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eGovernment Economics Project
(eGEP)

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Measurement Framework Final Version

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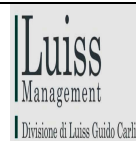


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Executive Summary

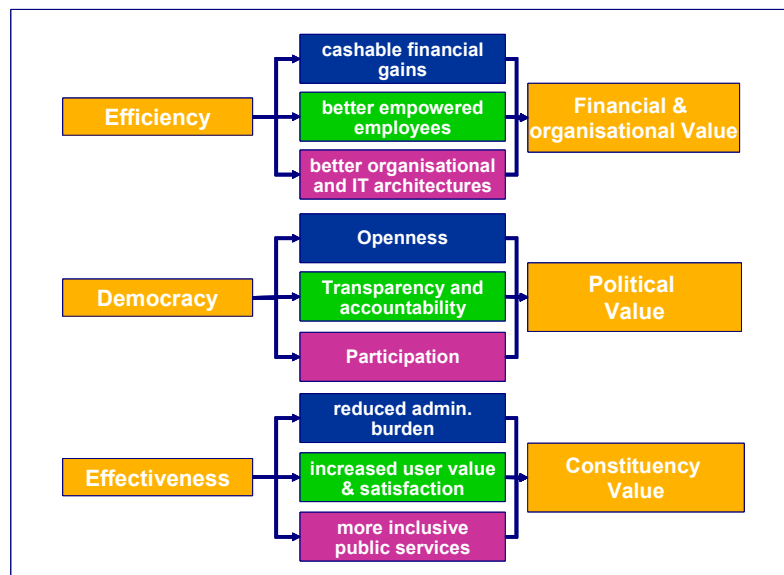
eGEP Measurement Framework (henceforth MF) is strongly rooted in a thorough analysis of existing methods. The elaboration of the MF model, of the measurement indicators template and of the implementation methodology has greatly benefited from an in-depth and comparative analysis of the following national measurement methodologies:

- ❑ The Danish *eGovernment Signposts* methodology;
- ❑ The French *Mareva* methodology;
- ❑ The German *WiBe 4.0* methodology;
- ❑ The Dutch *Monitor: Multiple Use of Information*;
- ❑ The UK business case methodology.

This analysis shows that, while national peculiarities and strategic priorities shape the more relevant differences, some common grounds can be found amongst them. This has inspired our elaboration of the measurement indicators full template which includes several items considered in the above listed methodologies.

The Measurement Framework Model is built around the three value drivers of **efficiency**, **democracy**, and **effectiveness** and elaborated in such a way as to produce a multidimensional assessment of the public value potentially generated by eGovernment, not limited to just the strictly quantitative financial impact, but also fully including more qualitative impacts.

eGEP Measurement Framework Analytical Model



In light of the comparative analysis of the relevance, cost and comparability of the needed data sources, from the full template (consisting of 92 impact indicators reported in Annex A), a number of indicators have been selected and deemed suitable for EU25 benchmarking of i2010 eGovernment Signposts.

Benchmarking Indicators for i2010 eGovernment Signposts

| Sign-posts | INDICATORS |
|------------|--|
| 1 | 1.1 Usage of eGovernment services by socially disadvantaged groups |
| | 1.2 Public websites degree of compliance with international accessibility standards |
| 2 | 2.1 Users' satisfaction with eGovernment services |
| | 2.2 Amount of information requested from citizens and businesses |
| | 2.3 Number of transactions fully completed online |
| 3 | 3.1 % of public procurement above the EU threshold available electronically |
| | 3.2 % of public procurement above the EU threshold carried out electronically |
| 4 | 4.1 Number of transactional public services with legally binding and mutually recognised eID |
| | 4.2 Number of functioning pan-European online services |
| 5 | 5.1 eParticipation sophistication index |
| | 5.2 Number of Unique Users of Online Forum |

More complex and time consuming indicators are proposed for more qualitative and experimental exercises that we define as bench-learning. By this we mean EU supported peer-to-peer exchanges and explorations amongst selected administrations. This type of exercise would also allow an in-depth exploration of more sophisticated indicators by best addressing the comparability issue in the selection of the administrations to be involved. Clusters of administrations across the EU25 providing comparable services may voluntarily join an EU-supported programme and engage in the activity of gathering the relevant data, produce an aggregate index of the public value produced by the eGovernment service they run, and exchange their experiences. The indicators short listed for bench-learning are presented in the table below.

Short List of Indicators for Bench-learning

| Drivers | Indicators | Data Source |
|---------------|--|----------------------------------|
| Efficiency | Case handled per processing Full Time Equivalent | Administrative Records |
| | K€ Full Time Equivalent Gains | Administrative Records |
| | Saving in overhead costs | Administrative Records |
| Effectiveness | Reduced Administrative Burden: <input type="checkbox"/> K€ saved for business <input type="checkbox"/> Time saved for citizens | Standard Cost Model Calculations |

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Consortium Project Manager

1. Introduction

This final report presents the main findings of the work carried out for the elaboration of a general Measurement Framework (MF), to assess the impact of eGovernment services. Such work has delivered four basic outputs:

1. A state-of-play review of existing eGovernment impact measurement methodologies;
2. A measurement framework model;
3. Measurement indicator templates;
4. A measurement implementation methodology;

This report only briefly touches on the state-of-play review (par. 1.2) and synthetically presents the measurement framework model (Section 2), the various templates of measurement indicators with a very brief discussion of the relevant sources of data (Section 3, and Annex A), and the implementation methodology (Section IV).

More detailed and technical discussions and illustrations supporting this report can be found in the accompanying *Measurement Framework Compendium*, particularly relevant for a full analysis of the state-of-play and for an analysis of the sources of data for the measurement indicators and for guidelines on how to use them.

1.1. eGovernment Measurement: The Momentum

After at least a decade of large investments (running into billions of Euro) at digitalising the public sector, governments in Europe are still mostly unable to objectively quantify and show the benefits and returns of such investments. While there is a broad consensus on the fact that the introduction of ICT has spurred positive change, this cannot yet be documented and measured in a systematic way '...successes are already being registered' but 'much remains to be done to demonstrate economic impact and social acceptance'¹

The topic of measuring the impacts and returns of public administration investments in Information and Communication technology (ICT) in general, and in eGovernment in particular, has been constantly gaining momentum and attracting increasing interest and efforts from policy makers, practitioners, industry and academic experts. A recent Economist Intelligence Unit survey of public sector senior executives worldwide further confirms the measurement momentum, as 69% of the respondents

¹ Communication From The Commission To The Council, The European Parliament, The European Economic And Social Committee And The Committee Of The Regions; "i2010 – A European Information Society for Growth and Employment", COM(2005) 229 final, June 1 2005, p. 9-10.

expect to measure both financial and social benefits returns of any major projects (including ICT ones) in the coming five years—and to make the results of such measurement transparent to citizens and stakeholders². The relevance of measuring eGovernment benefits and impact, going beyond the well established eEurope supply side benchmark on 20 basic online public services, did not escape the attention of the European Commission that actually contributed in setting the terms of the debate already in September 2003 in its official Communication on the role of eGovernment for Europe's future³. Ever since the publication of the mentioned *Communication*, a number of policy developments have concurred into making the measurement of eGovernment an even more pressing and relevant priority.

The European Union, in its attempt to be the catalyst for Member States, has launched the two Action Plans, eEurope 2002 and eEurope 2005, which generated a positive momentum for the short-term development of the Information Society . Five years have passed since eEurope 2002 was launched, and eEurope 2005 has already gone through review. The eGovernment SubGroup of the eEurope Advisory Group worked intensively and elaborated at its third meeting in September 2004, the so-called *CoBra Recommendations* on eGovernment beyond 2005⁴, followed about a year later by the *Signpost Towards eGovernment 2010*⁵ prepared for the 3rd Ministerial Conference "Transforming Public Services" held in Manchester (November 24-25 2005), where a new *Ministerial Declaration* was adopted formally sanctioning the commitment of all Member States to four strategic Signposts for eGovernment 2010, to which we will refer in detail in Section 3 in proposing a short-list of measurement indicators. A little earlier, in June 2005, the new *i2010* EU information society strategy had been unveiled.

All of these policy documents reinforce the need for a systematic and reliable measurement of the benefits and impact that can accrue to society through the use of ICTs by public administrations. Furthermore, the relevance of ICTs is also put in relation to the re-launch of the Lisbon Strategy. Among the causes of the slow progress towards the Lisbon goals, the mid-term review⁶ has also pointed out

² Economist Intelligence Unit, Business 2010: The public sector Embracing the challenge of change, TheEconomist Intelligence Unit, 2005 (http://graphics.eiu.com/files/ad_pdfs/Business_2010_Public_sector_WP.pdf)

³ Communication From The Commission To The Council, The European Parliament, The European Economic And Social Committee And The Committee Of The Regions; *The Role of eGovernment for Europe's Future*, COM(2003) 567 final, September 2003.

⁴ *CoBra recommendations for e-Government beyond 2005*, by the e-Government subgroup of the eEurope Advisory Group, (http://europa.eu.int/information_society/activities/egovernment_research/documentation/index_en.htm#beyond_2005, accessed February 2005).

⁵ European Commission, *Signposts Towards eGovernment 2010*, Brussels, November 2005.

⁶ See High Level Group chaired by Wim Kok , Facing the Challenge. The Lisbon strategy for growth and employment, November 2004, (http://europa.eu.int/comm/lisbon_strategy/pdf/2004-1866-EN-complet.pdf).

relatively slow adoption rates for ICTs. The 2005 Spring European Council launched the partnership for growth and jobs to revive the Lisbon Strategy and affirmed the importance of knowledge and innovation and of building an inclusive information society fostering the widest possible use of ICTs in public services, SME and households⁷.

In the light of this context the importance of measuring the concrete impact and benefits produced by eGovernment is therefore evident, as well as eventually defining their end outcomes in terms of contribution to economic growth.

Measuring eGovernment, however, is not merely something that is needed or, in a way, imposed given high level policy priorities, it is actually a very useful and strategic tool for public administration senior executives and practitioners at different levels. Measurement fosters accountability as a key element to incentive commitment to, and support for, eGovernment projects.

- **Strategies:** performance measures help agencies validate the public value generated by their eGovernment projects and best focus their strategies;
- **Communication:** measures of achieved results will meet rising public expectations, justify eGovernment projects and foster eGovernment momentum;
- **Motivation and coordination:** measurable objectives will allow better evaluation of project teams thus increasing motivation and also coordination with cooperating partners;
- **Informed Management:** a steady source of timely, reliable, and useful information on eGovernment initiatives will enable managers to take informed decisions and take corrective actions when early-warning signals emerge on problems.

⁷ Reported in Communication From The Commission To The Council, The European Parliament, The European Economic And Social Committee And The Committee Of The Regions; "i2010 – A European Information Society for Growth and Employment", COM(2005) 229 final, June 1 2005, p. 3

1.2. Measurement Challenges and State of Play⁸

In general, measuring the performance and output of the public sector is a challenging task ahead for most EU Member States. First of all, the basic and straightforward source of difficulty in measuring public output resides in the lack of market prices and mechanisms that can be used to evaluate them. Actually, it is not only a problem of giving a value to an output, but also of understanding how the output is received and evaluated by the end users, that is to say by also including the quality dimension in the measurement. Secondly, measurement is further hindered in the public sector by the need for public agencies to ensure multi-constituent delivery with different goals, and by the complexities arising from cross-agency contributions to final delivery (so-called 'harvest dilemma'). Both these two institutional features of the public sector make it difficult to identify non-overlapping targets for measurements and the contributions made by different public agencies in their achievement. All these factors hamper the identification and subsequent gathering of data on a set of clear-cut, easily quantifiable, and mutually exclusive measurement indicators.

The measurement of eGovernment impact is clearly affected by these difficulties and, given its novelty, faces additional challenges due, for instance, to the lack of the kind of already compiled international and national official statistics that are used in a more general analysis of public sector output and performance⁹. Therefore, most of the data needed for the relevant indicators will have to be constructed and gathered from scratch, since there are very few already compiled official statistics that can be used to measure the more short-term and intermediate impact of eGovernment.

On the other hand, our state-of-play review, the data gathered during field missions in several Member States, and presentations delivered by key experts during three eGEP workshops, show that a lot of progress in the measurement of eGovernment impact has been made in the past three to four years. First, there is a still limited but growing number of reports, studies, and methodologies addressing the issue and providing an important starting basis. Secondly, several EU Member States (i.e. Denmark, France, Germany, The Netherlands, the UK) have defined measuring methodologies and are actively applying them to various projects¹⁰.

⁸ This paragraph is only a short synthesis of the work conducted in the course of the project to review the state-of-play in measuring eGovernment in particular but also to analyse the more general issue of measuring public sector outputs. This analysis is illustrated in more detail in Section 2 of the *Measurement Framework Compendium*.

⁹ See for instance: a) Social and Cultural Planning Office (SCP), *Public Sector Performance: An International Comparison of Education, Health Care, Law and Order and Public Administration*, SCP, The Hague, September 2004; b) A. Afonso, L. Schuknecht and V. Tanzi, *Public Sector Efficiency: An International Comparison*, European Central Bank Working Paper no. 242, July 2003 (<http://www.ecb.int/pub/pdf/scpwps/ecbwp242.pdf> , accessed February 2005).

¹⁰ See *Measurement Framework Compendium* (par. 2.5 and 2.6).

In more substantive terms, the state-of-play review clearly shows an increasing awareness of the fact that traditional ROI investment measures do not fully account for the public value potentially accruing from eGovernment, since many of its benefits are non-financial and qualitative/intangible and contribute to a greater social value than can be measured using only financial metrics. In this respect the comparative analysis of the measurement methodologies adopted in some EU Member States shows that, despite noticeable differences, they converge in using a multidimensional approach that integrates financial and strictly quantifiable impact and returns with more qualitative dimensions.

1.3. eGEP Measurement Framework Objectives and Approach

eGEP work has been naturally shaped by the policy context described earlier and its overall objective is to contribute to this ongoing policy process by providing a comprehensive measurement of impact and a template of indicators from which policy makers can select the most suitable elements for the definition of measurement targets for the next years.

The overall objective of this work was to provide the basis of a Measurement Framework to assess the impact of eGovernment services, with, as a general background, the eEurope 20 basic public services. Therefore the Measurement Framework and its indicators mostly respond to such objectives and are general enough to be declined for each of these services and be potentially applicable to other services as well. The indicators are therefore not specifically elaborated for any given service, but are general and flexible enough to be adapted to particular measurement objectives. Moreover, they are mostly thought in relation to the internal (for the administration) and external (for broadly defined constituencies) impact resulting from the process of re-organisation and from the ICT investments undertaken to make public services available online.

eGEP Measurement framework is strongly rooted in a very thorough analysis of existing methods. In this respect we must remark how eGEP elaboration of the MF model, of the measurement indicators template and of the implementation methodology has greatly benefited from an in-depth and comparative analysis of the following national measurement methodologies¹¹:

- ❑ The Danish *eGovernment Signposts* methodology¹²;
- ❑ The French *Mareva* methodology¹³;

¹¹ In the *Measurement Framework Compendium* methodologies in use in Australia, Canada and the US are also presented (par. 2.6).

¹² Danish Digital Task Force (DTF), (2004) *The Danish eGovernment Strategy 2004-2006: Realising The Vision*, DTF, Copenhagen, (http://e.gov.dk/uploads/media/strategy_2004_06_en_01.doc , accessed February 2005). This methodology was also presented by Mr. Hemmingsen of the Danish Ministry of Science, Technology and Innovation at the first eGEP workshop (Rome 8 April 2005).

- The German *WiBe 4.0* methodology¹⁴;
- The Dutch *Monitor: Multiple Use of Information*¹⁵;
- The UK business case methodology¹⁶.

The comparative analysis of these methodologies shows that, while national peculiarities and strategic priorities shape the more relevant differences, some common ground can be found amongst them. This has inspired our elaboration of the measurement indicators template, which includes several that are already part of the above-listed methodologies.

eGEP Measurement Framework presents a neat and exhaustive way of looking at three different areas of impact, that is to say **efficiency** (financial and internal organisational value), **effectiveness** (constituency value) and **democracy** (political value), defined in terms of openness, transparency and accountability, and participation. These are the three dimensions that any exhaustive and well-founded method aiming at evaluating the public value of investments in ICTs should include.

The MF is leading edge, since no study or methodology among those surveyed has attempted, so far, to produce an eGovernment measurement framework that: a) addresses all of these three basic dimensions in their sub-components; b) includes an in-depth analysis of costs (Expenditure Study); c) is corroborated by an economic theoretical model of eGovernment impact (Economic Model).

The MF is a flexible and comprehensive instrument providing space for finding common ground amongst EU Member States and being adaptable by them in the form of guidelines for eGovernment micro-level business cases.

Exhibit 1 below illustrates the aggregate view of the logic model for eGovernment deriving from an eGEP theoretical perspective¹⁷.

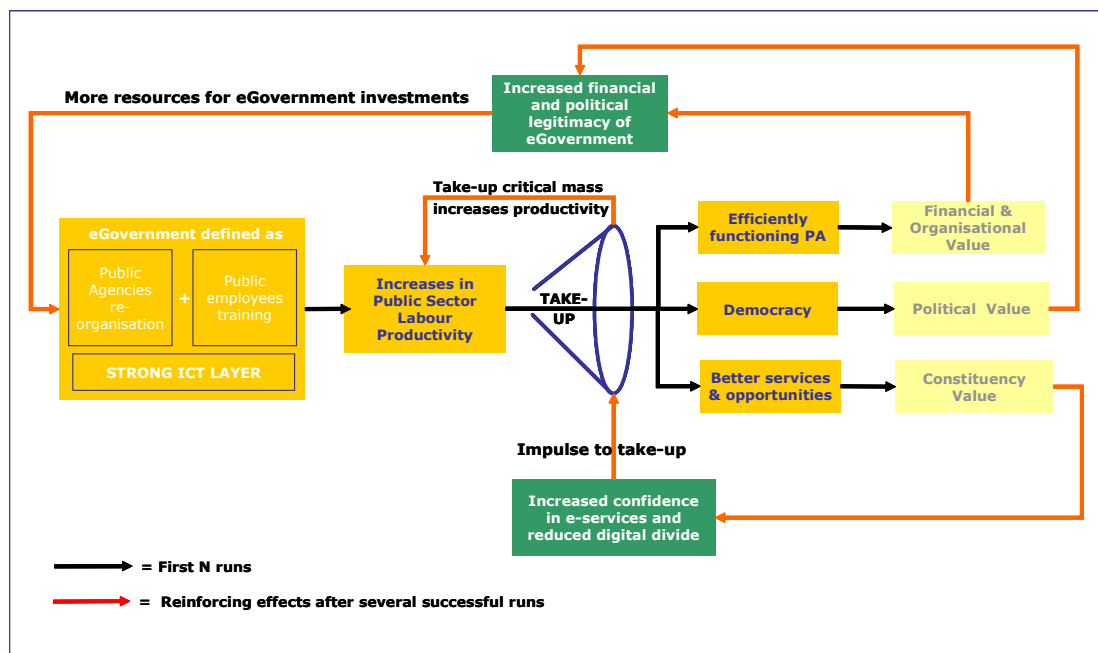
¹³ French Agency for the Development of Electronic Administration, (ADAE), (2005), *MAREVA methodology guide: Analysis of the value of ADELE projects*, unpublished internal document obtained during eGEP field mission to Paris (May 23-24 2005). This methodology was also presented by Mr. Meyer of ADAE at the second eGEP workshop (Brussels 1 July 2005).

¹⁴ German Federal Ministry of the Interior, IT Department, (2004), *Economic Efficiency Assessment (WiBe) 4.0 - Recommendations on Economic Efficiency Assessments in the German Federal Administration, in Particular with Regard to the Use of Information Technology*, (<http://www.kbst.bund.de/Anlage306905/English-Version-Recommendations-on-Economic-Efficiency-pdf-792-kB.pdf> , accessed June 2005)

¹⁵ Dutch Ministry of Interior and Kingdom Relations (2006). *MONITOR. Multiple Use of Information*, document obtained from John Koostra of the Dutch Ministry of Interior and Kingdom Relations. This methodology was also presented by Mr. Keuzenkamp of the Dutch Ministry of Interior and Kingdom Relations at the final eGEP conference (Vienna 8 February 2006)

¹⁶ UK Cabinet Office eGovernment Unit,(eGU), (2005), *Business Case Model Template*, unpublished internal document obtained during eGEP field mission to London (May 9-10 2005); 59. UK Office for Government Commerce (OGC), (2003), *Measuring the Expected Benefits of E-Government*, OGC, London, (<http://www.ogc.gov.uk/sdtoolkit/workbooks/businesscase/HMT%20Guidelines%20Version%201.4.pdf> , accessed February 2005).

Exhibit 1 eGEP Overall Theoretical Perspective



eGovernment, as a process of organisational change and public employee re-training resting on a strong ICT layer, contributes to innovation and change in the public sector. Functioning as a catalyser of modernisation, eGovernment should thus enable public administrations to pursue, through the provision of online services, the objectives of improving their internal functioning, of enhancing democracy, of increasing the quality of services and opportunities offered to citizens and businesses. In the medium term such a modernisation drive should produce consolidated productivity gains eventually reverberating indirectly on macro systemic impact such as GDP growth. This is the basic hypothesis developed in the eGEP Economic Model of eGovernment impact.

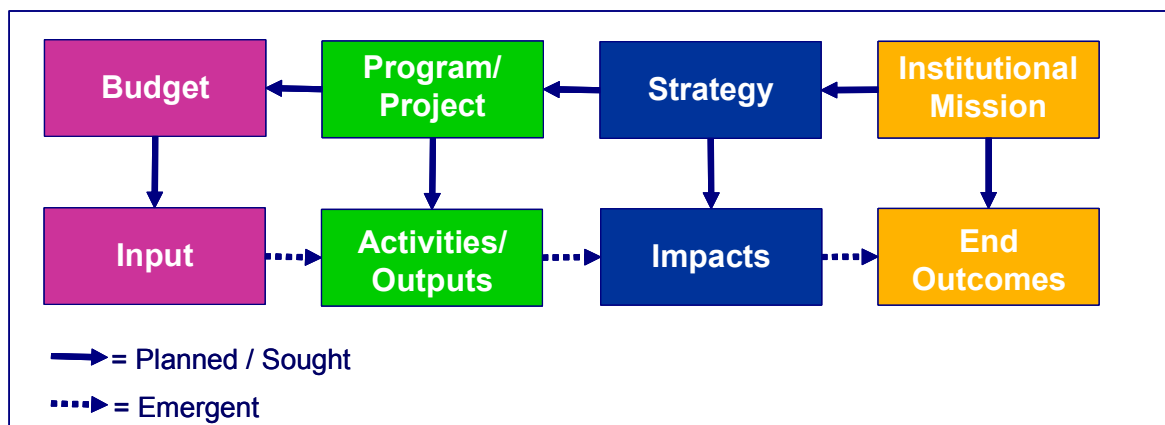
¹⁷ Such a theoretical perspective is informed by a new institutionalist approach in economics and sociology from which the relevant and active role of public institutions in contributing to the functioning and growth of the socio-economic system is derived.

2. The Measurement Framework

2.1. The Logic of Measurement and Countries Peculiarities

As summarised visually in Exhibit 2 below, the foundations for any measurement framework of projects/programmes in the public sector are the end results that descend from the institutional missions assigned to them¹⁸. Concrete impact, that can alternatively be termed intermediate outcome, is then associated to each of these mission results, in a way that reflects the strategy chosen in order to achieve the mission results. Since for eGovernment we can assume that the ultimate mission result is to produce 'enhanced public value' (intended in the broadest sense) for all different constituencies, this step implies selecting the value drivers, namely the levers chosen to generate such public value.

Exhibit 2 The Logic Model of Measurement



With respect to the above logic model of measurement in general, two considerations are in order.

The first, to be addressed in more detail in paragraph 3.2 in the next section, has to do with the fact that in many cases, between the impact (or intermediate outcome) and the end outcome, there are a number of intervening variables that are not entirely under the control of the public administration object of measurement. In other words, as we move from output to end outcome, objective measurement becomes increasingly difficult since the number of external factors contributing to produce the end outcome becomes larger.

Secondly, it is quite evident that the institutional mission and the strategic objectives assigned to a national eGovernment programme depends greatly on each Member

¹⁸ See, for instance, Hatry, H., *Performance Measurement: Getting Results*, Washington, D.C., Urban Institute Press, 1999.

State specific policy priorities (the same applies if we move down to the micro-level of single eGovernment services run by individual public agencies).

The best examples of how the peculiar policy priorities of countries shape measurement choices come from the earlier cited French *Mareva* and German *WiBe 4.0* measuring methodologies. Both methodologies include two dimensions that are, to a large extent, comparable to eGEP efficiency and effectiveness value drivers. They also include, however, other very specific dimensions. *Mareva*, for instance, foresees the dimension named "necessity" that measures, qualitatively, the contribution of single eGovernment projects towards the achievement of strategic policy priorities such as the requirements of the National eGovernment Programme ADELE (infrastructures, horizontal solutions, etc), to regulatory and/or political obligations, to rationalisation of public action in general. Similarly *WiBe 4.0*, under the category named "urgency", measures qualitatively how a given project contributes towards "flexibility and inter-operability" of an IT system, to compliance with regulatory requirements, to efficiency of the public sector as a whole.

eGEP work has been informed and shaped by the full awareness of the very rich diversity of structural and cultural elements that shape the administrative system traditions of EU Member States and that influence eGovernment models and strategic objectives¹⁹. Therefore, it is straightforward that a single rigid measurement framework will not fit in with the differences in models and objectives, as well as in stages of development, that characterise the eGovernment situation in the EU25 Member States. The two categories taken from the French and German methodologies are quintessential examples of policy shaped measurement choices that will vary from one country to another and that eGEP Measurement Framework (MF) does not address in order to remain at a more general and flexible level.

This choice implies that further operationalisation of eGEP MF and indicators will be needed by Member States and/or single public agencies in order to adapt the indicators to their strategic objectives. The same applies for any indicator that the EU Commission and the Member States might agree to deploy for an EU25 benchmarking of eGovernment impact.

Having clarified the above, the MF is accordingly built on a very general and universalistic definition of the three-fold mission that any public agency or programme should pursue for the delivery of public value to:

- ❑ **User as tax-payer:** the search for efficiency gains through dynamic, productivity-driven and value for money internal operations and service provision;
- ❑ **User as citizen and voter:** the enhancement of democracy through open, transparent, accountable, flexible, and participatory administration and policy-making;

¹⁹ This topic is fully addressed in the *Measurement Framework Compendium* (Section 1).

- **User as consumer:** the search for quality services that are inter-active, user-centred, inclusive, and maximise fulfilment and security;

Correspondingly we can identify three value drivers :

1. Efficiency;
2. Democracy;
3. Effectiveness;

2.2. eGEP Measurement Framework

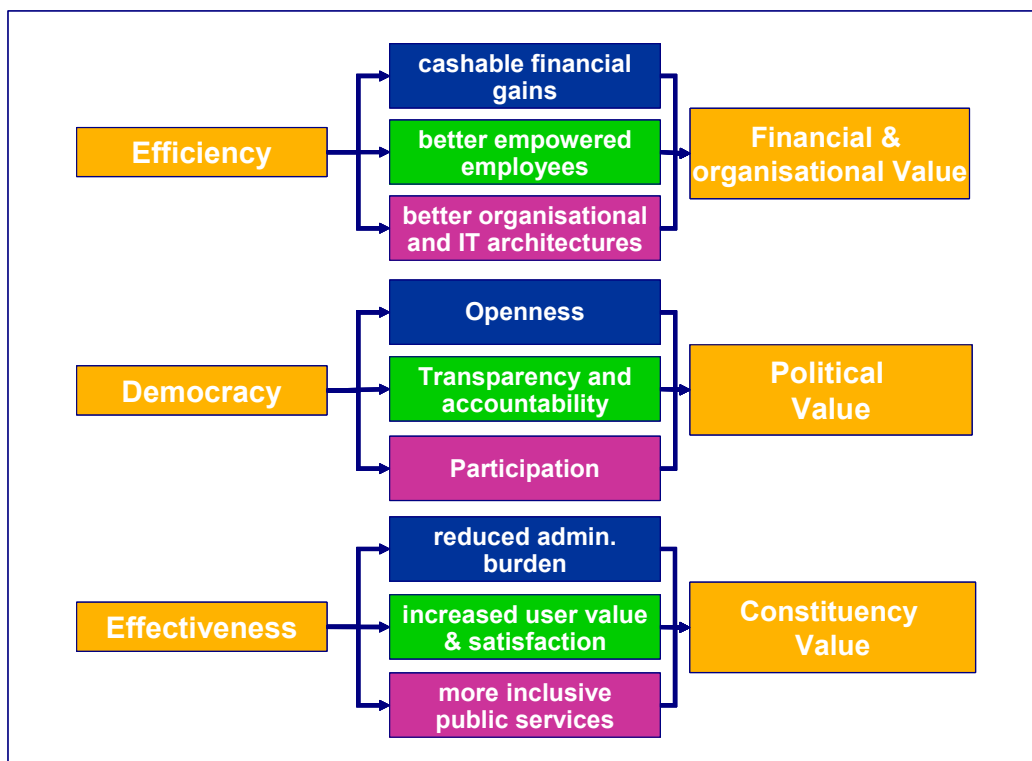
As discussed earlier (see 1.2), there is growing recognition that eGovernment measurement cannot be limited to a strictly quantifiable impact and should include both : a) impact that is directly cashable or that can be rendered in monetary terms as opportunity values; b) impact that is more intangible and cannot be rendered in monetary terms. The first can be used in the application of strictly quantitative financial techniques (i.e. NPV, ROI, IRR, etc), while the second needs to be qualitatively assessed. Once these two different dimensions are both considered, a classical approach would be to clearly distinguish between quantitative and qualitative measures, and keep them separate when building aggregated indicators from elementary measures.

eGEP framework strikes an optimal balance for each of the three value drivers, including both quantitative and qualitative groups of impact and corresponding metrics, but it also recognises that these two dimensions cannot be entirely decoupled, and normalizes different measures by focusing primarily on relative improvements, expressed in percentage terms. In this way the two kind of measurements can be then aggregated into an overall scale that can be used to assess the overall value of a given eGovernment service/project or programme..

The MF analytical structure is synthesised in Exhibit 3 below, where on the right hand side it is initially possible to observe that the impact contributes to the creation of different types of public value:

1. Financial & Organisational value;
2. Political Value.
3. Constituency Value;

Exhibit 3 eGEP Measurement Framework Analytical Model



For reasons of logic and graphic symmetry we have three types of public values each corresponding to the three value drivers. This requires, however, an additional specification. The logic behind the framework is linear and assumes that the impact and values produced along each driver are orthogonal to each other. This assumption is fine for a measurement framework, especially at this stage in the advancement of cumulated knowledge on the topic. In practice it is evident that there can be compound effects that will have to be further teased out by future theoretical modelling and empirical research. The eGEP Economic Model partially contributes to this goal especially as concerns the combined efficiency-effectiveness impact (labelled in the model as “Smith Effect”).

The Efficiency value driver. The higher efficiency stemming from the offer of services online, appropriately supported by the necessary organisational changes, generates “Financial Value” by producing tangible financial gains both in terms of directly cashable benefits and benefits that can be monetised as opportunity values. Improved revenue collection produces cashable benefits in terms of both speed and quantity and are quite straightforward to measure. Improved efficiency through a faster and cheaper analysis of citizen and company data can bring up a part of the submerged economy and generate new tax revenues. Finally, new revenues can be generated offering new services at a premium.

Another impact is in terms of avoided costs or efficiency gains that can be directly cashable or represent opportunity values. Cashable impact is that which enables current output to be delivered at lower cost. Typical long-hanging cash benefits are cost avoided as a result of dematerialisation of processes (less paper and prints), of

less travel needed by public agency staff, economies of scale in using overheads and in managing the IT supporting architecture.

A second and very important type are gains in terms of the "Full Time Equivalent of Staff" needed to perform internal operations and provide services to the constituency. This topic is worth explaining a little further since indicators measuring such gains are very prominent in eGEP indicator templates, are included in all of the earlier mentioned national methodologies, but might generate misunderstanding and controversy if intended strictly as leading to layoff of personnel.

As a result of task elimination, reduced processing times, reduced errors and need to re-work, arising from the combination of reorganisation and ICT deployment, it is possible that:

- A. Less hours of work are needed to perform the same amount of internal operations and provide the same amount of services (you do the same with less)²⁰; and/or
- B. In a given time unit more output is produced with the same amount of work hours (you do more with the same, i.e. increased productivity);

Accordingly two indicators can measure these two gains:

- a) Full Time Equivalent gains from agreed baseline year;
- b) Increase in number of files handled per processing Full Time Equivalent.

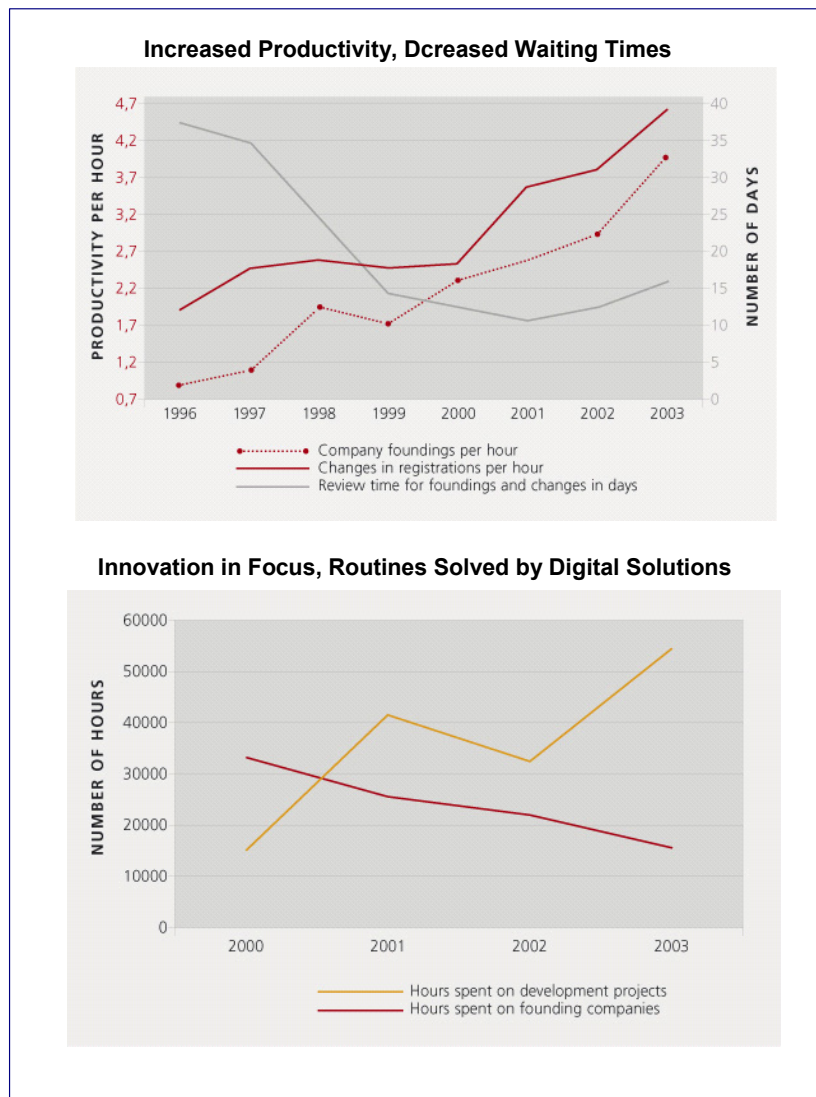
The first indicator can be expressed in volume (hours of work saved) or in € without implying necessarily that it is a cashable impact. It is "cashable" if the hours saved translate into the removal from the budget of redundant personnel. It is instead, still measured in €, an "opportunity value", measuring the amount of personnel resources released from routine work and redeployed to more value added new activities.

The second indicator, while included under the efficiency value drivers, actually measures a combined efficiency-effectiveness impact as it implies faster processing times and thus should result in reduced waiting times for citizens and businesses.

The best way to make this discussion fully concrete is to briefly illustrate the successful case of the Danish Commerce and Company Agency (DCCA see Exhibit 4 below), an administration in charge, among other things, of registering new companies and of processing statutory changes for existing ones.

²⁰ Less intended with respect to an established baseline regarding the operations and services provision before the introduction of reorganisation and ICT deployment, i.e. eGovernment.

Exhibit 4 Efficiency and Effectiveness in Practice



Source: Betina Hagerup, Deputy Director of the Danish Commerce and Company Agency, "Meeting Customer Needs", Presentation delivered at Rotterdam 3QC Conference, 17 September 2004.

As illustrated above, the DCCA, through reorganisation and the launching of an online platform for company registration, was able to achieve, among other things, the following two results (first graph in Exhibit above):

- ❑ Company founding per hours went up by about 337%;
- ❑ Waiting times for new entrepreneurs went down from about 37 days to about 16.

The productivity gains were not used to cut personnel and, as the online platform released personnel from routine tasks, more resources were devoted to innovation: hours needed for routine tasks went down 50% and were allocated to new development projects (second graph in Exhibit above).

Efficiency also has a more qualitative side reflected in the two areas of impact defined as “better organisational and IT architectures” and “better empowered public sector employees”, which contribute only partially to the generation of strictly measurable financial values, but that generate important values for the organisation of public administration.

The operational efficiency impact does also actually contribute to the tangible gains measured as financial value, but they produce more extensive benefits that cannot be rendered in quantitative terms. In this respect, through qualitative assessment, it is possible to measure how a given eGovernment project contributes, among other things, to the following impact:

- ❑ Processes re-organisation and standardisation (i.e. inter-operability);
- ❑ Rationalisation of IT infrastructures (eventually leading to IT procurement savings);
- ❑ Process / service innovation;
- ❑ Improved planning and policy-making;
- ❑ Administrative simplification;
- ❑ Decentralisation.

It must be stressed that under this impact group, it is possible to assess the qualitative benefits accruing from horizontal infrastructure projects (for instance eID), usually launched and managed at the central level, to all the public sector and that would be lost if just tangible monetary benefits were considered. Other qualitative impacts that can be achieved through eGovernment concern the working conditions for public sector employees and, among other things, include:

- ❑ Job content improvement;
- ❑ Working conditions improvement;
- ❑ Flexible work regimes (including tele-working).

The Democracy value driver. Through accurate, updated, easy to access and understand information and through online interactive tools, public administration and policy-making can be conducted in a more open and transparent way, thus revitalising the democratic process and hopefully stimulate more proactive participation on the side of citizens and businesses towards, for instance, consultation processes and increasing trust in government institutions. If the conduct of administration and the policy making process becomes more accountable, and participation and involvement by the citizenry, the business community, and the voluntary sector are fostered, this would determine the “Political Value” contribution of eGovernment. We deemed this value as “Political” since this term conveys better than other alternatives (for instance “Participatory”) the broad and mostly symbolic impact eGovernment could yield in terms of democracy, of which participation is probably the most relevant dimension but together with transparency and accountability and with a smoothly running cooperative management of public affairs.

The Effectiveness value driver. The improved effectiveness of government action, as a result of eGovernment specifically and of ICT use more in general, should increase the public value delivered to the constituencies (citizens and businesses). The reduction for citizens and businesses of the costs of complying with public administration requirements, namely the cost of the administrative burden, can easily be given a direct monetary value (saving in postage, travel, other costs) and an indirect one in terms of the opportunity value of the time saved (easier for businesses than for citizens). On the other hand, the reduction of waiting times and the simplification of complying with administrative requirements will also have an impact on the perceived quality of public services and on overall user satisfaction. This same reasoning applies to other qualitative added values for users (convenience, 24/7 access, more accurate information, etc) to be measured indirectly by assigning a value to the new functionalities/opportunities provided online or directly through a user-satisfaction survey. This increase in the actual and perceived quality of public services also generates "Constituency Value", as does the provision of better access to opportunities through the provision of online public service, particularly in terms of better inclusion for disadvantaged groups (provided that a multi-channel delivery and other policies ensure that they are reached and that the digital divide is tackled). eGovernment services can indeed provide enhanced capabilities for citizens and businesses (i.e. better access to employment and educational opportunities through easily accessible information).

3. Measurement Indicators

3.1. Discussion of Indicator Data Sources

From an eGEP state-of-play review and from the in-depth case studies analysed,²¹ we have extracted the basic sources of data for the proposed measurement indicators²². Table 1 below presents a simplified comparative analysis of the different data sources in terms of: a) Relevance (first column), i.e. how well the data reflects the impact to be measured; b) feasibility (second column), i.e. the cost and time needed to gather the data (the feasibility is assessed here from the perspective of Member States); c) comparability across the EU25 Member states.

Table 1 Comparative overview of Data Source

| Data Sources | Relevance | Cost | Comparability |
|---|-----------|--------|---------------|
| Official statistics | Low | Low | High |
| Internal administrative records | High | High | Low |
| Standard Cost Model estimates | High | High | Medium |
| Internal self-assessment | Medium | High | Low |
| Users satisfaction surveys ^(a) | High | Medium | High |
| Pop-up survey ^(a) | Medium | Medium | High |
| Web metrics and crawlers ^(a) | High | Medium | Medium-high |
| Third party web assessment ^(a) | Variable | Medium | High |

^(a) Cost to Member States is assessed here considering the involvement in terms of the definition of a common methodology and of a comparable panel of services to be measured.

Below we provide some comments on each of the sources listed in table 1:

1. **Official statistics.** These sources most often measure the final outcome to which eGovernment objectives contribute together with a high number of other factors. It would be a long shot to measure eGovernment objectives using such data on end outcome (i.e. measuring the success of Job portals directly using statistics on employment). Therefore, while they are highly feasible and comparable, their relevance is low;
2. **Internal Administrative Records.** These sources *per se* are not sufficient and will require a differential analysis of business processes before and after the deployment of eGovernment solutions. This is particularly time consuming for measuring efficiency gains²³, though the method has been fully applied in the

²¹ The case studies are reported in the **Expenditure Study Report**.

²² A detailed analysis of such sources, including examples and guidelines, is presented in the *Measurement Framework Compendium* (Section 3).

²³ For a full illustration see *Measurement Framework Compendium* (Section 3, Exhibit 6).

UK following the “business case” guidelines provided by the UK Cabinet Office eGovernment Unit. It is a bit less time consuming for the quantification of avoided costs, of which very good examples can be found in the application of the French Mareva methodology²⁴. Certainly the indicators thus constructed are the best and most relevant measure of quantitative efficiency impact. Yet, gathering this sort of data is very time-consuming and the data might be very country-specific thus decreasing comparability across the EU25; these sources are best suited for an in-depth measurement at the level of each single public agency that can use them to elaborate the *ex ante* business case and subsequently steadily monitor the results achieved;

3. **Standard Cost Model Estimates.** The use of the Standard Cost Model to measure administrative burden reduction is a very relevant data source, though it requires some substantial work²⁵. Moreover, different regulations in place in different countries may produce different results despite the adoption of similar eGovernment solutions. This might decrease the comparability of the indicator. The new “Monitor- Multiple use of information” methodology recently released by the Dutch Ministry of Interior and Kingdom Relations could provide a very useful alternative and, if adopted more broadly in Europe, could eventually lead to comparable data on administrative burden reduction;
4. **Internal Self-assessment.** This method rests on qualitatively based scales used for self-assessment evaluation engaging a large enough and representative sample of internal managers and experts. Given the possible subjective bias, the relevance in general is of a medium level, unless this method is applied in a systematic ways as illustrated, for instance, in the German WiBe 4.0 methodology²⁶. This method to measure qualitative impact is also foreseen in the French Mareva methodology. The comparability across the EU25 of the indicators thus produced is low, unless all Member States agree on a common approach for the standardisation of such internal self-assessment data; this self assessment method, matched also by a qualitative assessment of the various risks of a project, is an important tool in supporting investment decisions at the level of single public agencies.
5. **Users Satisfaction Surveys**²⁷. A general user-satisfaction survey, if appropriately built on a methodologically sound user-satisfaction index similar to the American eGovernment Customer Satisfaction Index²⁸, will produce highly relevant and comparable data. This is based, however, on the

²⁴ For a full illustration see *Measurement Framework Compendium* (Section 3, Exhibit 7).

²⁵ For a full illustration see *Measurement Framework Compendium* (Section 3, pp. 32-33)

²⁶ For a concrete example see *Measurement Framework Compendium* (Section 3, Exhibit 8).

²⁷ This topic is discussed in full detail in the *Measurement Framework Compendium* (paragraph 3.2).

²⁸ For a concrete example see *Measurement Framework Compendium* (pp. 39-40 and Exhibit 10).

assumption that representatives of Member States working in collaboration with Eurostat will agree upon the questionnaire and on the methodology to construct such an index. The cost for Member States is deemed medium on the assumption that the survey will be carried out by Eurostat;

6. **Pop-up Surveys.** These sources suffer from sample self-selection as they capture only relatively sophisticated online users, and thus do not measure the attitudes of beginners and of the e-excluded. Their relevance is therefore medium, but on the other hand they can produce fairly comparable data and entail low costs for Member States. Moreover, it is already a consolidated method given the very interesting and robust results produced by the EU-financed Top of the Web Survey²⁹.
7. **Third Party Web Based Assessment.** By this we mean an assessment conducted by a third party (for instance a contractor selected and financed by the EU) on the model of the CapGemini supply side measurement. To go beyond a supply side measurement, such web based assessment should strive to capture new and more sophisticated dimensions. An example is the latest Accenture eGovernment report yielding a composite score of the functional dimension of quality on the basis of the experimentation and usage of online public services³⁰. The capacity of this method to measure relevant dimensions depends on the methodology adopted and on the construction of the panel of the services to be assessed. If the methodology and the panel are well thought out, transparent and agreed upon with EU experts and Member State representatives, this source can produce fairly relevant and comparable data at moderate cost for Member States;
8. **Web Metrics and Crawlers.** Web metrics can measure very relevant data such as the time spent by users using eGovernment services, repeat and cross usage, number of transactions successfully completed etc. The very successful UK government portal DirectGov extensively uses web metrics to measure user satisfaction³¹. Each single public agency can easily retrieve the data on the number of transactional services entirely provided online and without any paper-based activity and use these metrics to calculate the reduction in transaction costs and the efficiency gains derived (method proposed in the "business case" guidelines provided by the UK Cabinet Office eGovernment Unit). Moreover, web crawlers software can automatically and systematically record number of very relevant dimensions concerning the quality of services (from analysis of usage), user interface, accessibility and usability. During the

²⁹ See *Measurement Framework Compendium* (pp. 37-38).

³⁰ See *Measurement Framework Compendium* (pp. 36-37 for the Accenture methodology and 42-44 for eGEP approach on the topic).

³¹ See *Measurement Framework Compendium* (pp. 35-36).

final eGEP conference held in Vienna on February 8 2006, Dr. Mikael Snaprud, project manager of the EU-funded European Internet Accessibility Observatory (EIAO), illustrated how the instrument being developed by the EIAO can measure automatically and with a high degree of comparability the level of accessibility of eGovernment web site and added that it could also be extended to measure other indicators proposed by eGEP³². These sources of data can potentially produce comparable indicators at very low cost to Member States³³. Some limitations on the use of such an approach may arise from differences in Member State privacy regulations and public web site security protection.

3.2. Full Indicator Template

The final full template consists of about 90 indicators and is the result of the integration of the work already performed for the interim version of the MF with additional work that the eGEP Consortium has carried out for the eGovernment 2010 Signposts³⁴. The full template comprises two tables, the first explains the acronyms used to indicate the data sources, the second lists all the indicators proposed with the indication of their corresponding value driver and area of impact, of their source of data and of the relevance for the eGovernment Action Plan Signpost (1 to 5, see next paragraph). As these two tables are spread over several pages, for the sake of clarity, we have included them at the end of this report as Annex A. Given the large number of indicators, it is beyond our scope to comment on each one of them and below we only develop some brief considerations.

First, in light of the flexibility inspiring the eGEP approach, we want to stress that the full template of indicators is meant to provide a large choice for Member States and/or single public agencies for them to select those most appropriate to their needs and therefore:

1. We do not suggest that all indicators should be used simultaneously, but leave the selection of the indicators best suited for their purposes to the users of our framework;
2. The indicators of the full template are not mutually exclusive and in some cases may seem redundant. This apparent redundancy arises from the fact that the

³² Mikael Snaprud, *eGEP and EIAO Synergies*, unpublished paper, February 23 2006. The European Internet Accessibility Observatory is an EU R&D funded project (Project no.: IST-2003-004526- STREP) developing an open source based software for the automatic assessment of website accessibility. The paper, furthering the position illustrated by Mr. Snaprud during the final eGEP conference in Vienna (8 February 2006), clearly explains how the EIAO tool can be further developed and extended for the automatic web based measurement of some of the indicators included in the eGEP indicator template.

³³ Assuming again that the measurement based on web metrics or crawlers is assigned to a third party contractor by the EU Commission.

³⁴ This is a package jointly prepared for eGEP (working for the EU) and by Booz Hallen & Hamilton (working for the UK Cabinet Office eGovernment Unit), that was presented and distributed during the eGovernment SubGroup meeting held in Manchester in November 23 2005.

proposed indicators provide different ways to measure the same target, usually with a different degree of complexity.

Secondly, an important clarification is needed about how the indicators are formulated in order to avoid misunderstandings. All the indicators are expressed as percentage changes compared to an established baseline changing year by year. This choice responds to the goal of normalising all measures in order to integrate quantitative and qualitative indicators into a global composite index of public value (see implementation methodology in section 4). This choice might raise some concerns among Member States for those indicators to be used for EU25 benchmarking. Member States already scoring very high on some of the indicators would see their score in percentage terms go down over the years. In order to avoid this problem, we propose to retain the formulation in terms of percentage changes, but to measure indicators with respect to the so-called distance from the mean, by which the (weighted or un-weighted) mean value is given at 100, and countries are given scores depending on their distance from it³⁵. The final choice, however, will be a matter of agreement and discussion between the EU and Member States.

Finally, a brief discussion on the differences between output on the one hand, and impact/outcome on the other is also in order here³⁶. As stated in a recent comparative study of public sector performances in the EU25 plus some additional OECD countries, it is often much more difficult to relate production processes directly to effects (outcome) than to output³⁷. There are some goals whose achievement can be measured directly in terms of the final output or immediate impact produced, while there are other broader goals whose measurement is more difficult. In the educational system, for instance, one can easily measure the number of pupils passing final examination (impact) as a result of teaching on the basis of a new method (output), but this indicator does not necessarily measure the broader goal of ensuring a well-educated human capital for a knowledge-based economy. In the same way the number of full treatment of patients by the national health system (impact) as a result of the new organisational processes (output) does not necessarily measure the goal of helping people live a long and healthy life. In this second case, at least, there is official data on life expectancy at birth that, over time, enables one to measure the degree of achievement of such an institutional mission end outcome (but even in this case the outcome could be shaped by an external factor beyond the control of a national health system, such as for instance, increased pollution). In the first case, on the contrary, no ready made statistics are available and it is more difficult to find a

³⁵ See full explanation in the next section on the implementation methodology and in Annex B where an example of the application of the implementation methodology for benchmarking purposes is provided.

³⁶ A more in-depth discussion of the topic is presented in the Measurement Framework Compendium (par. 2.1).

³⁷ Social and Cultural Planning Office (SCP), *Public Sector Performance: An International Comparison of Education, Health Care, Law and Order and Public Administration*, SCP, The Hague, September 2004, p. 39.

clear cut objective indicator every stakeholder would easily accept in measuring to what extent the public educational system produces a well educated labour force. In general the achievement of an end outcome, and in some cases even of a more immediate outcome or impact, is determined not only by the output produced by the public sector, but to a large extent also by external intervening variables.

The above considerations naturally also apply to the case of eGovernment in general and particularly to those services aimed at empowering citizens and businesses, thus contributing to fostering inclusion and social cohesion. The broadly defined output of eGovernment is the digitalisation of public service production and provision resulting from the combined effect of re-organisation, personnel training and investment in ICT. The output is not merely the online provision of services and information, but also the IT enablement of public service provision in general, which should spread its benefits on all possible delivery channels (traditional face-to-face or with the support of intermediaries, phone, web, mobile, digital TV, etc). As a result of such production processes, for instance, a central or regional public job placement agency might improve the speed and reliability of its database on job vacancies by type of jobs and location and bring that online on a job portal, complemented by advice and tools on how to fill a job application and even by some eLearning platform on how to prepare for, and behave during job interviews. How can we measure the end outcome related to this output? Can we take employment statistics related to the area of jurisdiction of this agency as an indicator? Probably not, since there are many other intervening variables that prevent establishing such a direct link. A less ambitious and more direct indicator of impact, such as for instance the number of persons actually having job interviews as a result of accessing the job portal, sounds reasonable but would present formidable data gathering challenges. In this and in other cases our choice has been for using indicators measuring output or, better, usage of services: if the number of people who use the job portals increases, chances are that some would eventually find a job. Other types of impact that eGovernment can produce are more direct, tangible and potentially measurable. This applies particularly to the efficiency gains accruing to public administrations as they directly arise from the output, as well as to the tangible benefits for citizens and businesses as the decrease in the time needed to fulfil information requirements requested by government (reduction of administrative burden) or the decrease in the waiting times for the delivery of an elective public service.

Efficiency Indicators. For the efficiency value driver the indicators selected mostly reflect the discussion on data sources briefly conducted in par 3.1. For the two areas of impact termed "Better Organisational architectures" and "Better Empowered Public Sector Employees" the indicators are mostly qualitative and will have to be constructed through Internal Quality Scales Self-Assessment and also through surveys of employees.

Democracy Indicators. For democracy indicators, some more considerations are required, as it is difficult to measure them in terms of concrete impact. As a matter of fact, looking at the indicators proposed, one might argue that they measure output and/or take up rather than impact and to a large extent, this would be right. Indeed between output in a strict sense (e.g. provision of digital platform for interaction) and the immediate impact (e.g. more participation), there are other intervening variables that prevent establishing a direct link and measuring the impact. On the other hand, the indicators proposed also include aspects that can be considered impact in a strict sense.

Effectiveness Indicators. The indicators selected for the “administrative burden reduction” are quite straightforward, and all use the Standard Cost Model Calculation as sources, except for the measurement of the gain in response time for which the data can come from Administrative Records and/or Web Metrics. The set of indicators proposed for the quality of services and user satisfaction is, in our view, fairly exhaustive and entails the use of all the different sources of information presented and discussed. For area of impact termed “More inclusive public services” the same consideration made for the democracy indicators, as to the difficulty in measuring impact in a strict sense, is valid. In order to find out how many individuals found a job as a result of information provided by public Employment Portals or of the new skills acquired thanks to public e-learning services, an ad hoc survey of users would be required. Therefore at this stage we considered the indicators selected as the best possible proxy not requiring further costs of measurement.

3.3. Benchmarking i2010 eGovernment Signposts

The eGEP underlying logic model and the corresponding indicators were elaborated with broadly defined eGovernment services in mind and with a particular focus on efficiency and effectiveness (resulting from the link with the Economic Model). After the adoption of the Manchester Ministerial Declaration with its four signposts and in light of the current development of the new "i2010 eGovernment Action Plan", which has adopted the four signposts and added a fifth concerning eDemocracy, eGEP has elaborated new indicators and/or adapted some from the full template that are deemed suitable for benchmarking these new five signposts. The first four signposts are taken from the final Ministerial Declaration unanimously adopted in Manchester on November 24, 2005³⁸, while the fifth one on eDemocracy reflects the EU eGOV Unit definition. For ease of reference these five signposts are reported below and associated to a number used in both table 2 presenting the indicators proposed for benchmarking and in table A.2 of Annex A reporting the full template of indicators.

1. No Citizen Left Behind – Inclusion by Design

By 2010, all citizens, including socially disadvantaged groups, will have become major beneficiaries of eGovernment;

By 2010, European public administrations will have made public information and services more easily accessible through innovative use of ICT and through increasing public trust, increasing awareness of eGovernment benefits and through improving skills and support for all users.

2. Using ICT to Make a Reality of Effective and Efficient Government

By 2010, eGovernment will be contributing to high user satisfaction with public services;

By 2010, eGovernment will have significantly reduced the administrative burden on businesses and citizens;

By 2010, the public sector will have achieved considerable gains in efficiency through the use of ICT;

By 2010, European administrations will have significantly increased transparency and accountability wherever possible and relevant through innovative use of ICT.

3. Delivering High Impact Services around Customer Needs

By 2010, all public administrations across Europe will have the capability of carrying out 100% of their procurement electronically, where legally permissible, thus creating a fairer and more transparent market for all companies independent of a company's size or location within the single market;

³⁸ <http://www.egov2005conference.gov.uk/documents/proceedings/pdf/051124declaration.pdf> .

By 2010, at least 50% of public procurement above the EU public procurement threshold will be carried out electronically;

Over the period 2006-2010, Member States will focus their efforts on delivering those high impact services in Europe which will contribute most to the achievement of the Lisbon Agenda.

4. Widely Available, Trusted Access to Public Services Across the EU, Through Mutually Recognised Electronic Identification

By 2010, European citizens and businesses will be able to benefit from secure means of electronic identification that maximise user convenience while respecting data protection regulations. Such means shall be made available under the responsibility of the Member States but recognised across the EU;

By 2010, Member States will have agreed a framework for reference towards, and where appropriate, the use of authenticated electronic documents across the EU, as appropriate, in terms of necessity and applicable law.

5. Strengthening participation and democratic decision-making - by 2010 demonstrating with practical eDemocracy cases in Europe, effective citizen debate and participation in democratic decision-making

On the basis of the comparative analysis of possible data sources, we selected the indicators for benchmarking these five signposts following three criteria:

1. Maximising the capacity of the indicator to measure the relevant dimensions of the targeted impact;
2. Minimising the costs in terms of the time needed for gathering the data backing the indicators;
3. Maximising Comparability.

The indicators, thus selected, are therefore those we deemed relevant, feasible and comparable at the same time and a few additional considerations are needed here.

First, the feasibility and comparability constraints in some cases have limited the full applicability in an EU25 benchmark of true impact indicators and led us to lean towards impact proxies or towards indicators of usage/output (online availability). The most relevant indicators of impact are proposed for bench-learning exercises. At any rate the full template reported in Annex A shows, for each of the indicators, the signpost to which they can be applied and thus enables the Commission and/or the Member States to select alternative indicators to those proposed in table 2 below.

Secondly, while we carefully look at the feasibility dimension in terms of the cost of data gathering, we must stress that to go beyond the supply side, more effort is required compared to that entailed in the current CapGemini benchmark. If the CapGemini methodology is to be fully retained and remain the only viable instrument of EU25 benchmarking, a legitimate choice given that it is consolidated and it is probably one of the most cost-effective options, then most of the indicators proposed

here will have to be either discarded or substantially simplified and thus partially lose their measuring power. If eGEP indicators are considered worth pursuing, then new methodologies will have to be adopted. This choice cannot be solved merely from a technical point of view that concerns us, as contractor, as it is above all an issue of policy goals that the EU Commission and the Member States must discuss.

Finally we remark that, judging from our experience in stakeholder consultations, further refinement and revision will be unavoidable in the consensus building process that will be a matter of EU and Member State interaction. For instance, the EU and Member States will have to agree on the panel of services to be measured and might select some, or all, of the 20 basic public services or decide to go beyond them and include new ones. Therefore, below we remain at a very general level of suggesting possible options in order to leave the flexibility for the mentioned subsequent process of consensus building and indicator operationalisation.

Table 2 Benchmarking Indicators for i2010 eGovernment Signposts

| Sign-posts | INDICATORS |
|------------|--|
| 1 | 1.1 Usage of eGovernment services by socially disadvantaged groups |
| | 1.2 Public websites degree of compliance with international accessibility standards |
| 2 | 2.1 Users' satisfaction with eGovernment services |
| | 2.2 Amount of information requested from citizens and businesses |
| | 2.3 Number of transactions fully completed online |
| 3 | 3.1 % of public procurement above the EU threshold available electronically |
| | 3.2 % of public procurement above the EU threshold carried out electronically |
| 4 | 4.1 Number of transactional public services with legally binding and mutually recognised eID |
| | 4.2 Number of functioning pan-European online services |
| 5 | 5.1 eParticipation sophistication index |
| | 5.2 Number of Unique Users of Online Forum |

1. No Citizen left behind

Premise. Of the signposts, this is the most challenging for a number of reasons, which are very complex and open to different theoretical and policy approaches³⁹. Evidently it is beyond the scope of eGEP to tackle and resolve all these open issues that are likely to be considered differently by different Member States. Having these limitations in mind, the two indicators proposed seem to us as the most reasonable minimum common denominator.

Indicator 1.1: Usage of eGovernment services by socially disadvantaged groups.

Comment: Question D3 of the Eurostat survey on 'ICT usage in households and by individuals' (see extract of Eurostat questionnaire reported in Annex B) already provides data on the usage of 12 out of the 20 basic services (those relevant to citizens, excluding those targeted to businesses). Provided that agreement is reached on the definition of 'socially disadvantaged groups' and that the Eurostat sample will/can be adapted to significantly capture such groups, this seems to be the most feasible indicator to measure at least one dimension of eInclusion by leveraging already running Eurostat activities⁴⁰.

Joint EU & MS Operationalisation: First, define the panel of public services to be considered. Secondly, define the socially disadvantaged group in such a way that it

³⁹ First, the signposts concern a different and multifaceted topic (inclusion) that would deserve an entirely separate report. Secondly, the concept of "socially disadvantaged groups" is left open to various possible definitions that are highly dependent on national policy priorities. Thirdly, it is difficult to define indicators of impact for 'innovative use of ICT' that are yet to be conceived of. Above all, the inclusion topic can be tackled by very different perspectives that accordingly shape the definition of the groups that are the target of policy and of the desired impact to be measured. Does the adjective 'social' hint just to traditional and more structural forms of social exclusion (by age, income, education, gender, etc) thus excluding 'physical' sources of exclusion (i.e. disabilities) or encompasses both forms of exclusion? Do we intend to increase the usage of ICT by the socially excluded or more broadly to have public servants and intermediaries (i.e. caretakers) use ICT to better service the socially excluded? Or both? In which case, how do we disentangle the two policies and measure them separately? Moreover, assuming a focus on increasing ICT usage by the socially excluded, the issue can be further broken down into a number of separate dimensions, each potentially the object of different policy input and of different impact measurements. Non usage can derive from lack of access and/or lack of motivation (not interested at all or potentially interested but not finding compelling services leading to usage) and/or lack of skills and/or from perceived or actual barriers (i.e. low usability of services, concerns about privacy and personal data). These various factors can be combined in a number of different ways identifying several different target groups of e-excluded. Accordingly one could imagine more than one desired impact to measure, ranging from increased access as a result of more affordable fees for internet access, to increased usage due to improvement in usability of public websites or to better personalisation of such services, and so on and so forth.

⁴⁰ Obviously it does not measure the inclusion supported by the use of ICT in different channels, but that would be difficult to measure in a comparable way (given different approaches in different countries) and, especially in a feasible and cost-effective way.

represents a large enough percentage of the population and can easily be handled in terms of sampling.

eGEP suggestions:

- Start from the 20 basic services but focus specifically on everyday life public services (i.e. job search services, social benefits, health related services) that are 'pull' (citizens require them and are not obliged to use them by legislation), as opposed to typically administratively enforced services (tax, declarations, permits, etc)⁴¹;
- Secondly, use the Eurostat definition of socially disadvantaged groups: elderly, professional occupation, educational level, gender, region of residence.

Source of data: Eurostat survey on 'ICT usage in households and by individuals' with a sampling method suitably adapted to capture a significant representation of 'socially disadvantaged groups'.

Implementation by: Eurostat.

Indicator 1.2: Public websites degree of compliance with international accessibility standards.

Comment: The reference for this indicator should be the WAI initiative of the W3C⁴².

Joint EU & MS Operationalisation: First, assess current incentives including Member State legislation covering accessibility and non-discrimination⁴³. Secondly, define a panel of public websites to be considered⁴⁴. Thirdly, establish a way to carry out automatic benchmarking and regularly assess the accessibility status.

eGEP suggestions: Start with the 20 basic public services, plus Prime Minister website, general government one-stop-shop portal (i.e. DirectGov in the UK), Parliament website.

Source of data: Data generated by automatic evaluation produced by web crawler and integrated by selective more in-depth evaluation through web assessment performed by experts.

Implementation by: EU contractor in close collaboration with the European Internet Accessibility Observatory (EIAO, <http://www.eiao.net/>).

⁴¹ See on this eUser distinction, *Work package 5: Synthesis and Prospective Analysis (D.5.1: First Synthesised Inputs to Knowledge Repository, Including Initial Survey Results and Good Practice Examples)*, p. 42.

⁴² See http://europa.eu.int/information_society/eeurope/2005/all_about/action_plan/index_en.htm

⁴³ Possible starting point: <http://www.w3.org/WAI/Policy/>

⁴⁴ See for instance: : http://europa.eu.int/abc/governments/index_en.htm

2. Effective and Efficient Government

Premise. Effectiveness and efficiency are the two drivers of public value on which eGEP has particularly focused, also as a result of the logical link with the Economic Model. The full template presented in Annex A includes many indicators, and the most relevant ones are proposed for bench-learning exercises since they would require time-consuming data gathering at the level of each public administration to be then aggregated at the national level and would thus not suit a macro EU25 Benchmarking. Particularly in terms of efficiency, broadly defined to include not simply financial gains but also organisational and operational improvements, the digitalisation of production and delivery can yield considerable impact. This impact does not depend exclusively on the final delivery of services online, but also on the digitalisation of exchanges of information among public administrations and on so-called horizontal infrastructure projects. This tremendous impact, however, can easily be measured at the micro-level, but is hardly possible to consider in an EU25 benchmarking given data gathering and comparability challenges. Therefore, for efficiency we are proposing a proxy indicator of impact defined as “Number of transactions completed online”. It is demonstrated in e-banking and e-retailer literature that the web presents the lowest transaction cost if compared to all other channels. Moreover, it ensures less errors, better aligned databases, more informed decisions: so the number of online transactions is at least a proxy measure of increased efficiency. This indicator, obviously, misses the side of efficiency that derives from digitalisation regardless of whether or not a service is provided online (i.e. faster and more precise data entry by an IT-enabled clerk in charge of face-to-face delivery). It is our view that to capture this dimension, the amount of data gathering work would be beyond the feasibility of an EU25 benchmarking exercise.

Indicator 2.1: User satisfaction with eGovernment services

Comments: A somewhat longer comment is required here to clarify the proposed indicator. eGEP position on the topic of service quality and of user satisfaction is fully illustrated in the Measurement Framework Compendium (see par. 3.2), but a few issues need to be recalled here.

The construction of a complex index of user satisfaction is explained by the need to take into account expectations and other pre-formed judgements that may bias the respondents’ answers (satisfaction = perception minus expectation)⁴⁵. This is the choice followed in the American Customer Satisfaction Index (ACSI), a well-consolidated application developed in partnership by the University of Michigan School of Business and the American Society for Quality. Originally used to track annual

⁴⁵ See Measurement Framework Compendium, p. 41-42. An even more in-depth and technical discussion of this topic was also provided in the Measurement Framework First Outline, pp. 50-53 (Deliverable D.2.1).

trends in customer satisfaction in the private sector, it has been subsequently adapted to the public sector and, since 2002, also applied to eGovernment⁴⁶. The construction of a complex and sophisticated index of user satisfaction requires, not only an ad hoc and extensive questionnaire tackling in detail all possible dimensions of service quality perception and evaluation by users, but also to take into account objective parameters (delivery times, filed complaints, etc) in order to deflate subjective perceptions from expectations and pre-formed judgements⁴⁷. The construction of such an index, an effort currently undertaken within the EPAN network, needs some time and considerable effort.

Therefore, in the short to medium term (this depends on the time needed to introduce changes within existing Eurostat surveys), we concluded that it seems feasible to start with a simple indicator of satisfaction (i.e. on a score of 1 to 5) related to both government services in general and eGovernment services and to leverage the already running Eurostat survey on 'ICT usage in households and by individuals' (see relevant extracts reported in Annex B), for which we propose (see suggestions) three additional questions mostly following the already tested approach in the EU financed project *eUser*⁴⁸. We must stress that, for the sake of cost-effectiveness and feasibility, we selected the simplest questions contained in the eUser study.

Joint EU & MS Operationalisation First, define a panel of public services to be considered. Secondly, draft the relevant questions.

eGEP suggestions:

- ❑ The panel of services should be the 12 basic public services already included in the Eurostat survey on 'ICT usage in households and by individuals' (see question D3 in the extracts reported in Annex B);
- ❑ A first question should be added to the Eurostat survey questionnaire asking respondents whether they have had any contacts with government in general in the 6 or 12 months prior to the survey. The answer should be categorised in terms of the type of services or needs generating such encounters (see Exhibit B.1 in Annex B for eUser approach); This question should be asked to the entire sample and not just to those having access to the Internet;
- ❑ A second question should be added, and asked to all those who responded positively to the question proposed above, about how satisfied they were in general with the contacts they had with government. eUser does this by referring to 'ease of use of government service in general' (1= difficult, 5= easy; see Exhibit B.2 in Annex B);

⁴⁶ See: www.theacsi.org .

⁴⁷ See Exhibit 9 and Exhibit 10 of the Measurement Framework Compendium (page 40) illustrating the logical models underlying the ACSI indexes.

⁴⁸ See for instance: *Work package 5: Synthesis and Prospective Analysis (D.5.1: First Synthesised Inputs to Knowledge Repository, Including Initial Survey Results and Good Practice Examples)*, in particular p. 41, p. 43 and p. 56.

- The Eurostat survey questionnaire could continue with its current structure (questions D.1, D.2, D.3, D.4);
- Finally a new question, should be asked to those reporting usage of one or more of the 12 basic public services (listed under question D.3) on the level of satisfaction with the online services used.
- This final question should produce a satisfaction score on a scale of 1-5 (1=low; 5=high) calculated as a mean on the satisfaction expressed by users on a number of dimensions, for instance:
 - ✓ Ease of use;
 - ✓ Convenience;
 - ✓ Time saved;
 - ✓ Gained flexibility;
 - ✓ Information accuracy.

The five dimensions listed above are only illustrative and the final ones would have to be agreed between the EU Commission and Member States in consultation with Eurostat⁴⁹.

Source of data: Eurostat survey on 'ICT usage in households and by individuals', suitably adapted.

Implementation: Eurostat.

Indicator 2.2: Amount of information requested from citizens and businesses

This indicator measures the eGovernment contribution to the reduction of administrative burden and the decision to include it arises from the availability of a new, very relevant and feasible methodology currently applied in the Netherlands:

Monitor: Multiple Use of Information⁵⁰

Joint EU & MS Operationalisation: Define the panel of public services to be considered.

eGEP suggestions: Start with the 20 basic public services.

Source of data: Web based assessment of the amount of information requested in online forms.

Implementation by : EU contractor.

⁴⁹ A possible and pragmatic choice is to adopt the 5 dimensions used in the eUser survey since they have already been tested (see Exhibit 3 in Annex B). A possible alternative is that used in the Accenture 2005 eGovernment benchmark : ease of use; perceived usefulness; level of user comfort with information sharing; rating of eGovernment services in comparison with other channels (telephone, internet, in person, post/mail). Again the topic is fully discussed in the Measurement Framework Compendium.

⁵⁰ The quite synthetic and very clear report illustrating the principle and practical implementation of this methodology can be downloaded at <http://www.minbzk.nl/contents/pages/65347/monitor.pdf> .

Indicator 2.3: Number of transactions fully completed online

Comments: this indicator is not to be confused with the fourth level of sophistication measured by the CapGemini benchmark. CapGemini, in fact, assesses the extent to which public websites contain solutions enabling decisions and delivery (i.e. 'transaction') of a public service to be completed without any paperwork needed for both the applicant and the provider. This indicator aims to measure instead how many of these transactions have actually been completed online, so it is an indicator of usage rather than of availability. The best and more reliable source of data should be the web metrics that is readily available to each public administration running such transactional services, and not surveys on users. In our case study on the Italian Tax Agency, it was a matter of a phone call to the person in charge to obtain the number of the transaction entirely fulfilled online monthly. Applying a standard estimate of the cost saving per online transaction (as compared to 'manual delivery') and multiplying it per number of total online transactions, would yield a monetary value of efficiency gains.

Joint EU & MS Operationalisation: Define the panel of public administrations to be considered. Member States ensure that selected public administrations provide the relevant web metrics.

eGEP suggestions: To make it manageable, it is naturally impossible that the panel would include all of the 14,000 different public administrations managing the 14,000 websites currently assessed by CapGemini. As a starting point, 10 public administrations providing comparable transactional services should be considered for each of the 25 Member States.

Source of data: Web metrics.

Implementation by: EU contractor gathers data through telephone interviews with selected administrations (total sample 250 administrations), or selected administrations self-report data onto an online repository provided by the EU.

3. High Impact Services: eProcurement

Premise. Of all the Ministerial Declaration signposts, those related to eProcurement are the less generic and more specific. Since all Member States have committed themselves to the Declaration and the two indicators proposed narrowly mirror the wording of the Declaration, regardless of feasibility, we do not see alternatives to measuring these signposts in a way that closely reflects the Declaration. The two indicators are different from the CapGemini assessment of sophistication of online availability. The first, in fact, concerns availability online, but in percentage of public procurement in general (here limited for feasibility reasons to that above the EU threshold), while the second is an indicator of usage. It is evident that the two

indicators proposed require additional and more specific activities than those currently foreseen in the CapGemini benchmark. Therefore, if a common consensus is confirmed amongst the EU Commission and Member States on the need to measure progress toward these eProcurement signposts in such a way that measurement reflects the Declaration, it is inevitable that a different assessment methodology from the current CapGemini one is used and higher costs are entailed. One additional comment is needed concerning the feasibility of these two indicators. Selecting a limited number of the biggest government buyers⁵¹, it should not be too difficult for a third party contractor to gather the data needed to measure the two proposed indicators.

Indicator 3.1: % of public procurement above the EU threshold available electronically

'Available online' here means that the whole procurement process from tender publication, to bid submission and final adjudication can be accomplished entirely online. For the moment the payment (digital invoicing) dimension is excluded.

Joint EU & MS Operationalisation: First, identify a selected panel of public administrations to be included in the measurement (see comments above on 'biggest buyers'). Secondly, agree whether the percentage indicator for the selected panel of administrations is to be calculated as: a) number of public tenders above EU threshold available online divided by total number of public tenders above the EU threshold published; or b) total monetary value of public tenders above EU threshold available online divided by total monetary value of public tenders above the EU threshold published. Thirdly, Member States identify and provide the EU with the main official publications listing public procurement tenders for selected administrations .

Source of data: Public procurement bulletins screening combined with web based assessment.

eGEP suggestions: Start with the top 10 government buyers at the national level.

Implementation by: EU contractor screens procurement bulletins for selected administrations and, for all identified public tenders, checks through web assessment whether they are available online.

Indicator 3.2: % of public procurement above the EU threshold carried out electronically

Joint EU & MS Operationalisation: Same as for 3.1 plus Member States identify a restricted list of the biggest public sector buyers to be considered for measurement.

eGEP suggestion: Start with the top 10 government buyers at the national level.

⁵¹ It is reasonable to assume that in government procurement, a 20/80 rule of thumb works (20% of public administrations being responsible for 80% of all public procurement expenditure) and it is equally reasonable to assume that Member States are capable of identifying the biggest public buyers in their country.

Source of data: Same as 3.1 plus request of web metrics data from selected administrations on the number and/or value of public tenders entirely completed online.

Implementation by: The EU contractor (possibly the same responsible for indicator 3.1) gathers data through telephone interviews with selected administrations (total sample 250 administrations) on the number and/or value of public tenders entirely completed online. Alternatively selected administrations self-report data onto an online repository provided by the EU.

4. Key Enablers: eID

Premise. The Declaration signpost concerning key enablers is one of the most 'blurred' in the way it is formulated. This results from the underlying trade off between the vision of having legally binding and mutually recognised means of electronic identification across Europe on the one hand, and, on the other hand, the necessity to take into account data protection regulations that are variable depending on national peculiarities in terms of applicable law. This translates directly into a clear difficulty in proposing an indicator that is, above all, comparable across 25 Member States. This difficulty explains why the corresponding indicator proposed by eGEP has changed over time. In the end, after considering all the feed-back received from Member States and from the Commission, we opted for the simplest possible indicators of output that, in our view, could be included with some adjustment in the CapGemini benchmark.

Indicator 4.1: Number of transactional public services with legally binding and mutually recognised eID

Joint EU & MS Operationalisation: Define the panel of public services to be considered.

eGEP suggestion: From the current panel of websites monitored by CapGemini, limit the analysis to those already achieving level 4 sophistication (full transaction).

Source of data: Web Assessment.

Implementation by : EU contractor.

Indicator 4.2: Number of functioning pan-European online services

Joint EU & MS Operationalisation: Define the panel of public services to be considered.

eGEP suggestion: Select the 4-5 most relevant and comparable services from the list of the 8 Pan-European services defined by IDABC. After a first pilot assessing general level of availability across countries, the extent to which a service allows for

'Pan-European' usage could become an additional item to be included in the CapGemini sophistication index.

Source of data: web based assessment.

Implementation by : EU contractor

5. eDemocracy

Premise. The eGEP reference in developing indicators has mainly been the list of 20 basic public services. These services, to a large extent, are provided by what can be defined as "General Public Administration", i.e. the more operational branch with responsibility to deliver the output defined by the Government and by the Legislative branch (naturally with differences depending on the form of government of each country). Naturally, even for this strictly operational activity by the public administration, one can measure how 'democratic' it is in terms above all of transparency, accountability and openness. Even if the 20 basic services are already defined at a higher level than that of provision, one could still envision measuring how 'participatory' they are in terms of allowing for some level of interaction and feed back. Having said that, it is evident that the eDemocracy signposts require a radical redefinition of the panel of services to be considered, which is beyond the eGEP scope.

Indicator 5.1: eParticipation sophistication index

This is an indicator of output and could be an adaptation to the forms of participation of the current CapGemini online sophistication index, although it will require an entirely separate benchmark exercise and cannot be added to the CapGemini benchmark. The score could result from recording the availability, or lack, of the following items: a) information (policy draft, new regulation, other posted online); b) one-way interaction (mail for citizens to send comments); c) two-way interaction (online Forum);

Joint EU & MS Operationalisation: Define the panel of administrations to be considered.

eGEP suggestion: Include general one-stop-shop government portals, the websites of policy-making institutions of the executive branch (Prime Minister office, largest ministries, etc), the websites of the Parliament and of other institutions of the legislative branch. Start with maximum 10 websites per Member State.

Source of data: web based assessment

Implementation by: EU contractor.

Indicator 5.2: Number of Unique Users of Online Forum

Joint EU & MS Operationalisation: Define the panel of public services to be considered.

eGEP suggestion: Same as for 5.1, further restricted only to the websites offering an Online Forum for discussion.

Source of data: web metrics recorded by the administrations running a website with an Online Forum for discussion.

Implementation by: The EU contractor gathers data through telephone interviews with the selected administrations (total sample maximum 250 administrations, if all of the 10 websites in all of the 25 Member States provide for discussion through an online forum), or selected administrations self-report data onto an online repository provided by the EU.

3.4. Indicators Short Listed for Bench-learning

Those proposed for benchmarking in the previous paragraph do not include some of the most relevant but also most complex indicators of impact that are presented in the eGEP full template, particularly none of the true impact indicators of efficiency gains. As explained in paragraph 2.2, two important indicators are: a) Full Time Equivalent gains from agreed baseline year; b) Increase in number of files handled per processing Full Time Equivalent. A benchmarking using, for instance, the second of these two indicators would require:

- ❑ Agreement among Member States on a panel of relevant public agencies to be measured in terms of this indicator (comparability);
- ❑ A differential analysis by each of the identified public agencies of their business process before and after the introduction of an eGovernment solution and the implementation of the complementary organisational change;
- ❑ The aggregation of such agency-level data into national level data by Member States.

Clearly such indicators and others require a fairly substantial amount of work on the side of Member States and certainly do not fit the third party benchmark (CapGemini Model). Eventually, as more public agencies will include such types of indicator in their business cases and monitor them periodically, a full EU25 benchmarking will become possible.

In the short term (2006-2007) such more complex and time-consuming indicators can nonetheless be used in more qualitative and experimental exercises that we define bench-learning to be launched by the EU DG INFOSOC. Before presenting a short list of indicators we propose for such types of exercise, we naturally need to explain what we mean by "bench-learning". As is well known, the Lisbon Agenda rests upon a new

form of policy coordination termed 'Open Method of Coordination' (OMC). OMC involves:

- ❑ Policy guidelines for the EU as a whole, with short, medium and long term goals;
- ❑ Indicators for benchmarking national performance;
- ❑ Periodic review of progress

OMC relies on 'soft law' rather than Treaty-based legislation. This ensures subsidiarity and leaves the policy responsibility on the topics object of the OMC to Member States. It is evident, thus, the difference between the strict and 'hard law' basis used for reaching monetary union and the method underlying the pursuit of the Lisbon goals. In this context, benchmarking indicators assume great relevance for the policy cycle and, more in general, for governance and coordination within the EU. This situation has spurred a growing number of analyses and contributions in the field of European policy studies on the merits and pitfalls of quantitative benchmarking and on the additional tools that can integrate them. Below we quote a passage from just one of the many contributions that can be found on the topic:

Indicators and benchmarks ...remain an important area of future work for policy analysts and researchers ...It may need to be accompanied by 'bench-learning', involving the exchange of narratives, case studies and 'stories', which integrate these indicators into coherent accounts of how change practically occurs.⁵²

Using the expression "bench-learning" we mean precisely peer-to-peer exchange and exploration among selected public agencies attempting to employ more sophisticated indicators of impact and exchanging their experience. It must be stressed that such an exercise would actually produce two results: a) the main one of testing measurement indicators and developing further insight towards refining the Measurement Framework Model; b) beyond measurement, the public agencies involved will learn from each other what worked and what did not work in the set up and running of the eGovernment services/projects being analysed. This type of exercise would allow an in-depth exploration of more sophisticated indicators that can also best address the comparability issue in the selection of cases. Clusters of administrations (suitably selected) providing comparable services may voluntarily join an EU-supported programme and engage in the activity of gathering the relevant data, produce an aggregate index of the public value produced by the eGovernment service they run and exchange their experiences. The closer collaboration among single administrations should enable for the adjustment of the measurement for differences and peculiarities, thus producing comparable results. Moreover, these empirical explorations should advance our practical knowledge and be the basis for the adoption of EU25 measurement standards for clusters of services.

⁵² Room, G., "Policy Benchmarking In The European Union: Indicators and Ambiguities", in *Policy Studies*, Vol. 26, No 2, 2005, pp. 117-132. This is to cite just one source within a growing body of literature addressing the issue of benchmarking and policy learning within the context of the Lisbon agenda and the Open Method of Coordination.

These bench-learning exercises are meant to be substantially different from workshops, good practice exchanges via workshops, as they will go much deeper. They will require the full involvement of facilitators helping the administrations do the time-consuming work of analysing their internal processes and interaction with the constituencies that is needed to gather the data for the measurement indicators.

The table below presents the more sophisticated indicators of efficiency and effectiveness impact proposed for bench-learning. For the indicators of efficiency, full guidelines can be found in the *Measurement Framework Compendium*⁵³. The same applies for the indicators of the time saved for citizens and businesses, measuring the reduction of administrative burdens and relying on Standard Cost Model estimations⁵⁴.

Table 3 Short List of Indicators for Bench-learning

| Drivers | Indicators | Data Source |
|---------------|--|----------------------------------|
| Efficiency | Case handled per processing Full Time Equivalent | Administrative Records |
| | K€ Full Time Equivalent Gains | Administrative Records |
| | Saving in overhead costs | Administrative Records |
| Effectiveness | Reduced Administrative Burden: <input type="checkbox"/> K€ saved for business <input type="checkbox"/> Time saved for citizens | Standard Cost Model Calculations |

In addition to these indicators, a third area would be a more comprehensive analysis of service quality and user satisfaction going deeper than that captured in benchmarking surveys and using all of the possible dimensions analysed in detail in the *Measurement Framework Compendium* (par. 3.2).

Exhibit 5 below illustrates, only in an exemplificative and very general fashion, the type of preparatory joint work on the side of the EU commission and Member States needed to launch the bench-learning activities by the fall of 2006. Simply by dividing the administrations by the type of service they provide and by their administrative layer, the preparatory work should identify clusters of comparable public administrations that could be selected to participate in the bench-learning exercise.

⁵³ Section 3: Exhibit 6 for the first two indicators, Exhibit 7 for the third, and Exhibit 8 for the fourth.

⁵⁴ see *Measurement Framework Compendium* (Section 3, pp. 32-33).

Exhibit 5 Preparatory work for bench-learning

| Type of service | Administrative Layer | | |
|-----------------|--|--|--|
| | Central | Regional | Local |
| Transactional | List of candidates ↓ Comparable clusters | List of candidates ↓ Comparable clusters | List of candidates ↓ Comparable clusters |
| | List of candidates ↓ Comparable clusters | List of candidates ↓ Comparable clusters | List of candidates ↓ Comparable clusters |
| Other | List of candidates ↓ Comparable clusters | List of candidates ↓ Comparable clusters | List of candidates ↓ Comparable clusters |

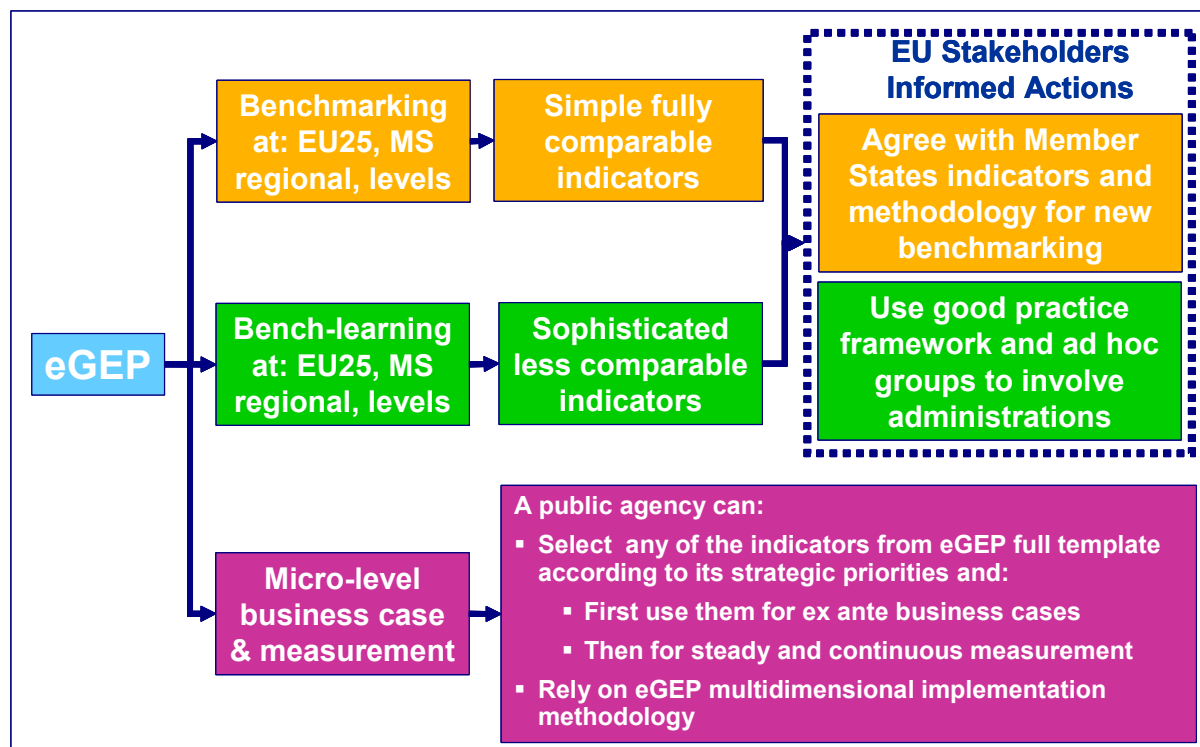
Apart from these general considerations, on the basis of the case studies conducted in support of eGEP deliverables that entailed activities to some extent similar to those needed for bench-learning explorations, we can make the following considerations:

- ❑ Bench-learning is a process requiring intense work and in-depth study for each of the agencies that take part in it;
- ❑ While self-evaluation capabilities are increasing among European public administrations, it is reasonable to assume that for the success of a bench-learning exercise, the support of third party facilitators is crucial;
- ❑ Bench-learning will run more smoothly if it builds on existing collaboration and networks among public administrations. Apart from the third party facilitator role, the exercise will benefit from the trust and familiarity existing among public agencies of different Member States that are already members of a network of exchange and collaboration and have worked on similar matters before;
- ❑ Ownership is important, only people and agencies with self interest in the learning process should participate;
- ❑ There must be a clear mandate and leadership buy-in for the bench-learning.

3.5. Possible Uses of eGEP MF and Road Map 2006-2007

By way of summarising the content of this section, exhibit 6 below illustrates the three possible ways by which the eGEP Measurement Framework can be used. First of all, in the bottom part the exhibit recalls that at the micro level, single public agencies can freely select from an eGEP full template of indicators, those best suited for monitoring progress towards their strategic objective and will also be able to rely on eGEP implementation methodology, explained in the next section and integrated by a ready-to-use practical tool consisting of 7 Excel sheets where all the calculations for the construction of composite indexes and of a global measure of public value are already defined.

Exhibit 6 Three Ways to Use eGEP



Secondly, they can be used in benchmarking and bench-learning exercises, which we typically see as the focus of the EU Commission actions and support. Benchmarking and bench-learning, however, could also be launched at a national or regional level independently by Member States.

Focussing now only on the EU Commission action, below we provide a synthetic road map of actions for the period 2006-2007, separately for benchmarking and bench-learning activities.

Signposts Benchmarking

Joint action and consultation with Member States is strategic towards moving the work forward on measuring eGovernment impact and launching the first benchmark in 2007:

- By May 2006 at the latest, the final set of indicators should be agreed upon with Member States;
- From June till September 2006 within the selected ad hoc group, the operationalisation work should be jointly carried out by EU and Member States (definition of service panels, questionnaire, data gathering and index construction methodology, etc)
- This should allow for the running of a pilot test by the end of 2006 and then launch the first impact benchmarking in the course of 2007.

Bench-learning Exercises

The EU Commission (EC) should play an active role in facilitating the process of launching bench-learning exercises. While the EC can and should involve champions and build on successful existing similar types of collaboration (in MS, in regions, in

municipalities), its role as catalyser will be crucial for the launching and success of these exercises. In the course of 2006, the EC should undertake preparatory activities enabling 3 bench-learning exercises involving a limited number of agencies (5 maximum) to be launched in late 2006 and/or at the beginning of 2007 in these three areas: a) full time equivalent gains; b) administrative burden reduction; c) broadly defined service quality and user satisfaction. These preparatory activities may include:

- The scouting of an awareness campaign with potential candidates leveraging existing tools and sources of information such as the Good Practice Framework, the list of eEurope awards candidate, other;
- The start of close liaisons with local industrial partners that could play a supporting role in a bench-learning pilot exercise already in the fall of 2006;
- The identification of ways to involve experts as facilitators of such bench-learning exercises.

4. Implementation Methodology

The theoretical underpinning of the implementation methodology briefly illustrated in this section is reported in detail in Section 4 of the *Measurement Framework Compendium*. In support of our methodology, we have provided a very useful and simple tool consisting of 7 Excel sheets (plus one example illustrated in 7 additional sheets) that is attached separately to this report. In Annex C to this report, an example of the application of the implementation methodology for benchmarking purposes is provided

Since we aim to introduce an eGovernment measurement framework that goes beyond the current “state-of-the-art”, by including both quantitative and qualitative measures of eGovernment impact, we provide a list of indicators, whose benefits are expressed both in quantitative and qualitative terms. By doing so, we get a more comprehensive snap-shot of the project to be evaluated, providing a sort of multidimensional measurement of financial as well as qualitative effects.

In order to get a net evaluation of public value delivered by the eGovernment initiative we are measuring, we divide data between costs and the benefits of the project to be analysed. They should be recorded first in provisional terms and then in practical observations. The former ones allow for an ex-ante analysis, the latter ones allow for an ex-post assessment.

Therefore in the following, we synthetically go through the various elements of the implementation methodology and provide some useful guidelines for the usage of the Excel sheets attached separately.

I. Excel Sheet

Here project costs are classified in set-up costs, provisional and maintenance costs. Administrations are required to fill the blanket gaps, as follows.

In the first category, called “set-up costs of the project”, is meant expenses and fees sustained or expected for the start up of the project, like:

Table 4 Expenses and fees sustained or expected for the start up of the project

| COSTS | SOURCES OF DATA |
|--|------------------------|
| • Advisory costs (financial, legal, technical) | • Budget |
| • Documentation and permission expenses | • Budget |
| • Personnel costs for new hiring, with consequential training costs if necessary | • Budget |
| • Material costs | • Budget |
| • IT infrastructure costs (software, hardware) | • Budget |
| • Installation costs | • Budget |
| • Adaptation, internet access fees. | • Budget |

In the second and third categories, called “provision and maintenance costs of the project”, is meant costs sustained or expected for the operating phase of the project, like:

Table 5 Costs sustained or expected for the operating phase of the project

| COSTS | SOURCES OF DATA |
|--|------------------------|
| • Administrative expenses | • Budget |
| • Financial costs (accrued interests) | • Budget |
| • General expenses | • Budget |
| • Personnel costs for new hiring, with consequential training costs if necessary | • Budget |
| • Operating costs of the new IT measure | • Budget |
| • Maintenance and system updating costs | • Budget |
| • Cost of supporting external advisory | • Budget |
| • Advertising and promotional costs | • Budget |

These are budget expenses that can easily be found from administrative records.

II. Excel Sheet

Here administrations are required to write down the possible benefits springing from the realization of the eGovernment project under consideration.

In this category, is meant benefits referring to the efficiency, effectiveness and democracy drivers, as shown in the following table.

Table 6 The Efficiency, the Effectiveness and the Democracy Indicators

| EFFICIENCY BENEFITS | |
|---------------------------------------|---|
| Type of benefit | Type of measurement |
| Cashable Financial Gains | K€ Full Time Equivalent gains |
| More empowered employees | # of public administration trainees |
| Better organizational architectures | # of in case handled protocols in a given time of period |
| EFFECTIVENESS BENEFITS | |
| Type of benefit | Type of measurement |
| Reduced Admin. Burden | Khr time saved by citizen & business |
| Increased User Value and Satisfaction | eGovernment users satisfaction index |
| More inclusive public services | # of inclusion related e-services |
| DEMOCRACY BENEFITS | |
| Type of benefit | Type of measurement |
| Openness | # of government business processes open to the public (tendering, procurement, recruitment, etc.) |
| Transparency and Accountability | # of services involving a two-way interaction with users |
| Participation | # queries submitted online |

III. Excel Sheet

As easily shown, the overall set of benefits, representing the MF value drivers, are described by different units of measure (k €, K hr, #) and thus they need to be normalized in order to allow for the computation of the composite indicators, which represent a fruitful way to combine heterogeneous dimensions of the performance. For this purpose, we adopt one of the most common techniques enabling the standardization of variables coming in a variety of statistical units, range and scales. This is the so-called Distance from the mean, by which the (weighted or un-weighted) mean value is given as 100, and countries are given scores depending on their distance from the mean

$$100 \left(\frac{\text{actual value}}{\text{mean value}} \right)$$

The usefulness of this procedure is twofold. First, in accordance with the normalization intention, it provides a common base of reference (the mean baseline=m) for the computation of each indicator described in different units of measurement; secondly, it also provides a common base of reference for every possible benchmarking purposes, carried out either at single public administration, or single country or at the European Union level. This means that the mean of the baselines should reflect the average baseline both for the overall eGov project portfolio of single PA and, alternatively, for the entire European Union. In this latter case, it helps to avoid problems due to the differences in the baselines among member states, reflecting the different stage of development of their eGovernment agenda.

In any case, once the mean baseline for each benefit is identified, the computation of indicators by year is as follows:

Table 7 The Normalization procedure

| Impacts | Description | Measure |
|---------------------------------------|---|--------------------|
| Cashable Financial Gains | K€ Full Time Equivalent gains | $100(K€_t/K€_m)$ |
| More empowered employees | # of public administration trainees | $100(\#_t/\#_m)$ |
| Better organizational architectures | # of in case handled protocols in a given time of period | $100(\#_t/\#_m)$ |
| Reduced Admin. Burden | Khr time saved by citizen & business | $100(Khr_t/Khr_m)$ |
| Increased User Value and Satisfaction | eGovernment users satisfaction index | $100(S_t/S_m)$ |
| More inclusive public services | # of inclusion related e-services | $100(\#_t/\#_m)$ |
| Openness | # of government business processes open to the public (tendering, procurement, recruitment, etc.) | $100(\#_t/\#_m)$ |
| Transparency and Accountability | # of services involving a two-way interaction with users | $100(\#_t/\#_m)$ |
| Participation | # queries submitted online | $100(\#_t/\#_m)$ |
| TOT | | |

The description of FTE gains required some more in-depth analysis. This is because of the particular nature of this benefit. Although it is termed as FTE gains, however, for its computation we must take into account personnel expenditures by year. Consequently the benefit measure will be the following one:

$$(K€ \text{ Personal Expenditure}_t - K€ \text{ Personal Expenditure}_{t=0}) / K€ \text{ Personal Expenditure}_{t=0}$$

Thus, in order to get the mean of the baselines, we can alternatively consider the aggregate data of personnel expenditure at an EU level, in t and t=0, or the amount of personnel expenditure at country level. In the former case, the aggregate value is equal to the mean of the baseline of all member states; in the latter case, in order to get this common base of reference, it is necessary to compute the average value of the national baselines.

To sum up, through this normalization procedure it is possible to get sensible perceptions of the contribution of the project in terms of efficiency, effectiveness and democracy, along the whole project's cycle. Thus, by doing so, a comparison between benefits, both quantitative and qualitative ones, is allowed.

IV. Excel Sheet

This sheet allows for the assessment of the synthetic measure of the contribution of the project/service to the efficiency, effectiveness and democracy value drivers. In other words, a composite indicator for each value driver, namely efficiency, effectiveness and democracy of the project is calculated. This procedure requires the attribution of weights, each one associated to each benefit. While the selection of weights can be performed by analysts in order to over/under estimate the impact of a

specific phenomenon in the overall value, the construction of a general strategic tool requires the definition of a common set of weights to be applied. In such a way, comparisons as well as aggregations of project contributions to public value are allowed. Accordingly, specific weights can be defined by taking into account whether data required for the calculation of each benefit is quality-based, available, reliable, relevant and measurable or not and to what extent. In essence, we would associate higher weights to the more tangible indicators, because of their better measurability and practical relevance. In any case, this attribution can be changed on the basis of a technical as well as political judgment, that could be conducted either at single public administration, or at single country, or at a European Union level.

Once these weights" are calculated, we can compute the composite indicators of the efficiency, the effectiveness and the democracy value driver, respectively, as an average value of their indicators.

V. Excel Sheet.

This sheet responds to the procedure pursued in sheet IV, however, in a world characterized by risk. This implies that the amount of each composite indicator is weighted by a risk impact measure and by the probability that this risk may occur, in order to account for the best (100 %) as well as for the worst (0%) scenario, in which a specific project/program might be carried out. In other words, this procedure allows us to take into account the probability that specific events could occur and to what extent they negatively affect project performance (risk impact measure).

For this purpose, and according to the current risk analysis of projects, political risks as well as operational risks and external risks should be identified and analysed. Administrations are suggested to assess the level of risk impact that goes from "100" (max. likelihood) through "20" (min. likelihood) and attribute the probabilities of risk occurrence. Thus, once both the risk impact measure and the probabilities are chosen, on the basis of analytic evaluations, it is also necessary to assess the contribution of each type of risk on the whole risk impact. Again, analysts are advised to choose these weights depending on the previous analytical evaluations. This last step allows for the calculation of the expected value of each value driver's composite indicator, simply conceived as a weighted average value.

$$\begin{aligned} & \text{Expected value} = \\ & = ORW \sum_{i,j} CI * operRIM_i * p_j + PRW \sum_{i,j} CI * polRIM_i * p_j + ERW \sum_{i,j} CI * extRIM_i * p_j \end{aligned}$$

Where:

ORW = operational risk weight

operRIM = operational risk impact measure

PRW = political risk weight

polRIM = political risk impact measure

ERW = external risk weight

extRIM = external risk impact measure

CI = composite indicator

p = probability that risk may occur

VI. Excel Sheet

In Sheet VI, we get an overall measure of the project/service we are evaluating, called the Global composite indicator. This comes from the aggregation of the three value-driver composite indicators already calculated, both accounting for risk or not. This aggregation takes the form of an average value, weighted by those factors that should reflect the strategic relevance of efficiency, effectiveness and democracy impact. This weighting procedure is policy-sensitive in nature. In other words, the attribution of weights to any value-driver/composite indicator reflects a strategic judgment driven by policy issues that differ across public administrations as well as across countries and within the European Union. Thus, since our suggestion is meant to be non policy-sensitive, this implies that we recommend equal weights for all composite indicators, until the process of defining a common set of weights has been accomplished.

Before going further, we should pay more attention on the two weighting procedures we have shown in sheets IV and V. For this purpose, it may be useful to make a distinction between the two different aims of eGovernment projects/services evaluation. The first is the evaluation of a single project/service, the second is the assessment of the overall impact of a portfolio of eGovernment projects/services or the comparison between them. Aiming at a single-project evaluation means that any public administration, any central government of a country, or the European Commission itself may choose their weights. This is because the possible advantages of this procedure accrue only to the internal management of the organization. However, from a portfolio management perspective or alternatively for (ex-post) benchmarking purposes, it is strongly advised that, besides the homogeneity of data required for the computation of the indicators, the weights must be chosen consistently and set equal for all projects/services, in order to make comparisons feasible. In other words, such weights may represent the common base for the analysis of the entire set of eGovernment projects or services. Moreover, these considerations are consistent with the methodology proposed by Freudenberg⁵⁵, by which composite indicators are “*synthetic indices of individual indicators*”, that allow for comparison of country performances. Indeed, they are generally employed for comparing countries in areas such as industrial competitiveness, sustainable development, globalization and innovation. We thus consider that these (global)

⁵⁵ Freudenberg, M., “Composite Indicators of Country Performance: a Critical Assessment”, *STI working paper 2003/16 Industry Issues*, November, 12

composite indicators may enable the European Commission to benchmark the performance of the member states in terms of eGovernment' s impact on the overall performance of the Public sector.

VII. Excel Sheet

It should be underlined that these six sheets can be applied only for the analysis of a single project. Any analyst thus, should iterate the procedure for each project she/he has in her/his portfolio. A possible overview of the findings of this re-iteration is presented in sheet VII. The rationale behind this conclusive summary lies in the possible comparisons between projects on the base of cost/benefit analysis. That is, all costs being equal, the higher the global composite indicator related to one project is, the greater its probability to be preferred to others. This final overview also comprises the construction of a revenue matrix, whose characteristics and functionality are explained in ANNEX C.

As described in Annex C, the revenue/risk matrix identifies each project along three dimensions:

- ❑ **Revenues:** it is equal to the value released by the project; in our approach, revenues can be estimated by the absolute degree of improvement of the public sector performance associated to the project. The measure is provided by the global composite indicator;
- ❑ **Risk:** associated with each project, it is measurable through the assessment of the volatility or variability of relevant variables for the project: costs, revenues (degree of improvement of the public sector performance), lead time of the project, etc. The measure is provided by the complement to one of the ratios between global composite indicators accounting for risk and global composite indicators not accounting for it.
- ❑ **Resources:** amount of resources invested, in terms of man-hours (FTEs) or in terms of the economic-financial value of the investments for the project. In our framework, this amount is equal to the total costs of the project.

The three dimensions are summarized as follows:

- ❑ Revenue = global composite indicators
- ❑ Risks = $1 - (\text{global composite indicators with risk} / \text{global composite indicators without risk})$
- ❑ Resources = costs.

Once the revenue/risk matrix is calculated, analysts and policy-makers can apply it as a strategic tool to select eGovernment projects and initiatives that can be more fruitfully carried out. Finally, when projects have been delivered, the same type of measurement must be applied to assess the public value released by the eGovernment program.

Concluding Recommendations

1. Establish a working group on eGovernment measurement standards

Launch a working group – including EU experts, senior budget officials from Member States (MS), MS representatives of institutions in charge of eGovernment, and statisticians (from Eurostat and national statistics offices) – in order to agree upon the critical issues on measuring eGovernment value, like common variables, common weights and common data collection rules.

2. Definition of the organization in charge of data collection and analysis

Measurement framework must be applied on a regular basis, with a specific organization holding the role of playing as a hub of an ongoing process of data collection, provided by member states. This organization must ensure the homogenization of data, measures, and weights in order to make the benchmarking activities feasible. As this type of multidimensional measurement is a relative new issue in comparison with the state-of-the-art, the start-up a new organisation/agency, which acts as an independent observatory on “eGovernment Value Creation” is recommended.

3. Selection of eGovernment services to be measured

Selection of a panel of eGovernment services to be continuously analysed, on the basis of strategic priorities defined at the EU level and agreed with country members.

Annex A: eGEP Indicators Full Template

Table A.1 Legend of Indicators Data Sources Acronyms

| Acronym | Full Description of Source |
|--------------------|---|
| OS | Official Statistics |
| ADRE ⁵⁶ | Administrative Records Data, for instance: <ul style="list-style-type: none"> <input type="checkbox"/> Personnel costs; <input type="checkbox"/> Material costs; <input type="checkbox"/> Volumes of output (files, cases, transaction processed); <input type="checkbox"/> Description of standard procedures and business processes and of corresponding working times; <input type="checkbox"/> Other |
| SCMC ⁵⁷ | Standard Cost Model Calculations |
| ISA ⁵⁸ | Internal Self-Assessment based on qualitative Scale |
| RSS ⁵⁹ | Random sample survey for user Satisfaction and usage Data and index construction ⁶⁰ |
| ESUR | Employee Surveys |
| POPS ⁶¹ | Pop-up Surveys. |
| TPA ⁶² | Third Party Assessment |
| WCR ⁶³ | Automatic Web Crawler Software |
| WMET ⁶⁴ | Web Metrics Data: <ul style="list-style-type: none"> <input type="checkbox"/> Number of hits or user contact sessions; <input type="checkbox"/> Number of document downloads; <input type="checkbox"/> Amount of time users spend on a site; <input type="checkbox"/> Number of transactions completed; <input type="checkbox"/> Web analytics (click streams, repeat use, cross-usage) |

⁵⁶ On how to use this data for the calculation of efficiency indicators See *Measurement Framework Compendium*, pp. 30-32 (exhibits 6 and 7).

⁵⁷ See *Measurement Framework Compendium*, pp. 32-33.

⁵⁸ See example in *Measurement Framework Compendium*, pp. 33-35 (exhibit 8).

⁵⁹ This topic is discussed in full detail in the *Measurement Framework Compendium* (paragraph 3.2).

⁶⁰ For a concrete example see *Measurement Framework Compendium* (pp. 39-40 and Exhibit 10).

⁶¹ See *Measurement Framework Compendium* (pp. 37-38).

⁶² See *Measurement Framework Compendium* (pp. 36-37 for the Accenture methodology and 42-44 for eGEP approach on the topic).

⁶³ See discussion at paragraph 3.1 of this report.

⁶⁴ See *Measurement Framework Compendium* (pp. 35-36).

Table A.2 eGEP Indicators Full Template, Sources, and Signposts Relevance

| EFFICIENCY | | | |
|--|---|---------------|------------------|
| Impact | Indicators | Source | Signposts |
| Cashable financial gains | 1. Δ % case handled per processing full time equivalent | ADRE | 2 |
| | 2. Δ % in average length of time to process a standard case | ADRE | 2 |
| | 3. Δ % K€ full time equivalent gains | ADRE | 2 |
| | 4. Δ % K€ in overhead costs (postage, paper, print) | ADRE | 2 |
| | 5. Δ % K€ dematerialisation savings from e-procurement | ADRE | 2 / 3 |
| | 6. Δ % K€ in maintenance costs | ADRE | 2 |
| | 7. Δ % of overall business as usual budget | ADRE | 2 |
| | 8. Δ % e-tendering as a % of total transactions | ADRE/WMET | 2 / 3 |
| | 9. Δ % economies of scale gains | ADRE | 2 |
| | 10. Δ % in revenue gains from improved coverage | ADRE | 2 |
| Better empowered employee | 11. Δ % in number of employees re-trained | ADRE | 2 / 1 |
| | 12. Δ % public servants eGov/ICT skills | ISA/ESUR | 2 |
| | 13. Δ % in number of employees tele-working | ADRE | 2 |
| | 14. Δ % job flexibility score | ISA | 2 |
| | 15. Δ % in improved job content score | ISA | 2 |
| | 16. Δ % in employees' satisfaction score | ISA | 2 |
| | 17. Δ % in overall job attractiveness score | ISA | 2 |
| | 18. Δ % in overall job empowerment score | ISA | 2 |
| Better organisational and IT architectures | 19. Δ % in number of transactions performed online | WMET | 2 |
| | 20. Δ % in revenue collection cycle length | ADRE | 2 |
| | 21. Δ % in number of internal protocols needed for cross-agencies services | ADRE | 2 |
| | 22. Δ % in number of personnel redeployed to front line activities | ADRE | 2 |
| | 23. Δ % in number of IT enabled face-to-face contact points | ADRE | 2 / 1 |
| | 24. Δ % in ratio of professional to general service staff | ADRE | 2 |
| | 25. Δ % in number of re-designed business processes | ADRE | 2 |
| | 26. Δ % in number of integrated services available in main Government Portal | ADRE/TPA | 2 / 3 |
| | 27. Δ % in improved organisation score | ISA | 2 |
| | 28. Δ % in improved inter-operability score | ISA | 2 |
| | 29. Δ % in activity standardisation score | ISA | 2 |
| | 30. Δ % in improved planning and policy-making score | ISA | 2 |
| | 31. Δ % in IT infrastructure coherence score | ISA | 2 |
| | 32. Δ % of public agencies with integrated IT financial and resource planning. | ADRE | 2 |
| | 33. Δ % in improved internal management score | ISA | 2 |
| | 34. Δ % in improved internal communication score | ISA | 2 |
| | 35. Δ % in volume of authenticated documents exchanged with other national public agencies | ADRE/WMET | 2 / 4 |
| | 36. Δ % in volume of authenticated documents exchanged with public agencies across EU | ADRE/WMET | 2 / 4 |
| | 37. Δ % in the number digital knowledge sharing platforms for public agencies | ADRE/TPA | 2 / 3 |
| | 38. Δ % in the number of Public Private Partnerships supported by a digital platform | ADRE/TPA | 2 / 3 |
| | 39. Δ % in the volume of documents exchanged digitally within PPP | ADRE/WMET | 2 / 3 |
| | 40. Δ % in overall in inter-institutional cooperation score | ISA | 2 / 4 |
| DEMOCRACY | | | |
| Impact | Indicators | Source | Signposts |
| Openness | 41. Δ % in number of policy drafts online for consultation | TPA | 5 |
| | 42. Δ % increase in number of government websites with Constituency Relationship Management Applications | TPA | 5 |
| | 43. Δ % in response time to queries received online | ADRE/TPA | 5 |
| | 44. Δ % increase in number of government websites providing platforms for digital interaction and consultation (online forum, e-petitioning, etc) | TPA | 5 |
| | 45. Δ % in number of government websites providing two-way interaction with users | ADRE/WMET | 5 |
| | 46. Δ % change in aggregate openness score | TPA | 5 |
| Transparency and accountability | 47. Δ % in number of government processes fully traceable online | TPA | 2 |
| | 48. Δ % in number of transactional services enabling online case tracking | TPA | 2 |
| | 49. Δ % in number of public agencies reporting their budget and expenditure online | TPA | 2 |

Continued

Continued

| | | | |
|---|---|----------------------|------------------|
| Transparency and accountability | 50. Δ % in number of public agencies publishing online full organisational chart with indication of responsibility and contact information of each public servant | TPA/WCR | 2 |
| | 51. Δ % in overall volume of administrative and legislative documentation online | TPA/WCR | 2 |
| | 52. Δ % in online public information clarity and accuracy score | TPA | 2 |
| | 53. % Δ in externally assessed transparency score | TPA | 2 |
| Participation | 54. % Δ in online public services with certified accessibility | WCR | 5 |
| | 55. % Δ in externally assessed participation score | TPA | 5 |
| | 56. % increase in queries submitted online | WMET | 5 |
| | 57. % increase in online forum interaction | WMET | 5 |
| | 58. % increase in policy drafts downloaded | WMET | 5 |
| | 59. Availability of online appeals procedure and e-ombudsman | TPA | 5 |
| EFFECTIVENESS | | | |
| Impact | Indicators | Source | Signposts |
| Reduced administrative burden | 60. Δ % in time saved for citizens | SCMC | 2 |
| | 61. Δ % in valorised (K€) time saved for businesses | SCMC | 2 |
| | 62. Δ % K€ cost savings for citizens (travel, postage, fees to intermediaries) | SCMC | 2 |
| | 63. Δ % K€ cost savings for businesses (travel, postage fees to intermediaries) | SCMC | 2 |
| | 64. Δ % users reporting e-service saved time over traditional methods for a standard bundle of services | POPS | 2 |
| Increased Users' Value and Satisfaction | <i>Observable (objective) Tangible dimension</i> | | |
| | 65. Δ % in number of officially filed complaints | ADRE | 2 |
| | 66. Δ % in waiting times for a standard bundle of services | POPS | 2 |
| | 67. Δ % in off-hours service usage/info downloads | WMET/POPS | 2 |
| | 68. Δ % in number of unique users repeatedly using elective online services | WMET | |
| | 69. Δ % in number of unique users cross-using services in Government Portal | WMET | 2 |
| | <i>Unobservable (subjective) Intangible dimension</i> | | |
| | 70. Δ % in number of users reporting eGovernment services to be useful | RSS | 2 |
| | 71. Δ % in number of users reporting information available in government website to be accurate and credible | RSS | 2 |
| | 72. Δ % in number of users reporting government website to satisfactorily address security and privacy issues | RSS | 2 |
| | 73. Δ % in number of users reporting they trust providing personal information online | RSS | 2 |
| | 74. Δ % in overall eGovernment user-satisfaction index | RSS | 2 |
| | 75. Δ % in overall eGovernment user-satisfaction index by age/income/educational attainment | RSS | |
| | <i>Externally Measurable Functional dimension</i> | | |
| | 76. Δ % in number of government websites providing customer service (online/ call centre) | TPA | 2 |
| | 77. % increase in usage of transactional Pan-European eServices (*) | TPA | 2 / 4 |
| | 78. Δ % in usability score | TPA | 2 |
| | 79. Δ % in seamless service provision score | TPA | 2 |
| | 80. Δ % in innovative service provision score | TPA | 2 |
| | 81. Δ % in overall quality of service score | TPA | 2 |
| More Inclusive Public Services | <i>Citizens</i> | | |
| | 82. Δ % in usage of public Job Portals | WMET | 1 |
| | 83. Δ % in usage of public eLearning Portals | WMET | 1 |
| | 84. Δ % in usage of public eHealth Portals | WMET | 1 |
| | 85. Δ % in usage of online forms to receive Welfare benefits | WMET | 1 |
| | 86. Δ % of Internet penetration by age/ income/ educational attainment | RSS | 1 |
| | 87. Δ % increase of eGovernment usage by socially disadvantaged groups | RSS | 1 |
| | 88. Δ % in inclusion related public e-services usage score | Elaborated from WMET | 1 |
| | <i>Businesses</i> | | |
| | 89. Δ % in number of SME bidding for public tenders electronically | WMET | 1 |
| | 90. Δ % in usage of government portals for businesses | WMET | 1 |
| | 91. Δ % in number of SME handling export requirements online | WMET | 1 |
| | 92. Δ % in usage of government portal on funding opportunities | WMET | 1 |

Annex B Extracts from Eurostat and eUser Surveys



Module D: e-Government

The questions in this module are to be answered by all regular Internet users (used Internet in the last 3 months: [C1a = Yes])

D1 Would you be interested to use the Internet to replace some of your personal contacts with or visits to public services or administrations?
(tick only one)

Yes, I already use this possibility [-> go to D3]
 Yes, I would be interested (but I am currently not a user) [-> go to D2]
 No [-> go to D2]

D2 What are the reasons for not using the Internet for dealing with public services or administrations?
(tick all that apply)

a) The services I need are not available on-line or difficult to find
 b) Personal contact is missing
 c) Immediate response is missing
 d) Concerned about protection and security of my data
 e) Additional costs (e.g. connection costs)
 f) Using the Internet for contacts with public administration is too complex ...
 g) None of the above, but other

[Respondents having answered "Yes, I would be interested (...)" in D1 -> go to D3]
 [Respondents having answered "No" in D1 -> go to D4]

D3 With which of the following matters are you already dealing via Internet or would you like to deal via Internet?
(tick one box per line)

| | Yes, I have already done this on-line | Yes, I would like to do this on-line | No, I would not do this on-line |
|---|---------------------------------------|--------------------------------------|---------------------------------|
| a) Income taxes (declaration, notification of assessment)..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Job search services by labour offices | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c) Social security benefits (unemployment benefits, child allowance, medical costs, student grants) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d) Personal documents (passport and driver's licence) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e) Car registration (new, used and imported cars) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| f) Application for building permission | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| g) Declaration to the police (e.g. in case of theft) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| h) Public libraries (availability of catalogues, search tools) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| i) Certificates (birth, marriage): request and delivery | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| j) Enrolment in higher education or university | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| k) Announcement of moving (change of address) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| l) Health-related services (e.g. interactive advice on availability of services in different hospitals; appointments for hospitals) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

[-> go to D4]

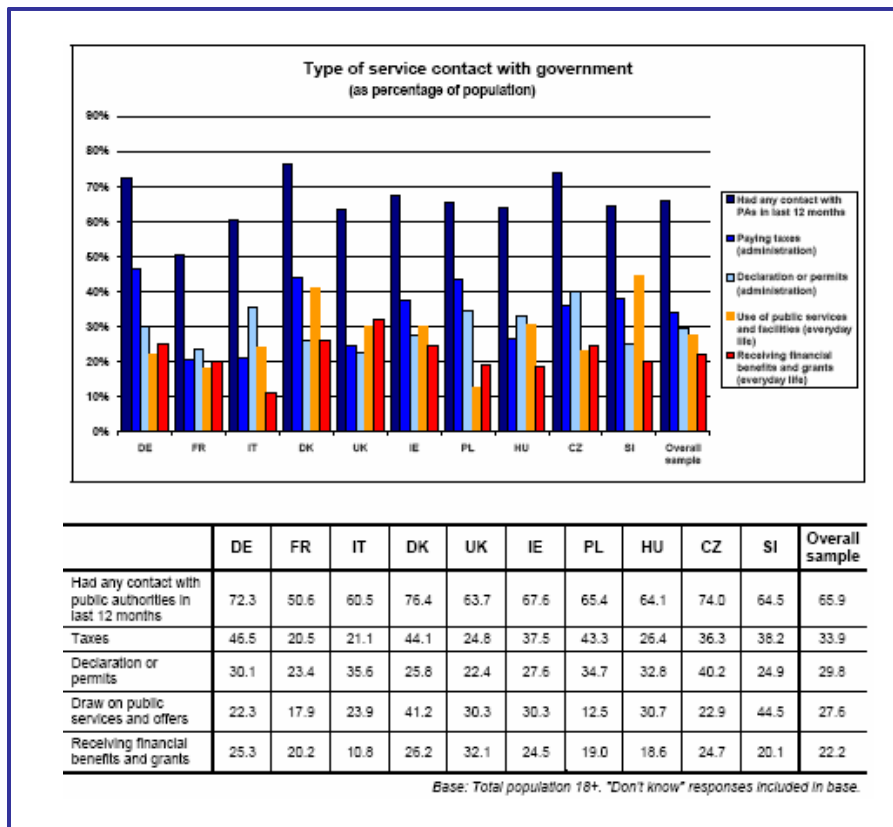
D4* For which of the following activities relating to interaction with public services or administrations did you use the Internet in the last 3 months for private purpose?

(tick all that apply)

- o) Obtaining information from public authorities' web sites
- p) Downloading official forms
- q) Sending filled in forms

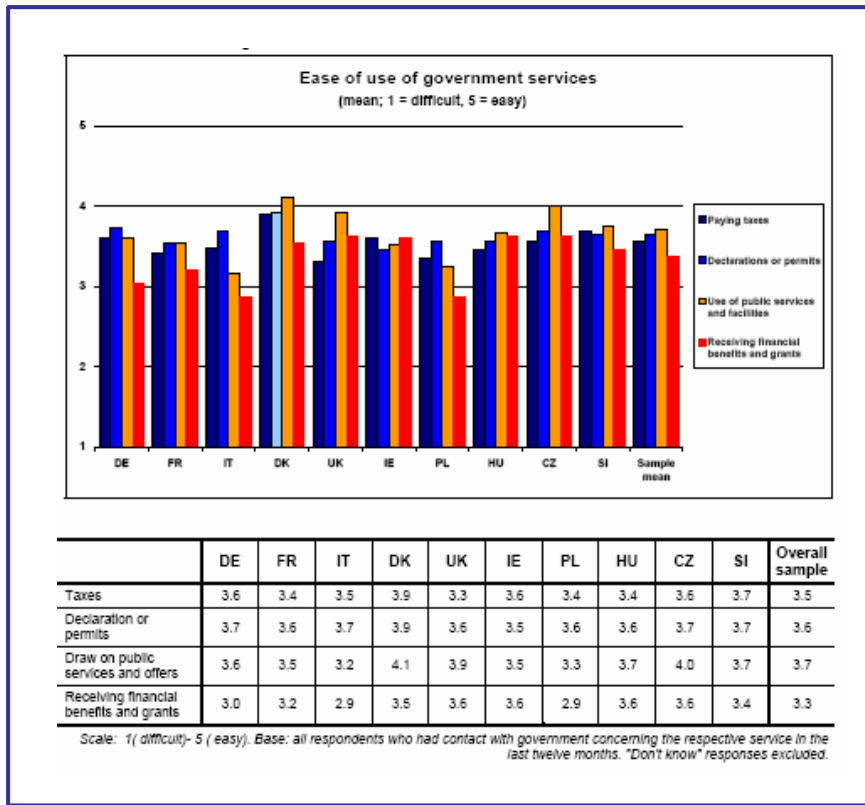
[-> go to E1]

Exhibit B.1 eUser: Type of Services used in contact with government



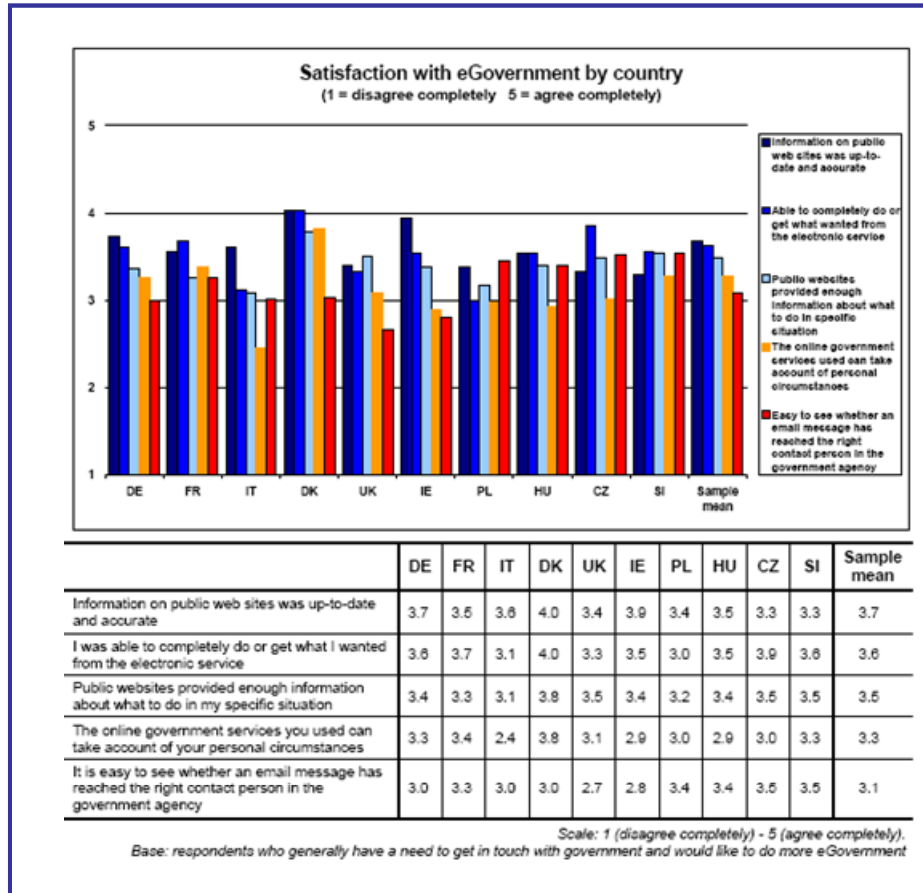
Source: eUser, Work package 5: Synthesis and Prospective Analysis (D.5.1: First Synthesised Inputs to Knowledge Repository, Including Initial Survey Results and Good Practice Examples), p. 41.

Exhibit B.2: eUser, Easy of use of government services



Source: eUser, Work package 5:..., *op. cit.*, p. 43

Exhibit B.3 eUser: Satisfaction with eGovernment by country



Source: eUser, Work package 5:..., *op. cit.*, p. 56

Annex C Implementation Methodology Example

Here we provide a brief example of the application of the *Implementation Methodology* for the indicator “number of services involving two-way interaction with users”. This will be analysed at country level for benchmarking purposes. Thus, our simulation should help every Member State to best understand the functionality of the implementation methodology for performance comparison among the other EU25 member states.

I. Excel Sheet

See the general procedure.

II. & III. Excel Sheets

The benefit considered “# of services involving two-way interaction with users”, can be measured through a third party assessment of a panel of selected government websites.

In the following table, the scenario imagined for all EU25 member states, in terms of “# of services involving two-way interaction with users” national baseline, is shown.

Table C.1 Hypothetical National Baselines of Democracy benefit

| U E 2 5 | B a s e l i n e | U E 2 5 | B a s e l i n e |
|---------------------------|-----------------|-----------------------|-----------------|
| A u s t r i a | 4 0 | L a t v i a | 2 4 |
| B e l g i u m | 8 0 | L i t h u a n i a | 2 5 |
| C y p r u s | 2 0 | L u x e m b u r g | 1 2 |
| C z e c h R e p u b l i c | 3 5 | M a l t a | 1 0 |
| D e n m a r k | 2 3 0 | N e t h e r l a n d s | 3 0 |
| E s t o n i a | 6 0 | P o l l a n d | 7 5 |
| F i n l a n d | 7 6 | P o r t u g a l | 9 0 |
| F r a n c e | 1 7 0 | S l o v a k i a | 4 5 |
| G e r m a n y | 2 0 0 | S l o v e n i a | 3 2 |
| G r e e c e | 5 0 | S p a i n | 1 3 0 |
| H u n g a r y | 5 4 | S w e d e n | 1 0 0 |
| I r e l a n d | 1 2 5 | U K | 1 4 0 |
| I t a l y | 1 6 5 | | |

Once we have defined the baseline for each EU member state, the next step requires to conjecture the amount of this benefit in the next 5 years, till year 6, as described in the general methodology. However, for the sake of simplicity we limit our simulation

to two other observations, besides the baseline identified at year 1. The results are shown in the following table.

Table C.2 National Expected values of Democracy benefit

| UE 25 | Year 2 | Year 3 | UE 25 | Year 2 | Year 3 |
|----------------|--------|--------|-------------|--------|--------|
| Austria | 52 | 64 | Latvia | 31,2 | 38,4 |
| Belgium | 104 | 128 | Lithuania | 32,5 | 40 |
| Cyprus | 26 | 32 | Luxemburg | 15,6 | 19,2 |
| Czech Republic | 45,5 | 56 | Malta | 13 | 16 |
| Denmark | 299 | 368 | Netherlands | 39 | 48 |
| Estonia | 78 | 96 | Poland | 97,5 | 120 |
| Finland | 98,8 | 121,6 | Portugal | 117 | 144 |
| France | 221 | 272 | Slovakia | 58,5 | 72 |
| Germany | 260 | 320 | Slovenia | 41,6 | 51,2 |
| Greece | 65 | 80 | Spain | 169 | 208 |
| Hungary | 70,2 | 86,4 | Sweden | 130 | 160 |
| Ireland | 162,5 | 200 | UK | 182 | 224 |
| Italy | 214,5 | 264 | | | |

Now, in accordance with the normalization procedure proposed, we first compute the mean value of national baselines. This is equal to 80.72. Then, in order to get the progressive improvement, by year and by nation, of this benefit, we apply the next equation as many times as the number of EU member states, i.e. 25.

$$\text{Distance from the mean: } 100 \left(\frac{\text{actual value}}{\text{mean value}} \right)$$

Where *actual value* is equal to the amount of benefit by nation for year 2 and year 3 respectively (National expected values); *mean value* is equal to 80.72. The results of this computation are summarized in the following table.

Table C.3 Distance from the mean by nation and by year

| UE25 | DFM Year 2 | DFM Year 3 | UE25 | DFM Year 2 | DFM Year 3 |
|----------------|------------|------------|-------------|------------|------------|
| Austria | 64,42 | 79,29 | Latvia | 38,65 | 47,57 |
| Belgium | 128,84 | 158,57 | Lithuania | 40,26 | 49,55 |
| Cyprus | 32,21 | 39,64 | Luxemburg | 19,33 | 23,79 |
| Czech Republic | 56,37 | 69,38 | Malta | 16,11 | 19,82 |
| Denmark | 370,42 | 455,90 | Netherlands | 48,32 | 59,46 |
| Estonia | 96,63 | 118,93 | Poland | 120,79 | 148,66 |
| Finland | 122,40 | 150,64 | Portugal | 144,95 | 178,39 |
| France | 273,79 | 336,97 | Slovakia | 72,47 | 89,20 |
| Germany | 322,10 | 396,43 | Slovenia | 51,54 | 63,43 |
| Greece | 80,53 | 99,11 | Spain | 209,37 | 257,68 |
| Hungary | 86,97 | 107,04 | Sweden | 161,05 | 198,22 |
| Ireland | 201,31 | 247,77 | UK | 225,47 | 277,50 |
| Italy | 265,73 | 327,06 | | | |

As easily shown, this procedure leads to “pure numbers” or indicators that can be compared. The higher the amount of these indicators, the more the nation displaying this result can be conceived as the leading nation in terms of eGovernment performance in comparison with other member states. This reasoning works for each value driver indicators to be calculated.

IV. Excel Sheet

Once we get the overall set of indicators, the following step calls for the calculation of the composite indicators for each value driver. Consistent with the general procedure, they are calculated on the bases of an analytic valuation that leads to the association of weights to each indicator, on the bases of their measurability, relevance and comparison potential. For the sake of simplicity we suggest the same weights for each indicator, although this attribution can be changed on the basis of a technical as well as political subjective judgment, that could be conducted either at single public administration, or at single country, or at European Union level. In the following table we show the results conjectured only for one nation, i.e. Austria. The value drivers’ composite indicators are weighted average values, as follows.

$$\text{Efficiency composite indicator} = \sum_{\text{efficiency}} I(\text{efficiency}) * w_I$$

$$\text{Effectiveness composite indicator} = \sum_{\text{effectiveness}} I(\text{effectiveness}) * w_I$$

$$\text{Democracy composite indicator} = \sum_{democracy} I(democracy) * w_{democracy}$$

Where:

I(efficiency) = efficiency single indicator

w(I_{efficiency})= efficiency single indicator weight

I(effectiveness) = effectiveness single indicator

w(I_{effectiveness})= effectiveness single indicator weight

I(democracy) = democracy single indicator

w(I_{democracy})= democracy single indicator weight

The results of this computation are summarized in the following table.

Table C.4 Composite indicators computation procedure

| Nation | Driver | Impacts | Description | Suggested weights | Year 2 | Year 3 | |
|---------|--|---------------------------------------|---|-------------------|--------|--------|-------|
| Austria | Efficiency | Cashable Financial Gains | % in K€ Full Time Equivalent gains | 33,33% | 35 | 40 | |
| | | More empowered employees | % public servants eGov/ICT skills | 33,33% | 23 | 35 | |
| | | Better organizational architectures | % in case handled in a given time of period | 33,33% | 60 | 78 | |
| | EFFICIENCY COMPOSITE INDICATOR | | | | 100% | 39,33 | 50,99 |
| | Effectiveness | Reduced Admin. Burden | % in time saved by citizen & business | 33,33% | 100 | 140 | |
| | | Increased User Value and Satisfaction | % eGovernment users satisfaction index | 33,33% | 35 | 45 | |
| | | More inclusive public services | % in usage of inclusion related e-services | 33,33% | 67 | 89 | |
| | EFFECTIVENESS COMPOSITE INDICATOR | | | | 100% | 67,33 | 91,32 |
| | Democracy | Openness | # of government business processes open to the public (tendering, procurement, recruitment, etc.) | 33,33% | 78 | 85 | |
| | | Transparency and Accountability | # of services involving a two-way interaction with users | 33,33% | 64,42 | 79,29 | |
| | | Participation | # queries submitted online | 33,33% | 25 | 40 | |
| | DEMOCRACY COMPOSITE INDICATOR | | | | 100% | 55,80 | 68,09 |

As easily shown, the yellow-highlighted figures are those we have analitically obtained in the previous section, through the normalization procedure. The others are simply invented. Clearly, this procedure should be re-iterated for each nation in order to get comparable value driver composite indicators.

V. Excel Sheet

In this sheet, we account for the probability that value driver indicators differ from their expected value. This situation depends on the occurrence of either operational,

political or external risks. Thus, on the basis of an analytical valuation, we set the impact of each type of risk and the probability associated, as follow.

Table C.5 Risk accounting procedure

| R I S K S | R i s k i m p a c t m e a s u r e | P r o b a b i l i t y |
|--------------------------------------|-----------------------------------|-----------------------|
| <i>O p e r a t i o n a l R i s k</i> | 2 0 % | |
| | 4 0 % | |
| | 6 0 % | 2 0 % |
| | 8 0 % | 4 0 % |
| | 1 0 0 % | 4 0 % |
| <i>P o l i t i c a l R i s k</i> | 2 0 % | 5 % |
| | 4 0 % | 1 0 % |
| | 6 0 % | |
| | 8 0 % | |
| | 1 0 0 % | 8 5 % |
| <i>E x t e r n a l R i s k</i> | 2 0 % | 5 % |
| | 4 0 % | |
| | 6 0 % | |
| | 8 0 % | |
| | 1 0 0 % | 9 5 % |

Focusing on the operational risk, this means that the composite indicators' observed value will be equal to 60% of the expected value with a probability of 20%, or it will be equal to 80 % of the expected value with a probability of 40% or it will be equal to the expected value with a probability of 40%. The composite indicators accounting for risk are then calculated as a weighted average value.

Expected value =

$$= ORW \sum_{i,j} CI * operRIM_i * p_j + PRW \sum_{i,j} CI * polRIM_i * p_j + ERW \sum_{i,j} CI * extRIM_i * p_j$$

Where:

ORW = operational risk weight

operRIM = operational risk impact measure

PRW = political risk weight

polRIM = political risk impact measure

ERW = external risk weight

extRIM = external risk impact measure

CI = value driver composite indicator already calculated

p = probability that risk may occur

This equation fits to each value driver composite indicator computation procedure. For the sake of simplicity, we report this calculation only for the democracy composite indicator to which the initial benefit “# of services involving a two-way interaction with users” belonged.

Table C.6 Composite indicators computation procedure accounting for risk

| Nation | Driver | RISKS | Risk impact measure | Probability | Overall risk weight | Risk type weights | Weighted Expected value Year 2 | Weighted Expected value Year 3 | | | |
|---------|--------------------------------------|------------------|---------------------|-------------|---------------------|-------------------|--------------------------------|--------------------------------|------|--|--|
| Austria | Democracy Composite Indicator | Operational Risk | 20% | | 0% | 0,4 | 49,72 | 60,67 | | | |
| | | | 40% | | 0% | | | | | | |
| | | | 60% | 20% | 12% | | | | | | |
| | | | 80% | 40% | 32% | | | | | | |
| | | | 100% | 40% | 40% | | | | | | |
| | | | | | | | | | 0,84 | | |
| | | Political Risk | 20% | 5% | 1% | 0,3 | | | | | |
| | | | 40% | 10% | 4% | | | | | | |
| | | | 60% | | 0% | | | | | | |
| | | | 80% | | 0% | | | | | | |
| | | | 100% | 85% | 85% | | | | | | |
| | | | | | | | | | 0,90 | | |
| | | External Risk | 20% | 5% | 1% | 0,3 | | | | | |
| | | | 40% | | 0% | | | | | | |
| | | | 60% | | 0% | | | | | | |
| 80% | | | 0% | | | | | | | | |
| 100% | 95% | | 95% | | | | | | | | |
| | | | | | 0,95 | | | | | | |

Composite indicator accounting for single type of risk:

$$\sum_{i,j} CI * RIM_i * p_j$$

Composite indicator accounting for the overall amount of risk:

$$ORW \sum_{i,j} CI * operRIM_i * p_j + PRW \sum_{i,j} CI * polRIM_i * p_j + ERW \sum_{i,j} CI * extRIM_i * p_j$$

In our example, as shown in exhibit 11, the composite indicator for year 2 is equal to 55.80, while the composite indicator for year 3 is 68.09.

Again, this procedure should be re-iterated for each value driver in order to get comparable value driver composite indicators accounting for risk.

V. Excel Sheet

Whether the analysis accounts for risk or not, the final step requires the computation of the global composite indicator, as an aggregate measure of the value driver composite indicators. This is possible by associating policy-sensitive weights to the composite indicators and then calculating the average value.

VII. Excel Sheet

See the general procedure.

For further information about the eGovernment Unit

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