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Learning lessons from evaluating eGovernment: Reflective case experiences that support transformational government

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Abstract

Central Government strategy of e-inclusion is being manifested in the form of eGovernment. Given that it is the public purse that funds such investments, there is increasingly attention being paid to the evaluation of these investments, such that value for money and organisation learning can be realised. In this paper the authors report the findings from three interpretive in-depth organisational case studies that explore eGovernment evaluation within a UK public sector setting. The paper elicits insights to organisational and managerial aspects with the purpose of improving knowledge and understanding of eGovernment evaluation. The findings that are extrapolated from the case study analysis are presented in terms of lessons that gravitate around *social factors, evaluation, adoption, ownership, prioritisation sponsorship and, responsibility*. These lessons are extrapolated from the empirical enquiry to improve eGovernment evaluation practice. The paper concludes that eGovernment evaluation is an under developed area, with most work being developmental in nature and as a result calls for decision makers to engage with the eGovernment agenda and commission eGovernment evaluation exercises to improve evaluation practice such that transformational Government can realise its full potential. The paper ends by highlighting political, economic, technical and social issues as the drivers of the evaluation cycle.

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1. Introduction

According to Eyob (2004), eGovernment has become the next wave of technology applications in the public sector as e-business and e-commerce in the private sector matures. There is little doubt about the usefulness and potential of eGovernment (Banerjee and Chau, 2004), as many countries have started developing eGovernment infrastructures around e-inclusion and e-services (Klamo et al., 2006; Kolsaker and Lee-Kelley, 2007) yet, it is worth recognising that in developed countries, where there are typically greater levels of proliferation, Heeks (2000) reports failure rates of between 20% and 25%. More recent studies, such as that conducted by

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Sauer and Cuthbertson (2003) reported that only 16% of Information Technology (IT) projects were considered successful although the finds made little distinction between public and private sector IT. On reflection, there are now local and central Government initiatives to explore lessons learnt from eGovernment investment decisions, such as the Transformational Government (t-Government) work being conducted by Irani et al. (2007) and Elliman et al. (2007).

For some nations, eGovernment merely implies shifting current services online though to others, eGovernment presents new exciting opportunities to restore relations between Government and citizens and to boost public participation in the process of democracy (Sharma, 2004). EGovernment initiatives exceed providing citizens with Government information and services but, rather seeks to provide ever-present access to Government information and service with total clarity and transparency of Government activities. The evolution of eGovernment can be attributed to the prevalence of the information age and knowledge society (Tian and Tainfield, 2003; Kolsaker, 2006) along with a desire to increase accessibility of Government services. Indeed Palanisami (2004) claims that the emergence of information and communication technology (ICT) has affected the functions and roles of eGovernment. As noted by Ibrahim and Irani (2005, 595):

“The continual development in ICTs in the last two decades has presented private sector organisations with many choices of applications and technologies to support infrastructure integration of e-business applications and systems which can benefit the public sector to implement effective eGovernment portal and support their business process.”

With the maturity of the UK’s eGovernment initiative, attention is turning to the evaluation and exploitation of such programmes of work, which is manifested under the umbrella of transformation Government. However, before one is able to reap the benefits of eGovernment, it must be evaluated for its impact in terms of benefits, costs and risks, with Griffin and Halpin (2005) reporting that the evaluation of eGovernment tends to focus on:

- Evaluating eGovernment stages of growth
- Evaluating electronic service delivery via the internet
- Evaluating stakeholders involvement
- Evaluating the costs and benefits of eGovernment

In ensuring that the full benefits from eGovernment investments are realised, Wood et al. (2003) present a multidimensional approach towards evaluating web-based-eGovernment. They highlight that relying on any single technique or strategy is likely to yield incomplete, misleading and erroneous results. The pool of techniques available for ICT investments appraisal are build around traditional accountancy terms hence making them inadequate for the evaluation of ICT investments that encompass a range of social and organizational factors, which cannot be accommodated within these frameworks. (Irani and Love, 2001, 2002).

Cost Benefit Analysis (CBA), Net Present Value (NPV) and Return on Investment (ROI) are some of the techniques that managers fall in the quandary of having to choose from, when appraising ICT investments (Jones et al., 2006; Irani et al., 2005, 2006; Ballantine and Stray, 1999). According to Eyob (2004), the difficulty of justifying public sector investments using approaches such as ROI is one of the main barriers restricting eGovernment initiatives and this the benefits of t-Government; notwithstanding Government mandates. Yet, such a barrier should not be seen as mitigation towards a lack of robust evaluation. Not conducting a rigour evaluation for eGovernment investments hinders benefit realisation, cost management and risk mitigation.

In attempting to explore the phenomenon of public sector evaluation, the authors of this paper seek to enhance and improve both the understanding and knowledge of eGovernment evaluation in practice. This is made possible through the presentation of findings of three in-depth interpretative case studies and deducting lessons learnt for eGovernment evaluation. These lessons will be based on the principles of knowledge gathering and organizational learning. A brief literature review of the problem domain is reported, and then followed by the presentation of the research methodology used in this study, and a summary of the empirical work conducted in terms of three cases that are presented with supporting analysis. Emerging lessons extrapolated from the key themes are derived to support improvements of the practice of evaluation within the eGovernment domain. The paper concludes that eGovernment evaluation is a under developed area and calls for senior executives to engage with the eGovernment agenda to commission eGovernment evaluation, whether for reflective learning or part of a broader t-Government agenda.

2. Research methodology

The research methodology followed during this research was one that was pre-defined, in that, the authors had thought through the implications of decisions taken in terms of research impact and implication. It was an approach that enfranchised the applied research with the objective of discovery that manifest into lessons learnt.

2.1. Epistemological research stance

Considering the scope, sensitivity and depth of the research undertaken, an interpretivist epistemological approach was taken. Interpretative research has emerged as an important and justifiable methodological approach within the information systems community (Lee, 1989; Klein and Myers, 1989). Interpretative research is typically used for relatively under-developed theoretical constructs or where complex observation is required. The research methodology employed by the authors made use of in-depth case study explorations as described by Walsham (1995). In this paper, the authors sought to explore eGovernment evaluation, in context, to understand eGovernment evaluation practice and to elicit lessons for eGovernment evaluation. The authors sought to understand the phenomena under study in its 'real world context' and to elicit lessons by drawing on the analysis. The phenomenon under study has an organisational and social focus and is therefore well suited for an interpretivist epistemological stance. The authors therefore subsequently selected a case-based research approach, which was consistent with the exploration and understanding of eGovernment evaluation in the public sector.

2.2. Number of cases

A multiple case study approach was used so that each case can be regarded as a multiple experiment. Cases were selected on the basis of replication logic rather than sampling logic that is primarily based on the assumption that a sample of a number of respondents represents a larger population. Generally, it is considered that there is no ideal number of cases that should be undertaken when using this research approach. Romano (1989) suggests that the number used should be left up to the individual researcher. However, Eisenhardt (1989), Lincoln and Guba (1986) suggest that cases should be used until theoretical saturation or to the point of redundancy, which neglects time and money constraints.

Due to the availability of limited case study organizations, selection was based on pragmatic considerations. In the context of this study, practicalities and a saturation of data limited the study to three cases. The cases used were not systematically sampled therefore it is not possible to generalize findings to a wider population of local authorities. Regardless, constants in process and outcome can be drawn by others, and used as a means of navigating through the evaluation process of eGovernment initiatives; these are manifested in lessons learnt.

Although the research presented in this paper is in relation to three case studies, the first case study was initially undertaken to help set the boundaries and as such, took longer to undertake and collected excessive data. A second and third study were then conducted with the intention that it would provide further exploration, further richness and help generate more understanding and substantive lessons yet, retaining focus. It was therefore not with the intention to compare the three cases to highlight differences, but to contrast the cases to elicit key lessons by drawing on the general findings of the cases. Some findings from the three case studies were presented by Jones et al., 2006, however, a third case study has subsequently been undertaken and is reported within and as a result, extends the research further. This case provided further understanding, insight, richness and lessons, culminating in a mapping of observations across each case.

2.3. Data collection

The data collection procedure has followed the major prescriptions by the normative literature in doing fieldwork research (e.g., Yin, 1994; Fiedler, 1978). Qualitative research methods, described by Walsham (1995) were employed to undertake the studies. These included informal, in-depth semi-structured interviews and participant observation. A variety of data have been used to derive the findings presented in this paper, which include interviews, observations, illustrative materials (e.g., newsletters and other publications that

form part of the case study organization's history), and past project documentation. One-to-one tape recorded interviews of approximately 1 h were conducted. The interviewer carefully ensured that the interviewees were fully informed about the purpose of the interviews, and took steps to put the interviewees at ease so that a two-way, open communications climate existed. A variety of secondary data sources were also used to collect data with regard to eGovernment evaluation, such as internal reports, budget reports, and filed accounts. The authors have extensive industrial experience and used this experience, together with a pre-defined interview protocol to determine the data needed for the research.

2.4. Case study validity

The use of interviews, documentary sources, and observations indicates that internal validity needed to be addressed. Each interview was taped recorded and subsequently transcribed. These were given to each person that had been interviewed to check and resolve any discrepancies that may have arisen and eliminate any interviewer bias. This approach to interviewing has proved successful in similar type of case-study research (public sector) as reported by Irani et al. (2005). Bearing in mind the array of evidence that was accumulated, great care was undertaken by the authors to ensure that the primary and secondary data collected converged on similar facts as described by Jick (1979).

The authors now present the findings and extrapolation of lessons by contrasting and drawing on the analysis of the three cases.

3. Case studies

The UK eGovernment scene is fluid and a key enabler for public sector change. Indeed, according to a report by Kable (a leading provider of public sector research) central Government ICT spend will grow by 21% over the next three years reaching £3.2 billion by 2007/08 and is expected to reach £4.2 in 2010/2011 (Kable, 2006). In return, UK local authorities are expected to deliver a total of £1.2 billion in accumulated efficiency savings by 2007/08 directly as a result of eGovernment investments. However, the parliamentary office of science and technology (POST) recently reported that the cost of cancelled or over-budget Government ICT projects over the last six years is greater than £1.5bn (POST, 2003). Clearly, questioning normative approaches to eGovernment provision building and the appropriateness of existing toolsets and indeed, targets. Hence, underlying the need for robust approaches to evaluation or at the very least, a greater awareness of evaluation approaches.

The first case study concerns a UK unitary local authority, which provides a range of public services, including Education, Social Services and Highways. The population is 147,000, the staffing establishment is 6000, the annual revenue budget is £150 m and the annual IT revenue budget, including eGovernment, is £2.5 m. Six senior eGovernment stakeholders were interviewed as part of this case study. These were the Head of IT, IT Account Manager, IT Operations Manager, Assistant Director of Finance, a Senior Social Services Manager and Assistant Chief Executive. These individuals were chosen because of their knowledge surrounding service delivery and associated costs, benefits and risks.

The second case study concerns another UK unitary local authority, which provides a similar range of public services, as in case study one. It has a population of 129,000, a staffing establishment of 7000, an overall annual revenue budget of £157 m, and an annual IT revenue budget, including eGovernment, of £2.2 m. As in the first case, six senior ICT stakeholders were sought to enable the research to have sufficient depth and six agreed to be interviewed to contribute to the study. Again, individuals with knowledge surrounding service delivery and associated costs, benefits and risks were selected. These were the Head of Information, Communications and Technology (ICT), ICT Operations Manager, the Deputy County Treasurer, a Senior Social Services Manager, a Senior Housing Manager and a Senior Finance Manager.

The third case study concerns another UK unitary local authority, which provides a similar range of public services, as in case studies one and two. It has a population of 110,000, a staffing establishment of 6,500, an overall annual revenue budget of £168 m, and an annual IT revenue budget, including eGovernment, of £2.8 m. As in the previous cases, six senior eGovernment stakeholders were interviewed to enable the research to have sufficient depth. These were the Head of Information, Communications and Technology (ICT), the

ICT Services Manager, a Senior Education Manager, the eGovernment Manager, a Senior Highways Manager and a Senior Finance Manager. The findings and outcomes from the studies are now presented in the following sections, in terms of analysis and learning.

4. Research findings

Jones et al. (2006) previously presented an analysis of the main emergent themes extrapolated from case study 1 and 2, however it is not the intention of this paper to rearticulate these findings in detail. Rather, the authors have built on these findings by analysing the third case study and presenting and contrasting in this paper. Two themes were extrapolated, these are decision-making and evaluation. It is important to again emphasise that any findings and lessons drawn from the case studies are not generalizable, but may be generally useful (Urquhart, 2001). The first key emergent theme is decision making and this is discussed in the next section.

4.1. Theme one - decision making

Decision making with regard to eGovernment issues in both case study organisations was delegated and unsophisticated. Decisions were not made by senior executives but were delegated to middle managers. However, the decision to implement eGovernment was described as obvious and common sense. One interviewee stated 'It was something we had to do. Central Government had set out the agenda'. This resonates with the work of Bannister (2001) who contends that decision making in the public sector is often political and not always based upon economics. The delegated approach to decision making had led to a lack of eGovernment ownership at a senior executive level. For example, there was no strong senior executive sponsorship for eGovernment in the case study organisations. This led to a lack of senior corporate governance. However, the literature contends that senior management commitment is critical to eGovernment success and furthermore that eGovernment ownership is clearly understood in organisations.

There was resistance and lack of commitment from some internal users to exploit eGovernment to improve the respective service area. This was illustrated by the lack of eGovernment services in important areas such as Highways, Education and Social Service to varying degrees. Some senior staff described themselves as 'too busy' to prioritise and divert resources to eGovernment and this resulted in a loss of opportunity to develop eGovernment to improve service delivery. To ensure effective eGovernment governance and management it is important to decide and make clear who holds the different roles and responsibilities, and who is responsible for delivering the programme. These roles were different between authorities, as culture, organisational structures, programme and project management approaches varied. Some roles and responsibilities were shared and depended on the business case, the resources available, and the decision making framework employed.

4.2. Theme two - evaluation methods

None of the case studies were formally evaluating their eGovernment programmes. Mechanistic methods based upon economics were not used. The interviewees were generally aware of these methods but had not employed them. This was mainly due to them having limited credibility, due to their economic bias. They were viewed as not being appropriate for the public sector ICT projects and were not used to evaluate eGovernment. The public sector is not motivated by financial gain and has to demonstrate economic probity and value for money to the citizen. The motivation for the public sector to deploy eGovernment is to transform and improve service delivery to the citizen. Therefore, as one interviewee commented 'costs savings were not a motivating factor'. However, that is not to say that the case studies did not wish to evaluate eGovernment. Indeed, both cases were of the view that eGovernment evaluation was important, to able their organisations to assess eGovernment implementations. A key issue therefore for the case studies is to select an appropriate eGovernment evaluation model that can be useful. Irani and Love (2001) have proposed a taxonomy of ICT evaluation approaches to assist in the choice of evaluation methods that include mechanistic and soft social and organisational aspects. It was recognised that soft aspects, especially citizen perspectives, were likely to be important to any eGovernment evaluation exercise. The case study organisations were also coming under

increasing pressure to adopt evaluation with the aim of benchmarking, understanding and improving eGovernment deployment. The future challenge therefore is to understand the non-cost value, benefits and impact of eGovernment to each organisation and to employ appropriate evaluation approaches that can be helpful. The literature highlights that there is still widespread and continuing disagreement as to the factors and metrics to include in any formal ICT evaluation approach. However, eGovernment evaluation must emphasise the soft aspects.

Responsibility for eGovernment evaluation was unclear in both organisations. Service managers and internal users had tacitly assumed that eGovernment evaluation is the function of specialist ICT management. This important finding concurs with the view of [Smithson and Hirschheim \(1998\)](#), who note that ‘ICT evaluation is usually assumed to be the responsibility of ICT management. ICT management were unaware that they had been deemed responsible for this aspect. Indeed, ICT management do not fully understand how eGovernment impacts upon a service area or service delivery. It was recognised that responsibility for the evaluating the impact of eGovernment should be clearly defined, articulated and understood. Both organisations had not given any priority to eGovernment evaluation. Each organisations was more concerned with further developing eGovernment and moving the eGovernment agenda forward. However, once responsibility for eGovernment evaluation has been agreed, there is a requirement to prioritise this area.

The empirical work indicated that the eGovernment implementations had changed internal working practices. However, these changes have not been evaluated. It is therefore, unclear whether the changes in working practices had led to any improvement or had a detrimental effect on efficiency and effectiveness.

Both case study organisations, eGovernment stakeholders were not concerned with eGovernment economic metrics, detailed cost benefit analysis or mechanistic evaluation techniques. They were concerned with the successful introduction, operation and impact of eGovernment. The aim of eGovernment is to transform and improve public sector service delivery.

Therefore, there was a need to gauge and understand what benefit the organisation and associated stakeholders obtain from eGovernment implementations and to what extent eGovernment has been successful in practice. In the case studies, eGovernment evaluation does not occur and internal and external stakeholder opinion is not formally canvassed. Therefore, it makes it difficult to judge the impact of eGovernment and whether it has delivered significant service performance improvements. This needs to be addressed, especially as large costs are involved. [Table 1](#) below culminates a broad classification of factors surrounding the development of an eGovernment infrastructure and then correlates concerns to each classification. Then, a normative reference source is provided. [Fig. 1](#) thenceforth shows a classification and definition of those quantitative and qualitative issues as related to the factors highlighted in [Table 1](#).

[Fig. 1](#) shows a grouping of the pertinent issues extrapolated from the case studies. This diagram ultimately relates notions of Decision Making, Evaluation, Performance Assessment and Practitioner Concerns to quantitative factors of Responsibility, Sponsorship, Evaluation and Prioritisation; and to qualitative factors of Ownership, Adoption, Evaluation and Social Factors.

Based within the context of the extant literature on information systems evaluation as described earlier, evaluation as a business process needs to encompass both explicit (direct) and tacit (indirect) assessments of the investment that need to be appraised, as discussed at length by [Irani \(2002\)](#) and [Irani and Love \(2001\)](#). Therefore [Fig. 1](#) attempts to show the delicate balance between a systematic as well as a systemic view of eGovernment implementation initiatives. While many of these factors have been discussed within the normative literature, in one form or another, what is interesting here is that the research presented has culminated these factors into a model based on three reflective cases from the public sector whereas much of the normative literature has been private sector based. There is widespread agreement that both sectors are distinctive in difference yet, the research presented has drawn parallels when it comes to information systems decision making and evaluation within the context of eGovernment.

Much of what appears in [Table 1](#) and presented in [Fig. 1](#) has been identified by [Irani et al. \(2007\)](#) and [Elliman et al. \(2007\)](#) through their project VIEGO, which sought to identify and further develop the research agenda of eGovernment. However, although the findings resonate with those presented within, they approached the problem domain from very different perspective. Project VIEGO sought to develop its ‘lessons learnt’ through a series of regional workshops throughout the UK, with the purpose to consult with different groups of stakeholders concerning their views. These stakeholders included local authorities, elected officials

Table 1
Classification of concerns surrounding government provision

Classification	Extrapolation of concerns	References
Decision making	<ul style="list-style-type: none"> Decision making is often delegated to middle management – lack of senior buy-in. Unsophisticated use of techniques. Based on common sense. Opportunist tactics to achieve subjective outcomes. 	Jones et al. (2006) Taylor (1990) Bannister (2001) Introna (1997)
Evaluation methods	<ul style="list-style-type: none"> Motivated by value. Avoidance of formal methods. Scepticism by management to formal methods. Focus on power and persuasion. Appraisal used as justification mechanism not an evaluation process. Recognition to conduct evaluation and develop knowledge. Repository. 	Jones et al. (2006) Irani (2002) Sharif et al. (2005) Irani and Love (2001) Smithson and Hirschheim (1998)
Performance assessment	<ul style="list-style-type: none"> Need to adopt metrics, in an attempt to benchmark and better quantify eGovernment value and benefits. Comprehensive performance assessment (CPA), undertaken by external Government auditors. Conflict between quantifying estimates and the subsequent analysis. Disagreement surrounding which metrics to use. 	Local Government Act (1999) Walsham (1993) Willcocks and Lester (1998)
Practitioner concerns	<ul style="list-style-type: none"> The need for eGovernment ownership. How to gauge stockholder concern. Difficulty in assessing eGovernment impact. Often senior management want a financial return from ICT. Lack of recognition that evaluation is an under-developed and an under-managed area 	National Assembly for Wales (2002)

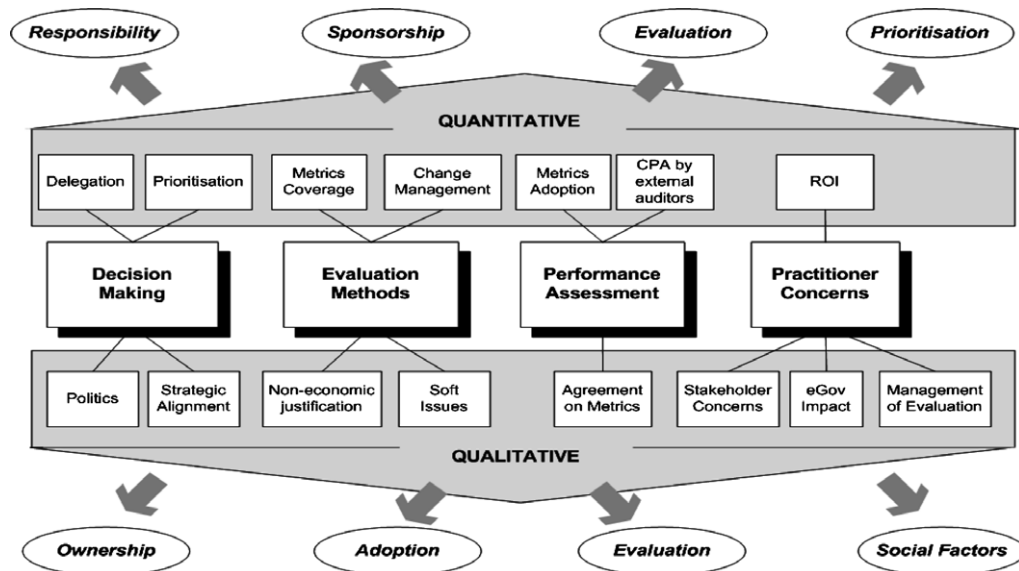


Fig. 1. Quantitative and Qualitative issues mapped to observed concerns across eGovernment cases.

(at local Government level), central Government officials, vendors and the citizen. The themes identified within each workshop were greatly influenced by the composition of the group.

The outcomes coming from eGovernment stakeholders within VIEGO and from a case experience within, appear to involve complex social and managerial issues that then drive technological elements. In addition there seems to be a general consensus that existing eGovernment activities remain to be evaluated and

measured in order to better design future services, which benefit all. The use of consensus impact and focus from citizen stakeholder groups within such evaluations appears to be essential in order to ensure transparency.

5. Lessons learnt

Arising from the discussion and analysis of the two main emergent themes, lessons learnt have been elicited to help inform practice. The lessons learnt that are proposed for eGovernment evaluation have been elicited from the empirical work. These lessons have been developed by the authors to help improve eGovernment evaluation practice and are presented within four broad themes, as follows:

Social: Senior executives should engage with the eGovernment agenda and eGovernment evaluation to improve investment decision making and governance.

Ownership: Organisations should define eGovernment ownership to clarify responsibility.

Adoption: The public sector should overcome resistance and ensure that all departments are fully committed to eGovernment adoption, to obtain maximum exploitation.

Sponsorship: Organisations should define who is responsible for eGovernment evaluation and to clarify roles and responsibility – ideally, this should have senior level sponsorship.

Evaluation: Organisations should undertake eGovernment evaluation to understand the impact of eGovernment. This should include soft, social and organisational aspects in any eGovernment evaluation approach to improve the understanding of eGovernment.

Prioritisation: Organisations should prioritise and adequately resource eGovernment evaluation to ensure it is undertaken correctly and professionally.

Whilst these lessons are intended to inform and improve eGovernment evaluation, the authors propose to develop these further in the future to propose a tentative eGovernment evaluation framework. These are by no means meant to be prescriptive but rather need description and contextualisation within a particular environment.

6. Conclusions

The authors of this paper have attempted to explore the phenomenon of public sector evaluation, through enhancing and improving both the understanding and knowledge of eGovernment evaluation. This has been made possible through the presentation of findings of three case studies and deducing lessons learnt for eGovernment evaluation.

Opportunities to make considerable impact to improve the understanding of the human and organisational impacts of ICT in the public sector are significant and indeed needed, from the perspective of the citizen and tax payer. Promoted, not least through a robust and informative evaluation process, that goes beyond the traditional financial norms.

The authors have presented the findings from three case studies that have attempted to provide context to the eGovernment evaluation process. The paper has underlined the importance of understanding the complexity and paucity relating to eGovernment; taking into account relevant implicit stakeholder effects of organisational and individual ownership, accountability and linkage of visibility of such initiatives. Of prime concern is the need to understand and realise the benefits that can be gained from enabling Government legislation, processes and systems outwards towards citizen groups – not merely doing so for the sake of technology change. Notwithstanding the importance of, leveraging such benefits to support a strategy of e-inclusion that, is seen at the genesis of eGovernment realisation. The authors believe a consistency in determining and engendering organisational change within and throughout local Government authorities ultimately drives the adoption of eGovernment although, the risk here is often leaving it to a passionate few to pursue this agenda. This was further shown in terms of a diagrammatic representation of Decision making, Evaluation Methods, Performance Assessment and Practitioner Concerns factors, broken down into quantitative and qualitative issues.

The authors therefore also suggests that the canvassing of stakeholder opinion with regards to the ICT embodiment of organisational processes is a key to eGovernment initiative adoption and which provides the basis for accurate and relevant benchmarking of eGovernment success metric data. This once again underlines the fine balance between the inclusion of social and non-social factors, which combined together, form the antecedents of success and/ or failure of such an ICT-based approach. As such, the lessons learnt in analysing the given case studies within the given initiatives presented in this paper, seek to help improve evaluation practice within this milieu.

Political, Economic, technical and social issues ultimately drive the evaluation cycle and the appetite that exists (or not) for evaluation and resulting organisational learning to take place. Without considering such factors and the interplay that exists between them, little progress will be made in making evaluation synonymous with project management; from the start of the project through to its end or, integration with another.

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