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COSTS AND BENEFITS OF E-GOVERNMENT: IDENTIFYING PUBLIC BENEFITS

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In 2004 the OECD E-government Project undertook work on the "business case" for e-government that developed a preliminary checklist for measuring the financial costs and benefits of e-government. The results are presented in Chapter 4 of the forthcoming OECD publication, "E-government for Better Government" [GOV/PGC/EGOV(2005)1]. Countries requested that the OECD deepen and broaden work in this area.

This paper is the first step toward meeting that request. It is a scoping paper that looks at the public benefits of e-government, and makes tentative suggestions as to how these might be measured. In considering the paper, countries are asked to comment on the approach being taken, looking at how useful it is in assisting understanding of the nature of public benefits of e-government, and at the feasibility of developing the proposed indicators for measuring them. Once finalised, this paper will contribute to wider work on the costs and benefits of e-government being proposed under PGC/GOV/EGOV (2005)5.

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COSTS AND BENEFITS OF E-GOVERNMENT: IDENTIFYING PUBLIC BENEFITS

Background

In 2004 the OECD E-government Project undertook work on the "business case" for e-government. This work looked at how countries are trying to demonstrate the return on investments in e-government by developing methodologies for measuring and evaluating e-government (i.e. by developing business cases).

E-government can be very costly to implement, and is inherently risky due to both its dependence on ICTs and the accompanying organisational, cultural and business process changes that are needed if they are to have proper impact. Basing e-government investment decisions on robust business cases is of critical importance as they not only provide a justification for e-government investment decision-making at every stage of implementation, but also help to provide criteria for evaluating and managing risk and, ultimately, the success or failure of e-government initiatives.

The 2004 work revealed that OECD countries currently utilise a variety of methods to evaluate e-government initiatives, including both economic and non-economic assessment methods. The fact that so many different methods are used makes it difficult to compare projects from one country to the next.

Despite the differences in methodology, in discussions between member counties there was a consensus that more cost benefit analysis of e-government can help better target scarce funds, build support and political will for e-government and decrease the risk of failure. Current data showed that benefits exist at all four levels of the e-government maturity model (information, interaction, transaction and data sharing/transformation), and that the largest benefits were related to transformation initiatives, or those which change the way in which government does business in order to make gains in efficiency and effectiveness. These benefits exist both for users of government, and for government itself.

The work done in 2004 resulted in development of checklists of the financial, or otherwise relatively easily measurable, costs and benefits of e-government. At the end of this work, member countries agreed that many challenges remained to be addressed, and requested that the OECD do further work in this area. In particular, it was seen that e-government provides not only benefits to government, citizens and businesses, but can also deliver broader public benefits to society as a whole, for example in terms of increased trust in government. These benefits are among the hardest to measure and generally have not been included in current e-government evaluations.

Purpose of this paper

This paper is the first step toward meeting member countries' request for further work on the costs and benefits of e-government. Developed for the OECD Secretariat by Mr Paul Foley of De Montfort University in the UK, it is designed as a scoping paper that looks at different dimensions of the public benefits of e-government, and makes tentative suggestions as to how these might be measured. The paper is intended to generate preliminary discussion between member countries and the Secretariat as part of wider consideration of the OECD proposal for work on this subject during 2005/05 (see: PGC/GOV/EGOV (2005)5). Once refined, this paper will contribute to that work.

In considering this paper, member countries are asked to comment on the approach being taken by the author, looking at how useful it is in assisting understanding of the nature of public benefits of e-government, and the feasibility of the proposed indicators for measuring them. The Secretariat is particularly interested in comments on the following:

- Do countries agree with the proposed approach to defining public benefits?
- Are each of the three areas of public benefit (services, outcomes, trust and legitimacy) given adequate treatment (in the context of this being a scoping paper)?
- How clear are the linkages being made between public benefits and the proposed indicators?
- Would it be helpful to show how the proposed indicators are linked to public benefits?
- Is access a subset of value associated with improved services or outcomes or a separate category?
- Does the paper adequately examine the extent to which improved access to and/or quality of services impacts on public benefits (especially trust and legitimacy), and what the relationship between these variables is? Under what assumptions should quality or access be considered as separate factors impacting public trust?
- Would it be helpful to further develop people's role in relation to government with regard to the issue of trust? Or, as the paper suggests, is trust more related to improving user satisfaction through better services and outcomes?
- Does the paper frame the discussion of the public benefits of e-government within the goal of capturing those benefits that are not covered by discussions of the financial or economic benefits?
- Can countries provide any examples of public benefits arising e-government that may support the further development of the ideas in the paper?

1 Introduction

1.1 Aims and Objectives

Information and communication technologies (ICTs) have underpinned reforms in many areas, and e-government[1] is widely perceived to be fundamental to reform, modernisation and improvement in government. However, the business case for e-government projects, and the real costs of the benefits attained by e-government, has rarely been evaluated and many studies have acknowledged the need for improvements in this area (OECD, 2003).

The importance of governments' efficiency and program effectiveness gained momentum from the 1970's onward, culminating in the activities of the 'new public management' and 're-inventing government' movements (Holzer et al, 2003). Concerns about decreasing levels of trust in government throughout the world have been one element stimulating a growing interest and emphasis on citizen and user satisfaction. Research into so-called hard indicators, such as resources and outputs to monitor effectiveness and efficiency, has recently been complemented by a growing interest in the introduction of soft indicators examining user satisfaction and trust (Bouckaert and Van de Walle, 2003).

Previous work completed by the OECD identified methods and financial measures to investigate harder indicators and the impact and economic case for e-government.

This paper develops on this previous work by providing answers to three questions:

- What other (primarily non-financial or softer measures) public benefits can governments expect from e-government?
- How can these softer indicators be identified, categorized and measured?
- What proxy measures exist for providing an estimate of public benefits?

[1] Defined by the OECD as "the use of information and communication technologies [ICT], and particularly the Internet, as a tool to achieve better government." OECD, 2003 p11

Non-financial measures are important because they address significant, but less tangible issues, such as service quality, customer satisfaction, flexible delivery, transparency of operations, partnership and environmental issues that are important to the citizen or society. These frequently get omitted from financial measures concentrating on harder measures. For example from an economic viewpoint there is no direct financial benefit for government in utilising ICT to offer a greatly enhanced service to users unless it reduces the cost of service provision. However, the enhanced service may provide higher levels of quality, satisfaction and transparency for the user with a reduction in environmental impact. These may be significant outcomes for users and greatly enhance their opinion and trust in government, encouraging them to use more e-government services in the future.

This paper also examines literature investigating whether improvements in service provision by government can enhance public trust in government. This is a particularly important consideration since ICT has the capability to enhance service quality and other softer non-financial outcomes and this might help to restore falling levels of public confidence and trust in government (Holzer et al, 2004). Issues of trust and legitimacy are accommodated in the analytical framework used to investigate non-financial measures.

The first part of this paper provides an overview of public value concepts. These have been developed to provide a framework to robustly measure the non-financial benefits that arise from the introduction of e-government. This section considers value creation for users and also examines the role of government performance in influencing public trust.

The second part provides an overview of balanced scorecard techniques and develops 76 measures for public benefits. Reasons why measures have been selected and how they relate to public value concepts are presented. This section will form one element of the questionnaire to be distributed to OECD member countries.

2. Defining the public benefits of e-government

2.1 Why examine the public benefits of e-government?

Discussions at an OECD workshop in September 2004 highlighted the importance of examining non-financial benefits, such as service quality, transparency and environmental benefits that arise from the development of e-government. The impact of improvements in these types of factors in restoring confidence and trust in government during a period of change for many governments was thought to be significant. This study, investigating the wider non-financial benefits of e-government, was therefore commissioned.

All OECD governments are facing issues of public management modernisation and reform. ICTs have underpinned reforms in many areas and e-government is widely perceived to be fundamental to reform, modernisation and improvement in government (OECD, 2003).

Policymakers, policy advisers and practitioners need to be better informed about the costs, benefits, risks and outcomes associated with e-government. The business case for e-government projects has rarely been evaluated and OECD countries acknowledge the need for improvement in this area.

Importantly, in the context of several decades of declining public confidence and trust in government (Holzer et al, 2004), it essential to consider the impact that improved service quality through the development of e-government service provision might have in improving citizen confidence and satisfaction with government. Nye (1997) asserts that the cumulative downward spiral in trust could erode democracy as a form of governance. Nye (1997) highlights that if people believe that government is incompetent and cannot be trusted, they are less likely to provide such crucial contributions as taxes, voluntary compliance with laws, and bright young people will not be willing to go into government. The spiral is reinforced because without these resources government cannot perform well and people will become even more dissatisfied and distrustful.

The ability of e-government to improve service quality therefore has benefits that may extend beyond a simple improvement in effectiveness or efficiency.

2.2 Economic Benefits of e-government projects

Numerous studies have reported results from research evaluating the economic impact of e-government projects (IAC, 2003, NOIE, 2003, OGC, 2003). The range of benefits and returns on investment identified was extensive and it was rarely possible to make comparisons between studies due to the differing methodologies and measures adopted.

The OECD work undertaken in 2004 highlighted that, at the most basic level, studies of the economic case for e-government can be presented simply as:

(Government benefits + User benefits) - (Government cost + User cost) =

Cost / Benefit Impact

A comprehensive checklist for each of the four cost and benefit elements of the above equation was developed. The checklists and recommended methodologies focussed predominantly on the economic impact of e-government. Our research demonstrated that considerable economic benefits can arise from e-government, particularly for services that are transformed by the introduction of ICT.

However, this previous research did not investigate non-financial measures. It is evident that a checklist of other (primarily non-financial) public benefits or values will provide a valuable complement to this earlier work. This paper provides a first attempt to draw together two strands of literature (public value and public sector scorecards) that address issues associated with recording these broader public benefits.

2.3 Public Value and non-financial benefits

Public value refers to the value created by government through services, laws regulation and other actions. The value added by government is the difference between these benefits and the resources and powers which citizens decide to give to their government (Kelly et al, 2002).

The concept of public value provides a useful way of thinking about the benefits, goals and performance of public policy. It provides a yardstick for assessing activities produced or supported by government (including services funded by government but provided by other bodies such as private firms and non-profit organisations, as well as by government regulation).

Much of the new public management reform agenda that dominated the 1980s and 1990s was premised on the applicability of management techniques across both public and private sectors. This approach led to some important gains, such as the elevation of consumer interests and the clarification of objectives and responsibilities. However, new public management practices often emphasised narrow concepts of cost-efficiency over other considerations (i.e. the focus was on technical rather than allocative efficiency). Those things that were easy to measure tended to become objectives and those that couldn't were downplayed or ignored. However, improvements in efficiency were not synonymous with increases in public value.

Public value provides a broader measure than is conventionally used within the new public management literature, covering outcomes, the means used to deliver them as well as trust and legitimacy. It addresses issues such as equity, ethos and accountability. Current public management practice sometimes fails to consider, understand or manage this full range of factors.

Business makes use of sophisticated techniques to measure and manage value. In a private market, value is created when a business uses resources (labour and intellectual, physical and financial capital) to meet individual customer preferences that are signalled through the price mechanism.

Public value aims to provide a similar yardstick for assessing performance within the public sector. In some areas there are substantial overlaps with private value. However, most public policies and agencies have multiple objectives with no single 'bottom-line'.

For something to be of value it is not enough for citizens to say that it is desirable. It is only of value if citizens – either individually or collectively – are willing to give something up in return for it. Sacrifices are not only made in monetary terms (i.e. paying taxes/charges). They can also involve granting coercive powers to the state (e.g. in return for security), disclosing private information (e.g. in return for more personalised information/services), giving time (e.g. as a school governor) or other personal resources (e.g. blood). The idea of opportunity cost is therefore central to public value. If it is claimed that citizens would like government to produce something, but they are not willing to give anything up in return, then it is doubtful that the activity in question will genuinely create value.

2.4 The components of Public Value

This section sets out in more detail some of the key building blocks of public value. It also outlines what generates value in these areas. By reviewing these building blocks it is possible to understand how they inter-relate, how e-government service provision can generate value and thus emphasise the wider public benefits of e-government.

There are many things which government can do which are valued by the public. Public service theorists assert that the key things which citizens tend to value fall into three broad categories:

- Services.
- Outcomes.
- Trust and legitimacy.

These overlap to some extent. However, they provide a useful way of thinking about the dimensions of public value explored in more depth throughout this paper.

The remainder of this section considers some of the ways value is created in each of these three categories

2.4.1 The value created by services for users

Evidence suggests that user satisfaction is likely to be shaped by a wide range of factors.

- ***Customer service***: Private sector studies have highlighted that the way people are treated by staff ranks only just behind quality and price of product in determining their satisfaction.
- ***Information***: There is a strong correlation between satisfaction with different services and whether people feel they are well informed about them.
- ***Choice***: There is some evidence that enhanced levels of choice can boost user satisfaction, even if it does not have a discernible impact on service outcomes.
- ***Use of services and advocacy***: Whether people have used specific services, as opposed to only hearing about them through the media, is significant in determining their satisfaction.

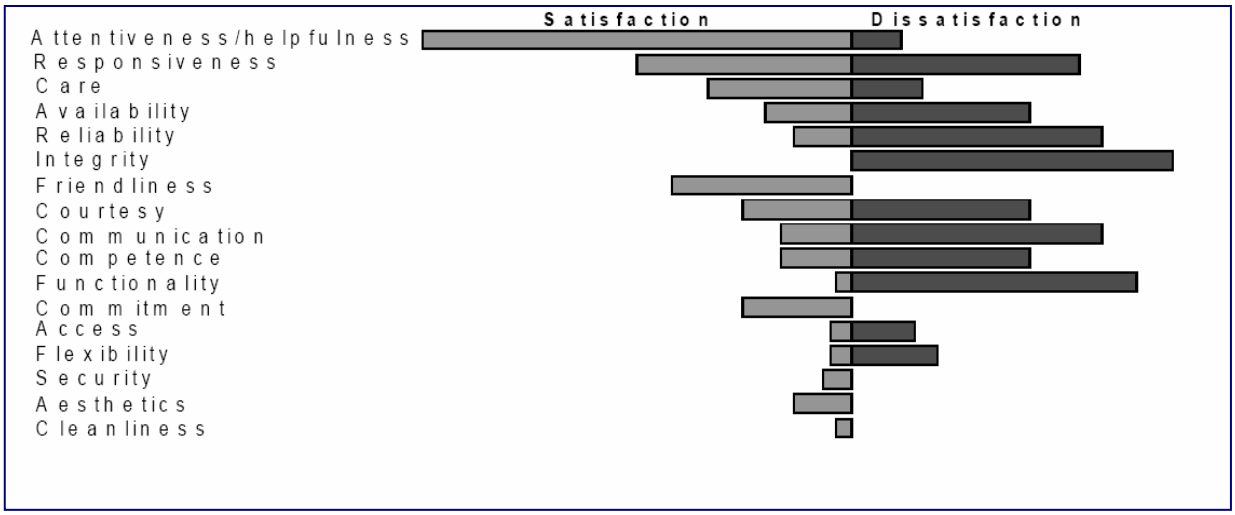
All of these are important in the context of enhancements that can be provided by e-government. Customer service can be improved and a more personalised service provided through the use of ICTs. Government emails, portals and better search technologies found on the Internet have the potential to provide users with more information. The ability of e-government to provide new service delivery channels and 24/7 access will enhance customer choice. Cross-sell opportunities will also be enhanced and lead to greater use of services as more personalised information is known about users and services are better targeted at potential new users.

User satisfaction and dissatisfaction with services is influenced by many factors. Maximising value through service provision requires an understanding of what is most valuable to the public in a given service. The Canadian Government's "Citizen-Centred Service" work argues that five factors account for 72 per cent of variation in satisfaction levels across all services (Kelly et al, 2002). In order of importance these were found to be**:**

- Timeliness.
- Knowledge of staff?
- Courtesy/comfort.
- Fairness.
- Outcome.

In the UK a MORI survey found that there is not a simple linear relationship between improving key aspects of a service and increasing satisfaction, see Figure 2.1. Some factors create dissatisfaction if they are not present, but will not make people feel more satisfied if they increase, and vice versa.

Figure 2.1. Factors driving satisfaction and dissatisfaction



Source: mori.com quoted in Kelly et al. 2002

Evidence from the UK and Canada shows satisfaction with all specifically named services, and among service users, is substantially higher than for services in general. For example, in the UK 80 per cent of users of local secondary schools are very or fairly satisfied, but only 30 per cent of the general population are very or fairly satisfied with secondary schools (Kelly et al. 2002). These findings, along with evidence that people are increasingly inclined to trust those close to them rather than institutions, point to advocacy by service users as a potential tool for boosting satisfaction. Private sector research indicates that advocacy by staff is a potentially powerful tool for developing strong trust in services.

E-government services can enhance many of the components of service quality highlighted by the Canadian and UK study, particularly timeliness, responsiveness, availability and improved outcomes. But human dimensions of service quality (staff knowledge, helpfulness, care and courtesy) also appear to be important in enhancing customer satisfaction. When developing new e-government services or channels some of these elements may be eliminated. However, where they remain it will still be important to develop employee skills in these areas or to utilise ICT to enable employees to provide a better quality service. The role of employees is therefore still important in enhancing e-government service, in utilising ICTs to provide a better quality services or through advocacy about the quality of services. For this reason the

inclusion of employee and managerial factors amongst measures of service and operational efficiency are essential, see section 3.

2.4.2 The value of outcomes

The public has always seen outcomes as a core part of the contract with government. For example, there is value in safe streets beyond the quality of police services, benefits to low unemployment over and above quality of service offered by the employment support agencies and gains from having a healthy population over and above those enjoyed by users of a high quality State health services.

It is important to highlight that public value is frequently produced as a joint effort between citizens and government. Government alone cannot deliver lower crime and better health; social norms of behaviour are critical.

Governments have increasingly sought to focus attention on outcomes. Public Service Agreements (PSAs) and Service Level Agreements (SLAs) and other targets to specify the outcomes have become commonplace. Genuine outcomes are seen as better targets than narrower outputs or activity measures, which risk being distorted. In some areas funding has been more closely tied to outcomes, drawing on extensive experiments with different forms of outcome-related funding. In recent years outcome targets have become increasingly sophisticated. The outcome measures used in this study are discussed in section 3.

Outcomes in the context of e-government predominantly concern customers, suppliers and the environment. Enhancing outcomes or providing a higher quality service is thought to improve trust in government but the relationship between enhanced outcomes and trust is unclear.

Kampen et al (2003) in a quantitative study of factors influencing trust and government in Belgium found that respondents divide governmental institutions in Belgium into two distinct clusters. The first cluster combines the political institutions, such as the organs of the federal and regional governments (parliament and cabinet), the European Commission and the political parties. The second cluster combines the public administrations (local, regional and federal) and the public services, ranging from the police to the public transport companies. The study found that satisfaction with federal government and the working of democracy in Belgium have an impact on the level of trust, but that the largest effect comes from satisfaction with the public administrations and the services they provide.

A Canadian Study (Institute for Citizen Centred Service, 1998) found a similar strong positive correlation between satisfaction with services and overall opinions of government. These results appear to confirm that there is a role for ICTs in improving the quality of public administrations and the services they provide and that this can have a positive impact in improving citizen satisfaction and trust.

Conversely, a study undertaken by the Pew Research Centre in the US (1998) found that in a period where trust in federal government had fallen, satisfaction with the services provided by 19 agencies had risen significantly. Other commentators (Bouckaert and Van de Walle 2001; Kelly et al 2002; Bouckaert, 2003) suggest that the relationship between service provision and trust is highly complex and unclear.

Finally, it is important to highlight the opportunities provided by e-government for cross-selling pertinent services to customers that may not already be using them. Cross-selling can further enhance the use of government services and enhance the cost effectiveness of e-government through higher levels of adoption of services. Indeed, one important outcome from the use of ICT is the ability to better target individuals with services that might be of interest to them or the ability to better personalise services that they do use, thus enhancing service quality and satisfaction.

2.4.3 The value of trust and legitimacy

The third main source of public value is trust, legitimacy, and confidence. Trust is a complex and multi-dimensional concept, and an important focus for this paper. The causal link between trust and good government is a contested one (Braithwaite and Levi, 1998; Christiansen and Lægreid, 2003; Donovan and Halpern, 2002; Lægreid, 1993; Rothstein and Stolle, 2002; Kampen et al, 2003).

E-government has the capability to provide greater support for communities and individuals as they assume a variety of roles, see Table 2.1. The role as customers, and the relationship between enhanced customer satisfaction and trust, was discussed in the previous section.

Table 2.1 People's role

Role	Key Element of role	Main implications for user-focused e-government
Customer	Transaction	Delivering services based on meeting customers' needs, not those of service providers.
Subject of the State	Law (Enforcement) and Order; State exercise of coercive power. Mandatory payment (taxpayer).	Allowing obligations to be met easily and efficiently. Providing fairness and transparency, and efficient use of taxpayers' resources.
Citoyen	Direct Participation (e.g. input to policy making)	Allowing fair access to government information, and ability to effectively express opinion.
Voter	Indirect Participation (i.e. participation through representative mechanisms)	Ensuring integrity and legitimacy of process.

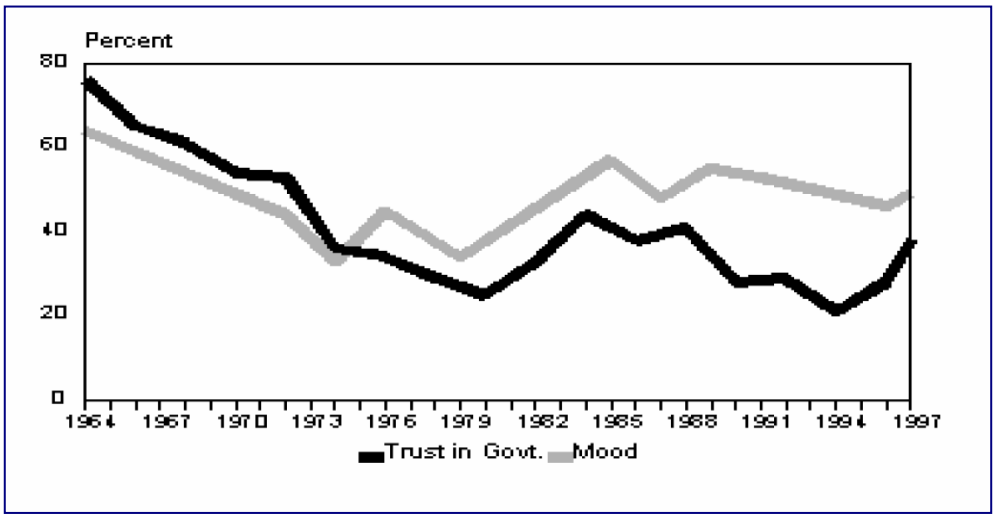
Source: H van Duivenboden (2002) Responsive e-government Services: Citizen Participation in Public Administration-The Impact of Citizen Oriented Public Services on Government and Citizen;; (OECD unpublished draft).

This section considers more formal democratic and participative concepts, particularly the impact of e-government on communities and individuals in their roles as *citoyens* or as voters (Duivenboden, 2002). *Citoyens* directly participate in government through obtaining information and participating in policymaking. As voters many also have direct participation in legitimating the democratic process. Whatever the role of an individual (customer, subject, *citoyen* or voter) the use of government services or information should provide them with opportunities to be better informed, view a more transparent governmental system and participate through more channels in the policy making and participative democratic process.

The previous section noted the dichotomy observed by Kampen et al (2003) in factors affecting citizens' trust in government. Kampen's work identified a higher level of national and regional government and a second 'government' group associated with the provision of services. This study found that largest effect on trust comes from satisfaction with public service provision.

Commentators (Bouckaert and Van de Walle 2001) have noted a similar dichotomy between influence of central political and administrative leaders on trust and the trust inspired by core political and administrative institutions. Figure 2.2 shows the decline of Trust in America in the mid 1970's post Watergate era. Trust can also vary according to Zeitgeist or "fashions"; in certain periods it is taken for granted that government can or cannot be trusted (Czarniawska and Sevon 1996).

Figure 2.2. Trust in government and national mood in the US



Source: The National Elections Studies and Pew Research Centre.

(Note: Trust response shows the percentage of respondents replying that they trust Federal government 'most of the time' or 'just about always')

Trust is also influenced by contextual and socio-demographic factors. People in more advantaged social positions, be they occupational, educational, economic or contextual (associated with social deprivation), tend to have greater propensity for civic engagement and stronger networks for social support. These individuals also tend to trust people more and have greater overall satisfaction with work and life (Li et al, 2003)

Wider social changes, world events, service levels and the behaviour of political leaders and institutions all have a part to play in determining the confidence and trust of individuals in government. Actions that seek to boost trust by delivering on one of these dimensions may be affected by, or even undermined by changes in one of the others. Nonetheless, it seems obvious that e-government has the ability to provide a more positive attitude to trust in government against any of Duivenboden's (2002) four people roles through improved customer service, the provision of more information and participation, and through e-voting.

3. From concepts of public value to metrics

3.1 Introduction

Much of the literature provided in the previous section, examining public value and government trust, is notable for its lack of measures or metrics to examine components of the three broad categories that underpin citizen value:

- Services
- Outcomes
- Trust and legitimacy

To overcome this anomaly a second body of literature (founded on balanced scorecards and public sector scorecards), rich with measures but somewhat weaker on theory, has been utilised. This section outlines the way in which these two bodies of literature have been brought together to provide a framework to categorise and measure the non-financial or softer indicators of public benefits that can be expected to arise from e-government.

Debate about the merits of each of the aggregate or individual measures and the inclusion of some that might have been omitted is essential. This list is regarded as a starting point for discussion, rather than an end itself.

3.2 Balanced scorecards and public value

Understanding public preferences is important in developing policies and evaluating service delivery and benefits. Establishing underlying public preferences about what is valued, and to what degree, involves reasoned and deliberative processes as well as snap-shot opinion polling or voting.

Key issues for policy makers trying to find measures for public value include:

- Identifying whose preferences should count: current users, those who might need a service (even if they are not aware of it), future users, those who will never use it.
- Identifying the issues on which the public will want to be involved.
- Providing forums in which citizens/groups can learn about issues, express views, explore scenarios and seek to reach accommodations that can inform policy.
- Recognising the limits of 'revealed preferences'. Some methods examine policy trade-offs, these don't rely on cash as the only unit of comparison.

Balanced scorecards and *public sector scorecards* have been developed to examine performance in organisations that exist in an environment that does not have a simple profit based metric of success. Scorecards weigh up all the different factors that contribute to a valuable overall outcome. Some government bodies are beginning to use these approaches.

The public sector scorecard is a performance measurement and management framework specifically designed for the public and voluntary sectors. It is based on the balanced scorecard (Kaplan and Norton, 1992) which has proved highly successful in the private sector. The main difference between the public sector scorecard and the balanced scorecard is the incorporation of an additional 'strategic perspective' in the public sector scorecard that examines the organisation's progress against its main aims and objectives (Moullin, 2002).

Moullin (2004) argues that this is vital in the public sector since unlike the private sector financial performance is not the undisputed primary objective. There are also several differences in methodology. The public sector scorecard places additional emphasis on stakeholder satisfaction and contribution, on process mapping and risk management – all of which are of considerable importance in the public sectors.

3.3 Public sector scorecards and public value

Much of the seminal public value literature is notable for its lack of any measures to assess public value (Moore, 1995 and 2003). In comparison the scorecard literature provides a plethora of measures. Careful review of measures, particularly Moullin (2002) and Neely and Adams (2004), found considerable complementarity between public value concepts and scorecard measures. In addition, support from the UK e-government Unit and Improvement and Development Agency provided additional variables, ideas and measures.

It was therefore possible to draw up a preliminary list of metrics to measure key factors underlying the three public value categories.

- Services and operational efficiencies.
- Outcomes.
- Trust and legitimacy.

It is important to highlight that the public value literature acknowledges that there is overlap between the three groups and value foci. The overlap in category emphasis still remains in checklist tables, but double counting has been eliminated by careful cross-checking of measures.

The public value concept of services provides a narrow focus on direct service provision. Our previous work (Foley, 2005) has highlighted the direct and indirect efficiency gains that can arise from e-government service provision. Many of the direct financial efficiencies were included in our previous work. The new checklists (pages 27 - 30) include only non-financial or softer measures that can be used to operationalise the three public value categories proposed by analytical framework put forward in this paper.

Each of these three factors and their constituent elements is considered in the remainder of this section. Methods to measure many of the 76 metrics have already been developed by scorecard literature.

3.4 Services and operational efficiencies measures

Services and operational efficiencies indices focus on four main factors involved in providing the product or service. Outcomes or benefits to users arising from service provision are considered in the next group of measures.

40 service and operational efficiency measures are proposed to investigate the four key public sector factors of production, these are:-

- **Employees** (9 measures)
  - Employee satisfaction
  - Employee training and skills
- **Management** (18 measures)
  - Management information and knowledge
  - Management conformity
  - Management costs and revenue
  - Management best practice
  - Management innovation
- **Suppliers** (2 measures)
  - Supplier services
- **Technology** (11 measures)
  - Technology cost and utilisation

The public value literature (see 2.4.1) highlighted that helpful and responsive staff and the way users are treated by staff can have a large impact on customer satisfaction. For this reason employee satisfaction and training to enhance skills are investigated using nine measures. Enhanced employee satisfaction, perhaps achieved through better skills development or the back-office automation of routine administrative tasks is important. Higher employee satisfaction can increase customer satisfaction by 38 per cent and productivity by 22 per cent (Gallup research of twelve work place studies; Kelly et al, 2002).

The ability of management to better meet customer needs is an essential component of service quality in both the private and public sectors. Better utilisation of customer *information* should facilitate better planning to enable more efficient service provision to better meet customer needs. The introduction of *conformity* in the form of multiple channels for service delivery and the introduction of standardisation enhances choice and quality, both important factors highlighted in section 2.4.1. Another factor thought to be important for customer satisfaction in consumer surveys was fairness and integrity. Measures to

investigate these issues, such as fraud reduction and enhancement of tax revenues are therefore included alongside other *cost and revenue* measures.

Adoption of *best practice* and *management innovation* is important in ensuring e-government technologies are introduced successfully and effectively to meet customer concerns such as timeliness, choice, availability, reliability and security. These concerns are also important considerations in measures examining the *utilisation of technology*, in the final sub-group of measures examined by these metrics.

3.5 Outcome measures

Outcome measures focus on four main groups or recipients affected by e-government services – the environment, suppliers and users. Many of the measures, particularly those examining user services operationalise factors associated with customer satisfaction. Section 2.4.2 noted the importance of these factors and the as yet undetermined impact they may have on improving trust in government.

The 21 outcome measures are:

- Environmental considerations (6 measures).
- Supplier services (1 measure).
- User services (14 measures).
  - User service delivery.
  - User service use.
  - User wellbeing.

Environmental measures consider the role that e-government can play in reducing waste and resource consumption. Some of these outcomes are amongst the small handful, of the 76 suggested, that could be developed into financial measures.

The largest group of measures in this section concern *user services*. The ability of e-government to provide a better choice of higher quality services, more reliably, with personalisation are all important outcomes from the development of e-government. These should lead to enhanced customer satisfaction. Measures developed to investigate user outcomes include greater choice, convenience, time-saving, tracking and cross-selling opportunities.

3.6 Value and trust measures

The final group of measures focus on increasing trust amongst communities, suppliers and users. Some of the factors overlap with the preceding section. Measures relating to trust focus more closely on direct participation in the democratic or policymaking process (these embrace Duivenboden's [2002] view of people as *citoyens* or voters). Customer oriented factors enhancing trust through improved customer satisfaction were investigate in section 3.5.

The 15 trust and legitimacy measures are:

- Community consultation and partnership (4 measures).
- Supplier services (2 measures).
- User consultation and communication (7 measures).
- User complaints (2 measures).

The public value literature (see 2.4.3) highlighted the role that individuals can play as customers, subjects, *citoyens* and voters. Many of the outcome measures developed for this study accommodate these

four roles. Community measures highlight the role that e-government can play in improving community relations and providing information to individuals and communities so that they take a more informed role in the policy making process (as *citoyens*).

The public value literature (see 2.4.3) noted the two tiered nature of the relationship between trust and the public sector. Trust and legitimacy measures focus on both tiers - core central or regional political institutions and local administrations. However, the focus of user consultation factors in this group of metrics is more closely associated with activities and perceptions of core institutions. Measures investigate increases in information, transparency and improved images of the public sector.

Supplier services focus on supplier satisfaction and relationship stability. *User complaint* reduction is beneficial because it reduces costs and resolves conflicts.

3.7 End note

This initial list is not expected to be comprehensive. The support of member countries in refining the checklists will be sought.

ANNEX 1

Services and operational efficiency measures

Focus	Sub-group	Code	Measure
Employees	Employee satisfaction	E.1	Greater employee satisfaction
Employees	Employee satisfaction	E.2	Enhanced employee turnover loyalty
Employees	Employee satisfaction	E.3	Absenteeism reduction
Employees	Employee satisfaction	E.4	Willingness of employees to recommend employer
Employees	Employee training and skills	E.5	More efficient use of skills
Employees	Employee training and skills	E.6	Transferability of skills and training
Employees	Employee training and skills	E.7	Skills coverage
Employees	Employee training and skills	E.8	Skills inventory gap
Employees	Employee training and skills	E.9	Staff reassigned to more productive roles
Management	Management information & knowledge	M.1	Information accuracy improves planning
Management	Management information & knowledge	M.2	Better knowledge of customer needs and services
Management	Management information & knowledge	M.3	Improved information accuracy / reduced data entry
Management	Management information & knowledge	M.4	Increased effectiveness of advertising
Management	Management conformity	M.5	Product standardisation

Focus	Sub-group	Code	Measure
Management	Management conformity	M.6	Increased resilience through multiple channels
Management	Management costs and revenue	M.7	Increased revenue streams / sales
Management	Management costs and revenue	M.8	Increased tax collection
Management	Management costs and revenue	M.9	Reduced fraud
Management	Management costs and revenue	M.10	Improved capital assets monitoring and management
Management	Management costs and revenue	M.11	Improved ability to track resources
Management	Management best practice	M.12	Better implementation of best practice
Management	Management best practice	M.13	Best practice coverage
Management	Management best practice	M.14	Increased frequency of best practice audits
Management	Management best practice	M.15	Best practice transfer
Management	Management innovation	M.16	Greater flexibility to improve enhance services
Management	Management innovation	M.17	Better innovation success rate
Management	Management innovation	M.18	Reduced technology introduction time
Suppliers	Supplier services	S.3	Number of alternative suppliers
Suppliers	Supplier services	S.4	On time payment of suppliers
Technology	Technology cost and utilisation	T.1	Infrastructure provides economies of scale (modules)

Focus	Sub-group	Code	Measure
Technology	Technology cost and utilisation	T.2	Better asset utilisation
Technology	Technology cost and utilisation	T.3	Enhanced overall equipment effectiveness
Technology	Technology cost and utilisation	T.4	Reduced cost of infrastructure acquisition
Technology	Technology cost and utilisation	T.5	Reduced maintenance costs
Technology	Technology cost and utilisation	T.6	Reduced cost of equipment breakdowns
Technology	Technology cost and utilisation	T.7	Reduced equipment replacement time
Technology	Technology cost and utilisation	T.8	Improved infrastructure age/condition
Technology	Technology cost and utilisation	T.9	Reduced web site downtime
Technology	Technology cost and utilisation	T.10	Greater geographical coverage of infrastructure
Technology	Technology cost and utilisation	T.11	Reduced research and development spend

Outcome measures

Focus	Sub-group	Code	Measure
Environment	Environmental considerations	V.1	Environmental legislation compliance
Environment	Environmental considerations	V.2	Energy raw material consumption reduction
Environment	Environmental considerations	V.3	Accommodation savings (due to less employees)
Environment	Environmental considerations	V.4	Reduction in communication costs (print and phone)
Environment	Environmental considerations	V.5	Supplier waste minimisation
Environment	Environmental considerations	V.6	Environmental protection spending reduction
Suppliers	Supplier services	S.5	Improved standards in industry
Users	User service delivery	U.10	Better quality of service
Users	User service delivery	U.11	Improved delivery reliability
Users	User service delivery	U.12	Better service consistency
Users	User service delivery	U.13	Tailored service / personalisation
Users	User service delivery	U.14	Better choice of appointment date / time
Users	User service use	U.15	Increased choice / service access

Focus	Sub-group	Code	Measure
Users	User service use	U.16	Increased time availability of services / convenience
Users	User service use	U.17	Increased channel choice
Users	User service use	U.18	24/7 status tracking
Users	User service use	U.19	Reduced transaction time-savings
Users	User service use	U.20	Increased customer reach, including social inclusion
Users	User service use	U.21	Enhanced customer retention and loyalty
Users	User service use	U 22	Enhanced opportunities to cross-sell eServices
Users	User wellbeing	U.23	Reduced time in unemployment

Trust and Legitimacy Measures

Focus	Sub-group	Code	Measure
Community	Community consultation & partnership	C.1	Improved community relations
Community	Community consultation & partnership	C.2	Greater support for local communities
Community	Community consultation & partnership	C.3	Better partnership with community groups
Community	Community consultation & partnership	C.4	Reduced expenditure on stakeholder relations
Suppliers	Supplier services	S.1	Improved supplier satisfaction
Suppliers	Supplier services	S.2	Greater stability of customer-supplier relationship
Users	User consultation and communication	U.1	Better communication with stakeholders
Users	User consultation and communication	U.2	Increased access to information
Users	User consultation and communication	U.3	Improved consultation
Users	User consultation and communication	U.4	Increased customer feedback / suggestions
Users	User consultation and communication	U.5	Increased transparency of processes
Users	User consultation and communication	U.6	Improved experience when dealing with Government
Users	User consultation and communication	U.7	Improved image of public sector
Users	User complaints	U.8	Better customer complaint resolution
Users	User complaints	U.9	Customer complaint reduction

ANNEX 2

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