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INVESTIGATING FACTORS INFLUENCING DECISION MAKERS WHILE ADOPTING INTEGRATION TECHNOLOGIES

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Abstract

Over the years, the emergence of innovative and revolutionary integration technologies (e.g. Enterprise Application Integration [EAI], Service Oriented Architecture [SOA] and more recently – Cloud Computing) has highly influenced the top management in their decision-making process – decisions that are imperative to transform Local Government Authorities (LGAs). LGAs that plan to adopt such integration technologies may consider this as a serious investment. Advocates however claim that such integration technologies have emerged to overcome the integration problems at all levels (e.g. data, object and process) and offer the opportunity to achieve competitive advantage through integrated Information Technology (IT) infrastructure operations resulting in quality service delivery. With the emergence of electronic government (e-Government) service provisioning, LGAs have turned to integration technologies to fully automate and offer their services on-line and integrate their IT infrastructures. While earlier research on the adoption of integration technologies has considered several factors (e.g. pressure, technological, support, and financial), inadequate attention and resources have been applied in investigating the individual, decision and organisational context factors, influencing top management's decisions for adopting integration technologies in LGAs. It is a highly considered phenomenon that the success of an organisation's operations, relies heavily on understanding an individual's attitudes and behaviours, the surrounding context and the type of decisions taken. Given this increasing importance, this paper attempts to investigate factors influencing decision makers while adopting integration technologies, using two case studies. The findings illustrate two different doctrines – one inclined and receptive towards taking risky decisions, the other disinclined. Several underlying rationales can be attributed to such mind-sets in local government. The authors aim to contribute to the body of knowledge by exploring the factors influencing top management's decision-making process while adopting integration technologies vital for facilitating LGAs' operational reforms.

Keywords: Individual, Decision, Organisation, Integration Technologies, Adoption, Local Government, Operations, Decision-Making Process.

1. Introduction

While the 1990s saw the internet-enabled electronic commerce (e-Commerce) revolution within the private and multinational organisations, in the new millennium we have witnessed public sector embracing the same principles of electronic business (e-Business) operations by e-enabling central and

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LGA services through e-Government initiatives (Kamal *et al.*, 2010; Chan *et al.*, 2008). Advocates claim that e-Government is a means to help drive the local policy objectives of mainstream services and operations, realise efficiency gains and achieve tangible improvements in terms of shared priorities agreed between central and LGAs (Irani *et al.*, 2008; Weerakkody *et al.*, 2007). E-government is seen as an agent for change having become a political imperative at local, national and international level (Persson and Goldkuhl, 2010; Sharif *et al.*, 2010). In particular, e-Government and corresponding Information and Communication Technologies (ICTs) possess the catalytic constituent to enable and transform the capability of governments by offering more efficient, transparent and accessible public services to citizens and businesses (Weerakkody and Dhillon, 2008). Some of the transformative improvements that have been publicised to be a result of e-Government ICT applications include: increasing citizen focus, enhancing efficiency, and reducing bureaucracy (Chan *et al.*, 2008; Chan and Pan, 2008). In view of this, it is unsurprising that the many governments from the European region including the UK have invested billions to various e-Government initiatives (Kable, 2008; Kabledirect, 2007). Moreover, additional resources of £150 million were assigned to espouse LGAs to dispense an ambitious value for money and service transformation reform programme over the current Comprehensive Spending Review with an aim to realise net cash-releasing savings of £4.9 billion by 2010–2011 (HM Treasury, 2007).

The prime drivers for such increase in investments are: efficiency gains, innovation in service delivery, and seamless IT operations. Moreover, the increasing pace of back office transformation resulting in the implementation of new IT systems to rejuvenate many legacy systems (Sharif *et al.*, 2010; Kamal *et al.*, 2009). In the latter case, the harmonisation in IT infrastructure operations, and integration of cross-departmental processes and the underlying Information Systems (IS) has been significantly achieved by adopting different types of integration technologies e.g. EAI (e.g. Kamal *et al.*, 2009; Kamal *et al.*, 2008), SOA (e.g. Tsaravas and Themistocleous, 2011; Lawler *et al.*, 2008) and emerging Cloud Computing technology (e.g. Susan, 2013; Wei and Blake, 2010). Earlier research on the adoption of integration technologies has considered several factors e.g.: pressure (i.e. critical mass; internal and external pressures), technological (i.e. data security and privacy, IT sophistication; IT agility and business alignment), support (i.e. IT support from vendors and support from top management), financial (i.e. reduced costs and return on investments) and organisational (i.e. benefits, barriers, agility, efficiency and flexibility of processes). There is plethora of research illustrating the significance of these factors in the public and private sector (Kamal *et al.*, 2009; Marks, 2008; Kamal *et al.*, 2008; Lawler *et al.*, 2008; Weerakkody *et al.*, 2007). The authors note that while these factors have primarily offered better understanding on different types of integration technologies from several perspectives (primarily focusing on technological), governments globally have realised that these are merely some of the important factors needed to accomplish successful LGA transformation. One should not disregard that the diversity of internal and external stakeholders (Tan and Pan, 2003) and the bureaucratic and rigid hierarchical nature of LGAs and its top management (Horton and Wood-Harper, 2006) make it difficult to manage organisation-wide, transformational change in the public sector (Weerakkody *et al.*, 2007). This further adds high degree of complexity to the decision-making process in a local e-Government context (Sharif *et al.*, 2010).

This directly calls for more work at the nexus of understanding stakeholders' (primarily the decision makers) attitudes and behaviours, the decisions they take in their surrounding context while adopting integration technologies (Susan, 2013).

Thus, it is evident from the extant literature that:

“inadequate attention and resources have been applied in specifically investigating and understanding the individual (e.g. focusing on attitudes and behaviours), decision (e.g.

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focusing on nature of decisions taken) and organisational (e.g. focusing on culture and politics) context factors influencing top management's decision-making process for adopting integration technologies in LGAs."

The latter *void* illustrates the rationale and motivation for conducting this research. The conceptual and empirical findings presented henceforth are evidence to the efforts of the latter claim. It is a highly contemplated phenomenon that the success of an organisation's operations, relies not merely on understanding the technological, pressure, support, and financial factors but more importantly, profoundly understanding an individual's attitudes and behaviours and the way individuals make decisions (the nature and type of decisions) in an organisational context (Loch and Wu, 2007; de Bruin *et al.*, 2007; Bendoly *et al.*, 2006). Decision-making process is a significant area of research in cognitive psychology and comprehending the process by which individuals make decisions is imperative to understanding the decisions they make (Hastie and Dawes, 2001). Empirical research in operations management discipline has often unconditionally acknowledged many elements of human behaviour (e.g. attitude, behavioural intention) towards decision-making (Loch and Wu, 2007). More lately, the noticeable research studies of decision-making and behaviours in operational contexts have emerged as an important focus of research (e.g. Cruz, 2008; Karmarkar and Apte, 2007). Rollinson (2008) argues, in the real world it is vital to recognise that the nature of decision-making is highly influenced by the surrounding context and, in return, the resulting decisions have an effect on this context – i.e. referring to the following factors:

- *Individual* context related to attitude and behaviour (i.e. personality, perceptions, attitudes to risk, ethics and values);
- *Decision* context (i.e. nature of decision, and uncertainty) and
- *Organisational* context (i.e. culture and climate, and politics).

In the local government context, however, there are other factors (from individual, decision and organisational perspective) that are seen as imperative and influencing the decision-making process (e.g. Kamal *et al.*, 2009; Kamal, 2006; Kim and Bretschneider, 2004). The authors assert that based on their importance these factors can also be considered while adopting integration technologies in a local government context. These factors are:

- *Individual* context (i.e. knowledge of integration technologies and managerial capabilities and authority);
- *Decision* context (i.e. centralised and decentralised decision-making – also termed as locus of decision-making) and
- *Organisational* context (i.e. management style, and organisational compatibility).

Given the increasing importance of the abovementioned factors, this paper attempts to contribute by further exploring these factors in-depth in the context of LGAs and identifying whether these factors influence (i.e. positive or negative) top management's decision-making process while adopting integration technologies, using two case studies. This research particularly focuses on LGAs who are lagging behind in the wider national context regarding meeting the deadlines for e-Government implementation in the UK. Using this reasoning, this paper will examine two UK LGAs with a view of exploring the abovementioned factors. The basis for selecting LGAs from two different regions, England and Wales, was influenced by the fact that these two regions have different governing structures and operational and management practices within their respective LGAs (Kamal *et al.*, 2010). Furthermore, the complexity of IT implementations, level of integration achieved and management outlook on e-Government varied much between the two LGAs making them an ideal proposition for further study.

To determine the research scope established above, this paper is divided as follows: In Section 2 the authors discuss on the LGA domain and their decision-making process. This is followed by proposing a conceptual framework (adapted) based on three themes (individual, organisational and decision context). These three themes incorporate factors influencing the decision-making process in an organisational context. The authors make use of this framework as it is closely related to the research context. This section discusses in detail on the factors in general and specific to LGAs and argues that these factors may positively/negatively influence the decision-making process while adopting integration technologies. Section 4 presents the research methodology utilised to validate the research propositions proposed. The case study findings are analysed next in Section 5 followed by comparing the outcomes from the two cases in Section 6, then finally presenting the conclusions, limitations and further recommendations in Section 7.

2. Local Government and the Decision-Making Context

LGAs have been categorised as intricate organisations consisting of convoluted procedures, transactions and IS congregating considerable amounts of information. This information is often inaccessible and incomprehensible due to the bureaucratic barriers, which also prevent the effective delivery of services. The use of ICT in LGAs plays a key role to the success of electronic public services' implementation (Tsaravas and Themistocleous, 2011). Despite the significant success in the last decade, advocates still argue that the promised benefits remained persistently elusive in most local e-Government implementations (El-Haddadeh *et al.*, 2010; Irani *et al.*, 2007; Heeks, 2006). Many researchers have attributed these failures to several factors such as strategic e.g. lack of a collaborative and organisational-wide IT infrastructure framework e.g. integration of e-Government systems (Wu, 2007; Lam, 2005a; 2005b) and more importantly, human behaviour e.g. decision-making aptitude and behaviour (Kamal *et al.*, 2010; Heeks, 2006). LGAs have adopted several IT applications to overcome their integration issues and improve their e-Government IS operations and functions, however, the concerns of: (a) relying on external expertise; (b) providing quality citizen services; (c) automation; and (d) lack of insufficient and integrated ICT infrastructure problems *still persist* (Tsaravas and Themistocleous, 2011; Brockett, 2009). Researchers support that e-Government system need to link vertically and horizontally between front and back office IS in different LGAs for effective one-stop delivery of online services (Kamal *et al.*, 2009; Weerakkody *et al.*, 2007).

The authors argue that this may be attributed to several limitations e.g.: the lack of competence in LGAs' top management in making appropriate strategic decisions for developing an organisational-wide IT infrastructure. In a recent research conducted in the public sector, Irani *et al.*, (2008) observed that decision-making with regard to e-Government issues in their case based research was unsophisticated while the decisions were not made by top management but rather delegated to middle managers. This nature of top management resonates with the work of Bannister (2001) who contends that decision-making process in the public sector is often political and not always based upon economics. However, Irani *et al.*, (2008) contends that senior management commitment is critical to e-Government success. Yildiz (2007) also conducted an extensive research in the area of e-Government with a technology enactment viewpoint. He highlighted several limitations to the e-Government concept (e.g. related to its definition, maturity, significance) while also offering some topical suggestions to the political nature of e-Government.

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One such suggestion relates to the policy decision-making processes in e-Government projects in a complex political environment. Yildiz (2007) highlights that the problem domains in which LGAs operate are ill-structured. Top management attempts to solve inflexible and problematic problems that cut across LGAs and other government organisations vertically and horizontally (Brown and Brudney, 2003). Technical issues related to e-Government are no exception and several research studies are satiated with evidences (Janssen and Cresswell, 2005; Kamal *et al.*, 2009). Gil-Garcia and Pardo (2005) argue that practitioners and managers within LGAs are not well-prepared to solve the technology-related problems as they cannot make use of most of the research in this area. Yildiz (2007) asserts that this complicates the planning and decision-making processes in LGAs. Brown and Brudney (2003) report that such attitudinal perceptions of government decision makers also constrain these processes. However, a better investigation and understanding of the attitudinal and other behavioural factors (including the decision and organisational context) influencing the decision-making process for IT adoption might help in making the complexity more manageable. Thus, the successful decision-making and selection of appropriate IT solutions rely heavily on top management's attitudes and behaviours towards the adoption integration technologies. In the following, the authors discuss the individual, decision and organisational context factors *influencing top management's decision-making process in an LGA context*.

3. Factors Influencing the Decision-Making Process: A Conceptual Framework

Decision-making in an organisational context is often associated with the behaviour and attitude of individuals and groups and usually studied at three levels (Rollinson, 2008). For example, strategic decision-making (e.g. that influences the whole organisation), decision-making by groups (e.g. that usually focuses on the dynamics of the decision process and this has an influence on the way decisions are made) and decision-making by individuals (e.g. referring to the top management and decision makers). Papadakis *et al.*, (1998) highlights that strategic decision-making has emerged as one of the most active areas of current management research that has greatly benefited from research traditions such as Behavioural Decision Theory (BDT). Au and Enderwick (2000) report that the attitude and behaviour towards adoption is the cognitive process which depicts the prospect adopter's positive and negative affection while adopting IT. Technological adoption has been an important area for IS research and practice (Fichman, 1992). There are several well established theories that have been proposed to study and facilitate the understanding of factors influencing IT adoption. These include the Technology Acceptance Model (TAM) (Davis, 1989), Theory of Planned Behaviour (TPB) (Ajzen, 1991), Decomposed Theory of Planned Behaviour (DTPB) (Taylor and Todd, 1995), Innovation Diffusion Theory (IDT) (Rogers, 1995), Information Technology Adoption Model (ITAM) (Dixon, 1999), and Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh *et al.*, 2003).

While these theories focus on an individual's perceptions on adoption and use of innovative technology, the research in context is specifically focused towards understanding the factors influencing an individual's decision-making process for integration technologies adoption in LGAs. These factors are associated with three different contexts such as: individual, decision, and organisational, that influences the decision-making process. According to Rollinson (2008) it is vital to understand and recognise that the nature of decision-making is highly influenced by the contiguous environment; this in response, results in decisions affecting the context. Ford and Richardson (1994) support this argument and state that individual factors have received by far the most research attention in the empirical literature. This category includes all those factors that are uniquely associated with the individual decision maker. With this conception in mind, the authors move forward and investigate on a more comprehensive illustration of the factors that may shape the nature of the decision-making process for adopting integration technologies in LGAs. Government's plans to modernise LGAs consist of two components, to modernise

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decision-making and to improve IT infrastructure operations and service delivery provisions. Brooks (2000) states that the modernising LGA IT project contains within itself the most significant pressures, thus by advocating new decision-making structures; the modernisers may expect improvements in the accountability of LGAs. The proposed conceptual framework is based on three prime themes, *Individual*, *Decision* and *Organisational* context; with each theme further highlighting factors influencing the decision-making process.

3.1 Individual Factors

3.1.1 Personality

By definition, no individual is similar to the other and there are several ways to distinguish between them with the most commonly used is differentiating through personality (Rollinson, 2008; Ajzen, 1988; Ford and Richardson, 1994). There are four different general factors that can form personality factor of people such as genetic (e.g. factors that influence physical and mental characteristics of a person), social (e.g. factors that influence personality that arise from interaction with other people), cultural (e.g. factors such as wider social beliefs, values and motives that are absorbed by an individual and guide behaviour towards which is acceptable within a specific social context) and situational (e.g. such factors that put the effect of a specific experience or situation on an individual's feelings and behaviour) factors (Rollinson, 2008; Ford and Richardson, 1994). Personality can have an impact on a person's preferred behaviour in a particular decision context. For example, Rollinson (2008) explains that highly manipulative people can view the decision situation as an opportunity to manipulate others for their own personal gain. Thus, they might have a tendency to keep decisions to themselves, or withhold vital information to maintain control over other people in the organisation. Depending on their status in the organisation, top management that has the highest authority can behave in one of two ways (Rollinson, 2008; Ajzen, 1988). Several senior managers have a low tolerance to ambiguity and endorse the idea of a highly ordered environment, which can prompt them to rely on precedents and rules to guide decision-making. If managers of such nature occupy high ranking positions, they may also view decision-making as something that should not be shared with subordinates but as a prerogative of their rank. The above discussed literature provides sufficient justification for the authors to propose the following research proposition for further investigation:

Research Proposition 1 (RP-1): Personality factor may positively/negatively influence the decision-making process for adopting integration technologies in LGAs.

3.1.2 Perceptions

Rollinson (2008) interprets perception factor as an active mental process that involves the selection (e.g. the tendency to acknowledge some stimuli and ignore others), organisation (e.g. the organisation of stimulus information into meaningful patterns that form identifiable wholes), and finally, structuring and interpretation of information in order to make inferences and give meaning to the information. MacCrimmon (1974) supports and highlights that perceptions can strongly influence the way top management view a problem and so they are likely to interact with personality factors to shape preferred decision strategies. For instance, Rollinson (2008) supports that if a person's prior experience has been confined to a restricted range of situations involving only bounded problems, he or she will probably have a tendency to see most new problems as similarly bounded. Beck and Kieser (2003) argue here that while depending on the person's occupational history, he or she can develop a bias towards seeing all problems in a specific way and to seek solutions accordingly. Perception is an important way in which people differ

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as individuals and can influence they way they behave in organisations. Given this context, the authors propose the following research proposition for further investigation:

Research Proposition 2 (RP-2): *Perception factor may positively/negatively influence the decision-making process for adopting integration technologies in LGAs.*

3.1.3 Attitudes towards Risks

For the discussion in this section, the authors initially take into consideration the definition of attitude. Allport (1952) defines attitude as “a mental and neural state of readiness, organised through experience, exerting a directive or dynamic influence upon the individual’s response to all objects and situations with which it is related”. Rollinson (2008) adds to this definition that attitude can be thought of as the combined effect of a belief and a value, which gives a feeling about a particular object and this in turn, forms a link between attitude and behaviour. The authors argue here that when it comes to top management making decision that may involve risk, such as in the case of e-Government initiatives (Gil-Garcia and Pardo, 2005), this can directly influence the attitudes of risk-averse managers and make them require higher rates of return before they invest on these initiatives. Bass (1983) reports that people vary in their acceptance of risk, nevertheless, individuals can be placed along a continuum – the extremes of which are risk-takers and risk-aversers. MacCrimmon and Wehrung (1986) report that based on their location on this continuum, people tend to displace characteristic patterns of behaviour in decision-making. Regardless of these conceptions, Rollinson (2008) argues that people’s tolerance of risk can change over time. The authors argue that repeated exposure to risky situations may lead to progressively lower perceptions of the riskiness of a situation and an increase in tolerance to risk. Given this context, the authors propose the following research proposition for further investigation:

Research Proposition 3 (RP-3): *Attitude towards risk may positively/negatively influence the decision-making process for adopting integration technologies in LGAs.*

3.1.4 Ethics and Values

Ethics can be referred to as an individual’s moral beliefs about what is right or wrong, or good and bad, and provides a guide to his or her behaviour (Rollinson, 2008; Ford and Richardson, 1994). A number of researchers have proposed a variety of theoretical models in the effort to explain and predict the process by which management makes ethical decisions and by taking into consideration its related values (Jones, 1991; Bommer *et al.*, 1987). While any of these models might serve as a basis for undertaking empirical study of the ethics and values related to decision-making process, there is little effort on testing this factor in the context of integration technologies adoption in LGAs. Jones (1991) highlights that ethical decision-making is a decision that is both legal and morally acceptable to the larger part of the organisation. Rollinson (2008) argues that ethical behaviour is not solely determined by individual predispositions, but usually is the result of an interaction between individual factors and contextual variables. Since concern about ethics infuses a degree of ambiguity into a decision, and for most people vagueness can be unpleasant, this can have a huge impact on the decisions that are taken (Rollinson, 2008; Jones, 1991; Bommer *et al.*, 1987). At one extreme, individuals attempt to guard their core values by either not making decision or behaving with extreme ethical enthusiasm. At the other extreme, they can endeavour to exclude their values by rationalising that anything goes so long as they put the good of the organisation before their own feelings (Rollinson, 2008). Based on the aforementioned conceptions, the authors propose the following research proposition for further investigation:

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Research Proposition 4 (RP-4): *Ethics and values may positively/negatively influence the decision-making process for adopting integration technologies in LGAs.*

3.1.5 Knowledge of Integration Technologies

A majority of successful integration technologies adoption and implementation cases are referred to the knowledge and recognition of demands in the marketplace (Gaudino and Moro, 2010; Kamal *et al.*, 2009). This knowledge is not merely restricted to awareness of different trends in the market but also having the knowledge and competencies to manage the adoption and implementation of integration technologies such as service oriented architectures, etc. For example, Tracey and Smith-Doerflein (2001) accentuate that to be successful, it is essential that the management acquires full support from their trained and knowledgeable workforce, as IS solutions alone cannot enhance organisational competitiveness. Managing information technology is a challenge under any set of circumstances. Creating and managing an integrated IT infrastructure with seamless interoperability requires foresight, comprehensive IT knowledge, adequate time, management and financial commitments, and qualified resources (Irani *et al.*, 2009). In addition, Teo and Ang (1999) identified three critical success factors for successful implementation of IS – management commitment to the planned utilisation of IS solutions, management knowledge and in-depth understanding about the business, and management’s conviction in their IS divisions. However, Fink and Neumann (2009) argue here that in order to achieve the latter, management should possess technical understanding and knowledge, must be business oriented and have the skills to develop rapport with customers.

Research Proposition 5 (RP-5): *As all the evidences support the significance of ‘knowledge of integration technologies’ factor, thus it may also positively/negatively influence the decision-making process for the adoption of integration technologies in LGAs.*

3.1.6 Managerial Capabilities and Authority

The availability of personnel in the organisation who have ample competencies for generating innovative ideas is one of the significant factors for adopting technological solutions (Tallon, 2008). Managerial capabilities and authority include effective and efficient management of IS operations, synchronisation and communication with the user community and project management and governance proficiencies (Bassellier *et al.*, 2001). According to Zhang *et al.* (2008), the managerial capability to harmonise the multidimensional operational activities correlated with the successful IS implementation is a distinctive feature of successful manufacturing organisations. Innovation is likely to be proposed by those managers who have ample expertise and influence in a particular discipline (Kamal, 2006). Thus, by ensuring the availability of a wide range of innovative and capable managers, an organisation can employ their services for existing and support in developing new sets of business requirements (Fink and Neumann, 2009). Other managerial services include exploring new avenues for implementing technological solutions and assessing their applicability and compatibility, describing IS investment primacies, and more importantly, informing the management on ways to develop value from there is investments (Fink and Neumann, 2009). All such managerial capabilities and skills impact on the design of a flexible IT infrastructure and IT skill-based resources to reduce the downside risk of inflexibility traps that might otherwise damage or confine agility (Tallon, 2008). Based on the abovementioned conceptions, the authors propose the following research proposition for further investigation:

Research Proposition 6 (RP-6): *As all the evidences support the significance of ‘ethics and values’ factor, thus it may also positively/negatively influence the decision-making process for the adoption of integration technologies in LGAs.*

3.2 The Decision Context

3.2.1 Nature of Decision

The discipline of decision-making processes is developed based upon a foundation of conjectural and pragmatic applications that depend on each other to facilitate the process of identifying the preeminent action or opinion (Oliveira, 2007; Hoch *et al.*, 2001; Goodwin and Wright, 1998). From a more simplistic perspective, decision-making is widely defined as “choosing between alternatives” which reflects the idea that if there is only one alternative to choose from, there is no decision to take (Rollinson, 2008 p. 249). In the context of LGA e-Government initiatives, including among other factors, the nature and type of decision-making is a critical factor that realises the success or failure of such endeavours (Sharif *et al.*, 2010; Schwella and Ballard, 1996). From technical perspective, collaborative operations and sharing of information and resources is required between LGAs and other government agencies where often unproductive and characteristically bureaucratic business processes and disparate legacy IS/IT systems need to be integrated (Themistocleous, 2004; Weerakkody *et al.*, 2007). In this regard, the decision-making process for IS/IT implementations in an e-Government context is far more convoluted than for any typical ICT project. The rationale behind this assertion is that the management has to regard not only the technology implementations, but also the inter- and intra-organisational integration capabilities of the proposed technology investments (Sharif *et al.*, 2010). In this context, the authors note that problems in an organisational setting are interrelated with the type and nature of decisions taken to resolve such problems. Lang *et al.*, (1978) also states that decision-making is indistinguishable with problem solving, while considering problem as part of the decision-making process. Based on the abovementioned conceptions, the authors propose the following research proposition for further investigation:

Research Proposition 7 (RP-7): *As the evidences support the significance of ‘nature of decision’ factor, thus it may also positively/negatively influence the overall decision-making process for the adoption of integration technologies in LGAs.*

3.2.2 Uncertainty

As decision-making in an LGA context is highly intricate in nature it is arduous to adjudicate whether decisions are correct or incorrect at the time when they are taken (Schwella and Ballard, 1996). This indicates the nature and uncertainty of decisions. Rollinson (2008) also reports that the degree of uncertainty in proximity with the outcomes of a decision can indeed shape the decisions made at the organisational level. In most organisations the scale of risk involved in the decision-making process is considered as a manifestation of the prospective success of a specific decision preference, while uncertainty is a feature of the problem itself – for instance, the transparency of the problem to the management, with complete information, or whether the substitute courses of actions are obvious. Rollinson (2008) reports that in case of such situations still persisting, it characterises the problem as unbounded. Lipshitz and Strauss (1997) accentuate that decision makers and top management have a propensity to regard unbounded problems as bounded – for instance, they try to condense uncertainty by accumulating further information, relying on professional expertise, making conjectures, or even by restraining information about the degree of uncertainty. In the context of local e-Government technical issues, Yildiz (2007) and Gil-Garcia and Pardo (2005) argue that practitioners and LGA officials are not equipped and organised with relevant expertise to solve the technical issues, thus, their decisions illustrate higher level of uncertainty further complicating the planning and decision-making processes in LGAs. Thus, the authors propose the following research proposition for further investigation:

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Research Proposition 8 (RP-8): *Uncertainty factor may positively/negatively influence the decision-making process for the adoption of integration technologies in LGAs.*

3.2.3 Centralised and Decentralised Decision-Making

The compelling pressure of centralised and decentralised decision-making has been an issue in LGAs for years (Fenwick and Bailey, 1999). In the context of this research, centralised decision-making is referred to the decisions that are made by the leaders of the LGA (i.e. Chief Executive or Councillor) for the entire authority. Centralisation is also referred to the distance between where a decision problem emerges and where in the organisation's hierarchy decisions about that problem are made. Generally, a centralised organisation is one in which most decisions are made at the top by a single individual or small group. On the other hand, through decentralised access to central information (e.g. provided through time-sharing systems, departmental minicomputers, distributed personal computers, and distribution of computer-based reports) many decisions previously handled by top management would be handled by middle management and operatives, either because the decision authority would be delegated downward as information became more widely available or because middle managers and operatives would exploit the opportunity provided by the technology. For instance, in the context of LGAs, decentralised decision-making are the decisions of each LGA's department for the adoption of integration technologies. Recently, LGAs' departments are being given political power to make decisions, raise revenues, and make independent investments. These will result in decisions that reflect local needs and priorities (Devas and Grant, 2003). Based on these conceptions, the authors propose the following research proposition for further investigation:

Research Proposition 9 (RP-9): *Centralised and/or Decentralised factors may positively/negatively influence the decision-making process for the adoption of integration technologies in LGAs.*

3.3 The Organisational Context

3.3.1 Culture and Climate

The culture of an organisation is said to have an overwhelming influence on the top management's decision-making process (Hofstede, 1991; Deal and Kennedy, 1982). A very general definition of culture is "the way we do things around there" (Deal and Kennedy, 1982). Whereas, from an organisational perspective, Hofstede (1991, p 180) defines organisational culture as "*the collective programming of mind which distinguishes the members of one organisation from another*". In organisations, the culture is considered greatly risk averse, and within some of these organisations decision-making is deemed a matter for combined responsibility, while in others it is strictly the responsibility of individuals (Rollison, 2008). In local e-Government and IT/IS implementation context, Beaumaster (2002) report that due to the bureaucratic nature and culture, LGAs have been experiencing from what may be termed as – IT lag time. LGAs have experienced approximately ten years of lag time between the adoption of new technologies and IS and its acceptance and routinisation across the organisations (Danziger and Kraemer, 1986). This illustrates the culture of LGAs as laggards in their decision-making process for adopting new integrated IT solutions (Themistocleous, 2004). Alternatively, climate of an organisation also has an impact on decision-making (Rollinson, 2008). For instance, in government organisations, behaviour of top managers and decision makers is strongly governed by formal rules and regulations, resulting in a strong propensity to make decisions based on past standards. Based on these conceptions, the authors propose that:

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Research Proposition 10 (RP-10): Culture and Climate factors may also positively/negatively influence the decision-making process for the adoption of integration technologies in local government authorities.

3.3.2 Politics

The political aspect of organisational existence can strongly fabricate the nature of decision-making process (Rollinson, 2008). Pfeffer (1981, p 7) defines that organisational politics “involves those activities taken within organisations to acquire, develop and use power and other resources to obtain one’s preferred outcome in situation where there is uncertainty or descensus about choices”. It is highly acknowledged that several problems dealt with by top management are typically more indecisive and uncertain than those dealt by the middle management; political behaviour is well established and more widespread at these levels (Schwella and Ballard, 1996; Pfeffer, 1981). Researchers argue that while most managers declare behaviour and nature of this type to be unreasonable, these managers equally perceive that being a good politician is a precondition for progression to high levels and able to make appropriate decisions (Gandz and Murray, 1980). The local government context exemplifies the similar political culture (Kamal *et al.*, 2009; Schwella and Ballard, 1996). The diversity of the LGAs can be traced to a complex legacy of institutional and political arrangements within which the local public services (e.g. integrated social services provision) are embedded and within which they need to evolve (Bevir *et al.*, 2003). From IT development perspective, reliance to outsource IT projects to external providers confirmed due to political decisions (Hudson, 2001; Brown, 2001). Whereas, Kamal *et al.*, (2009) case analysis results illustrate that politics is a significant driving force for integration technologies adoption. Thus, based on the above conceptions, the authors propose that:

Research Proposition 11 (RP-11): Politics factor may positively/negatively influence the decision-making process for the adoption of integration technologies in local government authorities.

3.3.3 Management Style

The operational style of an organisation’s management can be effective in introducing, adopting and evaluating IT (Lu *et al.*, 2006). The successful investments in IT and IS and their subsequent evaluation can also be associated with an open management style (Johannessen 1994). In a study of large innovative organisations, Quinn (1986) revealed that organisations would continuously focus on investing in new IT and IS solutions, as top management would support the implementation process. Sheu *et al.*, (2004), however, pointed out that the differences in ethos, policies, and management style may have an impact on IT and IS implementation and evaluation practices in organisations from different regions. Impacts of these characteristics may in several cases exhibit themselves in the management styles and behaviours of business executives and managers (Ngai *et al.*, 2008). For instance, according to Zhang *et al.*, (2005) management has the propensity to administer their operations and business decisions by instinct, knowledge and experience. Ngai *et al.*, (2008) assert that such organisational influences may also exhibit themselves in attitudes towards the exploitation, control, and sharing of knowledge. Ho and Lin (2004), however argue here that the differences in opinions and management styles are if not well understood and managed, may potentially lead to failure of projects. A high level of effective management style can have a positive impact on Enterprise Resource Planning (ERP) systems investments and evaluation in organisations. For instance, Ernst and Young (2006) consider management’s operational style a particularly crucial element for success of ERP systems. When management is committed to work directly

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with users to successfully implement ERP systems, this enhances the communication among business groups and disagreement resolutions become achievable (Madininos *et al.*, 2012).

Research Proposition 12 (RP-12): *Management Style factor may positively/negatively influence the decision-making process for the adoption of integration technologies in LGAs.*

3.3.4 Organisational Compatibility

Organisational compatibility can be divided into organisational IT compatibility and organisational Business process compatibility. General perception of IT capability is the ability of LGAs to effectively apply IT tools to achieve the desired outcome that is adoption of integration technologies. Akbulut *et al.*, (2009) stated that summation of the level of IT infrastructure, IT sophistication, and staffs IT knowledge defines the IT capability of an organisation. Adoption of integrated technologies requires a certain level of IT infrastructure. However, lack of sufficient IT foundation in local governments has been identified as an obstruction to the adoption of integrated IT systems (King and Cotterill, 2007; Kim and Bretschneider, 2004). Furthermore, IT capability can be measured by the level of IT sophistication that represents the technological skills readiness. Wu (2004) stated IT sophistication as a factor influencing inter-agency collaboration. According to her, those organisations with sophisticated IT resources have a higher level of readiness in order to adopt any integrated technologies. Additionally, IT capability can be outlined by the level of staff IT knowledge. Thomas and Walport (2008) argue that even with good IT guidance materials, confusion and uncertainty can be raised if the trainings are not taken seriously. It would be vital to have certain level of IT experts within the agency with the ability to make individual decisions about how certain technologies should be adopted. Besides IT compatibility, harmony in business processes among LGA's department has been identified as an essential issue influencing decision-making for adoption of integration technologies (Pardo and Tayi, 2007). Business process integration organises variety of processes across enterprise boundaries such as those involved in supply chain network (Ray, 2007). In an environment like LGAs where each department has individualised business rules and policies that dictate how the decision should be made and the work should be done, collaboration and cooperation become unmanageable. Beynon-Davies and Williams (2003) found that there is not much emphasis on reengineering of business processes in public sector. The reason is that in hierarchical bureaucratic structure of public agencies business processes and functions are often difficult to change (Janssen and Cresswell, 2005). Thus, based on the above conceptions, the authors propose that:

Research Proposition 13 (RP-13): *Organisational Compatibility factor may positively/negatively influence the decision-making process for the adoption of integration technologies in local government authorities.*

Figure 1 presents the proposed research model highlighting the factors influencing the decision-making process in LGAs.

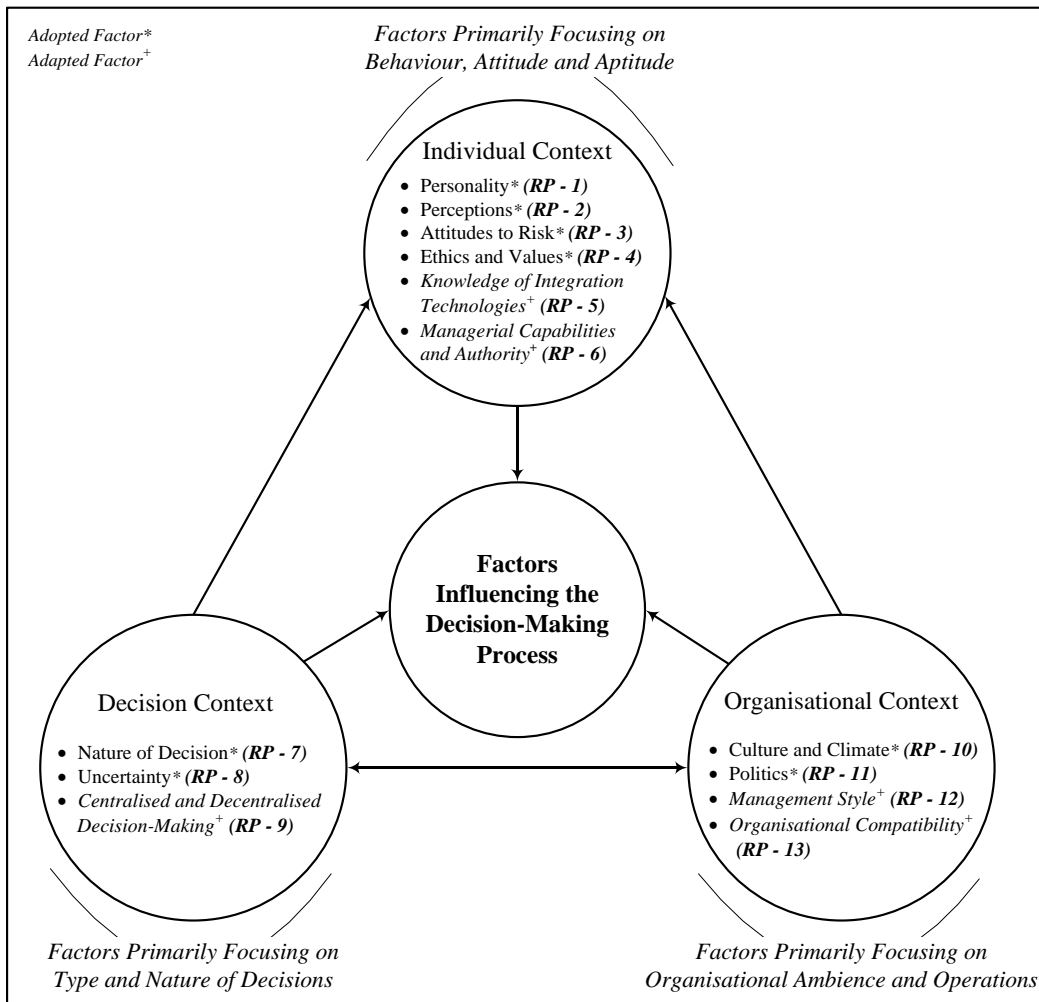


Figure 1: Research Model (*Adapted: Rollison, 2008*)

The literature reported in this section illustrates that the role of individual, decision and organisational context factors are considered to be highly important in the decision-making process. As a result, the authors propose that when exploring the adoption of integration technologies in LGAs, these thirteen factors may provide a deeper understanding of the way top management take decisions while adopting integration technologies in their respective organisational setting. In the following section, the authors present the research methodology used to validate the research propositions proposed.

4. Research Methodology

The research design presented in Figure 2 is based on three phases namely: (a) research design, (b) data collection and (c) data analysis (as proposed by Jankowicz, 2000). The research design is the foremost part of the empirical research methodology. Essentially, it commences with acquiring background knowledge of the area under study, reviewing the literature and identifying the influential factors for further investigation and validation. As this study attempts to explore and test the research propositions set out above in a deep and meaningful manner, an interpretive, qualitative multiple case study approach was considered to be suitable (Denzin and Lincoln, 1994; Walsham, 1993).

4.1 Epistemological Research Stance

Taking into consideration the capacity and sensitivity of the research to be undertaken, an interpretivistic case-study based epistemological stance was deemed to be appropriate (Saunders *et al.*, 2000). The research methodology employed made use of in-depth case study exploration (Walsham, 1995). The phenomenon under study has an organisational focus and is therefore well suited for an interpretivist epistemological viewpoint. Moreover, this epistemological research stance allowed the case organisations to be viewed in their entirety and permitted the authors to get close to participants (i.e. the interviewees), penetrate their realities, and interpret their perceptions on different individuals, decision and organisational related factors (as conceptualised in Section 2). Two case studies were carried out in large local government agencies which were identified through personal contacts in Local Government. For confidentiality reasons, the authors use the names LGA_A and LGA_Z to refer to both the case organisations. The authors contacted the Personal Assistant (PA) to the heads of the IT departments within these case organisations and arranged to meet at a scheduled time. The authors acquired written permission from the two LGAs before commencing the case studies.

4.2 Data Collection

Three participants from the top management were interviewed using semi-structured interviews based on an interview agenda (Yin, 1994). These participants were selected based on their seniority, decision-making authority and considered as knowledgeable in the integration technologies adoption process from each LGA_A and LGA_Z. The interviewees selected for the interviews included Head of ICT (HICT), Project Manager (PM), Senior Service Delivery Manager (SSDM) from LGA_A and Head of IT (HIT), Project Manager (PM) and Senior Web Manager (SWM) from LGA_B, all of whom have been directly involved in the integration technologies projects in the past and some of the current projects. Such stakeholders had an important role during the decision-making process. Therefore, it was considered important to select a cross section of roles in the integration technologies projects to obtain the views of stakeholders at different levels in the case organisations. This supports better understanding of the adoption of integration technologies in an LGA context. Interviews with these participants lasted between 1 and 2hrs and constituted the main data source in the two case organisations. In addition, follow up interviews were then carried out to clarify issues that were unclear (i.e. those issues that aroused from the

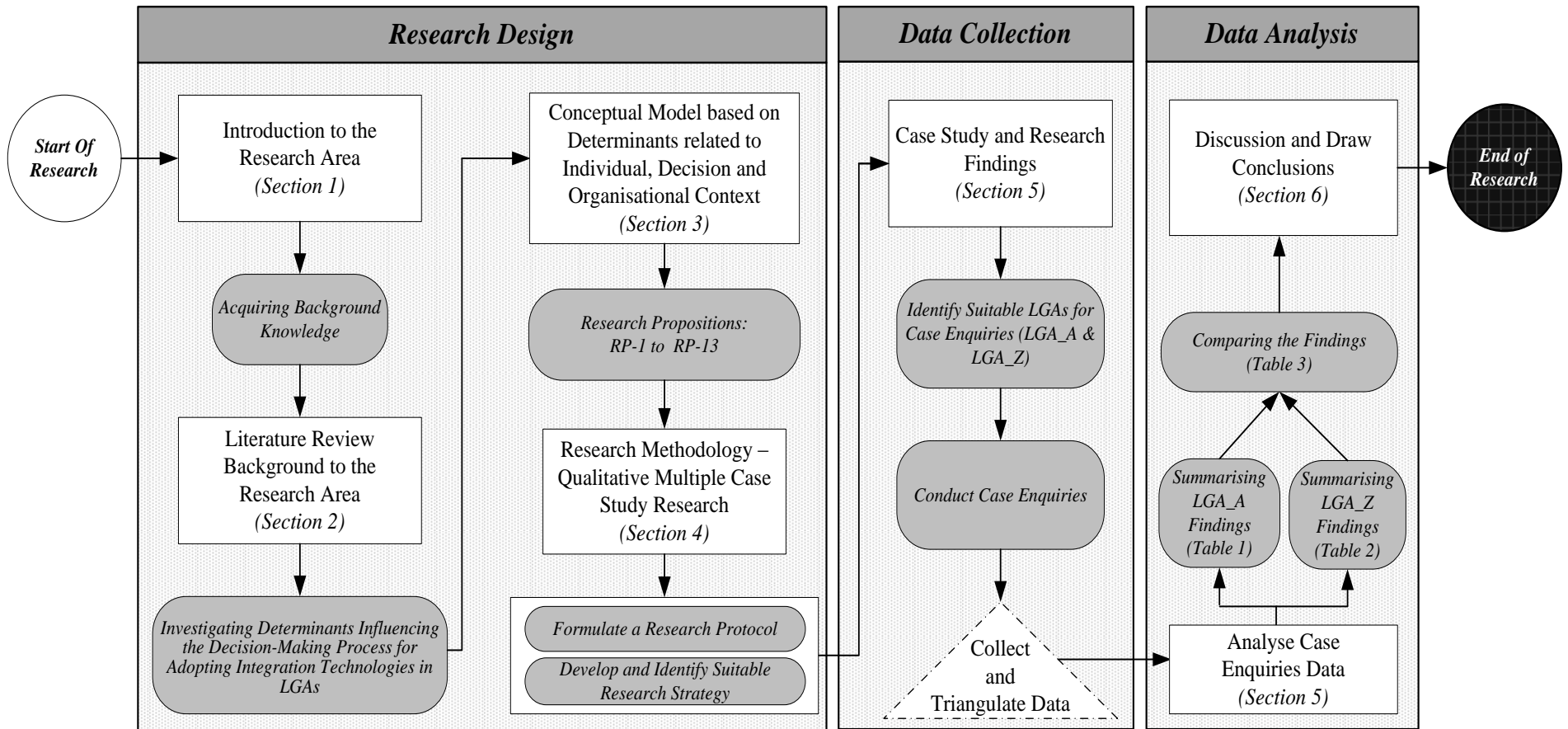


Figure 2: Research Design

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work carried out after the first interview session). Several follow up interviews, business meetings and telephone conversations were carried out to obtain updated information regarding the decision-making process with the LGAs. Interviewing a number of key people involved in the process enabled the researchers to cross check the interpretation of the events and extract different perspectives. Other documents such as the LGA's business and IT strategy and published press articles were also collected and analysed. The data analysis was done by transcribing the information onto a document and later analysing the document using a thematic analysis process. This involved encoding the qualitative information in order to identify particular themes that may have some relevance to the area of research. All of the interviews were tape recorded and transcripts prepared as soon as possible after each individual interview. Tape recordings supported the authors in collecting accurate data and interpreting them without time pressures.

5. Case Study Analysis

5.1 Case Organisation – LGA_A

LGA_A case organisation provides its services through various service areas including social and environmental services, property, housing, education, health etc. In the past, each department developed their own IT infrastructures. As a result, LGA_A consisted of numerous heterogeneous information systems that were based on a diversity of platforms, operating systems, data structures and computer languages. Most of these systems were legacy applications that still today run on mainframe environments. Since there was a lack of common IT infrastructure, and a lack of central coordination of IT, the majority of LGA_A departments adopted their own applications to support their business activities. These individual applications were not developed in a coordinated way but instead had evolved as a result of latest technological innovations. This has led to incompatible systems with integration problems. LGA_A has attempted to overcome this problem by integrating their systems.

These problems became an obstacle for them as they prevented LGA_A from implementing their business goals. For instance, LGA_A could not support its goal of closer collaboration and coordination of inter-organisational business processes due to the non-integrated nature of its applications. This held LGA_A back from achieving an integrated IT infrastructure and cost reductions. The limitations of IT infrastructures led top management in the IT department to take a decision to significantly advance in their service delivery by adopting a solution to integrate their IT infrastructure. LGA_A initiated a plan for developing a demonstration pilot project (i.e. integrating their Customer Relationship Management [CRM] systems and e-Government applications with their back office systems using SOA architecture and technologies). The motivation behind this pilot project was to address the limitations of its existing systems, and to meet the targets set by the central government. On this basis the adoption of such integration architecture within LGA_A and other London boroughs will deliver measurable business benefit. The interviewees had their rational motivations behind supporting the decision for implementing an integration solution. For example, the HICT stated:

“... We had to improve our service delivery, reduce costs and improve internal operations and performance management. As the technology integration solutions that we considered supported in developing flexible working environments, such as integrating systems in more flexible ways and allowed to access and share information, we decided to invest in an integration solution ...”

As the decision was taken to invest in an integration technological solution for developing a demonstration pilot project, all the three interviewees were individually asked to comment on what were

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their specific attitudinal and behavioural factors that influenced their decision-making process for adopting an integration solution. The HICT reported:

“... I strongly advocate the use of technology for service improvement in our particular organisational context. However, the public sector to a larger extent has unfortunately been slow to take advantage of the benefits offered by modern ICT facilities available. Therefore, we have been lagging behind in terms of customer service, speed and efficiency in comparison to the private sector. I believe that we cannot modernise local government without the use of technology ... I am not suggesting that we throw away existing technology, but we can attempt to utilise our legacy systems by integrating with new technology... so we are very certain about our existing and future plans and decisions.”

The favourable attitude towards the adoption of integration technologies at LGA_A is further captured in the comments by SSDM. He stated that:

“... If we do not reengineer our processes, our local authority will be left behind as most of the councils that are higher up on the e-Government league table have demonstrated that we need to utilise cost effective integration solutions and enterprise architectures that have emerged recently, such as Service Oriented Architecture (SOA) and Enterprise Service Bus (ESB) to reengineer and integrate business processes ...”

Similarly, the PM also supported the above views, when he stated:

“... We want to be seen as a leader in e-Government implementation, despite all the political culture and climate. The objective of this pilot project was to demonstrate to LGA_A and their other internal departments and to other London boroughs that we are investing in a long-term programme of integration between packaged systems and legacy applications is necessary...”

The discussions with the interviewees (i.e. those designated as decision makers) illustrate that the three themes have significantly influenced the decision-making process for adopting integration technologies at LGA_A. In summarising the discussions, the authors exemplify the findings of this case study in Table 1.

		LGA_A	
Themes	Factors	Equivalent Traits	Description
Individual Factors (i.e. Behavioural Factors)	Personality	Receptive to Opportunities	The Personality of the decision makers has had positive influence on adoption of integration technology – in the LGA_A context it is SOA. The decision makers are highly interested in re-engineering their business processes and for this they were very keen in investing in integration technologies.
	Perceptions	In Favour of Opportunities	The decision makers and other officials highly favoured the move towards integrating their systems within and across other departments (e.g. housing, benefits, etc.). This is because they successfully completed their pilot project and were keen to move towards a large-scale integration project.

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	Attitudes to Risk	Risk Taker	LGA_A did not use any frameworks or tools to assess SOA packages. They took the decision to fully trust its software vendor for the selection of SOA packages. A significant finding is that this decision was of high risk as LGA_A chose an SOA package that was under development. The most dangerous decision was that LGA_A fully trusted a vendor with great experience on IT projects but with no clear view regarding the integration of its packages. Although, in this case the pilot project was successful, it might have been the other way round.
	Ethics and Values	Receptive to Opportunities	No sign of uncertainty regarding the applicability and usability of SOA. Despite lack of knowledge on integration technologies, the decision-makers did not show any guard towards the adoption and implementation by relying on their software vendor's knowledge and expertise.
	Knowledge of Integration Technologies	Affirmative to Opportunities	Knowledge of the technical aspects of SOA has had positive influence on the decision-making process. However, there was lack of knowledge regarding the availability of such technologies in the market.
	Managerial Capabilities and Authority	In Favour of Opportunities	The management officials involved in the integration projects have the authority to champion these projects but also lacked the required capabilities and knowledge on integration technologies, thus, ending up relying on their software vendor.
Decision Context	Nature of Decision	Proactive Approach to Decision-Making and Opportunities	LGA_A always follows a proactive approach whilst adopting IT solutions and aims to be amongst the first LGAs (in UK) to exploit different integration technologies to support their IT infrastructure. For that reason, the LGA_A took the decision to integrate its CRM/e-Government applications with the back office systems using SOA architectures and technologies.
	Uncertainty	Open to Opportunities	Though at times restricted to the size and availability of funds but open to opportunities for adopting and implementing integration technologies.
	Centralised and Decentralised Decision-making	In Favour of Opportunities	Both centralised and decentralised decision-making in LGA_A has had a positive influence in the case of integration technologies. As these technologies are required to be adopted by several different departments and participants, a

			collaborative decision-making process was adopted at the top level and individually at the departmental level.
Organisational Context	Culture and Climate	In Favour of Opportunities	A collaborative culture among the LGA_A's departments has had positive influences towards decision-making about adopting and implementing integration technologies.
	Politics	Impulse the Opportunities	Strong pressures from the Central Government have had positive influences on decision-making processes at the top and individually, at the departmental level.
	Management Style	In Favour of Opportunities	Direct involvement in any IT initiations by the senior IT officials within the LGA_A has had positive influences on the decision-making processes. This has improved and enhanced the efficiency and confidence among the staff.
	Organisational Compatibility	In Favour of Opportunities	LGA_A claims to be the first London borough that initiated on adopting and implementing integration technologies. This is a clear indication that they have the required technological infrastructure to support their business processes. Though they have also relied on their software vendor's knowledge and expertise in the past (and in the pilot project mentioned in Section 5.1). However, this has not lead them backward; instead they have followed a proactive approach whilst adopting integration solutions.

Table1: Summarising LGA_A Case Analysis Findings

5.2 Case Organisation – LGA_Z

LGA_Z provides a range of key public services, including among others education, social and environmental services, property, highways, planning and refuse collection. The staffing establishment is 6,000, the annual revenue budget is £200m and the annual IT revenue budget is £3.5m. LGA_Z currently serves approximately 120,000-130,000 citizens and public sector customers. LGA_Z receives approximately 1000 citizen queries via telephone, whereas, face-to-face contacts are approximately from 100-250 on daily basis. The queries and face-to-face contacts are measured by the Contact Centre. The HIT inherited a number of disparate legacy IT systems. Prior to progressing towards e-Government service delivery, LGA_Z had over 220 IT/IS systems deployed throughout the organisation. These systems helped and supported all service delivery functions and operated on a range of over 25 heterogeneous computer platforms and operating systems. When the e-Government initiative was announced, limited funding was provided by central government to implement e-Government in Wales. Unlike other parts of England, where considerable funding was being offered for e-Government projects and related initiatives, LGA_Z was allocated much smaller funding. When considering integrating existing systems with e-Government IS, an initial options appraisal process was undertaken for each of the 220 incumbent systems that LGA_Z has. This included a specific set of criteria, developed by the Chief Information Officer (CIO) and agreed by top management. The criteria was: (a) whether the existing system required upgrading to accommodate a new version, new features or future organisational

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and user needs; (b) considering ease of integration from one system to another; (c) whether lease or licensing agreements on IT/IS equipment on hardware and software was coming to an end; (d) user satisfaction with existing legacy system; (e) consideration of training needs for both internal and external (citizen) users; (f) user and service disruption; and (g) costs to integrate.

The above factors were considered when determining the systems that would need to be integrated with e-Government IS. However, it was quite clear that the significant costs and resources required implementing SOA made its adoption not viable and prohibitive. It was important that costs were limited to the budget set by LGA_Z for integrating IT/IS systems in an e-Government context. As a consequence, LGA_Z had to implement an e-Government solution within the small amount of funding available and focus on generating synergies with the existing technology resources. IT integration challenges with e-Government were significant and therefore successful planning represented a major task. To avoid huge costs, a traditional integration approach was undertaken. Given the importance and implications of this decision, the preparation of the IT and e-Government IS integration strategy was presented and agreed by the LGA_Z top management. This was then communicated throughout the organisation. Many of the systems previously implemented had been properly considered and evaluated in relation to the particular service delivery function. However, as legacy systems they were not easily integrated with e-Government IS. For example the existing planning system was successful at processing and helping planning officers in determining planning applications. However, the system did not have Internet/website facilities. Therefore, LGA_Z determined whether any business elements overlapped and then determined how to integrate older technology with the new e-Government programme. LGA_Z hence, decided which legacy systems were to be integrated with the e-Government consolidation programme. The CIO stated that:

“... There was a need to be responsive and open to changes to give the best solution possible for the existing infrastructure...”

As the decision was taken to invest in a traditional integration approach for interconnecting their IS, even in this case all the three interviewees were individually asked to comment on what were the attitudinal and behavioural factors that influenced their decisions for adopting a traditional integration approach. HIT reported that:

“... We have limited budgets and funding restrictions as compared to central England and therefore, I have to ensure a thorough evaluation of the short and long term cost benefit analysis. To an extent I am working with my hands tied to my back and I have to take a risk averse attitude towards any investments that are difficult to justify to my superiors and stake holders....”

Interestingly, a similar view was held by the PM at LGA_Z. He commented that:

“... When our legacy systems are doing what we want from them, why should we change out systems and upset the balance of our IT infrastructure...”

The third interviewee, SWM stated that:

“... When we talk about new technology and changes to our existing IT infrastructure, we have to think about our IT staff and how any proposed changes will impact them. Getting used to new technology takes time and will involve a period of training and education. I can guarantee you that there will be resistance to any IT related change not only from the users, but also from the IT unit...”

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The discussions with the interviewees (i.e. those designated as decision makers) illustrate that the three themes have significantly influenced the decision-making process for adopting integration technologies at LGA_Z. In summarising the discussions, the authors exemplify the findings of this case study in Table 2.

		LGA_Z	
Themes	Factors	Equivalent Traits	Description
Individual Factors (i.e. Behavioural Factors)	Personality	Receptive to Opportunities	The Personality of the officials has had positive influence on adoption of integration technology. The high interest in re-engineering their inter-organisational business processes illustrated that these decision makers are very receptive and equally responsive to novel opportunities.
	Perceptions	Against the Opportunities	Negative perception of the senior officials towards the integration systems. This is due to previous failures of implementation and adoption of several IT projects at the departmental level.
	Attitudes to Risk	Risk Averse	Fear of non-technological risks (e.g. giving others access to information), even without having extensive knowledge about what those potential risks are, has restricted the decisions towards implementing and adopting integration technologies.
	Ethics and Values	Receptive to Opportunities	No sign of confusion regarding the applicability and usability of the integration technologies. Hence, the senior decision-makers did not show any guard towards the adoption and implantation.
	Knowledge of Integration Technologies	Affirmative to Opportunities	Knowledge of the technical aspects of integration technologies has had positive influence on decision-making. However, there was lack of knowledge regarding the availability of such technologies in the market.
	Managerial Capabilities and Authority	In Favour of Opportunities	Less forceful communication approaches by the senior management to illustrate good explanations for building effective collaboration networks.
Decision Context	Nature of Decision	Restrain the Opportunities	Nature of decision has had negative influences due to fear of adoption and implementation risks, and lack of market knowledge to select the most suitable solution.
	Uncertainty	Restrict the Opportunities	Negative outcome due to doubts regarding the size and availability of future funds they can allocate to adopt and implement integration technologies.

	Centralised and Decentralised Decision-making	In Opposed of Opportunities	Decentralised decision-making in LGA_Z has had negative influence in the case of integration technologies. As these technologies are required to be adopted by several different participants, a collaborative decision-making process would be required.
Organisational Context	Culture and Climate	Impediment to Opportunities	Non-collaborative culture among the LGA_Z's departments has had negative influences towards decision-making about adopting and implementing integration technologies.
	Politics	Impulse the Opportunities	Strong pressures from the Central Government have had positive influences on decision-making processes. Even though these pressures have not influenced the departments equally.
	Management Style	In Favour of Opportunities	Direct involvement in any IT initiations by the senior IT officials within the LGA_Z has had positive influences on the decision-making processes. This has improved and enhanced the efficiency and confidence among the staff.
	Organisational Compatibility	Obstacle to Opportunities	Lack of sufficient technological infrastructure and knowledge of the employees about integration technologies have restricted the decision-making processes.

Table 2: Summarising LGA_Z Case Analysis Findings

6. Discussions

The similarities and differences of the case study findings have been demonstrated in Table 3. To better understand this cross-case comparison, we have divided the discussion into three main parts focusing on individual context, decision context and organisational context.

- Within the *individual factors* context, there are 6 factors in total, out of which interview responses for 4 factors (i.e. *Personality, Ethics and Values, Knowledge of Integration Technology* and *Managerial Capabilities and Authorities*) are the same for both cases, whereas, for 2 factors (i.e. *Perception* and *Attitude to Risk*) the responses differ. It can be argued that *managerial capabilities and authorities* and *knowledge on integration technologies* in both LGAs were in favour of the adoption and implementation of such technologies in a large scale. However, due to failure of the previous projects in LGA_Z, the perception of the senior officials became negative towards adoption and implementation at a larger scale. The empirical findings of the case organisations indicate a strong and negative relationship between risk and the decision-making process for adopting integration technologies in LGA_Z. The most significant concerns of the senior officials in LGA_Z were the risks of accessibility to personal information by others, misinterpretation of shared information and losing public accountability. The findings of the case studies suggest that the departments are mainly concerned about non-technological risks. Based on the discussions with the interviewees, three frequently cited risks can be summarised as: (a) accessibility of personal information by other departments (issue of information ownership), (b) misinterpretation of the shared data, and (c) losing accountability and public image. However, as LGA_A conducted a pilot project, these concerns become less influential on the decision-making

process. The departments within LGA_Z were particularly concerned about making the personal information collected and stored by them available to others. The possible explanation is that the departments were keen to have full control over the information collected and think that by sharing information they would lose information ownership.

- In the **decision context**, the interviewee's responses towards all of the three factors are dissimilar among the two case organisations. For example, the risk-averse attitude among the LGA_Z's officials brought uncertainty in decision-making process about adoption and implementation of integration technologies. These findings are in accordance with previous studies (e.g. Gil-Garcia *et al.*, 2007; Bellamy *et al.*, 2005) that indicated that perceived risks bring uncertainty to inter- and intra-organisational collaboration and limits the integration efforts. This issue was less highlighted in LGA_A. The reason is that the senior officials realised that integration technologies, even though they carry new risks, can also provide new and better safeguards for handling personal information; for instance, improved control over access. Moreover, it could be noted that the notion of "risk sharing" reduced the impacts of risk on decision-making. The departments recognised that through collaboration with other department, the risk of data breaches can be decreased since more employees control and monitor citizens' information. Therefore, the factors in decision context were positively influence the decision in LGA_A and restricted the opportunities within LGA_Z. Response to third factor i.e. centralised and decentralised decision-making also differs between the two case organisations (as highlighted in Table 1 and 2). For instance, LGA_A encouraged both centralised and decentralised decision-making. The rationales that can be attributed to the latter are that LGA_A officials (a) aspired to be among the leading boroughs in London and (b) perceived that the use of integration technologies would be beneficial for the whole borough. On the other hand, LGA_Z only favoured the use of centralised decision-making, mainly due to shortage of budget and funding and willingness to advocate concerted decision-making process throughout the borough.
- In the last category, the **organisation context**, there are total of four factors in which similar results have been reported towards Politics and Management Style in both cases, and contradictory results towards Culture and Climate, and Organisational Compatibility. The empirical findings from the case studies suggest that organisational capability in general and business process compatibility in particular plays significant roles on decision making of adopting integrated systems. One of the main reasons that this factor was supporting the decision-making process in LGA_A was the fact that this factor was among the few factors that the LGA departments, by planning in advance, managed to address. For instance, the departments within LGA_A went through an extensive business process mapping to examine the responsibility of each department regarding the collected information. Also, they initiated business process re-engineering programmes to align the non-technological processes in the departments involved in the integration project. However, it can be argued that underestimating the time required for re-engineering business processes had negative influences on the implementation and adoption of the projects. In LGA_Z, however, the business processes within those departments involved in the projects were fairly inflexible. Therefore, transforming the processes in order to be in line with other departments would be extremely complex, time-consuming and expensive.

These results support Beynon-Davies and Williams' (2003) arguments, which highlight the fact that in the UK public organisations, especially at a local level, do not enough place emphasis on the re-engineering of business processes as the result of bureaucratic organisational structure. It could be noted that while the use of the integrated systems were moving into operational phases, the willingness to support the re-engineering of the processes improved among the departments' employees. The main reason is that the overall knowledge and understanding of a mutual business process across the departments was increased.

Throughout the interviews and discussions with the interviewees, collaboration culture was repeatedly cited as one the most significant factors influencing decision making process for adoption and implementation of integration technologies. Based on the case organisations, it can be argued that poor collaboration culture in the departments, mainly in LGA_Z, has had negative influence on decision making processes. It was clear from the discussions with the interviewees and observations that the effort of sharing information, even via integrated and computerised systems that require less human involvement, was hindered by non-collaborative culture of the employees. One of the major barriers particularly in LGA_Z was the fact that gaining the agreement of three different departments involved in the project was a complex task as some were more reluctant than others to share information via integrated platforms.

Themes	Factors	LGA_A	Equivalence/Non-Equivalence	LGA_Z
		Equivalent Traits		Equivalent Traits
Individual Factors (i.e. Behavioural Factors)	Personality	Receptive to Opportunities	=	Receptive to Opportunities
	Perceptions	In Favour of Opportunities	≠	Against the Opportunities
	Attitudes to Risk	Risk Taker	≠	Risk Averse
	Ethics and Values	Receptive to Opportunities	=	Receptive to Opportunities
	Knowledge of Integration Technologies	Affirmative to Opportunities	=	Affirmative to Opportunities
	Managerial Capabilities and Authority	In Favour of Opportunities	=	In Favour of Opportunities
Decision Context	Nature of Decision	Proactive Approach to Decision-Making and Opportunities	≠	Restrain the Opportunities
	Uncertainty	Open to Opportunities	≠	Restrict the Opportunities
	Centralised and Decentralised Decision-making	In Favour of Opportunities	≠	In Opposed of Opportunities
Organisational Context	Culture and Climate	In Favour of Opportunities	≠	Impediment to Opportunities
	Politics	Impulse the Opportunities	=	Impulse the Opportunities
	Management Style	In Favour of Opportunities	=	In Favour of Opportunities
	Organisational Compatibility	In Favour of Opportunities	≠	Obstacle to Opportunities

Table 3: Comparing the Findings of LGA_A and LGA_Z

7. Conclusions

The adoption of integration technologies has been explored widely in previous research, but largely from an organisational and technical perspective covering issues such as cost, benefits and barriers. To the best of the authors' knowledge limited research exists that explored the human attitudinal and behavioural aspects of top management's decision-making aptitude towards the adoption of integration technologies.

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This study sets out to inquire further into this under-explored area of research. The existing literature on the influence of attitude and behaviour in decision-making contexts, points towards factors such as personality, perception, attitude towards risks and ethics and values. These factors are largely linked to the psychological makeup of an individual (Rollison, 2008; Ajzen, 1988; Ford and Richardson, 1994). The empirical evidence presented in the previous section points to two different schools of thought with regards to the aforesaid factors with regards to the adoption of integration technologies. For example:

- Interestingly, individuals in LGA_A based in central England displayed a more ‘positive’ attitude towards integration technology that resulted in favourable behaviour in accepting change. This can be attributed to the availability of sufficient funding from central government which enforced less pressure on the decision makers in LGA_A.
- On the contrary, the opposite was true in LGA_Z where the decision makers were forced to take a risk-averse approach resulting in a more ‘negative’ attitude and behaviour towards change.

In terms of implications to theory, this research synthesised existing literature to offer 13 different research propositions that encapsulates attitudinal and behavioural aspects of decision-making in an organisational context. These factors were explored in a practical setting in the context of two local government authorities that were engaged in technology integration projects relating to e-government implementation. The empirical results offer different doctrines; positive and negative attitude towards the adoption of integration technologies. They also show that the decision makers’ individual attitude towards technology and change play a major part in the outcome of technology integration projects. The authors propose that these attitudes may be positively influenced when LGAs collaborate with private sector organisations for technology integration projects (e.g. by enlisting the help of expert consultants LGA IT managers and decision makers will be exposed to latest technology integration solutions and their associated benefits).

Although this research study is based on two case studies, the beneficiaries (e.g. practitioners, researchers) can take this as a starting point to developing an understanding towards the attitudinal and behavioural factors relating to the decision-making for the adoption of integration technologies. The authors assert that with more empirical research, better harmonisation of theory and practice can be achieved in this relatively under-explored area of research. Future research can consider survey based studies to evaluate and quantitatively validate the impact of the research propositions identified in this paper across a wider range of LGAs. There is yet a lot of research to be conducted on decision-making, which will indeed facilitate researchers, psychologists, practitioners and educators to positively influence the lives of many.

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