through the introduction of BACs to this County Council, senior management have embarked on addressing a significant inhibitor to change, being resistance by the various divisions to changes in the procurement processes and procedures. The resistance of procurement staff in the various divisions to changes in the procurement processes was highlighted by one procurement officer [PTO1] who noted “*within my division, procurement staff have focused on the needs of the division, without input (or interference) from the other divisions – the decision to introduce BACs as the corporate method of paying suppliers, was not well received, and was seen as the start of a drive to standardise procurement processes and systems across the Council*”. However, this procurement officer also recognised that the decision to introduce BACs across the Council as the preferred payment method was driven by external pressures (e.g. government initiatives) and as such, the level of resistance to this change was minimised.

The introduction of BACs to this Council provided the organisation with a number of benefits, including:

- **Improved financial control:** the introduction of BACs to the Council improved financial control across the organisation, primarily in relation to the management and reconciliation of cheques to suppliers. In addition to reducing the time staff spent responding to supplier queries regarding lost, duplicate or un-presented

cheques, the organisation was less susceptible to financial loss through fraud or stolen cheques.

- **Reduced administrative costs:** the introduction of BACs as the preferred method for paying suppliers provided the organisation with a reduction in the administration costs associated with the payment of suppliers. Previously a number of staff across each divisional finance function were responsible for the payment of suppliers (through separate payment runs in the Oracle Financials Accounts Payable module, and separate cheque printing, enveloping and distribution). The introduction of BACs meant that the number of payment runs could be reduced to one (weekly) and the need for the enveloping and distribution of cheques was removed.
- **Improved BVPI008<sup>10</sup> rating:** the introduction of BACs as the preferred payment method had enabled the organisation to increase its BVPI008 rating from 91.3% to 95.6%. Whilst the organisation is still not meeting the 100% target set by the Government, its improved performance has been attributed to the positive impact of introducing BACs.

### 6.5. Factors affecting the planned adoption of e-Procurement

Through discussions with senior stakeholders in this Unitary Authority two elements of e-procurement were identified as areas for future implementation, these included:

- **e-tendering** – in common with a number of Local Government organisations, and largely driven by the availability of proven technology solutions, and the recommendations of the National Procurement strategy for Local Government (2003), the Council plan to introduce all aspects of e-tendering, including tender notification, tender document download and secure tender upload.
- **e-purchasing** – given the large number of suppliers used by the Council, and the large number of invoices generated by

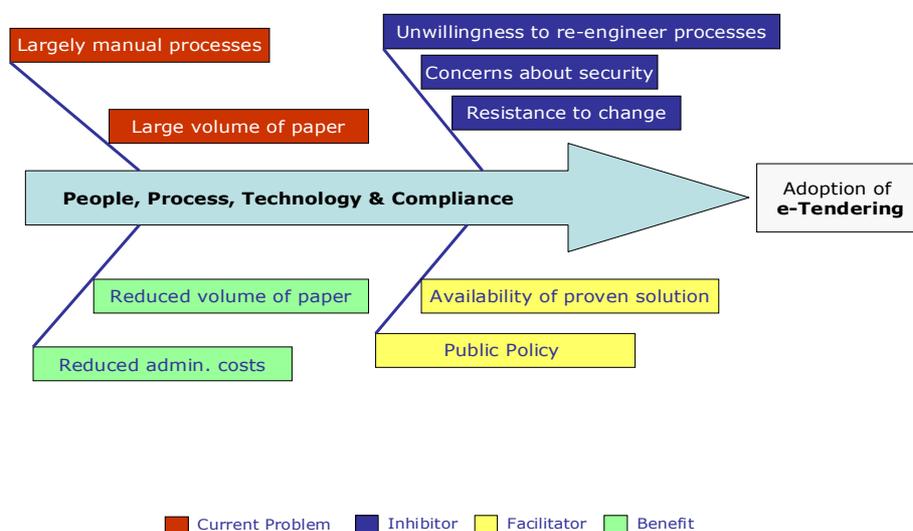
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<sup>10</sup> BVPI008 (Best Value Performance) indicator 008 relates to the payment of all supplier invoices (100%) within 30 days of receipt of a valid invoice.

these suppliers, the Council have concluded that an appropriate e-purchasing system should be introduced, especially where this solution can be integrated to the organisation's finance system.

A discussion on the factors effecting the planned introduction of these three elements of e-procurement is provided in the following paragraphs, where the influencing factors on the planned introduction of e-tendering is illustrated by Figure 6.3.

**Figure 6.3: Factors affecting the adoption of e-Tendering**



The planned introduction of e-tendering to the Council aims to continue to address a number of the "results" of the organisation having largely manual processes, in particular the large volume of paperwork generated through the current process whereby all tenders are initially advertised tenders in local papers, and then all tender documentation is collated and posted, in hard copy, to suppliers who submit a telephone or written request to participate in the competition. In common with the pilot case study, it was noted that a large number of staff were involved in the current procurement process, as summarised by the Director of Finance "we have significant resources dedicated to support the current procurement processes, which are out of date, labour intensive and generate a forest of paper".

The planned introduction of e-tendering will however have to overcome a number of challenges, identified by the fieldwork as inhibitors. The major inhibitors which will have to be overcome through the introduction of e-tendering are similar to those identified for the introduction of BACs and include a reluctance of the organisation to re-engineer current processes, and to undertake change, particularly to standing orders<sup>11</sup>, as a review of the current standing orders during the fieldwork indicated that they do not provide for e-tendering and as such will require a significant overhaul to reflect future processes and procedures following the introduction of e-tendering.

Additionally, the organisation will have to overcome concerns relating to the security of e-procurement transactions. This concern was raised by a number of staff across the organisation. However, it was interesting to note that a number of the technology staff interviewed [ED1, SS9 & P6] did not see this as a major concern, given that the Council already provides a number of on-line services to its citizens. As noted by SS9, *"I am confident of the ability of the organisation to facilitate the implementation of a secure e-procurement solution (such as e-tendering), given our experience of introducing a number of citizen facing on-line services"*.

As noted above, the key drivers (of facilitators) to the introduction of e-tendering by this Council was the availability of proven e-tendering solutions already operational across the UK Local Government sector. For example, a number of Councils across the UK are already using a variety of e-tendering solutions including BRAVO, Procon, Intenda, Eutilia and e-sourcing solutions. As such all procurement staff interviewed [HTWM1, SS3, P1, P2 P3 and PRO1] all felt that the Council was only "catching up with peers" and as noted by the Social Services Procurement Officer [SS1] *"it is reassuring to see that the Council is considering the introduction of modern procurement solutions across the organisation, given that we understand from our peers in other Councils that they have been tendering for products*

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<sup>11</sup> Council Standing Orders, Version 0.6, issued June 2000

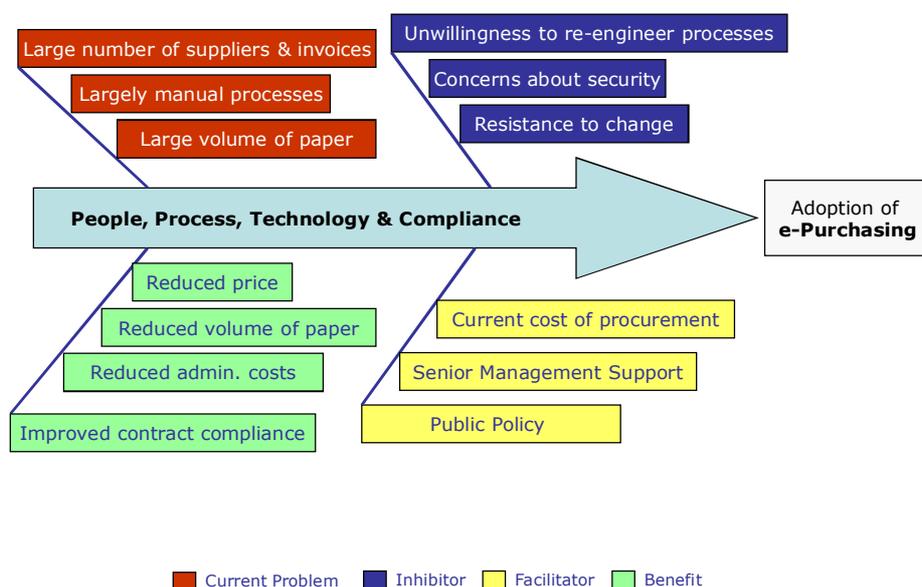
*and services electronically for a number of years". Additionally, the overall drive by Local and Central Government to reduce administration costs, and to streamline procurement, primarily arising from the Byatt (2001) and Gershon (2004) reviews, should contribute to the removal of current tendering processes, and the introduction of e-tendering to the organisation.*

The benefits that the Council expect to achieve through the introduction of e-tendering are largely associated with a reduction in the administrative cost of tendering. As noted by one procurement officer during discussions [PO1], *"the National Procurement Strategy Project<sup>12</sup> are quoting savings in process costs of up to 15% for a Request for Quotation (RFQ), up to 25% for a non-OJEU (Official Journal of the European Union) tender and up to 28% for an OJEU tender. Given this scale of potential savings, the future introduction of e-tendering to the Council should have a very short payback period, and should be a quick win for the Council".*

The other key potential benefit which the organisation identified may be available from the introduction of e-tendering is a reduction in the volume of paper generated (and then stored) by the Council. As noted by the Head of Internal Audit [IA1], *"I understand that our risk based approach to internal audit has led to the storage and maintenance of a large volume of paper records arising from the current tendering process. This approach has largely been driven by the need to safeguard the Council from legal challenges arising from a procurement exercise, however, I welcome the introduction of e-tendering as this should significantly reduce our dependence on paper records, providing we can also introduce suitable electronic document storage facilities".* The second aspect of e-procurement which this organisation plan to introduce is e-purchasing (the electronic generation and transmission of purchase orders to suppliers), and the factors impacting the planned adoption of e-purchasing are illustrated by Figure 6.4 and discussed in the following paragraphs.

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<sup>H</sup> How to quantify and realise benefits from e-tendering (National e-Procurement Project NePP: Benefit Realisation Strand)

**Figure 6.4: Factors affecting the adoption of e-purchasing**

One of the major criticisms of the current procurement process is its manual nature, the number of “checks and balances”, the volume of paper created and the cost of administering this process. As noted by the procurement officer in the Highways, Transport & Waste Management Directorate, [HTWM1], *“across the Council the procurement procedures and processes are varied leading to significant variations in the unit cost of processing a transaction, this is an area which requires urgent attention, and one that I would expect to be addressed through the introduction of a suitably proven e-purchasing system, which would easily integrate/interface to our current finance system”*.

This variation in unit cost of transaction processing identified by the HTWM Procurement Officer is borne out through the data collected in the fieldwork (see Table 6.2), which shows a variation in the unit cost of processing an invoice across the Council varies, from £0.44 to £89.65<sup>13</sup>.

<sup>13</sup> Through investigation with the Highways, Transport & Waste Management Division, it appears that the significant cost of processing an invoice relating to commissioning (relative to the other invoice types) arises from the complexity associated with such an invoice including bills of materials, completion certificates and retentions, used in such contracts.

**Table 6.2: Current invoice processing costs**

<b>Process</b>	<b>Transaction Volume</b>	<b>Unit Cost (£)</b>
Commissions	1320	£89.65
Highways design	480	£29.41
Planned repairs	564	£23.15
Nursing and residential contracts	368	£18.89
Official orders	2339	£16.98
Transport buying – contracts	400	£16.12
Vehicle maintenance	6117	£10.90
Residential – all	2300	£10.13
Transport buying and payments	6600	£7.66
Nursing and residential	5750	£7.58
Standing orders	22077	£5.57
Waste management	4000	£4.23
Signs maintenance and installation	1200	£3.99
Control desk	15548	£3.82
Domiciliary care	42000	£3.63
Office Buying – commodity purchases	1959	£3.23
Catering equipment repairs	3418	£1.96
Transport buying – one off requests	600	£1.96
Residential – catering buying	1150	£1.96
Catering equipment invoices	2161	£1.92
Milk administration	7934	£1.92
Transport invoices	5700	£1.92
Transport repairs and maintenance	1150	£1.92
Sites development projects	1600	£1.92
HTWM central invoice processing	17000	£1.35
Accounts	17731	£1.05
Reactive repairs	9281	£0.44

It is envisaged by procurement officers across the Council that these (current) procurement problems will be overcome through the introduction of a suitable e-purchasing system.

However, in overcoming these problems, it is acknowledged by procurement officers that across the organisation there will be a general unwillingness to re-engineer processes, given that they have been in place for a number of years, and overall the introduction of any new technology solution will meet with resistance, particularly if

the project is being led by Corporate Services. As noted by the Director of Finance [FIN1], *"the introduction of an e-purchasing software solution to the Council will require a multi-disciplinary team with representatives from all directorates, and sponsored by the senior management team – without this team mix and senior level sponsorship, the project will run into problems"*.

The Director of Finance [FIN1] also noted that the current focus by senior management and Councillors on efficiencies and reducing support functions to provide additional resources to deliver better front line services, would undoubtedly facilitate the envisaged changes, particularly given the strong management style of a number of the Senior Management Team (SMT) within the organisation. However, whilst acknowledging the facilitating influence of the SMT he noted that these changes would still require the preparation of a robust and comprehensive business case to identify benefits and allocate responsibility for their delivery.

Additionally, the current cost of purchasing across the Council was considered a key facilitator by the Director of Finance, as he felt the fieldwork undertaken in this research *"provided a sound basis to articulate the potential benefits to the Council of introducing e-purchasing, which previously was a challenge without sound evidence"*.

In common, with the introduction of e-tendering, it is recognised by procurement officers across the Council that the introduction of e-purchasing will provide similar benefits including a reduced volume of paper and reduced administration costs. However, it is envisaged by procurement officers that the introduction of e-purchasing will also result in a reduction in the price paid by the Council for standard (commodity) items and, providing the e-purchasing solution facilitates the establishment of catalogues for commodity items, then there should be a reduction in the level of off-contract (or maverick) purchasing across the Council, e.g. increased financial control.

As noted by the Social Services Procurement Officer [SS3], *"the National e-Procurement Project (2004) indicated that the potential for reducing the price paid for goods/services was in the range 0.8% - 1.5% (without undertaking strategic sourcing). Taking account of the expenditure profile of this Council, the potential savings which we could achieve through the introduction of e-purchasing are considerable. Additionally, the NePP study indicated that the introduction of e-purchasing can reduce the administrative costs associated with purchasing by up to £40 per transaction"*.

From the fieldwork undertaken, and using the information provided by the Social Services Procurement Officer, the potential administrative savings which may be available to the Council over the next 5 years is conservatively estimated at £1.6m – see Table 6.3, which illustrates the strength of the business case for introducing e-purchasing to this Council.

**Table 6.3: Potential administrative savings from e-purchasing**

Directorate	Year 1	Year 2	Year 3	Year 4	Year 5
Property	£27,000	£109,500	£109,500	£109,500	£109,500
HTWM	£33,500	£134,000	£134,000	£134,000	£134,000
Social Services	£18,500	£74,000	£74,000	£74,000	£74,000
Education	£12,000	£47,500	£47,500	£47,500	£47,500
<b>Total</b>	<b>£91,000</b>	<b>£365,000</b>	<b>£365,000</b>	<b>£365,000</b>	<b>£365,000</b>

### 6.6. Factors influencing future expansion of e-Procurement

As discussed in the previous paragraphs, this Council had a basic exposure to e-procurement, through the use of BACs, however, is planning on increasing this through the introduction of e-tendering and e-purchasing. The further extension of e-procurement across the organisation beyond these solutions was discussed with a cross-section of senior stakeholders (e.g. finance, procurement, social services, etc.) and it was concluded that there will be limited scope for extending the range of e-procurement solutions to include more "leading edge" or innovative solutions (e.g. reverse auctions, e-invoicing).

For example, despite the minor benefits achieved through the introduction of BACs payments, and the planned introduction of e-tendering and e-purchasing for all commodity goods and a number of services. The main reasons identified by the key stakeholders in the review meetings for not extending the e-procurement footprint (e.g. to include other e-procurement elements such as P-cards, e-invoicing, reverse auctions, etc.) across the organisation or introducing future elements of e-procurement are:

- **Complex procurement (Inhibitor):** through the discussions with staff across the Council, and from the analysis of the various procurement processes, it is evident that one of the potential inhibitors to the introduction of e-procurement across the Council is the complexity of procurement. For example, the procurement of standard goods (e.g. stationery) is straightforward and relatively consistent across the organisation. However, within each Directorate there are specialist and complex procurement areas (e.g. Social Services – procurement of social care and Highways, Transport & Waste Management – procurement of design and build of infrastructure) which will not easily lend themselves to e-procurement, at this stage, given the lack of experience of the organisation with e-procurement at the time of undertaking this research.
- **Inability of suppliers to trade electronically (Inhibitor):** a number of the suppliers to the Council are local Small and Medium Enterprises (SMEs) and as such do not have the capacity, and indeed in some cases willingness, to invest in technology solutions to enable them to trade electronically with the Council. As noted by one supplier [SUP2], *“our organisation, a family business with a long history in this area, has been providing services to the Council for over 30 years – we don’t see the need to spend significant sums of money on introducing new technology just to provide greater efficiencies to the Council, however, we would welcome support from the Council to enable our organisation to invest in modern*

*technology so that we can work closer with the Council and potentially other neighbouring authorities”.*

- **Lack of procurement skills (Inhibitor):** procurement staff across the organisation [HTWM1, SS3, P1, P2, P3 & PRO1] indicated that there was an overall lack of procurement related skills. As noted by P1, *“there are a limited number of staff across all Directorates who have procurement skills or who have procurement qualifications (e.g. membership of the Chartered Institute of Purchasing & Supply – CIPS), however, these are the exception, rather than the norm”*, as such it was considered by this procurement member of staff that the absence of procurement skills would *“pose a relatively major risk to undertaking a project to amend current procurement policies and procedures to accompany the introduction of e-procurement”*.
- **Lack of programme and project management (Inhibitor):** the key programme and project management staff interviewed [PM1 & PMG1] noted that across the organisation there is a general absence of experienced project personnel, with the result that the establishment of a project to introduce e-procurement to the Council would require either the employment of additional resources, the introduction of contractors or the use of external consultants. As noted by PM1 *“the commencement of a far reaching project of this nature, which would span all Directorates, will require significant resource, with the appropriate experience. We don’t have this type of resource in-house, and in the event that the Council employs either contractors or external consultants it will be imperative that there is significant knowledge transfer to the internal team”*.
- **Public policy (Inhibitor):** the policy of the Council to take a responsible approach to the economic regeneration of their city, including the provision of commercial opportunities to local suppliers, is considered by many of the procurement staff an inhibitor to the expansion of e-procurement solutions across the Council. As noted by SS7, *“a number of small local suppliers, who*

*do not have the resource, or potentially desire, to become e-enabled will be excluded if the Council pursues an expansive e-procurement approach. Given the political influence on this Council, as is the case with all others throughout the UK, we cannot afford to cut off business opportunities to SME suppliers, through our desire to expand the use of e-procurement”.*

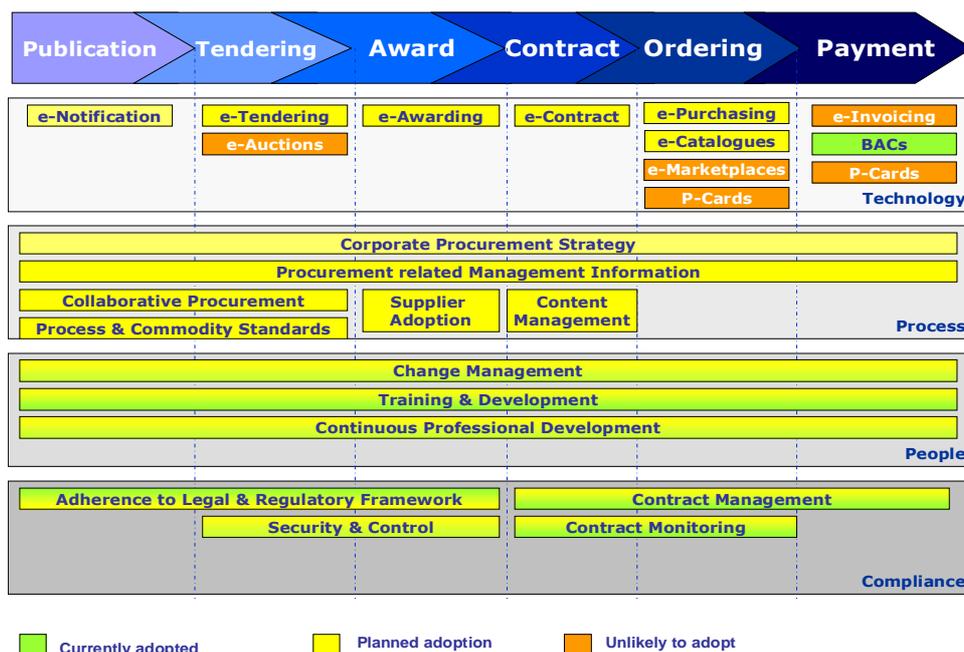
### **6.7. Case Summary**

Figure 6.5 summarises the current and planned position of this Council in relation to the adoption of a number of elements of e-procurement, using the research framework discussed earlier, where the current, planned and “unlikely to adopt” aspects of e-procurement are highlighted.

In addition to summarising the progress that the pilot organisation has made with the introduction of e-procurement, Table 6.4 summarises the factors (column 1) which have:

- effected the adoption of e-procurement currently (column 2).
- effected the planned adoption of other elements of e-procurement (column 3).
- effected the decision not to adopt other elements of e-procurement (column 4).

**Figure 6.5: Case 1: summary of e-procurement adoption**



As noted from the discussion above, at the time of undertaking this research, this Council had made limited progress in the introduction of e-procurement solutions, and related process, people and compliance initiatives, by overcoming a number of inhibitors, primarily relating to people and processes.

However, it is also worth noting that the organisation, whilst planning to expand the number of elements of e-procurement used, does not intend to wholeheartedly adopt e-procurement, given the continued presence of a number of process, people and compliance related inhibitors.

**Table 6.4: Summary of factors impacting on e-procurement adoption**

<b>Influencing Factor</b> <span style="display: inline-block; width: 15px; height: 10px; background-color: #e0e0e0; border: 1px solid black; margin-right: 5px;"></span> Current Problem <span style="display: inline-block; width: 15px; height: 10px; background-color: #e0f0e0; border: 1px solid black; margin-right: 5px;"></span> Facilitator <span style="display: inline-block; width: 15px; height: 10px; background-color: #a0c0ff; border: 1px solid black; margin-right: 5px;"></span> Inhibitor <span style="display: inline-block; width: 15px; height: 10px; background-color: #c0e0c0; border: 1px solid black; margin-right: 5px;"></span> Benefit	e-procurement modules already adopted	e-procurement modules to be adopted	e-procurement modules <u>not</u> to be adopted
Large number of suppliers and invoices	✓	✓	
Large volume of paper	✓	✓	
Largely manual process		✓	
Limited use of current systems	✓		
Low staff morale			
Lack of control			
Resistance to change	✓	✓	
Cost (of e-procurement)		✓	
Absence of a corp. procurement strategy			
Lack of procurement skills			✓
Unwillingness to re-engineer processes		✓	
Lack of programme & project management			✓
Concerns regarding security		✓	
Complex procurement			✓
Public policy			✓
Inability of suppliers to trade electronically			✓
Legal and regulatory controls			
Public policy	✓	✓	
Availability of a proven solution		✓	
Current cost of procurement		✓	
Senior management support	✓	✓	
Sustainable procurement			
Reduced administration costs	✓	✓	
Improved financial control	✓		
Improved BVPI008 rating	✓		
Reduced volume of paper		✓	
Job enrichment			
Reduced price		✓	
Improved contract compliance		✓	

### **6.8. Case Study 2: Local Government, Two Tier Authority**

This Two-Tier Authority provides a range of services through a mixed economy of service provision (e.g. partnership, joint ventures & commissioning, outsourcing, in-house provision and consortia) to its citizens through the following six directorates:

- Adult services, housing and health
- Children's services
- Community and culture
- Environment and regeneration
- Performance and strategy group
- Resources

The Council employs approximately 9,600 staff in the delivery of the above services. These services are provided to approximately 950,000 citizens and the annual budget of the Council for the provision of these services is approximately £900m, of which approximately £30m per annum is spend on services (e.g. telecoms), capital items (e.g. IT hardware) and operating materials (e.g. office supplies).

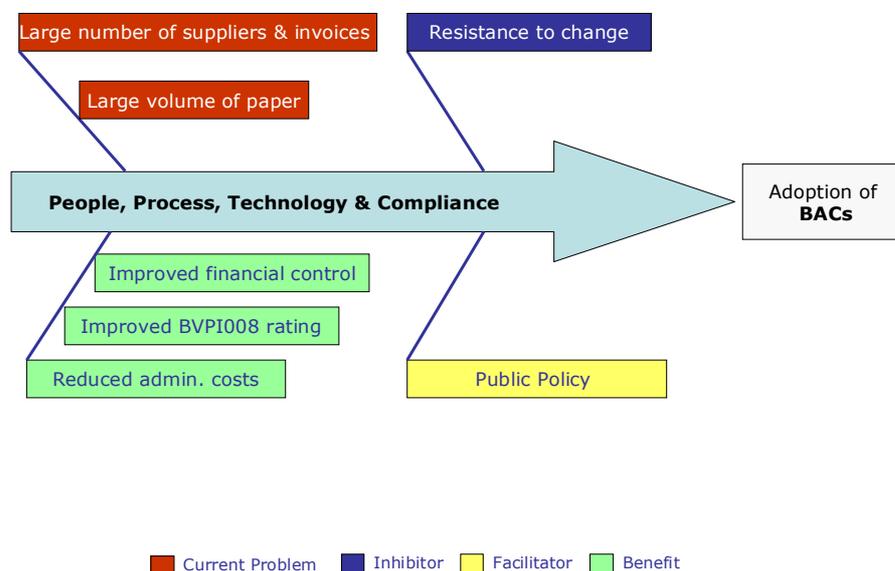
This Council, in common with the other case study organisations, has already introduced a number of e-procurement related solutions including BACs (for the payment of supplier invoices), P-cards (limited to defined categories and suppliers) and e-tendering (limited to the publication of tenders on the organisation's website). In addition to these e-procurement related solutions, this organisation operates one finance system (Oracle e-business suite) for the majority of the Council, the exception being the Community & Culture Directorate which has a separate system.

The key factors that influenced the Council's current adoption of these e-procurement solutions, based on the information obtained through the use of the data collection tool (Appendix 1) and Interview Proforma (Appendix 2), are discussed in the following paragraphs.

### 6.9. Factors affecting the current adoption of e-Procurement

In relation to the current adoption of e-procurement by this organisation, Figure 6.6 illustrates the outcome of the discussion with the key stakeholders (see Appendix 4 for details) in relation to the factors which were considered key in the decision making process for the introduction of BACs – see subsequent paragraphs for additional information.

**Figure 6.6: Factors affecting the adoption of BACs**



As illustrated by Figure 6.6, the key factors that influenced the decision by the Council to introduce BACs as their main payment method for suppliers were similar to those for the pilot organisation and the Unitary Authority being:

- a large number of suppliers generating a large number of invoices for payment, leading to a large volume of procurement related paper across the Council was one of the problems that the introduction of BACs was seeking to address – see Table 6.5 for a summary of the number of suppliers and invoices for 5 key commodity groups.

**Table 6.5: Suppliers and invoices for 5 key commodity groups**

<b>Commodity Group</b>	<b>No. of Suppliers</b>	<b>No. of Invoices</b>	<b>Annual Spend (£)</b>
Building Works	21	22,373	£3,632,077
Computer Peripherals	14	3,563	£1,642,129
Security	8	2,568	£740,705
Agency Staff	5	5,742	£1,732,462
Office Supplies	4	7,735	£861,102
<b>Total</b>	<b>52</b>	<b>41,981</b>	<b>£8,608.475</b>

- in common with most public sector organisations, there is a general resistance to change across this organisation. Through discussions with a number of procurement officers across the six directorates, it was apparent that staff and members were reluctant to move away from the payment of suppliers by payable order/cheque, unless there was a compelling business reason to do so, which could be clearly and simply articulated to all. As noted by the Community and Culture Procurement Officer [CC2], *"the process of changing current procurement processes and systems across the Council will be long and testing. As a Council, we do not easily react to change, unless there is a compelling need for change, and for this reason I think that the business case developed for the introduction of BACs clearly demonstrated the benefits to the organisation, and as such, this project was a success"*.
- the introduction of BACs to the Council was facilitated by a robust business case, and by a number of Government initiatives/policies which were identified by stakeholders as facilitators to the introduction of BACs across the Council. In particular the following initiatives were identified by the Director of Resources [RE2] as *"potential platforms from which a case could be built for the introduction of e-procurement, initially on a pilot basis, to the Council"*:
  - Local Area Agreements (LAA) – a LAA sets out the priorities for a local area agreed between Central Government and a Local Area (the Local Authority and Local Strategic Partnership) and other key partners at the local level. The objective behind a

LAA is that it should simplify some central funding, help join up public services more effectively and allow greater flexibility for local solutions for local circumstances.

- Spending Review (SR2002) – the 2002 Spending Review involved a long-term and fundamental review of government expenditure, and covered departmental allocations for 2002-03, 2003-04 and 2004-05, where one of the key priorities was *"better public services, through achieving annual efficiencies in excess of £20bn, of which at least £6.45bn will be found within Local Government"*.
  - Comprehensive Performance Assessment (CPA) – the CPA was introduced in 2002 to provide a rounded view of a Council's performance, where a CPA measures Local Government performance and covers both organisational capacity and the whole range of a Council's services. A key part of a CPA relates to Use of Resources Judgement, as this includes procurement.
- the benefits provided to the Council through the introduction of BACs were similar to the pilot organisation and the case study for the Unitary Authority, being improved financial control, reduced administration costs and an improved BVPI008 rating. BVPI008 is one of the key measures of the Council in relation to the procurement process, and in particular to its adherence to the BVPI008, which relates to the payment of supplier invoices within 30 days, where performance over the past 3 years is summarised in Table 6.6.

**Table 6.6: BVPI008 performance**

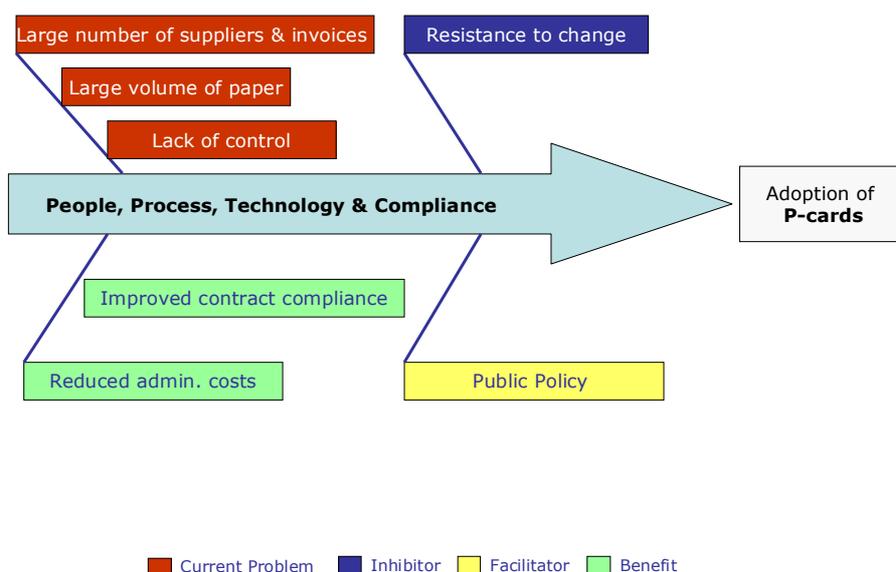
<b>Year</b>	<b>BVPI008 Performance</b>
2003/04	90.8%
2004/05	90.9%
2005/06	91.9%
2006/07	93.8%

As noted by the Chief Executive [RE1], *"our performance in relation to BVPI008 over the past number of years had been unacceptable, and*

*had resulted in the Council appearing in the bottom quartile, when compared to our peers. It was my intention to address this issue, through the introduction of streamlined procurement processes, with the introduction of BACs being one of the early examples of this, which has already delivered improvement”.*

The factors which were identified by key stakeholders as influencing the introduction of the second aspect of e-procurement, procurement cards (or P-cards) to this Council are illustrated by Figure 6.7 and discussed in the following paragraphs.

**Figure 6.7: Factors affecting the adoption of P-Cards**



As illustrated by Figure 6.7, the introduction of P-cards to the Council was aimed at addressing similar problems to the introduction of BACs, being a large number of suppliers & invoices leading to a large volume of paper. Additionally, one of the main problems that P-cards was aimed at addressing was the lack of control that the Council had over procurement, in particular low value, high volume goods which were bought by staff on an ad hoc basis.

As illustrated by Table 6.5, across the Council a large number of suppliers were used for the provision of goods within a small number of category groups. This practice of ad hoc purchasing reduced the

potential for the Council to aggregate expenditure in these areas which should have resulted in reduced prices for goods.

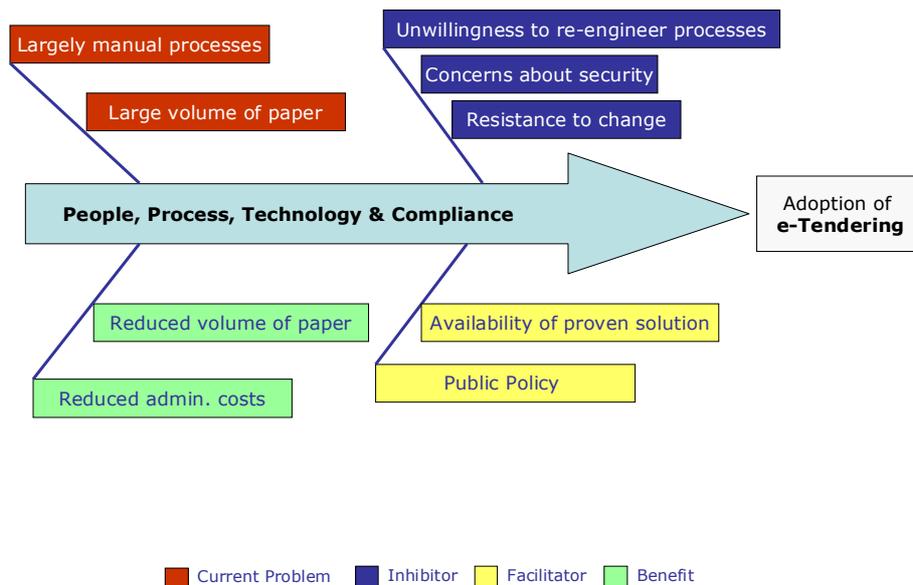
The decision by the Council to introduce P-cards for the purchase of specific goods, e.g. computer peripherals, building materials and equipment, facilitated the establishment of contracts with a small number of key suppliers, thereby reducing the supplier base and associated internal maintenance and management.

In common with the introduction of BACs, the introduction of P-cards met with a degree of resistance from parts of the organisation, who until that point, were relatively free to purchase goods/services from a range of suppliers. The introduction of P-cards, which could only be used with a limited number of suppliers, for agreed items, up to an agreed level of expenditure, led to significant resistance, particularly in the Environment & Regeneration Directorate. This resistance was echoed by the Environment & Regeneration Directorate procurement officer [ER2] who noted that *"the introduction of P-cards across the Council was a corporate decision and one that does not sit well with my directorate. The main reason for this opposition to the use of P-cards arises from the perceived removal of flexibility for staff, in that they no longer can purchase goods from any supplier, only from approved suppliers, which is not always practicable"*.

In terms of the benefits that the organisation realised from the introduction of P-cards, these related to a reduction in administration costs and an increase in contract compliance. The level of reduction in administration costs experienced by the Council reflected that noted by the National eProcurement Project (NePP) and is in the range of £7 - £70, depending on the complexity of the good/service purchased. In addition to this purchase to pay process saving, the Council noted a reduction in invoice processing costs of approximately £8 (per invoice), which is reflective of the research undertaken by NePP where savings in invoice processing in the range of £5 - £15 were identified.

The factors which were identified by key stakeholders as influencing the introduction of e-tendering to this Council are illustrated by Figure 6.8 and discussed in the following paragraphs.

**Figure 6.8: Factors affecting the adoption of e-Tendering**



As illustrated by Figure 6.8, the introduction of e-Tendering (the e-publication aspect) by the Council was aimed at addressing a number of problems typically associated with manual procurement processes. As noted in the discussions of the pilot organisation and case study 1, the key problems which were partially addressed through the introduction of the e-publication part of e-tendering related to the reduction in the volume of paper generated through the printing and dispatching of tender documents, as well as the administration associated with the preparation and publication of tender notices in local newspapers.

The introduction of e-tendering by the Council for all tenders involved overcoming a number of inhibitors, commonly associated with processes and practices that have been in place for a number of years. These include resistance by personnel to the use of e-publication for tenders, especially as this changed the roles of a number of staff within the Resources Directorate, a general

unwillingness to change (or re-engineer) processes, which manifested itself in a number of concerns being raised in relation to the potential security implications of electronically publishing tenders on the organisation's website. As noted by the Director of Resources [RE1], *"the introduction of e-tendering to the Council, in its simplest form created a stir, particularly among staff in my directorate who have been in post for a number of years, and who were comfortable with their roles in the Council. As the Director leading this aspect of the overall Council's modernisation project, I had a number of challenging conversations with staff, some who were in post for 20+ years, to persuade them of the merits of changing our processes to deliver better services to our customers (e.g. other parts of the Council) as well as providing them with a more stimulating job, which I have to say was not easy"*.

As noted by the Director of Resources, the introduction of e-tendering to the Council was driven and facilitated by an overall move by Local Government to streamline procurement (arising from the Byatt (2001) and Gershon (2004) reviews). Additionally, the Council, through collaboration with a number of neighbouring Councils, understood the technology requirements of e-publication and were able to adopt proven solutions, which helped to minimise risk and demonstrate the value of the adoption of e-tendering.

Through the adoption of e-tendering the Council derived a number of benefits, albeit difficult to quantify initially. The benefits identified by the Director of Resources from the introduction of e-tendering relate to a reduction in the administration effort (and cost) associated with tender publication and a reduction in the volume of paper generated by the Council.

#### **6.10. Factors affecting the planned adoption of e-Procurement**

Through discussions with senior stakeholders in this Council two elements of e-procurement were identified as areas for future implementation, these included:

- **e-tendering** – given the success of the initial element of e-tendering, namely e-publication, the organisation plan to expand the use of this technology to include all aspects of e-tendering, including tender notification (e-publication), tender document download and secure tender upload.
- **e-purchasing** – given the large number of suppliers used by the Council, and the large number of invoices generated by these suppliers, the Council have concluded that an appropriate e-purchasing system should be introduced, especially where this solution can be integrated to the organisation's finance system.

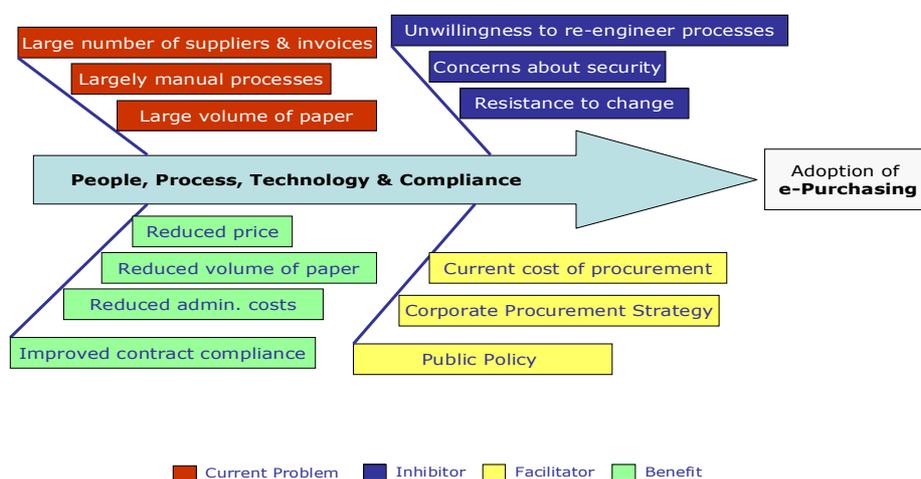
A discussion on the factors effecting the planned introduction of these two elements of e-procurement is provided in the following paragraphs, where the influencing factors on the planned extension of e-tendering is similar to those illustrated by Figure 6.8, with an additional facilitators for the extension of e-tendering being:

- **Development of a corporate procurement strategy** – following the success of the initial elements of e-procurement introduced by this Council (e.g. BACs, P-Cards and e-tendering (e-publication only), the Council, with the assistance of external advisors, developed a procurement strategy for the Council as a whole, where key themes included collaboration, efficiency, best value, economic regeneration and sustainability. Over the course of developing the strategy, procurement representatives from the Council liaised closely with neighbouring and peer Councils to understand their approaches to e-procurement, and as such it was concluded that the use of e-tendering should be maximised across the Council, where appropriate.
- **Sustainable procurement** – as noted above, one of the key themes of the corporate procurement strategy was sustainability, and this was identified as one of the factors which influenced the extension of e-tendering, from simply e-publication. As noted by the Environment and Regeneration Procurement Officer [ER2], "*from the discussions held with other*

*Councils, it is evident that the sustainability agenda is a critical aspect of their approaches to procurement, as pointed out by one of my [ER2] peers, if the Council does not lead the way in relation to sustainable procurement, then how can we expect our suppliers to take a lead on this”.*

The second element of e-procurement which is planned for implementation by the Council is e-purchasing, with the factors influencing this decision summarised by Figure 6.9.

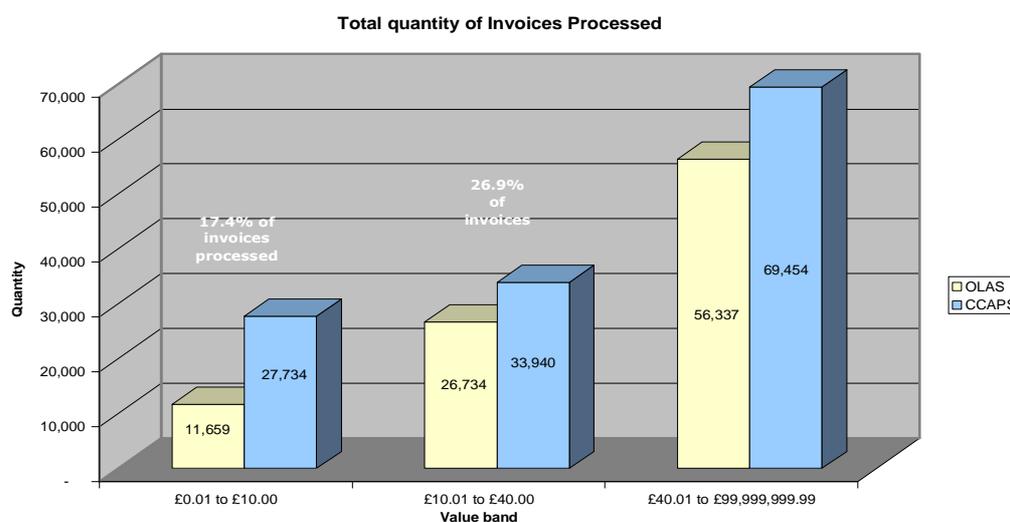
**Figure 6.9: Factors affecting the planned adoption of e-purchasing**



As illustrated by Figure 6.9 the introduction of e-purchasing is aimed at overcoming a number of current problems, which have arisen as a result of the manual procurement process currently in place, the exception to this being the limited use of P-cards. From the discussions with the procurement officers across the Council, the main problems which would be overcome through the introduction of e-purchasing included a potential reduction in the number of suppliers (and invoices) received and processed by the Council (currently over 225,000 invoices are processed annually), and at least partial automation of the current procurement process, which with the exception of P-cards, BACs and the electronic publication of tenders, was completely manual. In addition to these factors, the procurement officers noted that the introduction of e-purchasing should reduce the

volume of paper processed and stored by the Council, particularly, paper relating to supplier invoices with a low value (see Figure 6.10), as these invoices require the same supporting documentation (e.g. requisition note, purchase order, goods receipt note, invoice, coding slip, and BACs remittance advice note) as invoices relating to large, complex infrastructure projects, because of internal audit requirements.

**Figure 6.10: Total quantity of invoices processed by value (£)**



The procurement officers noted that the introduction of e-purchasing to this Council, whilst facilitated by a number of factors, including the recent development of a corporate procurement strategy, the overall (administrative) cost of the current procurement processes, and the overall drive across Local Government to streamline back office processes (including procurement) arising out of recent reviews, would have to overcome a number of inhibitors, which, are not unique to this organisation. The main inhibiting factors to the introducing of e-purchasing identified by the procurement officers included:

- **Security** – the concern of staff about the security of undertaking financial transactions over the internet. This fear was highlighted by the Community and Culture Procurement Officer [CC2] who noted that *"across the Council there is a genuine concern that the introduction of procurement via the internet will expose the Council*

*to unnecessary risks including financial loss or fraud. This was also identified through discussions with my peers in neighbouring Councils as a concern, however, they also indicated that there are a number of proven e-purchasing solutions being used by Councils across the UK, so hopefully, these concerns have already been addressed”.*

- **Resistance to change** – a number of the procurement officers interviewed indicated that the introduction of e-purchasing across the Council would inevitably lead to staff resistance, particularly if this impacted on current roles and responsibilities. As highlighted by the procurement officer in Children’s Services [CS2], *“across the Council procurement processes have been in place for a number of years, which has led to the procurement officers having a modicum of power and authority in the organisation. With the introduction of e-purchasing, this power and authority will be diluted as effectively procurement will be made available to everyone, and therefore some staff in my department, as I am sure is the case with my procurement colleagues in the other directorates, will be concerned, and will resist any change to the current procurement processes”.*

The Director of Resources [RE2] noted that the introduction of e-purchasing, alongside the current use of P-cards, should increase compliance to Council wide contracts, and based on discussions with peer organisations, should also address the increasing problem from the burgeoning “mountain of paper” which the Council is storing and maintaining.

In terms of tangible (or cash related) benefits arising from the introduction of e-purchasing, the Director of Resources indicated that the procurement officers had undertaken research into potential savings from a reduction in the price paid for goods/services and administrative costs. The results of this research indicated that, based on industry benchmarks, the Council could potentially save approximately £400k per annum on a range of commodities (see

Table 6.7), which represents a savings of approximately 6% on an annual expenditure of £7m across this range of commodities.

**Table 6.7: Potential savings from reduced price**

<b>Commodity Area</b>	<b>% Savings</b>	<b>Potential Savings</b>
IT Services	21%	£120,000
Contract Labour	12%	£116,000
Telecoms	12%	£25,000
Marketing & Printing	14%	£13,000
IT Software	11%	£9,000
Office Equipment	24%	£7,500
Office Supplies	18%	£109,000
<b>Total</b>		<b>£399,500</b>

Additionally, an analysis was undertaken to develop an estimate of the potential savings which could be achieved from reduced administrative input through the introduction of e-purchasing. It is estimated that the average cost of processing an invoice, using the current processes and systems, is approximately £38, see Table 6.8 for a breakdown of this across the various sub-processes). With the introduction of an e-purchasing solution and the associated consolidation of suppliers, it is estimated that the Council will reduce the number of invoices processed per annum from 225,000 to 45,000.

Given that the introduction of e-purchasing will negate the need for paper documents flowing around the organisation, it is estimated that the cost of processing an invoice will reduce from £38 (per transaction – see Table 6.8 for details) to £12, thereby providing the Council with an approximate annual saving of £8m (when considering both reducing the number of supplier invoices and reducing the transaction cost associated with the overall procure to pay process).

**Table 6.8: Potential savings from reduced administration**

<b>Sub Process</b>	<b>Current Cost</b>	<b>Projected Cost</b>
Requisition to Order	£3	£1
Approval	£17	£3
Purchase Order Generation	£3	£3
Receiving	£5	£4
Invoice Payment	£10	£1
<b>Total</b>	<b>£38</b>	<b>£12</b>

Tables 6.7 and 6.8 illustrate the potential cash releasing savings that the Council expect to receive from the introduction of a suitable e-purchasing solution, which should fully integrate with their existing finance system.

### **6.11. Factors influencing the future expansion of e-Procurement**

As discussed in the previous paragraphs, this Council already have limited exposure to e-procurement, through the use of BACs, e-tendering and using P-cards, however, it is planning on increasing this through the expansion of e-tendering and the introduction of e-purchasing. The further extension of e-procurement across the organisation beyond these solutions was discussed with a cross-section of senior stakeholders (e.g. finance, procurement, social services, etc.) and it was concluded that it was unlikely that the Council would embark on further e-procurement related activities as it would like to understand the actual payback on investments made to date (and planned), before attempting to address more complex areas of procurement.

The main reasons identified by the key stakeholders in the review meetings for not extending the current and proposed e-procurement footprint (e.g. P-cards, e-tendering and e-purchasing) across all goods and services expenditure areas of the Council are:

- **Complex procurement** – this Council, in common with counterparts across the UK, procures a wide variety of goods and services, from stationery to nursing home places. As such, it was considered by the procurement officers that the whole scale adoption of e-procurement by

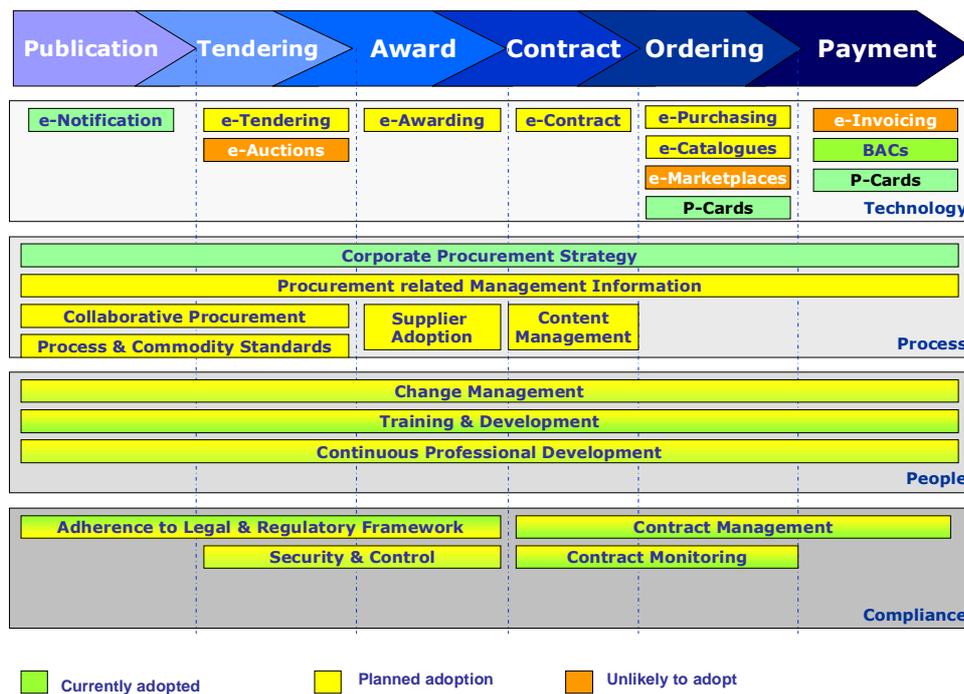
the Council, across all goods and services, is unlikely, given the unplanned nature of demand (e.g. nursing home places) and complexity of specification (e.g. infrastructure construction).

- **Cost** – another key consideration in the potential of further expansion of the e-procurement footprint (current and planned) adopted by this Council is the potential cost. As noted above, it is evident that the Council should be able to make substantial savings from the introduction of the planned elements of e-procurement, however, there is a concern among the procurement officers, that Senior Management across the Council (including Councillors) will expect a similar level of savings from future e-procurement initiatives, and that this may not be possible, given the level of savings achieved to date.
- **Lack of procurement skills** – aligned to the potential of diminishing returns from the adoption of further elements of e-procurement is the availability of highly qualified and expert staff across the Council with knowledge and expertise of, for example running an e-auction. Discussions with the procurement officers highlighted the lack of experience of procurement staff of e-auctions, or introducing an e-invoicing solution, or supplier self-service. As such, it was considered by the procurement officers, and endorsed separately by the Director of Resources [RE2], who noted that *"any future expansion of e-procurement will require either the use of external experts/advisors or the recruitment of highly skilled and experienced procurement staff, both of which would be challenging in an ever increasing cost sensitive environment"*.

### 6.12. Case Summary

Figure 6.11 summarises the current and planned position of this Council in relation to the adoption of a number of elements of e-procurement, using the research framework discussed earlier, where the current, planned and "unlikely to adopt" aspects of e-procurement are highlighted.

**Figure 6.11: Case 2: summary of e-procurement adoption**



In addition to summarising the progress that the pilot organisation has made with the introduction of e-procurement, Table 6.9 summarises the factors (column 1) which have:

- effected the adoption of e-procurement currently (column 2).
- effected the planned adoption of other elements of e-procurement (column 3).
- effected the decision not to adopt other elements of e-procurement (column 4).

**Table 6.9: Summary of factors impacting e-procurement adoption**

<b>Influencing Factor</b> <span style="display: inline-block; width: 15px; height: 10px; background-color: #e0e0e0; border: 1px solid black; margin-right: 5px;"></span> Current Problem <span style="display: inline-block; width: 15px; height: 10px; background-color: #e0ffe0; border: 1px solid black; margin-right: 5px;"></span> Facilitator <span style="display: inline-block; width: 15px; height: 10px; background-color: #a0c0ff; border: 1px solid black; margin-right: 5px;"></span> Inhibitor <span style="display: inline-block; width: 15px; height: 10px; background-color: #c0ffc0; border: 1px solid black; margin-right: 5px;"></span> Benefit	e-procurement modules already adopted	e-procurement modules to be adopted	e-procurement modules <u>not</u> to be adopted
Large number of suppliers and invoices	✓	✓	
Large volume of paper	✓	✓	
Largely manual process	✓	✓	
Limited use of current systems			
Resistance to change	✓	✓	
Cost (of e-procurement)			✓
Lack of procurement skills			✓
Unwillingness to re-engineer processes	✓	✓	
Lack of programme & project management			
Concerns regarding security	✓	✓	
Complex procurement			✓
Public policy	✓	✓	
Availability of a proven solution	✓		
Current cost of procurement		✓	
Corporate procurement strategy		✓	
Sustainable procurement		✓	
Reduced administration costs	✓	✓	
Improved financial control	✓		
Improved BVPI008 rating	✓		
Reduced volume of paper	✓	✓	
Job enrichment			
Reduced price		✓	
Improved contract compliance	✓	✓	
Improved supplier relationships			

As noted from the discussion above, this Council has made good progress in the introduction of e-procurement solutions, and related process, people and compliance initiatives, by overcoming a number of inhibitors, primarily relating to people and processes, especially in overcoming a number of inhibitors (e.g. resistance to change, unwillingness to reengineer processes and lack of programme/project management) through strong leadership from senior management

which has resulted in a number of quick wins that set the tone for procurement across the organisation, e.g. the development of a Corporate Procurement Strategy.

However, it is also worth noting that the organisation, whilst planning to expand the number of elements of e-procurement used, is aware of the limitations of e-procurement to all goods/services procured by the Council, and is adopting a cautious approach to more progressive aspects of e-procurement (e.g. e-invoicing and e-Auctions) until it has appraised the success (or otherwise) of its current and planned adoption of e-procurement solutions.

### **6.13. Case Study 3: Local Government, Unitary Authority**

This case study organisation is a rural Unitary Authority which provides a range of services to its citizens including education, social services, highways (including roads, transport and waste) and community (including cultural, environmental & planning), where each citizen focused service is delivered by one of the following three Departments:

- Education
- Environmental Services
- Social Services

Services are delivered by approximately 14,600 staff across four departments in the Council, where the three front line service delivery departments (noted above) are supported by a Corporate Services Department which includes Finance and IT. The Council provides services to approximately 600,000 citizens and has an annual expenditure of approximately £500m, of which approximately £130m is spent annually on bought in goods and services – see Table 6.10 for a summary of key procurement metrics for the Council, which is based on the information obtained through the use of the data collection tool (Appendix 1) and Interview Proforma (Appendix 2),

**Table 6.10: Key procurement related metrics**

<b>Metric</b>	<b>Value</b>
No. of full time staff involved in procurement processes <sup>14</sup>	44
No. of part time staff involved in procurement processes	33
Number of invoices processed annually	177,000
Number of suppliers	30,000
Number of procurement (full procure to pay) processes	5
Average annual expenditure per supplier	£14,400
% of invoices with a value of < £750	76%

The Council has a corporate finance system which is used to record all financial transactions including supplier invoices. The Council currently uses BACs to pay all supplier invoices, with each department having a separate payment run to pay their suppliers on a weekly basis. In addition, to this, the Environmental Services department operates an e-purchasing system with one of its main suppliers of infrastructure services. The use of this e-purchasing system includes the provision of an electronic consolidated invoice by the supplier on a monthly basis, which is verified and paid within 5 days of receipt.

#### **6.14. Factors affecting the current adoption of e-Procurement**

In relation to the current adoption of e-procurement by this organisation, Figure 6.12 illustrates the outcome of the discussion with the key stakeholders (see Appendix 5 for details) in relation to the factors which were considered key in the decision making process for the introduction of e-purchasing (albeit to a limited extent) – see subsequent paragraphs for additional information.

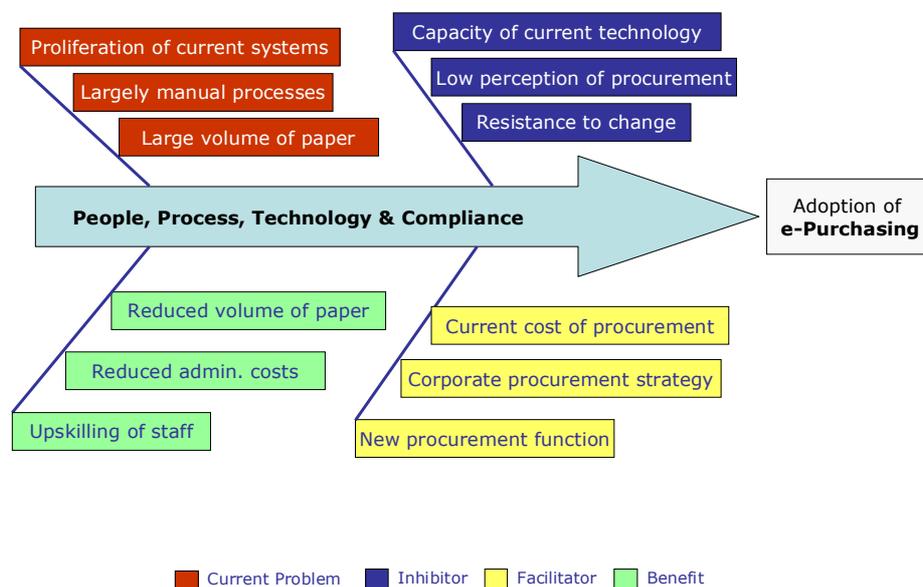
The factors influencing the introduction of BACs were similar to those identified by the pilot organisation and the previous two case studies and related to the need to overcome problems associated with a largely manual procurement process, e.g. large number of suppliers and invoices resulting in a large volume of paper. In common with the other organisations, this Council also experienced initial resistance to

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<sup>14</sup> Full time staff refers to full time employees of the Council, and not staff who are fully dedicated to undertaking procurement related activities.

changing the payment method, however, this was easily overcome through development of a robust business case which identified the benefits to the organisation (e.g. improved financial control, improved BVPI008 performance and a reduction in administration costs) as well as benefits to suppliers (e.g. reduced likelihood of cheques getting lost or stolen).

Through discussions with the Director of Environmental Services [ES1] a number of factors were identified as impacting on the introduction of an e-purchasing solution (see Figure 6.12) with one of the key infrastructure suppliers to the Council. The main problems overcome through the introduction of e-purchasing stemmed from the manual procurement process, which resulted in a large volume of paper per transaction, and the management and maintenance of a number of supporting standalone systems, which were used to record department specific information. As noted by the Director of Environmental Services [ES1] *"prior to introducing e-Purchasing, procurement across the Council involved the generation of a Purchase Order (PO) manually and the keying of a commitment into a "commitment spreadsheet". Following receipt of a Goods Receipts Note (GRN), it was manually matched with a PO (where applicable) and the "commitments spreadsheet" updated to reflect an accrual. From this a coding slip was completed, which was forwarded to the relevant finance section along with the PO and GRN and this information was keyed to the corporate finance system, from which the payment was made to the supplier, by the finance section within the Corporate Services Department"*.

**Figure 6.12: Factors affecting the adoption of e-Purchasing**

The problems arising from this highly manual process was summarised by one Finance Officer [CS2] as, "each invoice (and supporting documents) that is paid by my department has already been keyed at least once to ad hoc systems (usually spreadsheets) by finance staff in a front line department. The use of these ad hoc systems to record, match and reconcile information is highly resource intensive and leads to confusion for suppliers as they are unable to easily source information in relation to orders and invoices given the absence of one single source of information".

The introduction of e-purchasing to the Environmental Services Department for one supplier had to overcome a number of obstacles as follows:

- **Capacity of current technology** – the fieldwork undertaken with the IT representative [CS3] within the Corporate Services Department (which manages IT on for the Council) identified a number of concerns relating to the capacity of the current technical infrastructure used by the Council to cope with the introduction of an e-procurement solution, the main areas of concern are summarised in Table 6.11.

**Table 6.11: Key technical issues identified**

Technical Area	Issue Identified
Internet Security	The servers currently used by the Council for internet security are running at maximum capacity, therefore the introduction of an e-purchasing solution, which required a high level of security to protect transactions, it was necessary to increase the capacity of these servers.
E-mail	The introduction of the e-purchasing solution relied heavily on the use of e-mail for order distribution, invoice receipt, etc. As such the e-mail solution used by the Council had to be enhanced to ensure that appropriate resources are in place to "sweep" e-mails as well as provide for the rapid circulation of all procurement related e-mails.

- **Low perception of procurement** – the perception of procurement across the organisation was identified by one of the Environmental Services Procurement Officer as one of the reasons why it is difficult to attract staff to undertake procurement related roles, and why it was difficult to get funding to introduce the e-purchasing solution. As highlighted by one of the Environmental Services Procurement Officer [ES4], *"three years ago the Council had a Central Procurement function, which was outsourced with a view that the majority of procurement activity across the Council would be channelled through this function. This however has not happened, for example in the past year only £18m of goods and services expenditure has been through this function. As a result of this, staff are reluctant to undertake procurement activities only and overall it is considered that procurement must not be of high importance to the Council, given that the previous procurement function was outsourced"*.
- **Resistance to change** – as noted above, procurement is considered as a "backwater" across the Council, especially given that the previous procurement function was outsourced under the previous Council. Given the history of procurement across the Council, it was noted by the Director of Environmental Services, himself a relatively new recruit to the organisation, that there was resistance by his peers in the senior management team as well as resistance by his

colleagues in Environmental Services to any move to “upgrade” procurement across the Council, given the previous painful experience of outsourcing.

Despite these challenges, the Director of Environmental Services obtained funding approval to introduce e-purchasing for one key supplier, following the preparation and approval of a robust business case. In the business case<sup>15</sup> the key drivers for this change were identified as (i) the need to reduce the cost of undertaking procurement across the Council, given the current manual process, (ii) the need to develop a corporate procurement strategy which would examine procurement in a holistic manner, especially as the outsourcing of procurement under the previous Council did not appear to work, and (iii) the need to establish a new Corporate Procurement function which would provide “*opportunity for change, [ES1]*” and would facilitate a culture and mindset change which should address a number of the concerns arising from the outsourcing of the previous procurement function.

The benefits identified in the business case included:

- **Reduced volume of paper** – as a whole, the Council processes approximately 177,000 invoices annually, of which only 12,000 relate to the pilot supplier. The receipt and processing of such a large number of invoices was highlighted by one finance member of staff [ES2] as an area “*where significant efficiencies could be made, providing a corporate procurement system, supported by a single procurement process could be identified and implemented*”.
- **Reduced administration cost** – across the Council a number of suppliers were providing common goods and services to all Departments (and invoicing each Department separately), or were providing discrete services to one Department (and invoicing separately for each service provided). Table 6.12 provides a summary of the analysis undertaken for 10 key suppliers to the Council. As noted in Table 6.12 one goods & services supplier

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<sup>15</sup> Environmental Services E-Purchasing Project – Outline Business Case, September 2006

provides approximately 4,500 invoices to the Council on an annual basis. Given this an exercise was undertaken with each Department to estimate the time taken to process one invoice (this does not take account of the time involved in the other aspects of procurement, i.e. item identification, purchase ordering, receipting, etc.). Using an average salary per staff member involved, it was estimated that across the Council approximately £66k could be saved on an annual basis through the introduction of consolidated invoices for the top 10 suppliers used.

As noted by the Finance Officer in Corporate Services *"through discussions with my finance colleagues, we have been aware that we could potentially reduce the administration costs associated with procurement through the introduction of an e-purchasing solution, and I think that the pilot in Environmental Services for one supplier, whilst confined in scope, illustrates the potential benefits which we could achieve in relation to reducing administration costs, through the introduction of e-purchasing"*.

- **Upskilling of staff** – the introduction of a Council wide e-purchasing solution should increase the ability of the Council to collaborate with other public sector organisations in the same geographical location. This was a view expressed by the Director of Corporate Services [CS1] who noted that *"the Council increasingly needs to become more efficient as well as demonstrating how it is working in collaboration with other public sector organisations to delivery better citizen services. One benefit that I can see of introducing e-purchasing would be the potential for closer collaboration between the Council and other service providers in the area (e.g. Health) in the procurement of common goods and services, for example we could collaborate in the procurement of goods and services which could be delivered through an e-procurement solution, thereby delivering bulk procurement efficiencies to both organisations"*.

**Table 6.12: Number of supplier invoices by department**

<b>Supplier</b>	<b>Environmental Services</b>	<b>Social Services</b>	<b>Education Services</b>	<b>Corporate Services</b>
Goods & Services Supplier 1	520	1780	1680	600
Health Care Supplier 1	-	4646	-	-
Telecommunications Supplier	640	800	1130	220
Health Care Supplier 2	-	1531	-	-
Health Care Supplier 3	-	1451	-	-
Health Care Supplier 4	-	1050	-	-
Education Materials Supplier 1	-	-	936	-
Health Care Supplier 5	-	845	-	-
Goods & Services Supplier 1	160	240	280	160
Health Care Supplier 5	-	779	-	-
<b>TOTAL</b>	<b>1,320</b>	<b>13,122</b>	<b>4,026</b>	<b>780</b>

### **6.15. Factors affecting the future adoption of e-Procurement**

Through discussions with senior stakeholders in this Council three elements of e-procurement were identified as areas for future implementation, these included:

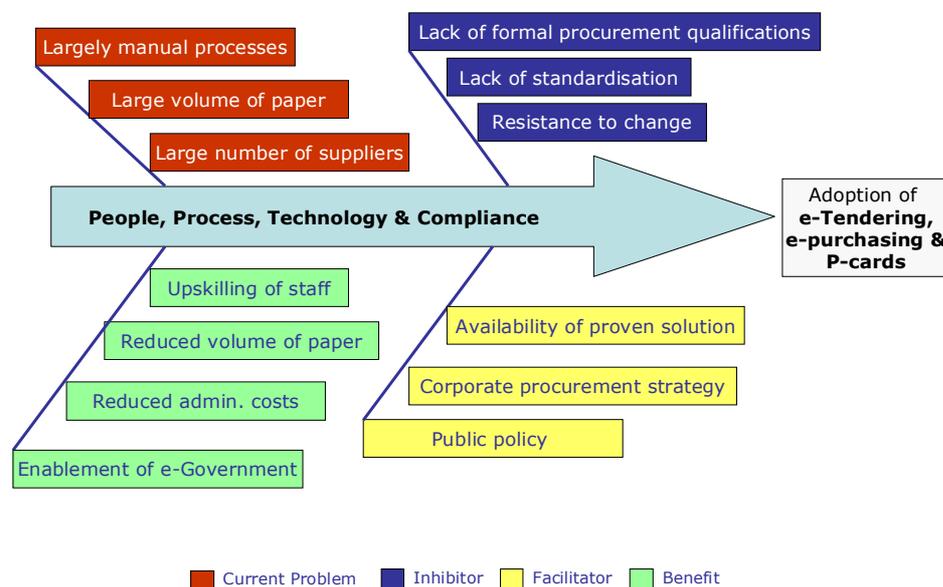
- **e-purchasing** – given the success of the e-purchasing pilot in the Environmental Services Department (ESD), the Council plans to establish a Central Procurement Unit (CPU) in the ESD, which will be responsible, under the guidance of the Director of Environmental Services, for the implementation of the recently completed corporate procurement strategy. The implementation of this strategy will involve the extension of e-purchasing across the Council, and alongside this, the establishment of a number of e-catalogues with suppliers of commodity goods (e.g. IT consumables, stationery, etc.).
- **e-tendering** – taking account of the lessons learned from the e-purchasing pilot, the Council has decided to introduce e-tendering across the Council. Initially, this will only involve the publication of all Council tenders on their internet site. However, it is envisaged that this will be extended to full e-tendering, given the positive experiences to date (from e-purchasing) and from feedback from

neighbouring Councils, with whom the Council tenders collaboratively on a number of commodity items, e.g. IT consumables, stationery, etc.

- **P-Cards** – following on from the success of the e-purchasing pilot with one infrastructure supplier in the Environmental Services department, especially the provision of a consolidated electronic invoice by the supplier on a monthly basis, the Council has decided to introduce P-cards, initially for employees in the Environmental Services department, for the purchase of maintenance related goods from three suppliers, who were successful in a strategic sourcing exercise with the Council.

The factors that influenced the Council's decision to extend the use of e-procurement across the Council, through the introduction of the technology and process changes discussed above, are similar to the other case study organisations, and are illustrated by Figure 6.13.

The key current problems which the Council are looking to address through the implementation of these additional elements of e-procurement primarily relate to re-engineering their procurement processes to remove a number of manual steps, which should reduce the volume of paper circulating around the organisation. In tandem with this, the Council aim to reduce the number of suppliers that it deals with through extending collaboration both across the Council, and with neighbouring authorities, and through the extension of strategic sourcing across the organisation.

**Figure 6.13: Factors affecting future adoption of e-Procurement**

The Council recognises that the extension of e-procurement across the Council through the introduction of the above additional elements will not be without challenges, however, based on the success achieved to date, it is anticipated that the following inhibitors will be overcome, thereby facilitating the envisaged extension:

- **Lack of formal procurement qualifications** – the issue of the absence of formal procurement qualifications was also identified by one of the Environmental Services Procurement officers as a key issue which will have to be addressed in relation to procurement. He [ES4] noted that *"across the Council currently none of the staff undertaking procurement activities holds any formal procurement qualifications, e.g. Chartered Institute of Purchasing and Supply. All of the procurement expertise and skills left the organisation when the previous Central Procurement function was outsourced. In addition, as noted previously, there are no full time dedicated procurement officers across the organisation, even though we spend in excess of £130m per annum on goods and services. I feel that in order to professionalise procurement across the Council we need to*

*address some of the basic weaknesses, one of which is lack of formal procurement qualifications”.*

- **Lack of standardisation** – the Corporate Services Information Technology Officer noted that the absence of standardisation within e-procurement was a significant issue in its adoption by the Council. As noted by the Corporate Services IT Officer [CS3] *“at present there are a limited number of standards in place in relation to the exchange of information between e-procurement solutions and legacy finance systems. I understand that work has been undertaken between major Government suppliers and BASDA (the Business Applications Software Developers Association) to establish UKGOV.XML as the Government’s standard system requirement for interoperability across the public sector, including e-procurement, orders and invoices. By undertaking this work it is anticipated that standard messages will be developed for passing procurement related information between e-procurement systems and legacy financial applications. However, until this work has been completed and endorsed by suppliers (or e-procurement and finance systems) and the Government, then this will remain as one of the key stumbling blocks to the introduction of e-procurement”.*

A number of factors have positively influenced the decision by the Council to extend their e-procurement footprint into the areas of e-tendering, e-purchasing and P-cards. These factors include the availability of a proven solution (given the success of the e-purchasing pilot in ESD) and the availability of other proven e-procurement solutions across the UK Local Government sector (e.g. e-tendering, P-cards, etc.), the production and agreement of a corporate procurement strategy, which has e-procurement as one of the key building blocks, and the overall drive across the UK public sector to reduce back office costs and make more resources available for the delivery of front line services.

In terms of benefits that the Council should achieve from the expansion of e-procurement, the common benefits of a reduction in

administrative costs (through reducing the level of manual input in the procurement process) and a reduction in the volume of paper (through moving procurement related documentation from paper to electronic) were identified. In addition to these the following benefits were highlighted by key stakeholders as anticipated benefits:

- **Enablement of e-Government** – the introduction of the additional elements of e-procurement across the Council was identified by the Directors of Environmental Services and Corporate Services as a significant step in the overall enablement of e-Government across the Council. As noted by the Director of Corporate Services [CS1] *"across the Council we are currently running and piloting a number of e-enabled solutions in relation to customer service delivery, and personally I could see how the introduction of additional elements of e-procurement could facilitate the extension of our current e-enabled services, particularly through raising the profile of the organisation with external bodies, e.g. suppliers"*.
- **Upskilling of staff** – procurement officers across the Council expressed a view that one of the benefits which they have seen, and envisage from the extension of the current e-procurement elements and the introduction of others (e.g. P-cards and e-tendering) is the potential for increasing the skills of staff involved in procurement. As noted by the procurement officer in Education [ED3], *"since the outsourcing of the corporate procurement function a number of years ago, procurement across the Council has been seen as a menial, low level activity. The extension of the work already operational in ESD, coupled with the introduction of additional proven elements and supported by the new Corporate Procurement Unit should provide an opportunity for staff to increase their skills and this can only be a positive for procurement staff across the Council"*.

#### **6.16. Factors influencing future expansion of e-Procurement**

As discussed in the previous paragraphs, this Council already have limited exposure to e-procurement, through the use of BACs, e-

purchasing (in ESD) and using P-cards, however, it is planning on increasing this through the expansion of e-purchasing and the introduction of e-tendering. The further extension of e-procurement across the organisation beyond these solutions was discussed with a cross-section of senior stakeholders (e.g. finance, procurement, social services, etc.) and it was concluded that it was unlikely that the Council would embark on further e-procurement related activities as it would like to understand the actual payback on investments made to date (and planned), before attempting to address more complex areas of procurement.

The main reasons identified by the key stakeholders in the review meetings for not extending the current and proposed e-procurement footprint (e.g. P-cards, e-tendering and e-purchasing) across all goods and services expenditure areas of the Council are:

- **Complex procurement** – through discussions with the procurement officers across the various departments it is apparent that the nature of procurement across the Council varies considerably. For example, within the Social Services Department it may be necessary for a social worker to quickly procure a place in a residential home for an elderly citizen, this requires immediate access to approved service providers and as such is considered unsuitable for e-procurement. Within the Environmental Services Department, staff are involved in the procurement of multi-million pound service contracts (e.g. maintenance) and given the level of detail (e.g. service standards) it is considered that the procurement of such services is again unsuitable for e-procurement. As noted by the Procurement Officer in Social Services *"the procurement of standard items such as stationery, IT consumables, etc. sounds ideal for e-procurement, however, for more demand driven procurement such as social services, I do not feel that an e-procurement solution is the answer"* [SS1].
- **Public policy** – this Council is a rural Unitary Authority, and as such it has a number of initiatives/policies in relation to the economic

regeneration of the district. Through discussions with senior stakeholders, it is evident that whilst there is support for the extension of e-procurement across the Council, this will not extend to the placing of all Council contracts with suppliers outside the district. As noted by the Director of Corporate Services, *"at officer level across the Council we appreciate and understand the potential efficiencies and savings which we can achieve through further expansion of e-procurement. However, a number of our elected members are deeply involved in the local business community, and there is pressure to ensure that local suppliers continue to win their fair share of business with the Council. When you consider that major contracts/tenders have to be taken to various committees for approval, I feel that we will certainly expand our e-procurement footprint, however, there will be a limit on how far we can go with this, without disadvantaging local suppliers"* [CS1]. This position is reflected in one of the policy statements in the Council's corporate procurement strategy which states *"to develop the market and enable voluntary sector and small and medium sized organisations to compete in a fair and level manner"*<sup>16</sup>.

- **Continuous change** – since the establishment of the Central Procurement Unit (CPU) and the preparation of the Corporate Procurement Strategy, the Council has substantially changed its procurement policies, procedures, processes and systems, and through this has delivered (or will deliver) significant efficiencies to the Council. However, from discussions with senior stakeholders, and as summarised by the Director of Education [ED1], *"over the past 2-3 years the profile of procurement across the Council has risen dramatically and is evidenced by the presence of a CPU and a procurement champion at Cabinet level, which is very welcome. However, the consensus across a number of my director colleagues is that we now need a period of stability, in relation to procurement, so that we can consolidate and stabilise, before embarking on any future e-procurement related initiatives such as e-auctions or linking*

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<sup>16</sup> Council's Procurement Strategy 2005 – 2008.

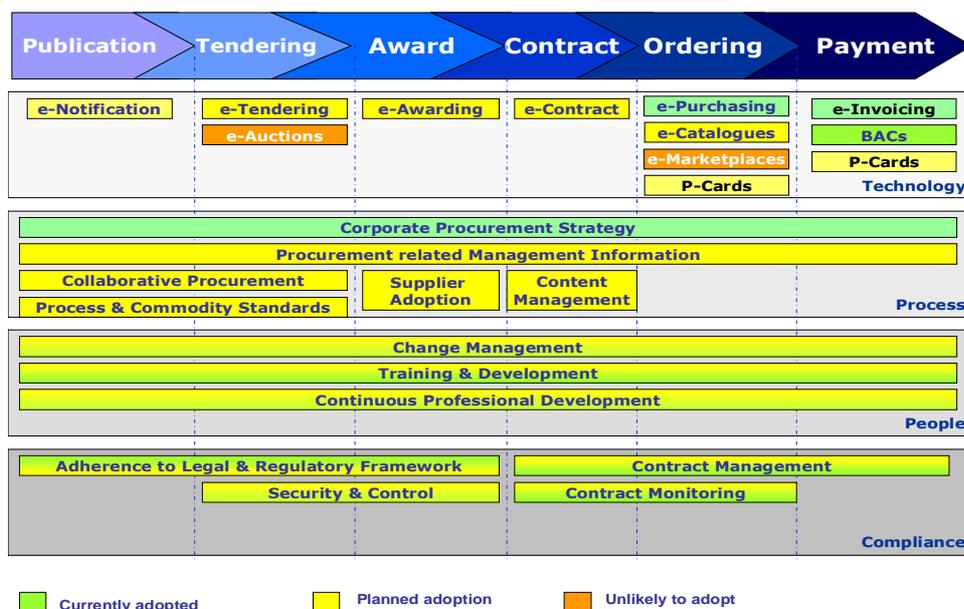
to e-marketplaces. For this reason, I cannot see the Cabinet sanctioning further investment in technology or staff, until we have had sufficient time to extract the benefits from the investment to date”.

### 6.17. Case Summary

Figure 6.14 summarises the current and planned position of this Council in relation to the adoption of a number of elements of e-procurement, using the research framework discussed earlier, where the current, planned and “unlikely to adopt” aspects of e-procurement are highlighted. In addition to summarising the progress that the pilot organisation has made with the introduction of e-procurement, Table 6.13 summarises the factors (column 1) which have:

- effected the adoption of e-procurement currently (column 2).
- effected the planned adoption of other elements of e-procurement (column 3).
- effected the decision not to adopt other elements of e-procurement (column 4).

**Figure 6.14: Case 3: summary of e-procurement adoption**



**Figure 6.13: Summary of factors impacting on e-procurement adoption**

Influencing Factor	e-procurement modules already adopted	e-procurement modules to be adopted	e-procurement modules <u>not</u> to be adopted
Large number of suppliers and invoices	✓	✓	
Large volume of paper	✓	✓	
Largely manual processes	✓	✓	
Proliferation of current systems	✓		
Resistance to change	✓	✓	
Cost (of e-procurement)	✓		
Absence of a corp. procurement strategy	✓		
Lack of formal procurement qualifications		✓	
Political acceptability			✓
Low perception of procurement	✓		
Complex procurement			✓
Public policy			✓
Lack of standardisation		✓	
Public policy	✓	✓	
Current cost of procurement	✓		
New procurement function	✓		
Availability of a proven solution		✓	
Corporate procurement strategy		✓	
Reduced administration costs	✓	✓	
Reduced volume of paper	✓	✓	
Upskilling of staff	✓	✓	
Enablement of e-Government		✓	
Improved financial control	✓		
Improved BVPI008 rating	✓		

As noted from the discussion above, this Council has made good progress in the introduction of e-procurement solutions, and related process, people and compliance initiatives, by overcoming a number of inhibitors, primarily relating to people and processes.

This case study organisation is similar to Case 2, in that it has progressed a number of e-procurement related initiatives, and overcome a number of inhibitors along the way (e.g. low perception of procurement, resistance to change, lack of standardisation and absence of a corporate procurement strategy) through the leadership given by the senior management team, particularly in addressing directly the absence of a corporate procurement strategy through the development of a strategy document, which has set out the plans and direction of the organisation in relation to procurement for the next 5 years.

However, it is also worth noting that the organisation, whilst planning to expand the number of elements of e-procurement used, is aware of the limitations of e-procurement to all goods/services procured by the Council, and is adopting a cautious approach to more progressive aspects of e-procurement (e.g. e-marketplaces and e-Auctions) until it the organisation has had an opportunity to stabilise and consolidate.

#### **6.18. Case Study 4: Central Government, Non Departmental Public Body**

This case study organisation is drawn from Central Government, Non Departmental Public Body (NDPB), which is an organisation established by a Central Government Department for the delivery of "front line" services through a standalone body established at "arms length" from the Department.

This organisation provides a range of housing related services to citizens across a largely rural area. The organisation spends approximately £340m per annum on works services and supplies and employs approximately 3,500 staff. The organisation consists of 6 Directorates as follows:

- Design and Property Services
- Housing
- Corporate Services
- Personnel

- Finance
- Information

Procurement is currently undertaken across all six Directorates with approximately £87m spent annually on the procurement of goods & services.

Across the organisation a number of e-procurement solutions are already in place including BACs (for the payment of supplier invoices), P-cards (for staff in the housing directorate, and used for a limited number of approved suppliers) and the electronic publication of the organisation's tenders on their website as well as the provision of tender documents to suppliers on a CD, following request and registration.

### **6.19. Factors affecting the current adoption of e-Procurement**

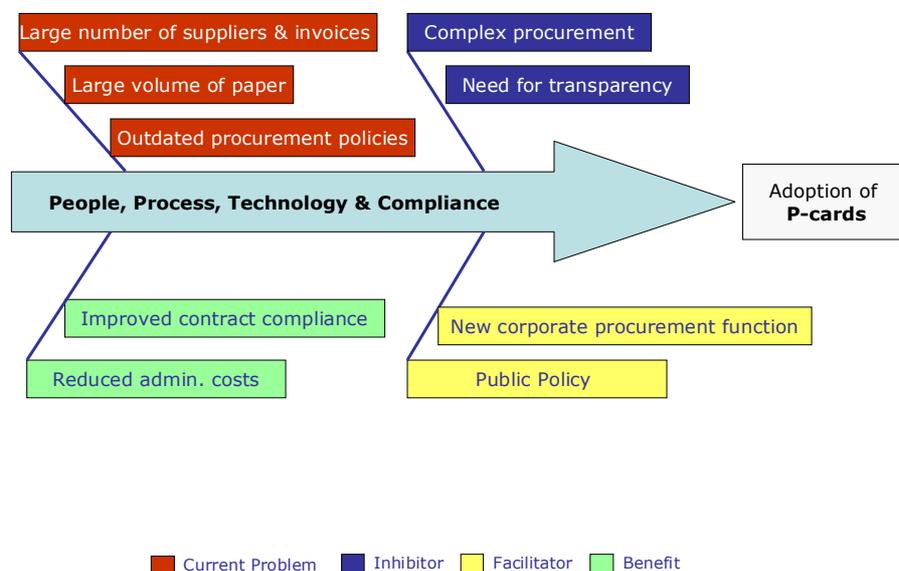
In relation to the current adoption of e-procurement by this organisation, Figure 6.15 illustrates the outcome of the discussion with the key stakeholders (see Appendix 6 for details) in relation to the factors which were considered key in the decision making process for the introduction of e-purchasing (albeit to a limited extent) – see subsequent paragraphs for additional information, which is based on the information obtained through the use of the data collection tool (Appendix 1) and Interview Proforma (Appendix 2),

The factors that influenced the introduction of BACs were similar to those identified by the pilot organisation and the previous case studies and related to the need to overcome problems associated with a largely manual procurement process, e.g. large number of suppliers and invoices resulting in a large volume of paper. In common with the other organisations, this organisation also experienced initial resistance to changing the payment method, however, this was easily overcome through development of a robust business case which identified the benefits to the organisation (e.g. improved financial control, improved performance in relation to the Prompt Payments Initiative (PPI) and a

reduction in administration costs) as well as benefits to suppliers (e.g. reduced likelihood of cheques getting lost or stolen).

The factors that influenced the introduction of e-publication of tenders, and the provision of tender documents on a CD to suppliers were discussed with the Director of Corporate Services. The factors noted in this discussion were similar to those of the other case study organisation who are already using similar aspects of e-tendering (e.g. e-publication), and relate to the manual nature of existing procurement processes. A key facilitator identified, however, was the use of similar technologies within the NI public sector, which helped to overcome initial resistance, as advocates of this solution, could provide working reference organisations.

**Figure 6.15: Factors affecting the adoption of P-cards**



The key factors which influenced the decision of the organisation to introduce P-cards to the housing directorate, albeit limited to 20 suppliers, are illustrated by Figure 6.15. In relation to problems that were overcome (at least partially) with the introduction of P-cards across the Housing Directorate, the following were identified by the Director of Housing [HO1] as key:

- **Large number of suppliers & invoices** – prior to the introduction of P-cards, the organisation had 2,280 live suppliers on its finance system, of which 1,360 relate to the Housing Directorate - see Table 6.14.

**Table 6.14: Number and type of suppliers**

Supplier Type	Design & Property Services	Corporate Services	Housing
Local	545	321	1,088
National	11	36	266
International	1	6	6
<b>TOTAL</b>	<b>557</b>	<b>363</b>	<b>1,360</b>

The Deputy Director of Housing added *“the fact that my directorate has nearly approximately 1,400 live suppliers in its supplier database is symptomatic of the manual nature of procurement across the organisation. Across the organisation, our procurement processes are outdated and place a significant burden on staff to manage, maintain and service suppliers (and buyers) in a professional manner - going forward this position was unsustainable, and this was one of the prime reasons why we examined the use of P-cards”*, [HO1].

- **Outdated procurement policies** – the outdated nature of the organisation’s procurement policies and standing orders was identified as a contributing factor. One area in particular identified was the standing orders of the organisation which guide on the quotation and tendering process. Table 6.15 summarises the current standing orders and as noted by the Procurement Manager [CF4] *“the standing orders of the organisation have not been revised for a number of years. Leaving the EU procurement aside, staff who want to procure goods or services have to seek paper based quotations and tenders from suppliers which is a slow and tedious process, and occasionally leads to staff circumventing the standing orders. To manage this “circumventing of procedures” we considered that P-cards were an appropriate solution, and this was trialled in the Housing Directorate given the number of suppliers currently used”*.

**Table 6.15: Current standing orders**

Estimated Value of Amount	Minimum Number of Tenders Invited
<ul style="list-style-type: none"> <li>• Not Exceeding £1,000</li> <li>• £1,000 - £5,000</li> <li>• £5,000 - £50,000</li> <li>• Over £50,000</li> <li>• Over £142,000</li> </ul>	<ul style="list-style-type: none"> <li>• By quotation</li> <li>• 3 written quotations</li> <li>• minimum 4 tenders (max. of 10)</li> <li>• By public advertisement</li> <li>• EU Tender Process</li> </ul>

The introduction of P-cards to the Housing Directorate encountered a number of challenges including:

- **Complex procurement** – procurement across this organisation as a whole, and across the Housing Directorate, is diverse and ranges from the procurement of IT consumables to the procurement of construction services. Given the diversity of current procurement it is acknowledged by a number of procurement staff (e.g. Corporate Services Procurement Manager, Housing Contracts Policy Manager and the Housing Procurement & Support Officer) that it is unlikely that a “one size fits all” e-procurement solution is available which could be introduced to the organisation. As noted by the Housing Contracts Policy Manager [HO6] *“resistance to the introduction of P-cards focused on the diversity of procurement across the Housing Directorate, from the simple procurement of IT consumables items to complex multi-million pound construction or maintenance contracts. With such a diverse portfolio of procurement a number of staff (and senior management) considered that the wholesale introduction of P-cards was not appropriate, and for this reason we introduced it for routine maintenance procurement carried out by the in-house Direct Labour Organisation (DLO) initially”*.
- **Need for transparency** – as a public sector organisation there is a requirement that all procurement is undertaken in a transparent manner and complies with all guidance and legislation, e.g. OJEU guidelines. As noted by the Director of Internal Audit [CF3] *“this organisation is no different from any other Government Department,*

*Executive Agency or Non Departmental Public Body, all our procurement policies, procedures and systems have to adhere to public procurement rules and regulations. As such, the introduction of P-cards had to be proven in a public sector environment for Senior Management Team to be reassured that they were appropriate for a public sector organisation, and thankfully for all, the successful use of P-cards by the Central Procurement Directorate (CPD) in the Department of Finance and Personnel (DFP) was sufficient proof for all”.*

The introduction of P-cards to the Housing Directorate had to overcome the inhibitors noted above. However, overcoming these was assisted by a number of facilitators including the availability of a corporate procurement strategy<sup>17</sup>, facilitated by a number of policy initiatives/directives which were included as principles in the strategy, these include:

- Contracts should be awarded on the basis of achieving long term sustainable value for money, not just the lowest price.
- Good planning, involving risk and value management, should be carried out.
- Contractors should be remunerated in a way which incentivises them to deliver good quality construction on time and to budget.

As illustrated by Figure 6.15, the main benefits that the organisation obtained through the introduction of P-cards included:

- **Enhanced procurement related information** – the introduction of P-cards to this organisation was identified by both the Chief Executive and Director of Finance as one of the measures identified to facilitate the delivery of efficiencies, in line with Government Policy (see above). As noted by the Director of Finance [F11], *“this organisation currently has 28 staff involved in procurement related activities, however, when the organisation is requested to provide information to the NI Assembly in relation to procurement, it is a scramble to collect and collate information. It is anticipated that the*

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<sup>17</sup> Corporate procurement strategy: 2005 – 2008

*introduction of standard procurement processes, procedures and systems across the organisation will increase the flow of procurement related information and will facilitate the introduction of procurement related performance measurement, e.g. in relation to sustainability, contract compliance, value for money, etc.”.*

- **Enhanced contract compliance** – the Contracts Policy Manager [HO6] felt from his perspective, one of the key benefits obtained from the introduction of P-cards (and related e-procurement solutions) to the organisation is increased contract compliance. He added *“personnel within the housing directorate are currently reasonably good at working with our existing contracts in urban areas, however, as you move to more rural offices, there is a greater chance of staff buying off contract from local suppliers, through convenience or through knowledge of the supplier. The introduction of P-cards, with centrally negotiated contracts with a smaller supplier base should reduce the current practice of off contract procurement”.*

## **6.20. Factors affecting the planned adoption of e-Procurement**

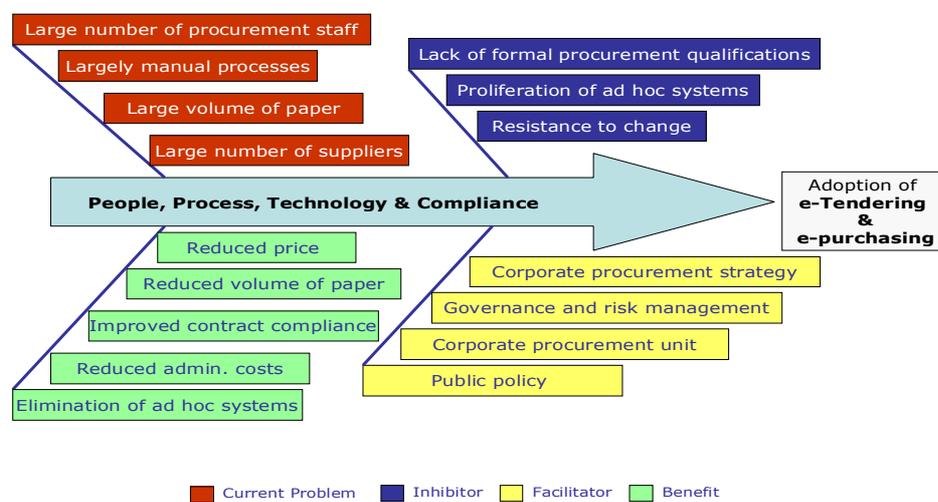
Through discussions with senior stakeholders in this organisation, the following two elements of e-procurement were identified as areas for future implementation:

- **e-tendering** – across the NI public sector a number of organisations have introduced full e-tendering solutions (e.g. Central Procurement Directorate). Arising from the success of such implementations, this organisation has identified this as one of the next significant areas of investment in relation to e-procurement.
- **e-purchasing** – in addition to the introduction of e-tendering, the organisation has identified e-purchasing as a key component of the implementation of their corporate procurement strategy. It is envisaged that the introduction of an e-purchasing solution will integrate with the organisation’s corporate finance system, and will provide for the electronic generation of electronic requisitions from on-line supplier catalogues, the workflow of these for approval and conversion to electronic purchase orders for electronic dispatch to

suppliers (e.g. via e-mail). Additionally, the organisation is considering the introduction of e-invoices for a small number of large suppliers (e.g. utility providers).

Through discussions with the Senior Management Team (SMT) of this organisation the key factors illustrated by Figure 6.16 were identified as key in the decision to introduce the additional e-procurement solutions of e-tendering and e-purchasing.

**Figure 6.16: Factors affecting the future adoption of e-Procurement**



The introduction of e-tendering and e-purchasing aims to remove (or reduce) a number of problems which have arisen from the current manual procurement process, being a large number of suppliers, a large number of invoices, a large volume of paper, and a large number of staff involved in the procurement process across the organisation – see Table 6.16 for details.

**Table 6.16: Procurement staff by directorate**

<b>Grade of Procurement Staff</b>	<b>Design &amp; Property Services</b>	<b>Corporate Services</b>	<b>Housing</b>
Grade 7	1	1	1
Grade 6	1	1	-
Grade 5	2	2	-
Grade 4	6	1	-
Grade 3	3	-	-
Grade 2	2	-	-
Clerical Officer	-	1	-
Technical Officer	-	-	6
<b>TOTAL</b>	<b>15</b>	<b>6</b>	<b>7</b>

Table 6.16 indicates that across the organisation there are 28 procurement staff who undertake a range of procurement from office supplies to new build housing. The distributed nature of procurement, however, was noted by the Chief Executive [CF1] as a concern, *“across the organisation procurement has evolved, rather than planned, as such we have a mixed economy of procurement, with differing levels of professionalism. This is one of my key priorities as I would like to standardise procurement practices across the organisation, including streamlining processes and systems and one of the key mechanisms for initiating this change was the development of a corporate procurement strategy, which sets out the vision and principles for procurement across the organisation”*.

The planned adoption of e-tendering and e-purchasing will present the SMT with a number of challenges, particularly in relation to the need to remove a number of Directorate specific, ad hoc systems, which have been developed/ introduced to overcome the absence of a corporate solution. Across the organisation 14 systems were identified by the Head of Information (IN1) as providing information to support procurement. These systems include:

- Finance
- Procurement
- Contract Payments

- Ground Maintenance
- Professional Services

As noted by the Head of Information [IN1] *"across the organisation currently we have a large number of ad hoc systems that feed into the overall procurement process. However, whilst these systems provide the operational information that staff across the various directorates need, they do not facilitate the collation of an overall picture in relation to procurement, which makes the preparation of procurement related information to Senior Management extremely challenging"*. This position was endorsed by the Deputy Director of Finance [FI2] who noted that *"a number of the systems are supplied and maintained by different suppliers and potentially the introduction of an e-procurement solution could reduce the number of systems used, thereby reducing the associated support, maintenance and training costs, however, given the importance of these systems to the various directorates, there will be significant resistance to their removal and replacement"*.

An additional inhibitor to the introduction of these e-procurement solutions is the limited number of staff across the organisation who hold professional procurement qualifications – see Table 6.16 for summary of the number of procurement staff across the organisation. Through discussions with the Director of Human Resources (HR) it was noted that of the 28 procurement staff, only 5 staff have a recognised formal procurement qualification – 4 staff hold a Diploma from the Chartered Institute of Purchasing and Supply (CIPS) and 1 member of staff holds a CIPS Certificate. The remaining 23 staff do not have a formal procurement qualification. The Director of HR [PE1] noted that *"the current situation whereby a large number of staff performing procurement related activities do not hold a formal qualification has arisen from the overall piecemeal approach of the organisation to procurement. This situation is however being addressed through close working with the Central Procurement Directorate (CPD) who is responsible for best practice procurement across the NI Civil Service. Currently, a review of the training needs of all staff undertaking*

*procurement related activities is underway, and once this is completed it is anticipated that all staff involved in procurement activities will receive training in the procurement competencies (e.g. personal competencies, for example contract law, construction/works competencies, for example energy efficiency and information technology competencies, for example IT contracts) identified by CPD”.*

The introduction of e-tendering and e-purchasing to this organisation, has however, been facilitated by a number of strategic decisions taken by the SMT including:

- **Establishment of a Corporate Procurement Unit (CPU)** – one of the key recommendations of the corporate procurement strategy was the need to establish a suitable internal organisation which would provide focus and direction to procurement across the organisation – the Corporate Procurement Unit (CPU). The CPU has responsibility for the future development of the Corporate Procurement Strategy and for the consolidation of all procurement personnel to ensure that there is adherence to good practice in relation to their procurement principles (e.g. value for money, probity, governance, transparency, fairness and sustainability), as well as increasing the overall procurement related skills base through appropriate training and development. As noted by the current Procurement Manager in Corporate Services [CF4], *“the establishment of a CPU for this organisation was a significant decision and represents how the status and profile of procurement has been raised across the organisation. This can only be seen as a positive development, and one that should facilitate the progression of a number of procurement related initiatives, including the introduction of e-tendering and e-purchasing”.*
- **Public policy** – across Central and Local Government a number of high profile reviews of procurement have been undertaken over the past 5 years including those by Kelly (2003), Gershon (2004) and the Office of Government Commerce (2004). As a result of these

reviews there is an increasing focus on improving procurement across the Central and Local Government sectors and this was noted by the Head of Procurement in Corporate Services as one of the main drivers for the current review. As noted by the Head of Procurement [CF4] *"recent reviews of procurement have identified the potential for efficiencies and this is one of the key drivers behind the current review and should facilitate the preparation of a business case to support the introduction of e-procurement in the longer term"*.

- **Governance and risk management** – across the public sector there is an increased focus on governance and risk management. As noted by the Chief Executive [CF1] *"since the Nolan report (1997) there has been an increased focus on governance and risk management. This organisation, like all others have analysed our risks and governance arrangements, and procurement has been identified as a key risk in our risk register given the potential negative impact on the organisation of a failure in our procurement procedures"*.

In addition to previously identified benefits of reduced administration cost (through the automation of manual processes) and a reduction in the volume of paper generated and stored by the organisation (through the circulation and storage of electronic documents), the organisation has identified a number of other potential benefits that it hopes to achieve from the introduction of e-tendering and e-purchasing, these include:

- **Elimination of ad hoc systems** – the introduction of corporate e-tendering and e-purchasing solutions, which would build on the good work to date (e.g. tender publication, use of BACs and CHAPS and use of the Government P-card), should also lead to the elimination of the ad hoc procurement related systems used across the organisation. As noted by the Deputy Director of Finance [FI2], *"the introduction of corporate e-tendering and e-purchasing solutions, which will be driven from the top and used by the entire*

*organisation, should remove the need for ad hoc systems across the organisation. This would be a significant improvement on the current position, whereby procurement related information is contained in a number of silos, so the collation of procurement related information is extremely challenging, never mind the annual support and maintenance cost associated with these systems”.*

- **Reduced price of goods & services** – the potential of reducing the price paid to suppliers for goods and services was identified by the Director of Finance, the Director of Corporate Services and the Director of Internal Audit as one of the key benefits that they would expect from the introduction of the e-purchasing solution. As noted by the Director of Finance [FI1] *“this organisation currently spends over £87m annually on goods and services. From reviewing case studies in Local Government (given this is where housing resides in the England & Wales), there is a potential savings of 10-15% annually on the price that we pay for goods and services. If these savings are real, then we would be able to input £8-15m per annum into the delivery of front line services”.*

- **Improved contract compliance** – Table 6.17 provides a summary of a number of major expenditure categories of the organisation.

Given the above profile of expenditure, which currently takes place across approximately 2,300 suppliers, the Director of Finance [FI1] indicated that he would expect that the organisation would, through reducing the number of suppliers in each item group, consolidate expenditure with suppliers and thereby improve overall financial control and contract compliance, especially through the introduction of e-catalogues, across the organisation.

**Table 6.17: Analysis of current expenditure**

<b>Item Group</b>	<b>Total (£000's)</b>	<b>Item Group</b>	<b>Total (£000's)</b>
Maintenance Services	165,095	IT Equipment	283
Unclassified	153,658	Furniture & Fittings	276
Consultancy Services	12,054	Tools, Equipment & Building Materials	189
Maintenance Services	2,651	Plant & Machinery	189
Telecoms	2,346	Environmental Services	53
Energy	1,468	Chemical Reagents	30
Transportation Equipment	798	Clothing & Footwear	9
Hotel Services	591	Catering Equipment	7
Office Machines & Supplies	508	Other	6
Printing/Reprographics	334	Food Stuffs	5

### 6.21. Factors influencing future expansion of e-Procurement

As discussed in the previous paragraphs, this organisation has already implemented a number of e-procurement elements including BACs, e-tendering and P-cards, however, it is planning on increasing this through the expansion of e-tendering and the introduction of e-purchasing.

The further extension of e-procurement across the organisation beyond these solutions was discussed with the SMT, and it was concluded that it was unlikely that the organisation would embark on further e-procurement related activities (e.g. introduction of reverse auctions or implementation of e-Marketplaces) for two main reasons, as follows:

- **Complex procurement** – procurement across this organisation is diverse and ranges from the procurement of IT consumables to the procurement of construction services. Given the diversity of current procurement it is acknowledged by a number of procurement staff (e.g. Corporate Services Procurement Manager, Housing Contracts Policy Manager and the Housing Procurement & Support Officer) that it is unlikely that a “one size fits all” e-procurement solution is available which could be introduced to the organisation. As noted

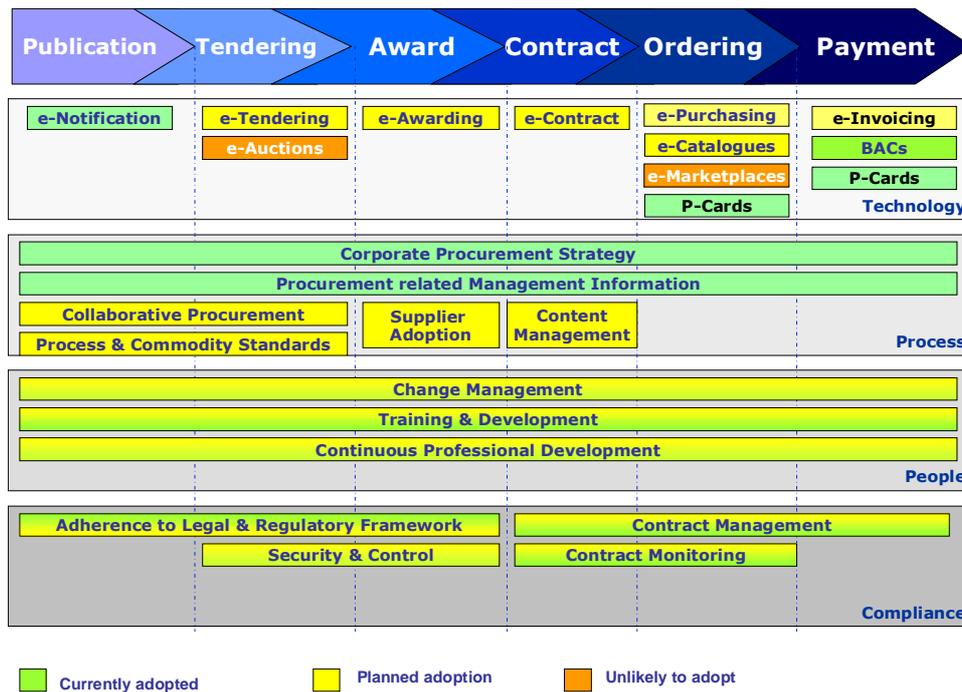
by the Housing Contracts Policy Manager [H06] *"procurement across this organisation ranges from the simple procurement of IT consumables items to complex multi-million pound construction or maintenance contracts. With such a diverse portfolio of procurement it is unlikely that we will be able to identify a single solution, and I would envisage that we would address the areas of highest volume (and lowest value), for example IT consumables, to pilot any potential solution, prior to addressing our more complex areas of procurement"*.

- **Public policy** – in common with a number of public sector organisations, this organisation has a number of economic regeneration policies in place, to ensure that local Small & Medium size Enterprises (SME) are provided with an opportunity to provide goods and services. The SMT feel that the introduction of *"more progressive"* elements of e-procurement, including reverse auctions (or e-auctions) and e-marketplaces would potentially exclude local SME suppliers, and given the profile of the organisation in the NI economy, this would not be a positive message.
- **Cost** – the current and planned elements of e-procurement have required significant investment by this organisation and as such it was highlighted by the SMT that it was unlikely that there would be significant future investment in e-procurement solutions, especially given the difficult financial situation faced by the NI Public Sector, and the potential difficulties in getting future investment approved by the Organisation's Board, especially where this could negatively impact on NI based suppliers.

## 6.22. Case Summary

Figure 6.17 summarises the current and planned position of this Council in relation to the adoption of a number of elements of e-procurement, using the research framework discussed earlier, where the current, planned and *"unlikely to adopt"* aspects of e-procurement are highlighted.

**Figure 6.17: Case 4: summary of e-procurement adoption**



In addition to summarising the progress that the pilot organisation has made with the introduction of e-procurement, Table 6.18 summarises the factors (column 1) which have:

- effected the adoption of e-procurement currently (column 2).
- effected the planned adoption of other elements of e-procurement (column 3).
- effected the decision not to adopt other elements of e-procurement (column 4).

As noted from the discussion above, this organisation has made significant progress in the introduction of e-procurement solutions, and related process, people and compliance initiatives (given the relatively low initial base), by overcoming a number of inhibitors, primarily relating to people and processes, primarily through the actions of senior stakeholders, as demonstrated through the establishment of a corporate procurement unit and the development of a corporate procurement strategy. However, it is also worth noting that the organisation, whilst planning to expand and consolidate the number of elements of e-procurement used, does not intend to

wholeheartedly adopt e-procurement, given the continued presence of a number of policy and process related inhibitors.

**Table 6.18: Summary of factors impacting on e-procurement adoption**

Influencing Factor	e-procurement modules already adopted	e-procurement modules to be adopted	e-procurement modules <u>not</u> to be adopted
Large number of suppliers and invoices	✓	✓	
Large volume of paper	✓	✓	
Large number of procurement staff		✓	
Largely manual processes		✓	
Lack of system integration			
Absence of procurement information			
Outdated procurement policies	✓		
Cost (of e-procurement)			✓
Absence of a corp. procurement strategy			
Lack of suitably skilled personnel		✓	
Unwillingness to re-engineer processes			
Proliferation of ad hoc systems		✓	
Resistance to change		✓	
Concerns regarding security			
Complex procurement	✓		✓
Public policy			✓
Legal and regulatory controls			
Need for transparency	✓		
Public policy	✓	✓	
Current cost of procurement			
Corporate procurement unit	✓	✓	
Governance and risk management		✓	
Corporate procurement strategy		✓	
Reduced administration costs		✓	
Improved financial control			
Reduced volume of paper		✓	
Reduced price		✓	
Improved contract compliance	✓	✓	
Elimination of ad hoc systems		✓	
Improved procurement information	✓		

### **6.23. Summary**

The within case analysis of the various Local and Central Government organisations has examined the factors which impacted on the decision by these case study organisations to introduce e-procurement.

The factors impacting the current and planned adoption of e-procurement were relatively consistent within each of the case study organisations examined. However, a number of factors, not identified in the literature review were identified by the case study organisations, e.g. public policy as a facilitator and an inhibitor, senior management leadership as a facilitator, the diverse and complex nature of the procurement undertaken by public sector organisations as an inhibitor, etc.

These additional factors will be further examined in the next Chapter, where cross case analysis will be undertaken to identify and discuss trends in relation to the factors impacting the adoption of e-procurement within the case study Central and Local Government organisations.

## 7. CROSS CASE ANALYSIS

*"We are music makers, we are the dreamers of dreams, we are the movers and shakers of the world for ever, it seems"*  
(Arthur O'Shaughnessy, 1844 – 81)

### 7.1. Introduction

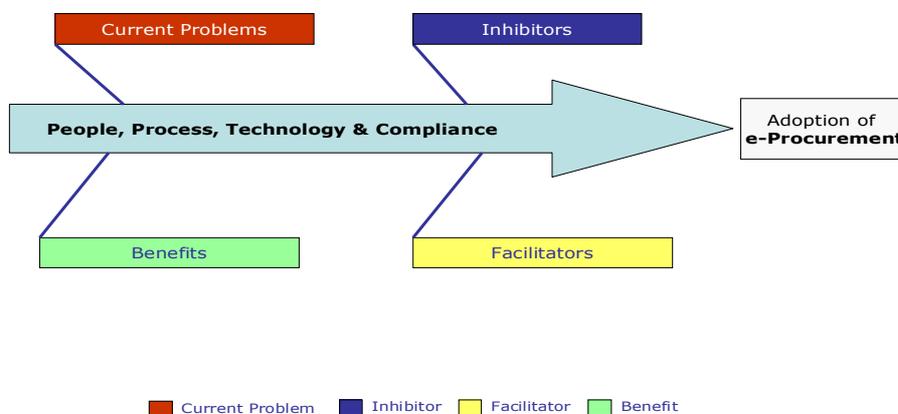
The purpose of this chapter is to build on the analysis of the five case studies – pilot and four other case studies (within case analysis) to identify trends, patterns or nuances across the five Central and Local Government organisations.

The objectives of this chapter are therefore:

- To examine the common factors which have affected the adoption of e-procurement technologies by the case study organisations
- To examine the factors which have been identified as affecting the future non-adoption of e-procurement technologies by the case study organisations
- To examine the variation in factors affecting the adoption of e-procurement technologies in the public sector and those in the private sector.

### 7.2. Cross Case Analysis

To determine the applicability of relevance of the findings of each of the five case studies spread across Central and Local Government, and to deepen the understanding, a cross case analysis approach has been adopted. A number of approaches have been proposed by various researchers including Yin (1984), Denzin (1989), Gouldner (1958), Norbit & Hare (1988) and Pearsol (1985). However, the approach used, *case-oriented strategies*, is that advocated by Yin (1984). This approach involves the in-depth study of the pilot study (Chapter 5), and the four other cases (Chapter 6) against the theoretical framework (Figure 7.1) to see the extent to which important behavioural patterns can be seen across all five cases.

**Figure 7.1: Research Framework**

### 7.3. Factors affecting the adoption of e-procurement technologies

Across the five case study organisations a number of e-procurement technologies were already in place or planned for implementation, as summarised by Table 7.1.

**Table 7.1: Current or planned e-procurement technologies**

e-Procurement Technology	Pilot	Case 1	Case 2	Case 3	Case 4
BACs	✓	✓	✓	✓	✓
e-tendering (publication only)	✓	✓	✓	✓	✓
e-tendering (pub. & response)	✓	✓	✓	✓	✓
e-tendering (pub., res. & evaluation)	✓	✓	✓	✓	✓
e-requisitioning	✓	✓	✓	✓	✓
e-purchasing (PO issue only)	✓	✓	✓	✓	✓
e-purchasing (PO issue & catalogues)	✓	✓	✓	✓	✓
P-cards			✓	✓	✓

As illustrated by Table 7.1, the majority of the case study organisations have implemented or plan to implement BACs, e-Tendering, e-Purchasing and P-cards. The following paragraphs

provide a discussion on the factors which influenced the introduction (or planned introduction) of these technologies by each organisation.

#### 7.4. Factors affecting the adoption of BACs

Table 7.2 summarises the factors which were identified by stakeholders of each case study organisation as influencing the introduction of BACs.

**Table 7.2: Factors affecting the introduction of BACs**

Influencing Factor		Pilot	Case 1	Case 2	Case 3	Case 4
Large number of suppliers & invoices		✓	✓	✓	✓	✓
Large volume of paper		✓	✓	✓	✓	✓
Resistance to change		✓	✓	✓	✓	✓
Public Policy		✓	✓	✓	✓	✓
Improved financial control		✓	✓	✓	✓	✓
Improved BVPI008 or PPI rating		✓	✓	✓	✓	✓
Reduced administration costs		✓	✓	✓	✓	✓
Problem	Inhibitor	Facilitator			Benefit	

As illustrated by Table 7.2 the factors influencing BACs to all of the case study organisations were the same and were largely a result of the need for each of the organisations to move away from their manual processes for the payment of supplier invoices, e.g. payment by cheque or payable order.

All organisations noted that the introduction of BACs helped to reduce the administration associated with a large number of suppliers and invoices, including the need to store and manage a large volume of paper. Additionally, all organisations noted that the introduction of BACs was largely driven by public policy (either the prompt payment initiative within Central Government (PPI) or the Best Value indicator within Local Government, BVPI008), which helped to overcome resistance within the organisation to change.

In fact, the introduction of BACs by a number of UK public sector organisations was used to indicate their response to the challenge set by the UK Government to introduce e-procurement to Central and

Local Government<sup>18</sup>. This observation is borne out by research carried out by the National Audit Office (NAO) who concluded that "*progress has not met targets with only 32% of high spending departments (those with procurement spend in excess of £100m), were assessed (by the NAO) as having a mature e-procurement programme*".

This revelation (by the NAO) is quite startling given the focus by the UK Government on the introduction of e-procurement, which from discussions with senior stakeholders across all the case study organisations, was a key influence on the decision to introduce BACs, alongside the general movement by the UK Public Sector to introduce electronic payment methods, especially as suppliers were increasingly expecting these from their transactions with the private sector.

The main benefits identified by all case study organisations included improved financial control, improved performance (either BVPI008 or PPI) and a reduction in the cost of paying supplier invoices. From the fieldwork undertaken with each of the case study organisations, it is evident that the introduction of BACs as the key payment method for suppliers was regarded as low risk.

### **7.5. Factors affecting the adoption of e-Tendering**

The position in relation to e-tendering is more complex and diverse – see Table 7.3 which summarises the factors which were identified by stakeholders of each case study organisation as influencing the introduction of e-Tendering. As illustrated by Table 7.3 there were a number of common factors influencing the introduction of e-tendering to all of the case study organisations including:

- Largely manual processes (problem)
- Large volume of paper (problem)
- Resistance to change (inhibitor)
- Public policy (facilitator)
- Reduced volume of paper (benefit)

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<sup>18</sup> The Government's National Procurement Strategy (October, 2003) had as one of the key objectives "to achieve efficiencies in the procure-to-pay cycle including reduction in cycle time and reduction in transaction cost. The target indicated that by 2005 "every Council should have implemented an appropriate e-procurement solution as part of its e-Government programme".

- Reduced administration costs (benefit)

**Table 7.3: Factors affecting the introduction of e-Tendering**

Influencing Factor	Pilot	Case 1	Case 2	Case 3	Case 4
Largely manual processes		✓	✓	✓	✓
Large volume of paper	✓	✓	✓	✓	✓
Large number of suppliers	✓			✓	✓
Large number of procurement staff					✓
Unwillingness to reengineer processes	✓	✓	✓		
Concerns about security		✓	✓		
Resistance to change	✓	✓	✓	✓	✓
Lack of formal procurement qual's.				✓	✓
Lack of standardisation				✓	
Proliferation of ad hoc systems					✓
Availability of a proven solution		✓	✓	✓	
Public policy		✓	✓	✓	✓
Corporate procurement strategy			✓	✓	✓
Corporate procurement unit			✓	✓	✓
Leadership - Infusion of new staff	✓				
Reduced volume of paper		✓	✓	✓	✓
Reduced administration costs	✓	✓	✓	✓	✓
Upskilling of staff			✓	✓	✓
Enablement of e-Government			✓	✓	
Improved supplier relationship	✓				
Reduced price					✓
Elimination of ad hoc systems					✓
Improved contract compliance					✓
Problem	Inhibitor	Facilitator	Benefit		

Through the discussion with key stakeholders of all case study organisations it is evident that e-tendering was introduced (or is planned for introduction) to address problems arising from current procurement processes, which were identified as being largely manual and result in a large number of suppliers, invoices and paper.

The stakeholder discussions with all of the case study organisations noted that there was considerable resistance to the introduction of e-tendering, particularly among procurement staff, who identified a

number of other factors including the lack of standardisation in procurement (across the organisation), an unwillingness to re-engineering procurement processes and the absence of suitably qualified personnel, as reasons why e-tendering could not be introduced.

For Cases 1 and 2, this resistance to change among procurement staff manifested itself in their unwillingness to reengineer current processes and the identification of security as a risk to the organisation. The procurement staff within these organisations considered the introduction of e-tendering as a potential mechanism whereby if e-tendering is extended beyond simple tender publication (e-publication) to electronic tender submission and evaluation the organisation could be exposed to unnecessary commercial risk (e.g. accidental loss of confidential tender submissions) or a breach of their computer security by hackers. Whereas for the pilot case study, this resistance to change was demonstrated through an unwillingness to reengineer current procurement processes.

For Cases 3 and 4 a key inhibitor to the introduction of e-tendering identified related to the lack of formal procurement qualifications of staff within the existing procurement functions. On closer examination of the overall strategic direction of procurement within these organisations it was considered that the identification of this as an inhibitor was not related to the introduction of e-tendering, but the pending establishment of a corporate procurement function, which would change the way that procurement was undertaken in the organisation (e.g. making it more professional) going forward.

As noted in Table 7.3, the ability of the case study organisations to overcome these challenges was facilitated by a number of factors, a key one being government led initiatives arising from procurement related reviews including those by Gershon (2004) and Byatt (2001). An additional factor related to public policy was the dissemination of "lessons learned" from research undertaken by Local and Central Government sponsored organisations, including for example the Office of Government Commerce ([www.ogc.gov.uk](http://www.ogc.gov.uk)) and the Improvement

and Development Agency ([www.idea.gov.uk](http://www.idea.gov.uk)). One example of the work undertaken by IDeA on behalf of UK Local Authorities is the National eProcurement Project (NePP). This project was initiated by IDeA, sponsored by the Government, to enable local authorities to gain the maximum benefits from e-procurement tools and techniques, including a number of good practice guidance notes in relation to key stages in the introduction of e-procurement, for example undertaking spend analysis, developing an e-procurement business case, identification of barriers to adoption, etc.

Another example of the work undertaken by OGC and IDeA was the trialling of e-procurement solutions, for example, Due North ([www.due-north.com](http://www.due-north.com)) used by Gateshead Council and Bravo Solution ([www.bravosolution.com](http://www.bravosolution.com)) used by the Department for Transport. The availability of tried and tested e-tendering solutions was identified by three of the case study organisations as a key facilitator for the introduction of e-tendering.

A number of the case study organisations facilitated the introduction of e-tendering through senior management leadership in the form of structural and policy changes within the organisation, albeit influenced by peers or wider public policy initiatives. For example, the development of a corporate procurement strategy for an organisation, which included principles in relation to governance and risk management related to procurement, was one such measure. For other organisations, the outworking of corporate procurement strategies resulted in the establishment of corporate procurement units, through which procurement would be managed across the organisation, and these were also influential in overcoming resistance to the introduction of e-tendering. It is interesting to note that the organisations that identified this as a key facilitator for the introduction of e-tendering had sponsors, who were energetic and charismatic, with a strong interest in procurement, and who understood how it (e-tendering) could benefit their directorate as well as the wider organisation. As noted by the Director of Resources [RE2] for Case Study Organisation 2, *"the impact of the leadership*

*shown by the Senior Management Team in facilitating the introduction of e-procurement should not be underestimated. From the outset (with the preparation of the business case) to cajoling colleagues to attend training and awareness courses, the Senior Management Team have led from the front, and without this support, it would not have been able to make the progress that we have achieved to date”.*

In terms of the benefits attained by the case study organisations arising from the introduction (or planned introduction) of e-tendering these generally related to reducing administration and paper. However, a number of “other” benefits identified were by stakeholders which were more specific in nature and included the elimination of ad hoc systems, improved contract compliance, a reduction in the price paid for goods/services, the enablement of e-Government and the upskilling of procurement staff.

It is interesting to note that the identification of “upskilling of staff” as a key benefit of introducing e-tendering was identified by a small number of stakeholders in all organisations, who were either recently recruited to the organisation, or who had a professional interest in procurement, and privately identified the establishment of a corporate procurement unit and the introduction of e-procurement related technologies as key to enhancing their profile in their organisation, as well as providing them with an opportunity to develop their career.

## **7.6. Factors affecting the adoption of e-Purchasing**

The position in relation to e-Purchasing, is similar to that for e-tendering, in that a range of factors were identified by each case study organisation as affecting the decision to adopt an e-purchasing solution – see Table 7.4 for a summary of the factors which were identified by stakeholders as influencing the introduction of e-Purchasing.

The introduction of e-purchasing to the case study organisations was aimed at addressing a number of issues with current procurement processes and procedures, primarily relating to their manual and paper based nature. The typical problems that were identified with

current procurement processes and procedures which were addressed (or will be addressed) through e-purchasing included a large number of suppliers, invoices, and paper as well as reducing the number of staff who were involved in procurement, which resulted in significant administrative costs associated with purchasing.

The introduction of e-purchasing to the case study organisations, like the introduction of e-tendering, was not smooth, with significant resistance encountered, particularly as it was considered by staff currently involved in procurement, that the introduction of e-purchasing would reduce their control and flexibility.

As discussed in the previous section, this resistance to the introduction of e-purchasing manifested itself in a number of ways including the identification of the need to re-engineer processes (including staff roles and responsibilities) and the potential security implications of introducing e-purchasing, particularly given the contractual commitment associated with the electronic transmission of a purchase order.

Other factors which were identified as potential inhibitors to the introduction of e-purchasing included the lack of standardisation of processes and procedures across an organisation, which means that it would not be possible to replicate or replace current purchasing with a "one size fits all" e-purchasing solution. This was particularly the case in Local Government, where the functional diversity of each Local Authority (irrespective of type, e.g. County, District, City, Unitary, etc.) which includes education, social services, leisure and environmental services means that there are a large number of buyers and a large number of goods and services procured, with the effect that a number of staff involved in procurement considered the introduction of a corporate e-purchasing system may potentially reduce their flexibility and impose more control, which led to resistance by staff to this change.

**Table 7.4: Factors affecting the introduction of e-Purchasing**

Influencing Factor	Pilot	Case 1	Case 2	Case 3	Case 4
Large number of suppliers & invoices	✓	✓	✓	✓	✓
Largely manual process	✓	✓	✓	✓	✓
Large volume of paper	✓	✓	✓	✓	✓
Low staff morale	✓				
Large number of procurement staff					✓
Unwillingness to reengineer processes		✓	✓		
Concerns about security	✓	✓	✓	✓	
Resistance to change		✓	✓	✓	✓
Lack of procurement qualifications	✓			✓	✓
Absence of corporate proc. strategy	✓				
Inappropriate culture	✓				
Lack of standardisation		✓	✓	✓	
Current cost of procurement	✓	✓	✓		
Public policy	✓	✓	✓	✓	✓
Availability of proven solution				✓	
Corporate procurement strategy			✓	✓	✓
Governance and risk management				✓	✓
Sustainable procurement	✓	✓		✓	
Corporate procurement unit			✓	✓	✓
Reduced price	✓	✓	✓	✓	✓
Reduced volume of paper		✓	✓	✓	✓
Reduced administration costs	✓	✓	✓	✓	✓
Improved contract compliance	✓	✓	✓		✓
Improved procurement information		✓	✓		✓
Upskilling of staff			✓	✓	✓
Job enrichment	✓				
Enablement of e-Government				✓	
Elimination of ad hoc systems					✓
	Problem	Inhibitor	Facilitator	Benefit	

In terms of the facilitating factors for e-purchasing, the key ones identified were leadership actions and public policy including the drive across Central and Local Government to reduce the cost of “back office” functions arising from the Comprehensive Spending Review (CSR), and procurement related reviews such as Byatt and Gershon).

An additional aspect of public policy identified by stakeholders related to sustainable procurement<sup>19</sup>. For example, a number of stakeholders noted that the issue of sustainable procurement was high on the agenda of elected representatives, especially given the economic and environmental aspect of procurement and as such this was identified as a key factor in the drive to introduce e-purchasing, as sponsors of the introduction of e-purchasing linked this to the introduction of sustainable procurement to the organisation. One example frequently quoted relates to the construction of buildings which have lower through-life operating costs as the materials used in their construction are more energy efficient through the use of natural energy sources (e.g. solar and wind). Construction is one of the ten priority spend categories identified by the Task Force ([www.idea.gov.uk/idk/aio/7643299](http://www.idea.gov.uk/idk/aio/7643299)).

In addition to the influence of public policy, a number of the case study organisations identified the leadership and drive by senior stakeholders as key to the introduction of e-purchasing. This leadership manifested itself in a number of ways including the development of corporate procurement strategies and the establishment of corporate procurement units which facilitated the introduction of e-purchasing (as well as other e-procurement technologies) as these were identified as key mechanisms for modernising procurement and assisting in reducing the current cost of purchasing which was considered as excessive. As noted by the current Procurement Manager in Corporate Services [CF4] for the Case Study 4 organisation, *"the Chief Executive was instrumental in pushing through the adoption of a number of e-procurement solutions by this organisation ..... through the establishment of a Central Procurement Unit and the development of a Corporate Procurement Strategy, all parts of the organisation now have an increased focus on procurement, and it has been raised to Board level, which will benefit*

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<sup>19</sup> Sustainable procurement is defined as a "process whereby organisations meet their needs for goods, services, works and utilities in a way that achieves value for money on a whole life basis in terms of generating benefits not only to the organisation but also to society and the economy, whilst minimising damage to the environment". "Procuring for the Future", Sustainable Procurement Task Force, June 2006.

*the entire organisation in the long run – this could not have been achieved without the drive and vision of the current Chief Executive”.*

Governance and risk management was identified in a number of corporate procurement strategies as one of the key principles for procurement across the organisation. Senior stakeholders in Case 2 and Case 4 noted that there is an increasing focus on governance and risk management within their organisations arising from the publication of the Nolan Report (1997) and this increased focus has assisted with the introduction of systems and processes (e.g. e-purchasing) which provides greater transparency and information on procurement across their organisation.

The benefits (realised or potential) from the introduction identified by stakeholders as influencing their organisation to adopt included those typically associated with e-purchasing, for example, reduced price, reduced administration cost and reduced volume of paper (given the removal of paper forms). These benefits were identified by all organisations as influencing the decision of their senior management to adopt or plan to adopt e-purchasing.

The other benefits identified by the case study organisations as influencing the decision to adopt e-purchasing are either people related (e.g. upskilling of staff and job enrichment), compliance related (e.g. improved contract compliance and improved procurement information) or localised (e.g. enabling e-Government and eliminating ad hoc systems).

The identification of “improved procurement information” by three of the case study organisations as a key benefit of introducing e-purchasing is unsurprising given the difficulty experienced by all the case study organisations in extracting and collating simple information in relation to expenditure (e.g. volume and value analysis). Aside from expenditure information, there was a general dearth of procurement related management information available in any of the case study organisations, particularly in relation to supplier performance, contract compliance, etc. which it was generally agreed

would be a critical spin off from the introduction of e-purchasing as this would assist the relevant organisations with decision making in relation to procurement in the future.

### **7.7. Factors affecting the adoption of P-cards**

Across the five case study organisations there is limited use or planned use of P-cards as summarised in Table 7.1. In terms of the factors which have been identified as having influenced or will influence the introduction of P-cards, see Table 7.5.

Table 7.5 highlights the fact that the current procurement issues, which influenced the adoption of P-cards by three of the four case study organisations, were similar to those identified for the introduction of other aspects of e-procurement (e.g. e-tendering and e-purchasing) and are largely a result of the manual nature of procurement currently across the case study organisations. The one new issue identified is the lack of control that Case 2 felt there was over procurement, which would be removed through the introduction of P-cards. On further investigation, it was identified that this related to the procurement of IT consumables across the Council, which were undertaken in an ad hoc and “uncontrolled” manner, leading to downstream issues in the IT Department of the Council.

The inhibiting factors to the introduction (or extension) of P-cards by the three case study organisations were again reflective of the position for e-tendering and e-purchasing. One additional barrier to the introduction of P-cards identified by Case 4 related to the complexity of procurement undertaken by the Design & Property Services Directorate, where it was considered by senior stakeholders in this directorate that P-cards were inappropriate. This position was reinforced through examining in detail the types of procurement undertaken by this directorate, e.g. letting maintenance contracts, large scale design & build contracts, etc. and as such it was concluded that this was an appropriate stance for the directorate to take, however, was by no means an organisation wide reason not to adopt P-cards.

**Table 7.5: Factors affecting the introduction of P-Cards**

Influencing Factor	Pilot	Case 1	Case 2	Case 3	Case 4
Large number of suppliers & invoices			✓	✓	✓
Largely manual process				✓	
Large volume of paper			✓	✓	✓
Lack of control			✓		
Outdated procurement policies					✓
Need for transparency					✓
Complex procurement					✓
Resistance to change			✓	✓	
Lack of procurement qualifications				✓	
Lack of standardisation				✓	
Public policy			✓	✓	✓
Availability of proven solution				✓	
Corporate procurement strategy				✓	
Corporate procurement unit					✓
Reduced volume of paper				✓	
Reduced administration costs			✓	✓	✓
Improved contract compliance			✓		✓
Improved procurement information			✓	✓	✓
Upskilling of staff				✓	
Enablement of e-Government				✓	
Problem	Inhibitor		Facilitator		Benefit

The facilitating factors identified as influencing the introduction (or extension) of P-cards are again similar to those for e-purchasing and relate to the overall influence of public policy or the leadership shown by senior stakeholders in the organisations which was illustrated through a variety of mechanisms including the establishment of a corporate procurement unit and the development of a corporate procurement strategy. Additionally, Case 3 indicated that the availability of a proven P-card solution in the public sector (e.g. the Office of Government Commerce P-Card) which is acknowledged as “typically removing 95% of administrative effort”, as noted by the Lead Accountant at Coventry City Council who stated that “it costs 58p

*to make a purchase using a P-card, compared to at least £20 processing a traditional invoice”.*

In terms of the benefit related factors which influenced the decision to adopt (or expand) the use of P-cards, these were similar to those identified for e-purchasing with the reduction of administration costs (see comments above) and the increased availability of procurement related management information identified by all organisations as key factors.

### **7.8. Factors affecting the non-adoption of e-procurement technologies**

Across the five case study organisations the factors which have been identified as having influencing the non-adoption of e-procurement technologies are summarised in Table 7.6.

The single common factor identified as impacting on the ability of all five case organisations to extend the e-procurement footprint beyond that already in place or planned, was the complexity of the procurement undertaken across the organisations. Three of the organisations examined are Local Authorities who provide a wide range of services to their citizens (e.g. transport, community safety, social services, health, education & lifelong learning, housing, arts, sport, culture, environment, planning, regeneration, cities, seaside and countryside) and whereas the other two organisations are a Central Government Executive Agency, and a Non Departmental Public Body (NDPB). Given the diversity of services provided by these organisations, and the underlying diversity of goods and services procured to support the delivery of these services, it was noted that whilst there are standard operating goods and services which are “tailor made” for the adoption of e-procurement (e.g. IT consumables, travel, utilities, etc.) there are a significant range of goods & services procured by Councils and Central Government bodies which will not be suitable to a “one size fits all” e-procurement solution.

**Table 7.6: Factors affecting the non-adoption of e-procurement**

Influencing Factor	Pilot	Case 1	Case 2	Case 3	Case 4
Suppliers inability to trade electronically		✓			
Complex procurement	✓	✓	✓	✓	✓
Cost			✓		✓
Lack of procurement qualifications		✓	✓		
Lack of programme/project management		✓			
Public policy	✓	✓		✓	✓
Continuous change				✓	
Legal and regulatory controls	✓				

The second key factor identified as an inhibitor to the introduction of e-procurement or the extension of e-procurement technologies was public policy. The identification of public policy as both an inhibitor and a facilitator to the adoption of e-procurement is not surprising given the diversity of influences that impact on public sector organisations.

As discussed in earlier sections of this chapter, public policy in the form of best value indicators, the prompt payment initiative, sustainable procurement, etc. were regarded by the case study organisations as significant factors which influenced the introduction (or planned introduction) of various e-procurement technologies, e.g. e-tendering, e-purchasing and P-cards.

However, public policy, in the form of economic development and regeneration has also been identified by the case study organisations as an inhibitor to the expansion or extension of e-procurement technologies to match those used in the private sector, for example e-marketplaces and e-auctions. Examples of e-marketplaces used in the private sector include for example Achilles (used by the utility sector), Covisint (used by the automobile sector), and AvMarkets (used by the aviation sector).

The inhibiting nature of public policy as identified by the case study organisations relates to the requirement to protect local economies by not excluding local suppliers from providing goods and services to Local and Central Government organisations. This inhibitor is

additionally reflected by Case 3, where it was noted that the “inability of suppliers to trade electronically” was one of the factors influencing the extension/expansion of e-procurement technologies. Through discussion with key stakeholders in this organisation, it is apparent that this relates to local suppliers, and the desire by the elected members to ensure that local suppliers are not excluded from providing goods and service to the Council by the prescription of technologies, e.g. e-marketplaces.

The influence of public policy on the adoption of e-marketplaces or e-auctions to not progress the expansion of e-procurement was clearly articulated by the case study organisations; however, across the UK Local Government sector there are a number of functioning marketplaces including the marketplace operated by the Improvement & Development Agency (IDeA).

The remaining inhibitors to the extension/expansion of e-procurement technologies are localised and primarily relate to the capacity of the case study organisations to initiate, deliver or sustain the change associated with the introduction of new procurement technologies and processes. As illustrated by Table 7.6, two of the case study organisations considered the lack of procurement and programme/project management skills within the organisation as key factors for not extending the current (or planned) footprint of e-procurement technologies in the organisation. On further discussion with stakeholders in these organisations, it was considered that the ability of the organisation to sustain change, particularly as this may incur significant additional costs, without significant benefits from the initial investment in e-procurement being realised was going to be challenging. This was a particular concern for the “champions of e-procurement” who felt that the introduction (or planned introduction) of e-procurement technologies would need to “bed in” and demonstrate the delivery of benefits, before it would be “politically acceptable” to request additional funding and support for extending e-procurement across their organisations.

The third case study organisation indicated that there had been a significant level of procurement related change across the organisation in recent years, with more planned, and the potential for continuing this rate of change to extend the footprint of e-procurement technologies was unlikely, given the potential for “change fatigue”, especially within the procurement community.

## **7.9. Conclusions**

The cross-case analysis discussed in this chapter highlights the factors which are identified as influencing the current or planned use of a number of e-procurement technologies across Central and Local Government organisations.

The factors identified as influencing the adoption, and non-adoption, of e-procurement technologies across UK Central and Local Government organisations will be examined and interpreted in more detail in the following chapter in the context of existing academic theory, and in particular institutional theory.

## 8. DISCUSSION

*"One must not hesitate to innovate and change with the times. The leader who stands still is not progressing, and he will not remain leader for long"*  
(Vince Lombardi, 1966)

### 8.1. Introduction

The purpose of this chapter is to examine findings of the research in light of the objectives of this study and to discuss the contribution of these findings to academic research. The aims of this chapter are therefore:

- To examine and discuss the case study findings in relation to the objectives of this research, in particular the factors affecting the adoption of e-procurement technologies in the public sector compared to those in the private sector
- To examine and discuss the contribution that this research has made to academic research in the area of e-procurement in the UK Central and Local Government sectors.
- To examine and discuss the implications of this research for organisations within the UK Central and Local Government sectors.
- To examine and discuss the implications of the findings of this research for further research in this area, including the limitations of the fieldwork undertaken.

### 8.2. Summarisation of findings in relation to objectives

The following discussion focuses on the findings of the research undertaken with the case study organisations across the UK Central and Local Government sectors in relation to the 6 objectives set out in Chapter 3. This discussion highlights the many new insights with regard to the factors affecting the adoption of e-procurement, drawn from the thorough review of the existing literature, as well as the empirical research undertaken with the five case organisations.

### **8.2.1. Definition and conceptualisation of e-procurement**

The first objective of this research was “to identify an appropriate definition and conceptualisation of e-procurement applicable to the UK Central and Local Government sectors”.

The literature review discussed in Chapter 2 noted that an array of definitions and conceptualisations of e-procurement exist in published research arising from either the sector focus or the solution focus of the research. In addition, current definitions and conceptualisations tend to focus on the two themes of process and technology, with limited reference to the themes of people and compliance.

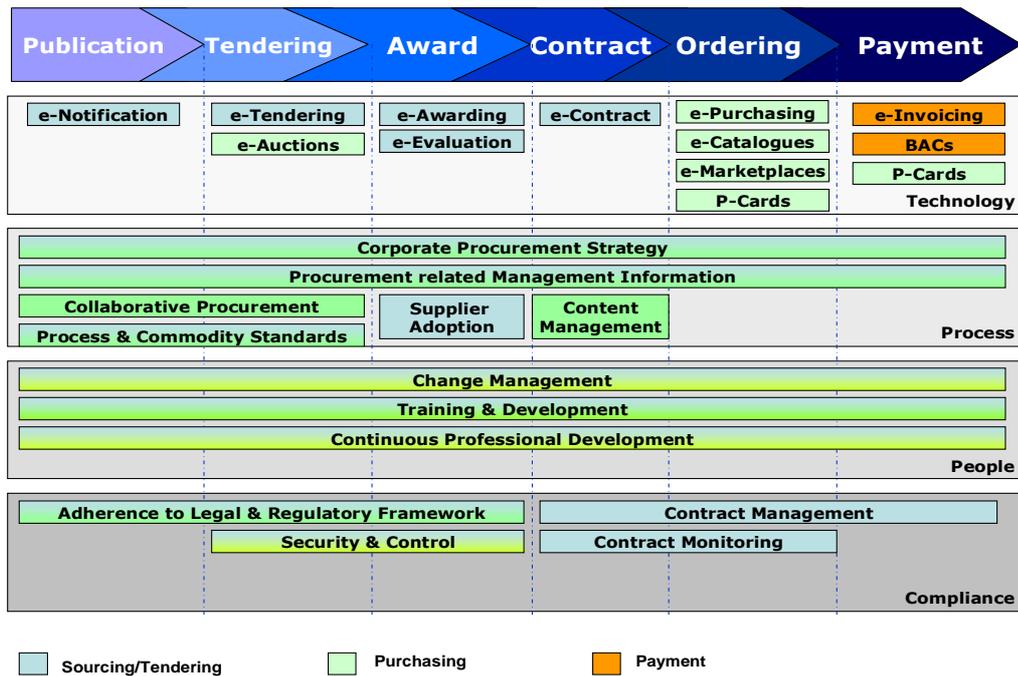
Based on the findings from the literature review a holistic definition of e-procurement has been developed which draws together the four themes of process, technology, people and compliance and is as follows:

*“E-procurement is the streamlining of the publication to payment process by enhancing the input of people, the use of technology and the adherence to controls”.*

Following on from this definition, a new conceptualisation of e-procurement has also been developed, which is illustrated by Figure 8.1.

The conceptualisation illustrated by Figure 8.1 illustrates the need for a comprehensive definition of e-procurement to ensure that organisations pursue a holistic approach to its adoption. For example the introduction of e-procurement cannot take place in isolation as it requires appropriate technology (e.g. e-notification, e-purchasing, e-invoicing, etc.) without the accompanying introduction of underlying processes (e.g. development of a corporate procurement strategy, collection & use of procurement related management information, etc.), the accompanying focus on, and development of people (e.g. training, change management, etc.) and the accompanying regard to compliance (e.g. contract monitoring, security, controls, etc.).

**Figure 8.1: e-procurement conceptualisation**



### 8.2.2. Uptake of e-procurement

The second objective of this research was “to investigate the extent to which public sector organisations have adopted, or are actively planning to adopt, a range of e-procurement technologies”.

As noted above, the adoption of e-procurement by an organisation does not have to be an “all or nothing” scenario, providing all four dimensions of its adoption (e.g. technology, process, people and compliance) have been addressed.

Table 8.1 summarised the scale of actual (or planned) adoption of e-procurement technologies by the case study organisations, drawn from across the UK Central and Local Government sectors. Based on this information, a number of observations can be made in relation to the solutions adopted, the approach to current adoption and future plans for expansion.

In general the e-procurement technologies adopted (or planned for adoption) by the case study organisations are specifically aimed at addressing issues with current procurement processes and systems,

which largely relate to the current manual and paper based processes. The business cases developed to support the implementation of the selected e-procurement solutions were generally reliant on the removal of administrative processes and the delivery of staff related efficiencies.

**Table 8.1: Current (or planned) level of adoption of e-procurement technologies**

e-Procurement Technology	Pilot	Case 1	Case 2	Case 3	Case 4
BACs	✓	✓	✓	✓	✓
e-tendering (publication only)	✓	✓	✓	✓	✓
e-tendering (publication & response)	✓	✓	✓	✓	✓
e-tendering (publication, response & evaluation)	✓	✓	✓	✓	✓
e-requisitioning	✓	✓	✓	✓	✓
e-purchasing (PO issue only)	✓	✓	✓	✓	✓
e-purchasing (PO issue & e-catalogues)	✓	✓	✓	✓	✓
P-cards			✓	✓	✓

All of the case study organisations have "*stepped carefully into e-procurement*" through the adoption of low risk proven solutions. These low risk proven solutions have either been working successfully in the private sector for a number of years (e.g. BACs) or have been piloted by leading innovators in the sector (e.g. IDeA in Local Government and OGC in Central Government). Through following the lead taken by these innovators, the case study organisations across the UK Central and Local Government sectors have been able to learn from their lessons, draw on their templates (e.g. business case) and in some cases avail of their contracts to introduce low risk technology solutions to their organisation. This approach has helped to overcome resistance to change, through being able to reference peer organisations in the same sector.

All of the case study organisations indicated that they have plans to extend and expand their current e-procurement footprint, e.g. extend the use of adopted technologies across other directorates in the organisation or expand the use of the adopted technology to use its

full functionality, for example e-tendering. It was noted that the extent of the organisation's ambition to extend the use of e-procurement solutions was driven by the strength of the leadership within the organisation, and the desire (or indeed willingness) of the e-procurement champion to continue to press the case for the increased adoption of e-procurement.

All of the case study organisations indicated that, whilst they were looking to extend and expand their e-procurement footprint, they were unlikely to progress the introduction of e-procurement technologies to the same extent as private sector organisations as the goods/services they procured were generally more diverse, and as they operated in a mixed economy model (e.g. some services provided in-house, some externalised and some delivered jointly with other organisations) their procurement arrangements, including governance were more complex and less suited to a "one size fits all" e-procurement technology.

### **8.2.3. Issues and problems with traditional procurement**

The third objective of this research was "to explore the issues and problems associated with traditional paper based procurement and to determine the extent to which they have acted as drivers for the adoption of e-procurement".

Organisations across the UK Central and Local Government sectors, in common with private sector organisations experience a number of issues (or problems) with their traditional procurement. The issues identified by the five case study organisations are similar to those identified through the literature review, which related primarily to the private sector, and which are summarised in Table 3.1.

The problems or issues identified by the case study organisations with current procurement processes and systems is limited compared to that identified by largely private sector organisations in the literature review. The main issues identified stem from the outdated, paper based and manual processes used by all of the case study

organisations (albeit there were a small number of exceptions). Given the nature of current processes and systems, issues relating to speed of processing, volume of paper, number of staff involved, absence of central control and a large supplier base are not unexpected.

It is however, interesting to note that a number of the issues identified in the literature research have been categorised by the case study organisations as inhibitors, these including (i) resistance to change, and (ii) ability of suppliers to participate.

Paradoxically, it is also interesting to note that a number of the issues identified in the literature review may actually have arisen as a result of introducing e-procurement; examples include (i) ignoring strategic procurement, (ii) lack of product standardisation, and (iii) lack of buyer influence. These issues identified in the literature review were however, not identified by the case study organisations.

#### **8.2.4. Inhibiting and facilitating factors to e-procurement adoption**

The fourth objective of this research was "to explore and understand the inhibitors and facilitators to the adoption of e-procurement to the UK Central and Local Government sectors, and to determine the extent to which they have affected (and will affect) the adoption of e-procurement".

The primary inhibitors which were common across those identified in the literature review (see Table 3.2) and the fieldwork undertaken with the case study organisations were (i) concerns about security, (ii) lack of process re-engineering, (iii) complexity of procurement, and (iv) resistance to change. It is interesting to note that across all public sector organisations the major inhibiting factors identified to the introduction of e-procurement were the complexity of goods/services procured and resistance to change.

The complexity of procurement across the case study organisations examined is unsurprising given that they procure goods/services to assist in the delivery of an array of services including infrastructure, roads, education, social care, leisure, environmental health, building

management, etc. Given the diversity of services provided by public sector organisations, it was fairly predictable that this has been identified as one of the key inhibitors, as it is unlikely that a single e-procurement solution will be able to meet the full requirements of all procurement across the UK Central and Local Government sectors. Consequently, the case study organisations have embarked on the e-procurement journey through the adoption (or planned adoption) of e-procurement solutions to address high volume, low value items, e.g. stationery, IT consumables, etc.

Through discussions with senior stakeholders across the five case study organisations, it is interesting to note that the resistance to the introduction of e-procurement manifested itself in the identification of a number of reasons why e-procurement would not be suitable (or inhibitors to the adoption of e-procurement), these included:

- The identification of a number of difficulties and challenges in changes current processes and procedures, e.g. an unwillingness to re-engineer current business processes. This inhibitor was separately identified by 3 of the 5 case study organisations, and reflected a “defensive mechanism” used by procurement and operational staff across these organisations who were not supportive of the introduction of e-procurement.
- The identification of potential risks to the organisation which would arise through the introduction of e-procurement, e.g. security risks, which was identified as an inhibitor by 2 out of the 5 case study organisations as a reason for not progressing with the introduction of e-procurement.
- The absence of procurement related skills across the organisation was also identified as a reason for not progressing. This inhibitor was identified by 2 of the 5 case study organisations and again was portrayed as a risk to the organisation given that the staff within the procurement function did not have the appropriate skills or qualifications to understand the requirements of e-procurement.

The facilitators for the introduction of e-procurement are relatively consistent across all the public sector organisations and appear to draw a clear distinction between the public and private sectors. For the private sector, the main facilitators of e-procurement identified through the literature review (Attaran, 2001; Minahan & Degan, 2001; Min & Galle, 2003; Presutti, 2003; Hawking et al, 2004; Croom & Johnston, 2003; Yen & Ng, 2003; Muffato & Payaro, 2004; and Puschmann & Alt, 2005) reflected potential benefits of e-procurement to the organisation (e.g. reduced prices, shorter procurement cycle, reduced procurement costs and reduced warehousing requirements<sup>20</sup>), rather than the influence of internal or external facilitators.

By contrast, the facilitators identified for the public sector, were less tangible, however, reflected the environment in which public sector organisations operate, e.g. the four main facilitators identified by the case study organisations were (i) public policy, (ii) establishment of a new corporate function and/or strategy, (iii) availability of a proven solution, and most importantly (iv) strong leadership. Further examination of these facilitators through discussions with senior stakeholders revealed that the facilitators identified through the fieldwork reflected the “drivers for change” articulated in the business case for the introduction of e-procurement.

### **8.2.5. Actual and potential benefits of e-procurement adoption**

The fifth objective of this research was “to explore the actual and potential benefits that can be achieved by the UK Central and Local Government sectors, through the adoption of e-procurement, and the extent to which the achievement of these benefits have (and will) affect the adoption of e-procurement”.

Table 3.3 summarised the benefits (actual and potential) identified through the literature review (which primarily consisted of private sector organisations) and those identified through this research with the five case study organisations across the UK Central and Local Government sectors.

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<sup>20</sup> **Note:** the benefits identified as facilitators through the literature research are also applicable benefits to the public sector

A number of the benefits identified in the literature review (primarily relating to the private sector) were also identified by the five case study organisations, in particular (i) reduced price, (ii) reduced administration costs, (iii) improved financial control, and (iv) improved financial compliance. Given that the procurement processes of the five case study organisations were paper based and manual, it is not surprising that the introduction or extension of e-procurement, even in some cases in a basic form, would be expected to provide the benefits identified above.

However, it is interesting to note that the potential for reducing the volume of paper held by the case study organisations (given storage costs, search and retrieval costs, and potential loss from damage or fire) was identified as a potential or actual benefit for these organisations, which was not the case for the private sector.

The identification of this as a potential/actual benefit may be partially explained by the recent drive across the UK public sector to store information electronically, where for example the introduction of the Freedom of Information Act 2001, has been a significant driver behind this.

However, the interesting findings from this research in relation to the actual or potential benefits of e-procurement has been the identification of a number which are specific to the public sector, namely (i) improved BVPI008 rating, and (ii) the enablement of e-Government. Additionally, the identification of the potential benefit of higher skilled staff, which can lead to increased motivation and staff retention, was identified by 3 of the 5 public sector organisations, and again this potential or actual benefit would appear from the research undertaken with the case study organisations to be applicable only to the public sector.

#### **8.2.6. Public sector adoption: behaviours explained**

The sixth objective of this research was "to develop an explanation of the behaviour of public sector organisations, in terms of their adoption of e-procurement".

The study of the five case organisations has identified a number of similarities, namely, the e-procurement technology solutions adopted by each organisation, the inhibitors, and facilitators that influenced the level of adoption, and the actual and or anticipated benefits, which resulted from the adoption of the various e-procurement technologies.

It is however interesting to note that many of the most influential factors were not identified in prior private sector-oriented studies. The highly influential factors, identified in the case studies, included:

- (i) **Influence of proven technological solutions:** the relative importance of *proven* e-procurement technology solutions was found to have more influence on the public sector organisations. In private sector organisations “first mover advantage”, has been found to be a more important influencing factor in the decision to adopt e-procurement. A possible explanation for this is the culture of public sector organisations, which have a tendency to be risk adverse, especially where major investments in technology are concerned.
- (ii) **Central government influence:** the introduction of e-procurement was recognised, especially by the Local Government case study organisations as a further demonstration of the progress being made to the overall enablement of e-Government. This suggests central Government policies might have a significant influence on the how and when Government agencies adopt certain technologies.
- (iii) **Enhancement of organisational status:** the desire to maintain the status of the case study organisations relative to their peers, particularly in Local Government, was noted as a key influencer in the decision to introduce e-procurement. Each organisation appeared to want to offer the same levels of service as organisations perceived to be similar.

- (iv) **Performance improvement:** the introduction of e-procurement was recognised by the case study organisations across both Local and Central Government as a mechanism to demonstrate performance improvement, particularly in relation to published indicators (e.g. BVPI008 - Local Government, and Prompt Payment Initiative - Central Government) relating to the payment of suppliers.

Overall it is apparent from the fieldwork undertaken with the case study organisations that the behaviours of organisations across the UK Central and Local Government sectors in adopting e-procurement is distinctly different to that identified for private sector organisations in the literature review.

Moreover, it was found, as fully discussed in section 8.3.5, that 'Institutional Theory' (Scott, 2007) provides a highly valuable lens for explaining and interpreting these behaviours. The behaviour of the UK Central and Local Government organisations researched mirrors that found by Bakker et al (2008) in their research into the UK Health Sector where they note "*that internal and external contextual factors simultaneously play a role in e-adoption and external pressures and internal readiness do not exist in isolation of each other*".

### **8.3. Contributions to the literature**

Because of the Internet's very significant impact on the operation and performance of organisations of all shapes and sizes, the e-business literature (Basu & Muylle, 2003; Dennis et al, 2004; Doherty & Ellis-Chadwick, 2006), in general, and the e-procurement literature, (Alaniz & Roberts, 1999; Morris, 2000; Minahan, 2001; Dai & Kaufmann, 2001; Bartezzaghi & Ronchi, 2003; Panayiotou et al, 2003; Muffato & Payaro, 2004; and Tatsis et al, 2006), in particular, have grown spectacularly over the past decade. Against this backdrop, it is very important that new studies have a very clear vision as to the gap that they are hoping to fill and the nature of the contribution that they will hope to deliver. The results of the study, presented in this thesis do indeed, help to fill a number of very significant gaps in the literature,

as articulated in Chapter 2, and in so doing, they provide a number of important and interesting contributions to the literature, as discussed below.

### **8.3.1. Definition and conceptualisation of e-procurement**

The literature review undertaken at the outset of this research highlighted the fact that the definitions and conceptualisations of e-procurement used is narrow and is largely driven by the focus of the research. For example, there are sector oriented definitions (e.g. Muffato & Payaro, 2004); geographic oriented definitions (e.g. Hawking et al, 2004); technology specific definitions (e.g. Carr & Smeltzer, 2002). Consequently, none of these provide a sound starting point for researching e-procurement in the UK Central and Local Government sectors.

The absence of a comprehensive definition of e-procurement was noted by a number of researchers (Henry, 2000; Heywood et al, 2002; Vaidya, 2003; Yu, 2003; and Soar & Turner, 2003) as causing confusion and was in fact identified as a barrier to the adoption of e-procurement. This need therefore for a comprehensive definition and conceptualisation of e-procurement was supported by the work undertaken by Dooley & Purchase (2006) and Schoenherr & Tummala (2007).

To overcome this gap in the literature a comprehensive definition and conceptualisation of e-procurement was developed, which built on the existing published work (Reason & Evans, 2000; Telgen, 2001; Caldwell et al, 2002; de Boer et al, 2002; Przymus, 2003; Muffato & Payaro, 2004; Tatsis et al, 2006; Bof & Previtali, 2007; Teo et al, 2009). This resultant definition of e-procurement was utilised throughout the study:

*“E-procurement is the streamlining of the publication to payment process by enhancing the input of people, the use of technology and the adherence to controls”.*

This definition is considered by the author to be more complete in that it covers all change aspects associated with introducing new processes and technologies into an organisation, namely technology, process, people and compliance, and as such provides a holistic consideration of the factors influencing the adoption of e-procurement. The holistic nature of the definition and conceptualisation of e-procurement, as illustrated by Figure 8.1, was reinforced by the fieldwork undertaken, where it was evidence that the successful adoption of e-procurement, particularly within a UK Central and Local Government environment needs to be multi-themed and consider all aspects of the change initiated. However, given their comprehensive nature of, it is envisaged that both the definition and conceptualisation may be of value to future e-procurement studies in a wide variety of organisational contexts.

### **8.3.2. Adoption of e-procurement by the UK public sector**

The review of current published academic literature relating to e-procurement indicates a limited amount of research into the adoption of e-procurement in the UK public sector in general, and the Central and Local Government sectors in particular.

This research therefore makes a significant contribution to addressing this gap in the literature, as it is the first to consider e-procurement solutions adopted by organisations within the UK Central and Local Government sector.

Arising from the fieldwork undertaken with the case study organisations from across Central and Local Government, a number of interesting observations have been made as follows:

- 1) there is relative high level of homogeneity across the organisations researched in relation to the e-procurement solutions which have been adopted, see Table 8.1.
- 2) the solutions adopted by the case study organisations are not anticipated by the organisations to be the panacea for all

procurement problems within the organisation, given the diversity of goods/services procured by the various parts of the organisations.

- 3) the solutions adopted by the case study organisations are generally well proven within a public sector environment.

### **8.3.3. A taxonomy of potential adoption factors**

Previous studies into the adoption of e-procurement have focused on specific technologies, the organisational impact of adoption, the sectoral (particularly the private sector) implications of adoption and the use of e-procurement across various geographies (e.g. Australia, Italy, Hong Kong and Singapore). As such the focus of current published research has been varied, has tended not to focus on the development of comprehensive taxonomies for the adoption of e-procurement.

Given this gap in the current literature, the literature review undertaken identified a range of factors including (i) problems with current procurement, (ii) inhibitors to the adoption of e-procurement, (iii) facilitators to the adoption of e-procurement, and (iv) the potential or actual benefits from introducing e-procurement across four themes namely (i) technology, (ii) process, (iii) people and (iv) compliance.

The "matrix approach" (of considering the factors and themes discussed above) used to understanding the factors that have affected the adoption (or non adoption) of e-procurement in the UK Central and Local Government sectors, is considered by the author to have contributed to a richer approach to understanding their influence on the decision making of public sector organisations. For example, as a result of the use of this "matrix based" a number of important factors, which previously received limited attention in the literature have been noted including (i) the potential dual role of public policy, i.e. as both a facilitator and an inhibitor, (ii) the diverse nature of public sector given that it is largely service delivery focused, (iii) the people related

benefits of e-procurement, e.g. upskilling of staff, and (v) the benefit of enhanced contract and financial compliance.

#### **8.3.4. Factors affecting the uptake of e-procurement, within the UK public sector**

The results of the study, presented in this thesis, provide a further set of significant contributions to the literature, by delivering important new insights into the factors that affect the uptake and application of electronic procurement technologies within the public sector. Whilst the exact combination of factors that encouraged adoption varied between organisations and between technologies, it was possible to identify a number of very significant drivers that appear to have been common, across the sample.

In terms of the key problems that the five case organisations were experiencing, with regard to the operation of their original manual systems and processes, there was a very high degree of commonality. More specifically, it was widely recognised that the presence of a large supplier base, the very large volumes of paper being generated, and the unwieldiness and inefficiencies of the existing manual processes were all significant problems that could be alleviated through the introduction of e-procurement technologies. In a similar vein, it was widely acknowledged that proactive leadership, the presence of a corporate procurement unit and the formulation of a corporate procurement strategy were all widely perceived to be important facilitators of e-procurement adoption. Resistance to change and an unwillingness to re-engineer existing processes were both recognised as exerting an inhibiting affect on e-procurement adoption, but ultimately, in the case of those technologies that were adopted, it was found that the effects of these inhibitors could be negated. Finally, there was a common perception that the adopted technologies were delivering benefits in a number of key areas, of which the very significant reduction of paper-work and administrative costs, higher levels of contract compliance and the up-skilling of staff were perhaps the most notable.

In some ways, it might be argued that this list of common factors is fairly predictable, because it highlights many of the drivers that have been identified in previous, private sector-oriented studies (Bales & Feron, 1996; Nolan, 1999; Croom, 2000; Essig & Arnold, 2001; deBoer et al, 2002; Wyld, 2002; Croom & Johnston, 2003; and Ria & Tang, 2006). However, it can still be argued that these results are novel and make a contribution in three important ways. Firstly, the targeting of the public sector organisations is a contribution, in its own right, as it is still a very under researched sector, from an e-procurement perspective. Secondly, the study has identified two important new drivers for e-procurement adoption, (i) enhancements in contract and financial compliance, and (ii) the up-skilling and motivation of staff. Whilst both of these drivers might play an important role in e-procurement adoption decisions, across a variety of sectors, their importance has not been previously articulated in the literature. Finally, this study has made an important contribution by identifying the following two drivers that played a critical role in influencing e-procurement adoption, in this public sector-specific context:

- **The role of public policy:** One of the study's most important and novel results was to highlight the critical and highly influential role that public policy plays in determining whether or not an organisation will adopt a particular technology. Moreover, it was found that public policy had the ability to exert either a facilitating or an inhibiting influence, depending upon the specific circumstances. For instance, in the case of technologies such as BACS, e-tendering and e-purchasing, public policy played an important facilitating role, as all of these applications were perceived as helping to promote the government's efficiency agenda, by reducing the costs and resources allocated to procurement. By contrast, the introduction of other technologies, such as reverse auctions and e-marketplaces was effectively ruled out, as they would fly in the face of Government's competition agenda, by impeding the

ability of small & medium enterprises to compete with large, multi-national organisations.

- **The enhancement of organisational status:** For organisations operating in the private sector the desire to attain competitive advantage, is often a strong driver for the introduction of new information technologies. As Ravichandran & Lertwongsatien (2005) have noted: "*IT can provide sustainable competitive advantage when it is used in a mutually reinforcing manner*". Whilst competitive drivers clearly do not exert a significant, influential role in the public sector, this study has made a further important contribution in identifying that many of the case study organisation's cited the desire be seen as a '*leader or beacon organisation*' as a critical driver of their e-procurement adoption.

The literature review discussed in Chapter 2 noted that the majority of current research into e-procurement is either survey or questionnaire based (Schoenherr & Tummala, 2007), and as such there has been little opportunity to examine the issue of causality, when considering the factors that affect the adoption of e-procurement technologies. The case study research approach used for this study aimed to address this gap as it provided the author with an opportunity to work closely with stakeholders from the five organisations across the UK Central and Local Government sectors, thereby providing an opportunity to explore the causality of the factors identified for the adoption (and non-adoption) of a range of e-procurement solutions. This allowed the presence and direction of causal relationships between the adoption factors and the levels of adoption, and any important interrelationships between the variables, to be assessed.

When conducting questionnaire-based quantitative research it is very difficult to interpret any significant statistical relationships between two variables A and B: did A '*cause*' B or did B '*cause*' A, or were they both '*caused*' by a third, unmeasured variable C? For example in the context of quantitative, e-procurement adoption research, it could be that the presence of a corporate procurement unit facilitated the

adoption of an e-purchasing application, or alternatively it could be that the adoption of an e-purchasing package encouraged the establishment of the corporate procurement unit, or that the catalyst for both was a company take-over. Happily, in the case of this research, the author's very close and intensive engagement with the five case organisations allows it to be stated, without any reservations, that the adoption factors [independent variables] were perceived to have exerted a strong causal influence on the levels of adoption [dependent variables]. However, one significant and interesting set of interrelationships between the independent variables was identified, with regard to the highly influential role of leadership.

Organisations within the UK public sector can be characterised as having a conservative and risk adverse culture, therefore strong leadership is required to embark upon the introduction of new processes, policies, or technologies, such as e-procurement (Bozeman & Kingsley, 1998). As noted by Hofstede (1980) and (Jaeger, 1986), the concept of culture - "*the values, beliefs and assumptions that distinguish one group from another*" Schein (1992) - is strongly embedded in organisations, and therefore takes a great deal of time and effort to change. The case study organisations examined, demonstrated the need for strong and insightful leadership to make the necessary cultural changes necessary for the adoption of e-procurement technologies.

In situations in which the leaders perceived that there were very real advantages to be gained, particularly in terms of improving the status and standing of their organisations, they were prepared to put their weight behind e-purchasing initiatives, and make sure that any inhibitors were overcome. Across all of the organisations examined, employees saw the migration from current manual processes to e-procurement as a removal or a dilution of their power and knowledge, which was met with resistance, as these changes were seen as mechanisms for "*upsetting the status quo*" and changing the culture of the organisation. There was also a great deal of reluctance to re-engineer long-standing, procurement processes in which employees

had invested a great deal of time and effort. However, if senior managers were convinced that an investment in e-procurement technology made sense, then they would take steps to overcome these inhibitors. However, in cases in which the merits of the technology were less obvious, particularly because of the complexity of some of an agency's procurement processes [high value and low volumes], then the senior managers were, understandably, less inclined to make a stand.

### **8.3.5. E-procurement adoption through the lens of 'Institutional Theory'**

In addressing objective 6, Section 8.2.6 highlighted interesting factors, which suggests public sector organisations react to different factors affecting e-procurement adoption than private sector organisations. The literature review suggested that one of the key drivers for the introduction of e-procurement (in private sector organizations) was the desire to gain market share or positioning, through "first mover advantage" (Croom, 2000; Dai & Kauffman, 2001; Davila et al, 2002). For the public sector case study organisations, first mover advantage appears to be of lower importance.

The adoption of major IT initiatives is by very definition likely to lead to organisational change: processes may be reorganised and re-shaped; job roles may change and or disappear because of efficiency gains. The adoption of e-procurement in any organisation is likely to be disruptive and meet with resistance and barriers to adoption but also have certain factors which act in a positive way driving the adoption process forward. The literature review identified likely reactions to organisational changes in relation to adoption of e-procurement technologies (Yen & Ng, 2003; Croom & Brandon-Jones, 2003; and Carr & Smeltzer, 2002). The case study research and analyses have revealed the specifics and patterns of adoption, and the variables that have had an influence on the way public sector organisations adopt e-procurement technology. The rest of this section uses institutional theory as a lens, with the aim of explaining

why such difference between the key factors influencing e-procurement adoption in public and private sector organisations.

Teo et al (2003) used Institutional Theory to understand the factors that influence the adoption of inter-organisational systems and found three pressures have the potential to influence organisational behaviour when adopting IT innovations. Moreover, they suggested that organisations operating in similar environments face similar pressures. From an Institutional Theory perspective, these pressures are: 1) Mimetic; 2) Coercive; 3) Normative.

These pressures are now used as a lens to see if they provide a useful framework for understanding the adoption of innovative technology in public sector organisations.

- 1) **Mimetic Pressure:** this particular pressure focuses on the extent to which the adoption of innovative technologies is influenced by successful adoption of e-procurement by organisations working in the same environment. This study found a key factor in the adoption or extension of the e-procurement by the five case study organisations was the availability of a proven solution, within a public sector environment. Moreover the perceived acceptance of the technology solutions by similar organisations was found to help overcome resistance to change. This type of resistance is expected as noted by Bannister (2001), *"public sector organisations are bureaucratic by nature ... most public administrations are bureaucracies and bureaucracies tend to resist change"*.

Based on the case studies, it appears that public sector organisations, unlike private sector organisations are more likely to be "followers" than "leaders", in relation to the adoption of e-procurement, primarily arising from their risk adverse nature, which was an observation of Joyce (1985) who noted that *"the culture within a typical civil service is one of risk aversion. Information technology, as a major catalyst of change, inevitably clashes with this culture"*. This linkage between the introduction of technology solutions and change has also been identified by a number of other

researchers including Remenyi (1999) and Beckford (1998) who noted the role of technology within the change management and strategy process.

The literature review also indicated that a number of private sector organisations introduced e-procurement to have "first mover advantage", thereby gaining a competitive advantage over their rivals. As noted by Webb & Pettigrew (1999) "*early adopters may see a new practice as a means of conferring competitive advantage through differentiation. That is, the practice is presumed to have some technical merit or to provide superior performance outcomes that may give the firm early-mover advantages*". Later adopters, on the other hand, may use the same practice to confer legitimacy with little actual impact on firm operations (DiMaggio & Powell 1983; Meyer & Rowan 1977; Westphal et al. 1997).

From the fieldwork undertaken with the five organisations across the UK Central and Local Government sectors, it is apparent that "early mover advantage" was not important, and that one of the key factors which influenced the adoption (or extension) of e-procurement was the availability of a proven solution within a public sector environment.

On examination, the reasons cited for the public sector organisations researched learning from experiences in the sector prior to embarking on the introduction (or expansion) of e-procurement arose from the risk averse and relatively conservative nature of the public sector in general. This conservatism stems from the environment in which public sector organisations in the UK exist, where there is a considerable level of scrutiny and governance arising from the management of public money.

The "following" or "imitating" approach by public sector organisations to the adoption of e-procurement has also been highlighted in research by Barney (2001), who noted that a firm's resources including "*knowledge, learning, culture, teamwork and human capital, among others*" are the "*kinds of resources that were*

*most likely to be sources of sustained competitive advantage for firms*". Given this, Barney (2001) argues that organisations will imitate the practices and as far as possible other resources (e.g. knowledge, learning, culture, etc.) to overcome the competitive advantage achieved by the leading organisation. These "mimetic forces", as termed by DiMaggio & Powell (1983), help to explain the adoption of management practices by organisations, particularly within the same sector.

Lozeau et al (2002), notes that the imitation of good practices by public sector organisations is not simply imitation, but a result of institutional pressures. Additionally, Institutional Theory suggests that organisations will imitate the actions of structurally similar organisations because they operate within similar parameters; use similar benchmarks; and serve similar markets. The underlying rationale for this is that faced with the uncertainty, which might result from change "*organisational decision makers succumb to mimetic pressures from the environment*" (Teo et al, 2003). They do this in order to: reduce search costs (Cyert & March, 1963); minimise experimentation costs (March, 1981); avoid major risks (Lieberman, 1988). Mimetic pressure is useful for explaining the case organisations responses to various influencing adoption factors. However, other pressures could be at work: coercive forces which are exerted on an organisation, particularly within the public sector to adopt the structures or systems that are favoured, was identified by Scott (1987) where he concluded that "*the role of coercive forces in institutional theory highlights the impact of political rather than technical influences on organisational change*".

- 2) **Coercive pressures:** these are the formal and or informal pressures exerted on one organisation by other organisation on which the former depends upon, e.g., regulatory bodies, parent corporations, and the controller of resources. Teo et al (2003) say that resources and relationships can lead to the development of similar structural features within an organisation and the formalisation of policies. Coercive pressures can stem from

resource dependency, as this pressure will encourage organisations to comply in order to ensure survival.

The evidence of coercive pressures being at work in the case organisations includes the adoption of policy initiatives established by Central Government (for example Prompt Payment Initiative in Central Government and Best Value in Local Government), the adoption of good practices established by leading procurement authorities across Local Government (Improvement and Development Agency) and Central Government (Office of Government Commerce).

The case organisations have exhibited a willingness to enter into relationships, which are in line with the requirements of central Government and suppliers and other influential stakeholders.

- 3) **Normative pressures:** are the pressures, which arise from the extent to which relationships exist between, case organisations that might encourage organisations to behave similarly. According to Teo et al, (2003), normative pressures are being exerted when there are links and relationships between organisations that enable other organisations to learn about innovations and its associated costs and benefits. The sharing of this type of information brings about consensus and *"through relational channels among members of a network facilitates consensus which in turn increases the strengths of the norms and their influence on organisational behaviour"*. (Powell & DiMaggio, 1991)

Lozeau et al (2002) notes that institutional pressures are more influential in the case of public sector organisations because of the professional associations and organisational relationships that play a more important role in decision making process and can supersede market forces. "In the public sector, where there may be limited capability to assess simple bottom-line outcomes such as profitability, it becomes tempting for those who evaluate these organisations to judge them on the basis of their processes. In such circumstances, the adoption of techniques that are viewed as

rational, modern, and progressive can enhance an organisation's legitimacy" (Lozeau et al, 2002).

In a similar way, it can be concluded that the adoption of proven e-procurement technologies by public sector organisations is influenced by normative pressure and is a reflection of the policy driven environment in which they operate, as well as imitating the practices adopted by similar organisations that they have relationships with in the sector. As noted by Ashworth et al (2007), the Beacon Council initiative (applicable to Local Government organisations), launched in 1999, identifies "*outstanding*" councils that are consequently awarded 'Beacon status'" and thereby receive publicity of their work and a degree of national prestige. The scheme is described by IDeA as one that "*identifies excellence and innovation in local government. It is much more than just a badge, however. The purpose is to share good practice so that best value authorities can learn from one each other and deliver high quality services to all*" ([www.idea-knowledge.gov.uk](http://www.idea-knowledge.gov.uk)) . Beacon councils have a duty to disseminate their successful practices in order to facilitate improvement elsewhere. Such dissemination can take the form of road shows, open days, site visits, secondments, and consultancy (Stewart, 2003) that combine elements of normative and mimetic isomorphic pressures.

Another example of this demonstrated by the Central Government case study organisations is the establishment of Centres of Procurement Expertise (e.g. Central Government Centre of Procurement Expertise established by the Scottish Government which was established following the McClelland review of public procurement in Scotland, 2006). These organisations have been established across the UK Central Government in response to procurement reviews, and have a remit of stimulating, facilitating and delivering advanced procurement across Central Government<sup>21</sup>.

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<sup>21</sup> Mission statement for the Central Government Centre of Procurement Expertise established by the Government of Scotland ([www.cgcopescotland.gov.uk](http://www.cgcopescotland.gov.uk))

The need for the case study organisations to “catch up” with peer public sector organisations can be attributed to the nature of the organisations found within the UK Public Sector. Recent research by Tas & Gruber (2008) identified culture as a key dimension in the adoption of e-procurement by an organisation. This research has considered the impact of cultural dimension on e-procurement adoption and found that organisations can be affected by the external cultural dimensions of the country in which the organisation is based as well as specific internal influences.

Moreover, the results of the research undertaken with the 5 case study organisations supports the conclusions of the research by Tas & Gruber (2008), highlighting the importance of learning from the experiences of other organisations within similar sectors, especially in relation to the adoption of e-procurement, where the learning is adopted and becomes part of the mainstream function of the organisation.

The findings of this study also support Webster’s (1987) conclusion, that *“institutionalisation in the context of IT and government refers to the process by which an information technology, once adopted by an adopting organisation (e.g. a governmental organisation) becomes part of the mainstream operation of the organisation”*. This view aligns with that expressed by Rogers (1983) who described the process of institutionalisation similarly, although he labelled it the process of routinisation (the final step in the innovation process and the third step in the implementation process). He concluded that *“implementation ends when a point is reached at which the new idea becomes an institutionalised and regularised part of the adopter’s on-going activities”*. More recently Fountain (2001) described this technology institutionalisation as “technology enactment” and notes the influence of this on the adoption and regularisation of information technology.

In summary, this study adds to the growing body of literature, by providing evidence of the importance of the influence of mimetic,

normative and coercive pressures on the adoption of e-procurement technology in the public sector.

#### **8.4. Implications for practice**

From the fieldwork undertaken with the case study organisations, it is apparent that there are a number of practical implications for organisations within the UK Central and Local Government sectors, who are considering implementing e-procurement or expanding their e-procurement footprint.

The key implications identified through the research undertaken include:

- **Understand current procurement landscape** – across the five case study organisations reviewed over the course of this research senior stakeholders noted the importance of understanding the current procurement landscape of the organisation prior to embarking on an e-procurement project. The importance of understanding the “as is” position was identified as critical to the successful adoption of e-procurement as the absence of a sound understanding of the current procurement landscape will result in challenges in the articulation and delivery of the business case to support the investment in e-procurement technologies.
- **Adopt proven technologies** – stakeholders from all of the case study organisations noted the importance of being able to access e-procurement technologies and processes, which had been proven in a UK public sector environment. For organisations seeking to introduce e-procurement, the presence of good practice guidance across the UK Central and Local Government from innovation organisations (e.g. IDeA for Local Government and OGC for Central Government) should smooth the path and should, as identified by the case study organisations, assist with overcoming resistance.

- **Ensure strong leadership** – the impact of strong leadership, particularly where there is internal resistance to the introduction of new procurement processes or technologies was identified by stakeholders in the case study organisations as critical for success. Stakeholders in the case study organisations also noted that the extent of change arising from the introduction of new procurement processes and technologies to an organisation should not be underestimated, as it influences all aspects of the organisation. Strong and focused leader is an imperative, particularly where new procurement organisations or strategies are being established (to facilitate change) which will undoubtedly impact on current organisation structures and personal responsibilities.
- **Understand the importance of public policy** – research into the factors affecting the adoption of e-procurement in the private sector largely focus on the efficiencies and benefits which can result, particularly where e-procurement can provide a competitive edge. For the public sector, based on this research, this is not the case, as there is no profit motivation. However, the factors impacting on public sector organisations are potentially more complex, and often competing. For example, the impact of public policy was identified as both a facilitator (e.g. the setting of government targets) as well as an inhibitor (e.g. the setting of economic support objectives which means that public sector organisations cannot introduce processes or policies which would negatively impact on small & medium sized enterprises). Given the dual nature of public policy, public sector organisations embarking on the introduction of e-procurement need to understand the boundaries of their ambition, otherwise they may fall foul of their own policies which would have disastrous political implications for the organisation.
- **Acknowledge the impact on staff** – the impact of introducing e-procurement to a public sector organisation can have a significant impact on staff, both negative and positive, which may

not be as apparent in the private sector. The Central and Local Government organisations studied noted the importance of “keeping staff onboard” throughout the process, understanding their concerns, providing them with training and support to allow them to embrace change, and where necessary providing them with reskilling to facilitate their movement to another part of the organisation, or occasionally out of the organisation. The role that staff plays in the adoption of e-procurement was identified by a number of the case study organisations as critical to success, and again, this may not be evident from similar research undertaken with private sector organisations.

### **8.5. Limitations of this research and implications for future research**

On considering the research undertaken with the five case study organisations drawn from across the UK Central and Local Government sectors, a number of limitations have been identified in relation to this research which should be addressed through future research, these are as follows:

- **The extended period of the research:** the research undertaken in the development of this thesis was carried out on a part-time basis over 8 years, and as such the e-procurement landscape, both in terms of usage and research may have changed over this period. It is however interesting to note that the appropriateness and importance of e-procurement to the UK public sector, particularly within Central Government, has not diminished. This is evidenced by the publication of a recent report (April 2009) by HM Treasury<sup>22</sup> where key recommendations include *“improve the quality of management information on procurement spend across the public sector to ensure that common standards and much increased transparency are implemented”* and *“make better use of existing investments in eProcurement tools, such as Zanzibar, to support greater uptake of collaborative category deals; and align an OGC-*

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<sup>22</sup> Operational Efficiency Programme: final report, HM Treasury, April 2009

*developed central eProcurement policy with commercial strategies”.*

- **The type of organisation:** the approach which has been adopted for examining the factors affecting the adoption of e-procurement by organisations in the UK Central and Local Government sectors is based on case studies. The case study organisations are drawn from across the spectrum of Central Government (e.g. an Executive Agency and a Non Departmental Public Body) and Local Government (e.g. City Council and two County Councils).

It is however acknowledged by the author that the case study organisations selected, whilst chosen for a number of valid reasons including proximity to the author and access to undertake fieldwork data collection and interviews, does not represent a complete picture of the UK Central and Local Government sectors, as a number of organisations types have not been included, including:

- A Central Government Department
- A Quasi Non-Governmental Organisation
- A London Borough
- A Metropolitan District Council

Given the in-depth nature of the fieldwork undertaken with the case study organisations, the author does not consider the exclusion of these organisations to have materially impacted on either the findings or the contribution that this research has made to current academic literature. Further research into the adoption of e-procurement by UK Central and Local Government organisations may wish to explore the experiences of the organisations excluded from this research.

- **Experience of e-Procurement:** the case study organisations examined in the course of this research had varying levels of

adoption of e-procurement technologies, and as such future research could examine public sector organisations who are experienced users of e-procurement to understand their issues and challenges in expanding or extending their e-procurement footprint.

Taking account of these limitations, the implications for future research identified are:

- **Use an increased sample size:** the approach used for this research involved the use of case study organisations, five in total including a pilot organisation. The use of a case study approach was deemed appropriate for this study given the breadth of goods and services procured by a number of the organisations. Future research could involve a larger sample base, as the case study organisations examined in this research may not be totally reflective of all UK public sector organisations.
- **Extend sectoral coverage:** this research focused on organisations within the UK Central and Local Government sectors; however, future research could explore organisations within other sections of the UK public sector, namely education, health and criminal justice.

## 8.6. Conclusions

This research into the factors affecting the adoption of e-procurement to the UK Central and Local Government sectors has assisted with addressing a number of gaps in the current published literature relating to the implementation of e-procurement, including:

- The absence of a comprehensive definition and conceptualisation of e-procurement.
- The lack of understanding of the factors affecting the uptake of e-procurement by organisations within the UK Central and Local Government sectors.

- The absence of taxonomies for the factors affecting the adoption of e-procurement.
- The lack of research into the relationship between technology, process, people and compliance factors and the level of adoption.
- The examination of the factors affecting adoption through an appropriate theoretical lens, such as institutional theory.

Through addressing the gaps in the current published academic literature identified above, it is considered by the author that this research has made a significant contribution to the literature in relation to the factors and their relationship with the extent of adoption of e-procurement by organisations with the UK Central and Local Government sectors.

## 9. CONCLUSIONS

*"Some people are aware of another sort of thinking which ..... leads to those simple ideas that are obvious only after they have been thought of ..... the term 'lateral thinking' has been coined to describe this other sort of thinking, 'vertical thinking' is used to denote the conventional logical process*

*(Edward de Bono, 1933 - )*

### 9.1. Introduction

The purpose of this chapter is to draw together the conclusions from this research and to provide a summary of the contributions that this research has made to published academic literature in relation to e-procurement.

### 9.2. Gaps in the literature

The literature reviewed over the course of conducting this research is primarily focused on the private sector, and it identifies a number of potential factors that might affect the adoption of e-procurement within the public sector. However, it has become apparent from this review, that there are a number of significant gaps in the current literature in relation to the uptake and adoption of e-procurement. More specifically, the following important gaps have been identified:

- Current studies of e-procurement have tended to adopt rather narrow definitions and conceptualisations of e-procurement.
- There have been few, if any studies which explicitly focus on the public sector, in general, nor the adoption of e-procurement by UK Central and Local Government sector organisations, in particular.
- There are a number of studies that identify factors that might affect the adoption of e-procurement, but they tend not to be empirically tested. Moreover, such studies do not provide complete and coherent taxonomies of the problems with traditional procurement, or the potential benefits of, and inhibitors / facilitators of e-procurement adoption.

- Where empirical studies of the adoption of e-procurement, have been conducted, they tend to be questionnaire-based, private sector-oriented, focussing on a restricted set of adoption factors and a narrow conceptualisation of e-procurement. In particular, it is important that more case studies are conducted, so that the issue of causality can be more explicitly addressed.
- The existing empirical literature tends not to explicitly draw upon theory, to help interpret their results. Consequently, the extent to which an organisation's adoption practices might be explained through the use of an appropriate theoretical lens, such as institutional theory, have not been widely explored.

### **9.3. Contributions to the Literature**

Taking account of the gaps in the current literature detailed above, a study was initiated to investigate the factors affecting the uptake and adoption of e-procurement within five case study organisations across the UK Central and Local Government sectors.

Using the empirical data collected through working with the five case study organisations, the following contributions have been made to current published academic literature relating to the adoption of e-procurement:

1. A more coherent and comprehensive definition and conceptualisation of e-procurement has been formulated.
2. More coherent and comprehensive taxonomies of the factors that might affect the adoption of e-procurement have been developed.
3. The uptake and adoption of e-procurement solutions has been assessed, at a selection of governmental agencies.
4. The factors that have affected the uptake of e-procurement by organisations within the UK Central and Local Government sectors have been identified.

5. Institutional theory has been applied to help understand the behaviour of case study organisations, with regard to their adoption of e-procurement technologies.

#### **9.4. Conclusions**

Based on the findings of this research which was undertaken with five organisations drawn from across the UK Central and Local Government sectors, a number of conclusions can be drawn as follows:

1. The use of a case study approach provided the author with significant access to the case study organisations drawn from across the UK Central and Local Government sectors, which resulted in a deeper understanding of the influence of the factors identified as contributing to the adoption (or otherwise) of e-procurement solutions.
2. The case study organisations, which had made significant progress (or had developed strategies and plans for adopting e-procurement), had senior stakeholders who acted as e-procurement champions and “drove through” the introduction of e-procurement, or put in place facilitating activities (e.g. developed a corporate procurement strategy, established a corporate procurement unit, etc.).
3. Procurement across the UK Central and Local Government sectors, as evidenced by the case study organisations, involves the specification and procurement of a diverse range of goods/services, many of whom are complex (e.g. infrastructure projects) or service related (e.g. social care provision) and as such do not lend themselves easily to the use of e-procurement.
4. In contrast to the private sector, public sector organisations are not influenced by the need to have “first mover advantage”, they are, however, influenced by the need to ensure that their organisational status is maintained (or enhanced) through the

adoption of proven technology based solutions, such as e-procurement.

Based on this research, and the recent publication by HM Treasury (Operational Efficiency Programme), where it was noted that UK Central and Local Government organisations should "*make better use of existing investments in e-procurement tools*", it is evident that the adoption of e-procurement processes and technologies have a significant role to play in the delivery of efficiencies and enhanced services across the UK public sector.

Whilst the lens of *Institutional Theory* has been used primarily to help make sense of the past and present, it may also present some interesting insights into how the uptake and adoption of e-procurement might progress into the future. The Operational Efficiency Programme, along with other initiatives will help promote the benefits of e-procurement, along with 'best practice' with respect to its uptake and application.

Consequently, we are beginning to see a state of affairs, in which 'coercive' pressures, in the form of incentivisation, is being used to encourage many more governmental agencies to adopt e-procurement. In the longer term, as more and more agencies adopt e-procurement technologies, Institutional Theory would suggest that '*mimetic pressures*' will then take over by encouraging other organisations to adopt these 'best practices', with the result that e-procurement may very well become established as a core technology within the UK public sector.

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**APPENDICES**

**Appendix 1**  
**Data Collection Spreadsheet**

## **Procurement Data Collection**

### **Introduction**

This data collection document has been designed to gather further information on procurement across your organisation. The document is based on the Procurement Excellence Model and seeks responses to a number of questions, and to provide supporting evidence, relating to the following:

- Leadership of procurement at departmental level
- Procurement policy and strategy
- The procurement skills, qualifications and training needs of staff involved in procurement
- Use of partnerships and resources in pursuit of Best Value procurement
- Procurement processes
- Results achieved.

The document also provides an opportunity for organisations to raise any other procurement matters not addressed elsewhere.

### **Instructions for Completion**

Ideally, one document only should be completed for each directorate/department/division in your organisation. However, where a directorate/department/division considers that there are significant variations in procurement process then up to three returns per directorate/department/division will be accepted;

Supporting evidence, if available, should also be referenced as appropriate;

Hard copies of the completed questionnaire should be sent directly to Danny McConnell at the following address:

*Deloitte MCS Limited, 19 Bedford Street, Belfast, BT2 7EJ*

**The deadline for completion and return of the questionnaire is \_\_\_\_\_.**

Respondent Details - please complete the following table:

Name of lead officer completing questionnaire	
Contact telephone number	
Contact e-mail address	
Completed on behalf of directorate/department/division	

**1. Leadership – Do Managers demonstrate the role and importance of procurement and lead by example?**

	<b>0</b> Don't Know / N/A	<b>1</b> No this doesn't happen	<b>2</b> This happens occasionally but there is no consistency	<b>3</b> Yes this usually happens but it could be improved	<b>4</b> Yes this is recognised as the way we do business and we achieve real benefits	<b>5</b> This is an integral part of our culture and operation and can be regarded as best practice	<b>EVIDENCE</b>
1.1 Do managers throughout the dept act as role models in promoting and achieving good procurement?							
1.2 Are senior managers throughout the dept personally involved in the way that procurement operates?							
1.3 Do staff appreciate the importance of good procurement in pursuit of Best Value?							
1.4 Are senior managers actively involved in establishing contracts?							
1.5 Are senior managers actively involved in managing contracts?							

**2. Policy and Strategy – What are your procurement objectives and how are they developed?**

	<b>0</b> Don't Know / N/A	<b>1</b> No this doesn't happen	<b>2</b> This happens occasionally but there is no consistency	<b>3</b> Yes this usually happens but it could be improved	<b>4</b> Yes this is recognised as the way we do business and we achieve real benefits	<b>5</b> This is an integral part of our culture and operation and can be regarded as best practice	<b>EVIDENCE</b>
2.1 Does the dept have a formal procurement strategy and policy?							
2.2 Do you periodically review and update your policy?							
2.3 Does your dept have a clearly documented supplier management policy?							
2.4 Do you have members of staff as named contacts for large contracts?							
2.5 Do you have a formal plan for managing key contracts?							
2.6 Do you operate a supplier appraisal/performance monitoring system?							
2.7 Does your procurement policy and strategy document include clear objectives and performance indicators?							

2.8 Have you identified the key procurement processes that are critical to delivery of procurement objectives?							
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2.9 Do you have departmental costing systems in place to enable you to estimate the transaction / administrative cost (either overall or the average cost / purchasing transaction) associated with procurement at departmental level?

	<b>Tick one box</b>
Yes	
No	

2.10 If the answer to question 2.9 is yes please identify the associated transaction cost (either on the basis of the average purchasing transaction cost or the overall cost) below

	<b>Insert cost</b>	<b>EVIDENCE</b>
Average transaction / admin cost per purchasing transaction		
Total annual departmental procurement transaction / admin cost		

**People – How well does your dept manage and develop procurement skills? (note: question 3.11 identifies typical skills associated with procurement)**

	<b>0 Don't Know / N/A</b>	<b>1 No this doesn't happen</b>	<b>2 This happens occasionally but there is no consistency</b>	<b>3 Yes this usually happens but it could be improved</b>	<b>4 Yes this is recognised as the way we do business and we achieve real benefits</b>	<b>5 This is an integral part of our culture and operation and can be regarded as best practice</b>	<b>EVIDENCE</b>
3.1 Does the dept plan for recruiting and training people with the right procurement skills?							
3.2 Do staff have clearly defined procurement-related objectives and performance measures?							
3.3 Are staff encouraged to develop their own procurement-related skills and expertise?							

Please identify the number of people within the dept that spend more than 50% of their time on procurement (this would include involvement with any part of the procurement process such as market analysis, drawing up the specification, managing the contract etc)

<b>Total number of staff</b>	<b>Tick one</b>
1 - 2	
3 - 5	

6 - 10	
11 - 20	
> 20	

Please identify the number of people within the dept that spend 10% - 50% of their time on procurement (this would include involvement with any part of the procurement process such as market analysis, drawing up the specification, managing the contract etc)

Total number of staff	Tick one
1 - 2	
3 - 5	
6 - 10	
11 - 20	
> 20	

How many staff involved in procurement hold the relevant qualifications? (insert number of staff against relevant qualification)

Qualification	Number of Staff (insert)
NVQ Procurement	
CIPS First / second certificate	
CIPS Postgraduate diploma	
Civil Service certificates of competence	
Other (e.g. architecture, surveying, engineering, legal) – please specify	

How many years of procurement related experience does the lead procurement officer within the dept have?

Years experience	Tick one	Evidence
We do not have a lead procurement officer		
1 - 2		
3 - 5		
6 - 10		
11 - 20		
20		

What arrangements does your dept have for training related to procurement and commissioning? Please indicate which of the following options applies (tick more than one if necessary)

Training arrangements	Tick if applicable	Evidence
Training is provided as part of the authority's training programme		
The dept provides support (financial or otherwise) for staff to seek professional or other procurement related qualifications		
The dept buys in specialist training as required for particular projects		
Staff development plans include training and development in procurement and purchasing skills		

How many staff are currently undertaking procurement related training qualifications?

<b>Training arrangements</b>	<b>Specify number of staff</b>	<b>Evidence</b>
In – dept training		
Training / development at further education college		
Training / development at University level		
On the job training		

3.10 Please indicate how much money is currently set aside, at dept level, for the development of procurement related skills within the dept? £.....

3.11 This question explores the extent and depth of key procurement related skills within the dept. Please tick the relevant box (limited, reasonable or advanced) and additionally indicate the number of staff with at least a reasonable skill level in each of the categories

<b>Category</b>	<b>Some limited skills</b>	<b>Reasonable Level of skills</b>	<b>Advanced Skills</b>	<b>Evidence</b>	<b>Number of staff with reasonable or better skills</b>
Development of procurement policy and strategy					
PPP inc. PFI					
Specifying contracts					
Preparing contracts					
Analysis of supply markets					
Market development					
Sourcing					

<b>Category</b>	<b>Some limited skills</b>	<b>Reasonable Level of skills</b>	<b>Advanced Skills</b>	<b>Evidence</b>	<b>Number of staff with reasonable or better skills</b>
Developing supply strategies					
Determining requirements					
Risk identification and management					
Business case / option appraisal					
Supplier appraisal					
Development of framework agreements					
Negotiation skills					
Understanding of commercial economics					
Legal inc. EU					
Influencing and interpersonal skills					
Contract and change management skills					
General business skills					
Commercial astuteness					
Performance measurement					

3.12 Reflecting on the answer provided to question 3.10, above, identify any required procurement related departmental training needs in the box below

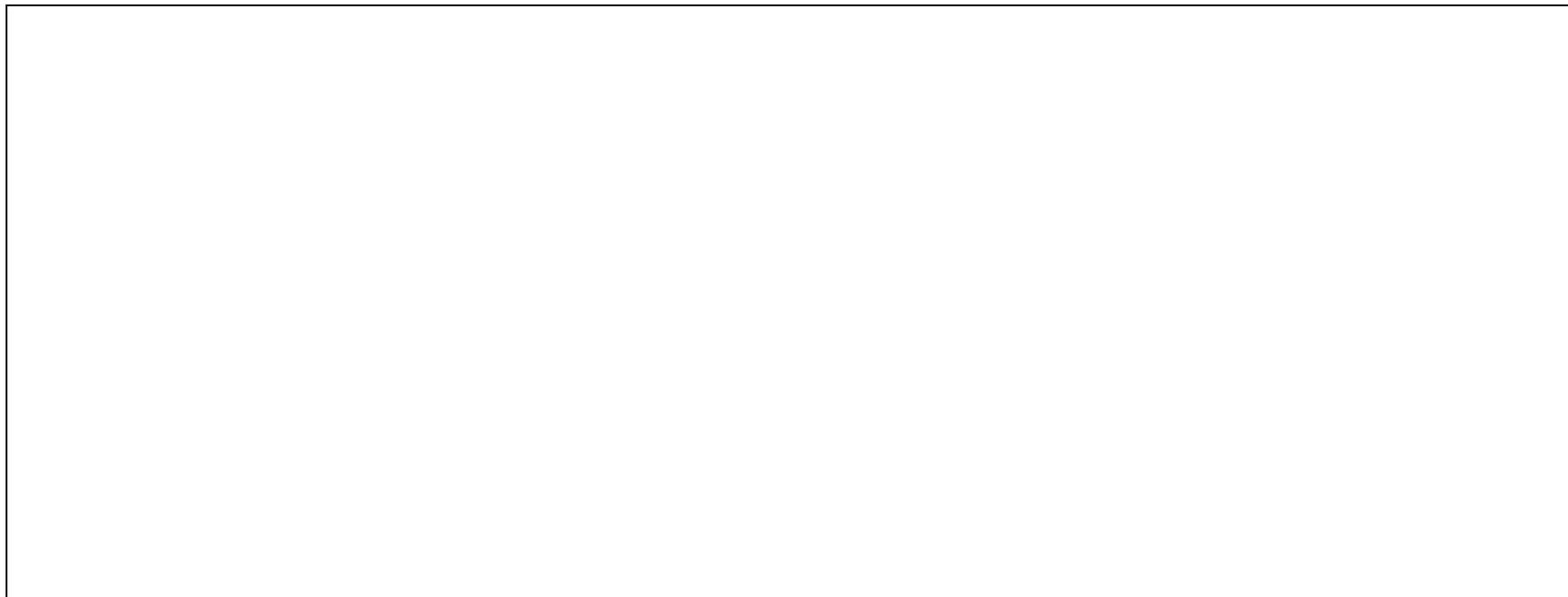
3.11 Are staff within the dept sufficiently IT literate to support the introduction of an e-procurement solution involving the purchase of items from electronic catalogues sitting on the Intranet or Internet? Please tick the box that characterises the existing level of IT related skills.

	<b>Tick one box</b>
Weak	
Adequate	
Strong	
Very strong	

3.12 Are there sufficient skills within the dept to manage a procurement portal.

	<b>Tick one box</b>
Yes	
No	

3.13 Identify any required IT related departmental training needs in the box below relating to the use of an e-procurement solution



**4. Partnerships and Resources – How well does your dept use its own physical assets, help manage those of the whole organisational and create partnerships with suppliers and other organisations to mutual benefit?**

	<b>0 Don't Know / N/A</b>	<b>1 No this doesn't happen</b>	<b>2 This happens occasionally but there is no consistency</b>	<b>3 Yes this usually happens but it could be improved</b>	<b>4 Yes this is recognised as the way we do business and we achieve real benefits</b>	<b>5 This is an integral part of our culture and operation and can be regarded as best practice</b>	<b>EVIDENCE</b>
4.1 Does the dept develop and manage its relationships with key suppliers to mutual benefit?							
4.2 Are there systems and processes in place to monitor and control the depts procurement related operating costs and use of resources?							
4.3 Does the dept have an active role to play in managing capital and programme spend?							
4.4 Does you dept carry out or contribute to risk assessments on capital and programme spend?							
4.5 Is the dept actively involved in managing the Councils physical assets such as buildings, equipment and materials?							

**5. Processes – How effectively do you do things in your dept?**

	<b>0 Don't Know / N/A</b>	<b>1 No this doesn't happen</b>	<b>2 This happens occasionally but there is no consistency</b>	<b>3 Yes this usually happens but it could be improved</b>	<b>4 Yes this is recognised as the way we do business and we achieve real benefits</b>	<b>5 This is an integral part of our culture and operation and can be regarded as best practice</b>	<b>EVIDENCE</b>
5.1 Do you measure the effectiveness of procurement performance?							
5.2 Do you measure the effectiveness of key procurement processes?							
5.3 Is responsibility for improving procurement results and processes clearly defined?							
5.4 Do you benchmark your procurement efficiency and effectiveness?							

**6. Key performance results – Is your dept able to demonstrate your procurement performance to stakeholders who have an interest in your procurement operations?**

	<b>0 Don't Know</b>	<b>1 No</b>	<b>2 Yes</b>	<b>3 Yes we can show steady improving trends</b>	<b>4 Yes, we can show steady improvement over 3 years</b>	<b>5 Yes we can show excellent performance over 5 years</b>	<b>EVIDENCE</b>
6.1 Do you have measures that demonstrate the cost effectiveness and efficiency of your procurement operation?							
6.2 Do you have measures that demonstrate the savings / benefits / contribution that departmental procurement makes to departmental and council business objectives?							
6.3 Is there evidence to show that improvements in processes and systems have contributed to better performance results?							
6.4 Do you have in place indicators that will predict your future							

performance in key areas of procurement activity e.g. whole life costs, potential savings etc?							
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**7. Other Matters**

7.1 Use the space provided below to raise other matters that you do not feel have been addressed by the answers given above

**Appendix 2**  
**Interview Proforma**

### **Current Position**

1. What are the key characteristics and features associated with existing procurement processes within the organisation?
2. What challenges are faced with current procurement processes and systems across the organisation?
3. How is procurement currently organised, how many staff have procurement experience, procurement qualifications (e.g. CIPS)?
4. What is the current view of procurement across the organisation, is this generally positive/negative/neutral?
5. What procurement related documentation do you currently have, examples including procurement processes, standing orders, corporate procurement strategy, supplier contracts, e-catalogues, etc.?
6. What value and categories of spend on bought in goods and service is suited to Internet enabled procurement solutions?
7. Based on the value and categories of expenditure noted, which areas do you feel are most suited for e-procurement and which are not, for those areas which are not suited, can you advise why this is the case?
8. What systems do you have in place to capture and store procurement related information?
9. Will the ICT infrastructure or current financial system(s) restrict the choice of e-procurement solution?

### **Adoption of e-Procurement**

10. What types of e-procurement solution are you aware of available on the market?
11. What type of e-procurement solution do you think best fits the needs of the organisation? Why do you feel these solutions are most appropriate?
12. What are the challenges that the organisation will face in trying to adopt e-procurement?
13. What are the likely costs and benefits, and do you have to prepare a business case to introduce e-procurement, if so, how do you think this will be received?
14. What do you feel are the key drivers for the introduction of e-procurement, and who is likely to be sponsoring such a project?
15. What is the best organisational structure to support effective and efficient procurement throughout the organisation?

16. What resource implications are associated with implementing the preferred procurement structure?
17. Is there a need to improve procurement skills within the organisation? If so, where is there a skills gap and how should it be narrowed?

### **Peer Organisations**

18. Within your sector, can you describe the current state of adoption of e-procurement, is this driven by organisational strategies, government policies, or the exploration of technology to deliver efficiencies?
19. Have you had any discussions with peer organisations to understand their experiences (if any) with e-procurement?
20. Where a peer organisation has introduced e-procurement, what lessons have they learned that you can gain experience from?

**Appendix 3**  
**Local Government County Council 1 Interviewees**

<b>Role</b>	<b>Code</b>	<b>Focus Area</b>
<b>Education</b>	ED1	ICT Officer
	ED2	Local Management Officer
	ED3	Local Management Officer
	ED4	Finance Officer
	ED5	Transport Officer
	ED6	Transport Officer
	ED7	School Meals Officer
<b>Highways, Transport &amp; Waste Management</b>	HTWM1	Standing Orders Officer
	HTWM2	Highways Design Officer
	HTWM3	Supplier Assessments Officer
	HTWM4	Highways Officer
	HTWM5	Small Orders Officer
	HTWM6	Departmental Overview
<b>Social Services</b>	SS1	Commissions and Contracts
	SS2	Transport Officer
	SS3	Office Buying Officer
	SS4	Provider Payments Officer
	SS5	Domiciliary Care Officer
	SS6	Adaptations and Buildings
	SS7	Adult Commissioning Officer
	SS8	Finance Officer
	SS9	ICT Officer
	SS10	Learning Disability Services
	SS11	Children & Families Services
	SS12	Older & Disabled Services
<b>Property</b>	P1	Capital Works Officer
	P2	Planned Repairs Officer
	P3	Reactive Repairs Officer
	P4	Finance Officer
	P5	Commissions Officer
	P6	Systems Officer
<b>Various</b>	PRO1	Procurement Officer
	PM1	Project Manager
	FIN1	Finance
	FINS1	Finance Systems Manager
	IA1	Internal Audit Manager

<b>Role</b>	<b>Code</b>	<b>Focus Area</b>
	PMG1	Programme Management
	SUP1	Supplier to the Council
	SUP2	Supplier to the Council
	SUP3	Supplier to the Council

**Appendix 4**  
**Local Government City Council Interviewees**

<b>Role</b>	<b>Code</b>	<b>Focus Area</b>
Resources	RE1	Chief Executive
	RE2	Director of Resources
	RE3	Head of Internal Audit
	RE4	Procurement Manager
	RE5	Procurement Officer
	RE6	IT Manager
Children's Services	CS1	Director of Children's Services
	CS2	Procurement Officer
	CS3	Finance Officer
	CS4	Catering Supplier
Community and Culture	CC1	Director of Community & Culture
	CC2	Procurement Officer
	CC3	Finance Officer
	CC4	Security Supplier
Environment & Regeneration	ER1	Director of Environment & Regeneration
	ER2	Procurement Officer
	ER3	Finance Officer
	ER4	Utilities Supplier
	ER5	Equipment Supplier

**Appendix 5**  
**Local Government County Council 2 Interviewees**

<b>Role</b>	<b>Code</b>	<b>Focus Area</b>
Education	ED1	Director of Education
	ED2	Finance Manager
	ED3	Procurement Officer
	ED4	Accounts Payable Officer
	ED5	Supplier
Environmental Services	ES1	Director of Environmental Services
	ES2	Finance Officer
	ES3	Procurement Officer 1
	ES4	Procurement Officer 2
	ES5	Supplier
Social Services	SS1	Director of Social Services
	SS2	Finance Officer
	SS3	Procurement Officer
	SS4	Accounts Payable Officer
	SS5	Supplier
Corporate Services	CS1	Director of Corporate Services
	CS2	Finance Officer
	CS3	Information Technology
	CS4	Procurement Officer
	CS5	Accounts Payable Officer
	CS6	Supplier

**Appendix 6**  
**Central Government Non Departmental Public Body**  
**Interviewees**

<b>Role</b>	<b>Code</b>	<b>Focus Area</b>
Corporate Services	CF1	Chief Executive
	CF2	Director of Corporate Services
	CF3	Director of Internal Audit
	CF4	Procurement Manager
Finance	FI1	Director of Finance
	FI2	Deputy Director of Finance
Housing	HO1	Director of Housing
	HO2	Director of Design
	HO3	Area Manager
	HO4	Procurement & Support Officer
	HO5	Technical Support Officer
	HO6	Contracts Policy Manager
	HO7	Maintenance Supplier
	HO8	Supplies Supplier
Personnel	PE1	Director of HR
Information	IN1	Head of Information