The impact of e-government on competitiveness, growth and jobs

IDABC eGovernment Observatory

Background Research Paper

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Introduction

The IDABC eGovernment Observatory is a reference information source on e-government issues and developments across Europe. It provides the community of e-government decision-makers and professionals with a unique set of information resources and with valuable insight into e-government strategies, initiatives and projects in Europe and beyond, focusing on developments of pan-European relevance or interest.

As part of its mission to inform the European e-government community about key issues of common interest, the eGovernment Observatory has performed a research on the link between e-government and competitiveness. E-government is indeed frequently referred to as a key element of Europe's competitiveness, jobs and growth agenda. A number of initiatives have been launched in recent years, at national and international level, to better understand the link between e-government and economic performance, in particular with competitiveness, but the correlation between the digitisation of public services and a more competitive economy remains complex and elusive. The present report is intended to clarify the main issues at stake and to provide a sound basis for further work and discussion on the impact of e-government on competitiveness.

The first chapter identifies a number of issues that need to be addressed to identify the connection between e-government and competitiveness, and defines relevant concepts. The second chapter addresses the wider role of 'government' as a major economic agent, reviewing the different levers public authorities can use to boost competitiveness. The third chapter addresses in more detail the role of e-government in this respect and outlines ways to leverage e-government policies as a key factor of competitiveness.

I E-government and competitiveness: identifying the connection

I. 1. The Lisbon strategy: Europe's competitiveness challenge

In March 2000, European Heads of State and Government meeting in Lisbon set the objective to make the European Union (EU) the most dynamic and competitive knowledge-based economy in the world by 2010, capable of sustainable economic growth with more and better jobs and greater social cohesion, and respect for the environment. This objective, and the set of policies developed and implemented since then in order to achieve it, have become known as the '**Lisbon strategy**'.

The Lisbon strategy consists in a comprehensive series of reforms that are interdependent and self-reinforcing. Over the years these reforms have expanded to a number of complementary policy areas that are considered as key to meet the Lisbon goals. The World Economic Forum, which reviewed progress on the Lisbon agenda in 2002 and 2004[1], identifies eight distinct dimensions to the strategy:

1. Creating an information society for all (which is the objective of the *e*Europe Action Plan[2]).
2. Developing a European area for innovation and Research & Development (R&D).
3. Liberalisation (completing the single market; state aid and competition policy).
4. Building network industries (in telecommunications, and in utilities and transportation).
5. Creating efficient and integrated financial services.
6. Improving the enterprise environment (particularly in terms of regulatory framework).
7. Increasing social inclusion.
8. Enhancing sustainable development.

I. 1. 1. Understanding competitiveness

A lot has been said and written in recent years about Europe's progress – or lack of progress – towards reaching the Lisbon goals. Before attempting to evaluate this progress, it is nevertheless appropriate to understand what is meant by 'competitiveness'. **There is no clear and single definition of competitiveness in economics or in public policy literature**. It is a somewhat vague concept, which comprises three different levels of understanding: the **macro-economic** or country level, the **intermediate** or industries level, and the **micro-economic** or enterprise level.

Competitiveness could be defined, at basic level, as the ability of an entity or a group (a company, a set of companies, a region, a country, a group of countries, etc.) to operate efficiently and productively in relation to other similar entities or groups. This ability can be measured by the entity's "advantage or disadvantage in selling its products in international markets"[3], and, as a consequence of this, by its capacity to achieve economic growth. The World Economic Forum, for instance, defines a country's competitiveness as "the ability of a national economy to achieve sustained rates of economic growth as measured by the annual changes in per capita GDP"[4].

[1] "The Lisbon Review 2004 - An assessment of policies and reforms in Europe", World Economic Forum, April 2004
http://www.weforum.org/site/homepublic.nsf/Content/Global+Competitiveness+Programme%5CLisbon+Review
[2] http://europa.eu.int/information_society/eeurope/2005/index_en.htm
[3] OECD Glossary of Statistical Terms
http://cs3-hq.oecd.org/scripts/stats/glossary/detail.asp?ID=399
[4] World Economic Forum, 1996

However, these definitions are too narrow to grasp the complexity of what competitiveness entails. In the United States (US), where the concept of competitiveness originated in the 1980s, the Report of the President's Commission on Competitiveness (1984) made it clear that competitiveness "is not just a measure of the nation's ability to sell abroad, and to maintain a trade equilibrium". The report defined a country's competitiveness as being "the degree to which it can, under free and fair market conditions, produce goods and services that meet the test of international markets while simultaneously expanding the real incomes of its citizens. Competitiveness at the national level is based on superior productivity performance and the economy's ability to shift output to high productivity activities which in turn can generate high levels of real wages. **Competitiveness is associated with rising living standards**, expanding employment opportunities, and the ability of a nation to maintain its international obligations"[5].

Therefore, **the competitiveness of an economy has two complementary dimensions**: the capability of private firms based in that economy to compete successfully in the marketplace, and general increases in welfare across the population. The Organisation for Economic Co-operation and Development (OECD) adopted this definition in the 1990's as part of its project on "Framework Conditions for Industrial Competitiveness", adding the criteria that competitiveness is to be proved "under free trade and fair market conditions" and "over the long-term". The OECD definition of competitiveness as "**the ability of companies, industries, regions or supranational regions to generate, while being and remaining exposed to international competition, relatively high factor income and factor employment levels on a sustainable basis**", was subsequently adopted by the EU's statistical arm, Eurostat[6]. For a country, a region or a city, **increasing competitiveness thus translates into an economy-wide sustainable improvement in living standards**; for an industry, into a dominant market position through the sale of high quality products; for a firm, into long-run growth in profits and sales through rising market share.

I. 1. 2. Competitiveness and productivity growth

The definition of competitiveness comprises two aspects that may in some cases appear as contradictory: an international element in the sense that products and services are exposed to international trade, competing with products and services produced by countries with different cost structures and/or more sophisticated features; and a domestic element in the sense that competitiveness implies rising returns on resources and rising real income for citizens. Meeting global market requirements, where cost is often a key factor, while simultaneously achieving rising real incomes, is a true and pressing challenge. **The key to simultaneously achieving both low costs and high wages is productivity**.

As outlined in a Commission Communication released in May 2002, productivity is the key to competitiveness of European economies and enterprises. "Economic growth depends on the accumulation of human and physical capital, the growth of the active labour force and on the efficiency with which they are used. The ability to obtain more output from given inputs of labour and capital corresponds to growth in productivity. Productivity growth depends on the quality of physical capital, improvements in the skills of the labour force, technological advances and new ways of organising these inputs. **Historically, productivity growth has been the principal source of economic growth**. It has made possible an expansion of output, not just without concomitant increases in inputs, but with important reductions in hours worked over the medium term. In doing so, it has made a sustained rise in real incomes possible"[7]. Another Commission Communication, issued in November 2003, insists that "**com-**

[5] Report of the President's Commission on Competitiveness (1984), Volume III - Competitiveness
[6] The Eurostat Concepts and definition database
http://forum.europa.eu.int/irc/dsis/coded/info/data/coded/en/gl007950.htm
[7] "Productivity: The Key to Competitiveness of European Economies and Enterprises", Communication from the Commission to the Council and the European Parliament, Brussels, 21.5.2002, COM(2002) 262 final
http://europa.eu.int/comm/enterprise/enterprise_policy/competitiveness/doc/competitiveness_report_2002/com-2002-262_en.pdf

petitiveness is determined by productivity growth; a competitive economy is one that experiences high and sustained productivity growth leading to an increase in standards of living"[8]. Productivity growth is thus probably the single most important indicator of an economy's health: it drives real incomes, inflation, interest rates, profits and share prices.

Productivity is commonly defined as a ratio of a volume measure of output to a volume measure of input use. The most common measure used to compare productivity level and growth between countries is **labour productivity**, defined as output per unit of labour input – most often measured in terms of Gross Domestic Product (GDP) per man-hour. However, labour productivity growth provides only part of the picture and may actually be misleading. A better measure is **multi-factor productivity** (MFP), also called **total factor productivity**, which tries to capture the efficiency with which inputs of capital as well as labour are used. MFP relates a change in output to several types of inputs.

Enterprises are competitive when they can achieve sustainable growth in both labour and multi-factor productivity that enable them to beat the costs per unit of output, and the non-cost characteristics, of other firms. This is true both on the domestic and on the international level. Such productivity growth makes it possible to finance a firm's expansion plans, while at the same time offering the possibility to sustain real wage increases. Similarly, the standard of living of a country will rise when it achieves sustained productivity growth.

During the second half of the 1990s, and following a period of substantial slowdown, the US experienced an acceleration in labour productivity growth, from an average of 1.2% per year in the period 1990-95 to 1.9% in the period 1995-2001, and even 2.2% over the period 1996-2003. During the same period, growth in labour productivity slowed down in the EU, from an average of 1.9 % in the first half of the decade to 1.2% in the second half. The difference in multi-factor productivity gains has been more limited, mostly because a large part of the US labour productivity growth in recent years has been due to "capital deepening" – increases in the amount of capital, in particular IT equipment, per worker[9]. However, a significant **transatlantic productivity gap** has appeared, which has been widening in recent years.

Figures released in January 2005 by the Conference Board, an international think tank, show that **labour productivity growth in the EU-25 reached 1.6% in 2004**, up from 1.3% in 2003[10]. However, the growth figure was only 1.3% for the pre-enlargement EU-15, while it reached 4.4% in the 10 new Member States. The EU-15 2004 performance, while representing an improvement on 2003 when productivity rose by only 0.9%, still lags way behind the 3.1% productivity growth achieved by the US. As a result, the productivity gap between Europe and the US continues to widen: on average, the productivity level of the EU-15 was at 92% of the US level in 2004, down from 99% in 2000 and 100% in 1995.

The increasing productivity gap between Europe and the US, combined with the fact that EU countries have a smaller fraction of the population employed than the US, and that those employed generally work fewer hours, is **leading to an even wider gap in GDP growth, competitiveness and living standards**. From 2000 to 2004, GDP growth reached an average of only 1.4% per year in the EU-15, vs. 2.5% in the US. The **potential economic growth**[11] of the EU-15 is now generally considered to average just 2%, representing a decline of a full percentage point in a single generation. During the same period, the US increased its potential growth to more than 3.5%. Consequently, since the mid-1970s Europe has no longer been catching up with American per capita income and living standards. While the productivity gap between the EU-15 and the US is 8 percentage points in 2004, the per capita income gap is

[8] "Some Key Issues in Europe's Competitiveness - Towards an Integrated Approach", Communication from the Commission to the Council and the European Parliament, Brussels, 21.11.2003, COM(2003) 704 final
http://europa.eu.int/comm/enterprise/enterprise_policy/industry/doc/com704_en.pdf

[9] "A productivity primer", The Economist, 4 November 2004
http://www.economist.com/finance/displayStory.cfm?story_id=3352969

[10] European Union Shows Productivity Gains, But U.S. Continues To Lead, Conference Board, January 2005
http://www.conference-board.org/utilities/pressDetail.cfm?press_ID=2560

[11] The potential economic growth indicates the ability of an economy to secure sustainable growth without inflation, and is determined by the availability of labour, facilities and other production resources as well as labour productivity gains. The potential growth rate is the theoretical rate that can be achieved when these factors are fully exploited.

now over 30 percentage points in Purchasing Power Parity (PPP) terms[12], and is still increasing. Even though six European countries (Luxembourg, Norway, Finland, Ireland, Belgium, and the Netherlands) have higher productivity levels than the US in 2004 according to the Conference Board calculations, only one (Luxembourg) has turned this relatively high productivity into a per capita income higher than the US. Another consequence of lower productivity growth in Europe is a much higher level of unemployment than in the US. Economists consider that **Europe needs productivity growth above 2% to significantly reduce unemployment**, which reaches 8.9% in the euro zone.

I. 1. 3. Productivity growth and ICT

If productivity growth is what drives competitiveness, productivity growth itself is now primarily driven by Information and Communication Technology (ICT). In particular, ICT has played a central role in helping the US to achieve remarkable productivity gains since the mid-1990s.

An OECD report published in September 2004[13] identifies three key effects of ICT on productivity growth:

1. Investment in ICT capital contributes to overall capital deepening and therefore helps raise labour productivity.
2. Rapid technological progress in the production of ICT goods and services contributes to more rapid multi-factor productivity growth in the ICT-producing sector.
3. Greater use of ICT across all sectors helps firms to increase their overall efficiency, and thus raise multi-factor productivity across the economy.

Greater use of ICT may also contribute to network effects, such as lower transaction costs and more rapid innovation, which will improve the overall efficiency of the economy, i.e. the nation's MFP. These effects can be measured and examined at different levels of aggregation, i.e. the macro-economic level, the sectoral or industry level, and the firm level.

A report published in April 2004 by the Economist Intelligence Unit (EIU) provides more specific information about the link between ICT and productivity growth[14]. The EIU created a model making it possible to investigate "interaction effects", for example the relationship between ICT and the business environment, or ICT and skills levels, and to take into account ICT use and infrastructure development in addition to ICT investment indicators. Using this model, together with a variety of business environment indicators, made it possible to evaluate ICT contribution to labour productivity growth in 14 European countries and the US over the periods 1990-1995 and 1996-2002. The results show that **ICT contribution to labour productivity increase is significant and growing**, and make it possible to draw a number of conclusions about the economic impact of ICT:

- **The link between ICT and growth is strong in developed economies**.
  Technology does drive growth – **but only after a minimum threshold of ICT development is reached**. In other words, ICT penetration and usage needs to attain a critical mass before it will make a significant positive impact on a country's economy. Once countries reach the threshold, increases in ICT development begin to have a positive effect on productivity and GDP per capita growth.
- **There is a time lag before ICT benefits productivity and growth**.
  This is the result of the considerable time lag between ICT investment and returns, representing the time it takes for organisations to assimilate and adjust to new tech-

[12] Purchasing Power Parities are currency conversion rates that both convert to a common currency and equalise the purchasing power of different currencies. In other words, they eliminate the differences in price levels between countries in the process of conversion.
[13] "The Economic Impact of ICT: Measurement, evidence and implications", OECD, September 2004
http://www1.oecd.org/publications/e-book/9204051E.PDF
[14] "Reaping the benefits of ICT - Europe's productivity challenge", Economist Intelligence Unit, April 2004
http://graphics.eiu.com/files/ad_pdfs/MICROSOFT_FINAL.pdf

nology. During this period the adoption of ICT can even delay productivity growth. For businesses as well as for public sector bodies, this suggests that ICT is no panacea.

- **Education and the business environment are key to making technology work**. The quality of a country's business environment, as well as its attention to specific ICT enablers such as education, research and innovation, significantly affect its ability to harness the full benefits of technology. Countries that have a highly developed ICT infrastructure, together with a strong performance in most of the ICT enablers, tend to be more competitive and to experience faster economic growth.

The EIU report identifies **ICT as the main factor behind the transatlantic productivity gap** and the resulting gap in GDP per head growth between the US and the euro zone "big three" (Germany, France, Italy). About 0.4 percentage points of the 0.52-point difference between GDP per head growth rates in the US and the euro zone big three in 1995-2002 can be attributed to ICT use, the report says.

I. 1. 4. Re-focusing the Lisbon agenda

In order to evaluate progress towards meeting the EU's competitiveness objectives, the European Council and the Commission decided in 2004 to prepare a mid-term review of the Lisbon process, to be presented to the Spring Summit in March 2005. In March 2004 a group of experts, chaired by former Dutch Prime Minister Wim Kok, was mandated to initiate the review process by evaluating progress on the Lisbon strategy. The High Level Group carried out its work from May to October 2004 and presented its final report to the European Commission on 3 November 2004.

The report, entitled "Facing the Challenge" but better known as the "Kok report" [15], has been much discussed since then. Overall, it found that progress towards reaching the Lisbon objectives had been much too slow since the adoption of the strategy in 2000. "External events since 2000 have not helped achieving the objectives but the European Union and its Members States have clearly themselves contributed to slow progress by failing to act on much of the Lisbon strategy with sufficient urgency", the report says, adding that "this disappointing delivery is due to an **overloaded agenda**, **poor coordination** and **conflicting priorities**. Still, a key issue has been the **lack of determined political action**". The report insists that "the Lisbon strategy is even more urgent today as the growth gap with North America and Asia has widened, while Europe must meet the combined challenges of low population growth and ageing. Time is running out and there can be no room for complacency. Better implementation is needed now to make up for lost time".

So what needs to be done to deliver the Lisbon goals of growth and employment? First of all, the Kok report says, "**we must all take action**". "This means **more delivery** from the European institutions and Member States through **greater political commitment**, **broader and deeper engagement of Europe's citizens**, and a recognition that by working together Europe's nations benefit all their citizens". Second, **we must now focus on a clearer set of priorities**. "Each element of the Lisbon strategy is still needed for the success of the whole", says the report, but the priority should now be for Europe to **boost its economic growth rate and increase employment**.

Building on the findings of the Kok report, European Commission President José Manuel Barroso unveiled on 2 February 2005 a new '**growth and jobs**' initiative[16]. Designed to re-launch the Lisbon process, this new initiative is focused on **fewer, achievable objectives**:

- **Making Europe a more attractive place to invest and work**: completing the Single Market in areas which can deliver a real growth and job dividend; ensuring open and competitive markets inside and outside Europe; improving European and national

[15] "Facing the Challenge. The Lisbon strategy for growth and employment", Report from the High Level Group chaired by Wim Kok, November 2004
http://europa.eu.int/comm/lisbon_strategy/pdf/2004-1866-EN-complet.pdf
[16] http://europa.eu.int/growthandjobs/

regulations to reduce the burden of administrative costs; expanding and improving European infrastructures; pushing for a Community patent; moving forward on a consolidated corporate tax base.

- **Promoting knowledge and innovation for growth**: reaching a 3% GDP target for R&D expenditure; promoting the uptake of ICT; promoting the development of innovation poles; boosting European technology Initiatives through public-private partnerships; promoting eco-innovations; contributing to a strong European industrial base through the mobilisation of public and private stakeholders; setting up a European Institute for Technology to attract the best minds, ideas and businesses to Europe.
- **Creating more and better jobs**: attracting more people into employment; increasing the adaptability of workers and enterprises and the flexibility of labour markets by removing obstacles to labour mobility; increasing investment in human capital through better education and skills by reforming the EU Structural and Cohesion Funds.

The growth and jobs initiative sets out an action programme for the EU and its Member States to generate sustained economic growth and more and better jobs. This proposed programme, to be submitted to the Mid-Term Review of the Lisbon agenda scheduled for the Spring 2005 European Council, makes a clear distinction between actions to be taken at Member State and at EU levels, identifies responsibilities, sets deadlines and provides for progress measurement. According to the Commission, it could boost European GDP by 3% by 2010 and create over 6 million jobs.

In order to deliver such economic growth and job creation, the EU needs to significantly raise its productivity growth levels, which requires a **comprehensive and holistic strategy to spur on the growth of the ICT sector and the diffusion of ICT in all parts of the economy**. According to the Kok report, one of the key priorities should be to fully implement the *e*Europe 2005 action plan – which aims to stimulate services, applications and content in e-commerce, e-learning, e-health and e-government, while advancing the underlying infrastructure towards broadband and addressing security matters – in order to reap the full benefits of ICT. A key recommendation of the report is therefore that Member States should give more and better follow-up to *e*Europe 2005.

The mid-term review of *e*Europe 2005 has shown that, while there has been good progress in reaching the quantitative targets set by the Action Plan – broadband connectivity is rising, government services are increasingly fully online – the impact of ICT on productivity, economic growth and job creation has yet to materialise. This is due to the fact that, **in many areas, progress has remained mostly supply-driven**, concentrating on technology, applications and initiatives rather than on the uptake of ICT and e-services by citizens and businesses, innovation and the cost-efficient use of resources. The new 'growth and jobs' programme proposed by the Commission stresses that Europe's economic performance now requires moving to a demand-driven ICT approach that emphasises service delivery, value and functionality for the end-user[17].

I. 2. E-government and the Lisbon strategy

E-government is one of the key areas of the EU's Information Society policy where further progress is required to reach the objectives of the Lisbon strategy. There is indeed a growing consensus that e-government is now becoming a key factor for increasing competitiveness. Better quality public services, more responsive and fit to their users' needs, provided electronically by more efficient public administrations, are perceived as essential to reap the benefits of the information society and reach the objectives of the Lisbon strategy.

[17] "Working together for growth and jobs: A new start for the Lisbon Strategy", Communication from President Barroso in agreement with Vice-President Verheugen to the Spring European Council, 02.02.2005 http://europa.eu.int/growthandjobs/pdf/COM2005_024_en.pdf

In September 2003 the European Commission issued a Communication on "the importance of e-government for Europe's future", which defined e-government as "**the use of information and communication technologies in public administrations combined with organisational change and new skills in order to improve public services and democratic processes and strengthen support to public policies**"[18]. E-government, the communication says, "is an enabler to realise a better and more efficient public administration. It improves the development and implementation of public policies and helps the public sector to cope with the conflicting demands of delivering more and better services with fewer resources".

I. 2. 1. Understanding the benefits of e-government

An extensive literature has already been dedicated to the benefits of e-government, in Europe and beyond, and a wide consensus exists over what the key benefits are. A recent report commissioned by the Dutch Presidency of the **European Public Administration Network** (EPAN), entitled "Does e-government pay off?"[19], identifies seven types of interconnected benefits:

1. **Improved quality of information and information supply**
   Thanks to the use of ICT, the quality of the information supplied and held into public administrations' information systems is rising. The direct input of data in electronic format by public services users reduces the number of errors and makes it possible to build quality management information systems. Furthermore, the shared use of information and databases made possible by electronic networks can also improve the quality of data and data supply.
2. **Reduction of process time**
   The digitisation of public services can also significantly reduce the time it takes to process and deliver a service (process time), therefore saving precious time for both public administrations and their customers. Because data can be submitted electronically by customers and shared between different organisations, service information can be reviewed online in real time. Furthermore, the availability of electronic data (from customers and other organisations) makes it possible to automate key steps of the decision-making and service delivery process, and in some cases to fully e-enable them.
3. **Reduction of administrative burdens**
   The use of ICT in the provision of public services makes it possible to significantly reduce the administrative burdens for citizens and businesses that use these services, as well as for the organisations that deliver them. The availability, sharing and re-use of electronic data, the digitisation of key processes and the elimination of unnecessary steps, accompanied by adequate organisational change, can provide a major contribution to the reduction of "red tape" (i.e. unnecessary administrative burden).
4. **Cost reduction**
   E-government enables public sector bodies to increase their service processing and delivery capabilities, while requiring less time and fewer personnel. Leaner process design, the automation of parts of the service delivery process and the use of electronic communication with customers can lead to significant cost savings that, in the medium term, can benefits the taxpayers.
5. **Improved service level**
   A major benefit of e-government is the improved service level, more precisely in terms of increased flexibility (24/7 availability, multi-channel delivery, etc.) and transparency (availability of more detailed and complete information about the service), but also of increased time available and capabilities for custom-made services (through an easier and faster processing of standard cases or tasks, and the possibility to customise electronic service delivery).
6. **Increased efficiency**

[18] "The Role of eGovernment for Europe's Future", COM(2003) 567 final, Brussels, 26.9.2003
http://europa.eu.int/information_society/eeurope/2005/doc/all_about/egov_communication_en.pdf
[19] "Does e-government pay off?", November 2004
http://www.eupan.org/index.asp?option=documents&section=details&id=19

The changes made possible by e-government, such as the improved information supply and service levels, contribute to increase the efficiency (i.e. the capability to convert resources and inputs into effects and impacts) of public service delivery. Tasks and costs can be more efficiently distributed, both within and between public sector bodies, and processes can be streamlined to make better use of available resources and increase delivery capabilities.

7. **Increased customer satisfaction**
   By raising service levels, reducing processing and delivery time, and making public services more responsive and customer-focused, e-government makes it possible to increase customer satisfaction. Although this increase is difficult to quantify, it can be measured through high usage figures, decreasing number of enquiries or complaints, or through user surveys.

Beyond these quite tangible benefits of e-government, broader societal, political or economic benefits can also be identified:

- **Openness and transparency**
  As mentioned in the Commission's September 2003 Communication, e-government gives citizens greater access to information held by public authorities. "That enables them to understand where their taxes are spent and how decision-making is done, thus empowering citizens. This is an improvement towards more transparent, accountable and open public institutions. It reinforces democracy. In addition, greater transparency helps in the fight against corruption and fraud".
- **Increased participation in the information society**
  The use of ICT to promote proactive, multi-channel communication with public services users is leading to greater participation in the information society. Provided adequate e-inclusion policies are put in place, e-government has significant potential for increasing social inclusion.
- **Increased democratic participation**
  Through online forums, consultations and electronic voting, direct communication can be established between citizens and policy-makers. Citizens can express their views on policy debates, directly question the decisions made, and so contribute with an informed opinion to the democratic process. An example of this is the "Interactive Policy Making" (IPM) e-consultation tool, which enables European citizens and businesses to give their views about Commission public consultations.
- **Enhanced policy effectiveness**
  By facilitating the exchange of information between public administrations, and between administrations and the public, e-government provides the foundation for enhancing the effectiveness (i.e. the ability to produce results matching the objectives) of public policies in major policy areas such as health, education, national security and public safety.
- **Increased economic competitiveness**
  E-government can provide a major contribution to increasing economic competitiveness at local, regional, national or Community level. By streamlining bureaucratic procedures and increasing public sector efficiency, it plays a significant role in raising productivity levels in the economy as a whole. Furthermore, by reducing 'red tape' and providing better access to information and better quality, user-centred public services, e-government can encourage entrepreneurship and increase the competitiveness of enterprises.

This set of broad societal, political and economic benefits of e-government, some of which can hardly be quantified, make it impossible to measure e-government returns using traditional Return on Investment (ROI) methods. A number of other methods have been developed in recent years to assess the benefits of public investment in IT:

- In Australia, the National Office for the Information Economy (NOIE, now renamed Information Management Office) published in April 2003 an 'E-Government Benefits

Study' that suggested a classification of value into agency benefits, consumer financial benefits, social benefits and contribution to broader government objectives[20].

- In May 2003 the US General Services Administration (GSA) issued a report on High Payoff in Electronic Government, where e-government impact areas were classified as reduced cost, improved service to constituents, economic development, reduced redundancy, fostering democratic principles[21].
- In October 2003 the European Commission's IDA programme, predecessor to IDABC, introduced a methodology called the **IDA Value of Investment** (VOI). This methodology focuses not only on the traditional return on investment (ROI) analysis but also on qualitative benefits such as increased availability and quality of services, better decision-making process, and increased level of staff and user satisfaction[22].

The private sector has also suggested ways to measure the full extent of e-government benefits:

- Research company Gartner has introduced the concept of '**Public Value of IT**' (PVIT) to measure how IT-related investments in the public sector contribute over time to improved constituent service level, operational efficiency and political return[23].
- Consultancy and IT services firm Accenture introduced the '**Public Sector Value Model**', which adapts the principles of Shareholder Value Analysis to the public sector and is based on the identification of a set of citizen-focused 'outcomes' against which cost-effective delivery of e-government projects can be measured[24].
- Consultancy Deloitte proposed the concept of '**Citizen Advantage**' to measure the financial benefits of e-government projects not only for government but also for businesses and citizens[25]. The concept **suggests a direct correlation between e-government and economic competitiveness**. By e-enabling and streamlining activities such as permitting, licensing and reporting, governments can indeed significantly ease regulatory compliance burdens for businesses and entrepreneurs, which in turn helps fuel economic competitiveness.

I. 2. 2. Relating e-government to competitiveness

Even though a number of methods have been developed to assess the wider benefits of e-government, most of them focus on the internal benefits (i.e. the benefits of e-government within a given jurisdiction) and overlook the impact of e-government on competitiveness (i.e. the benefits of e-government to improve the jurisdiction's economic performance compared to its competitors). When they establish a relation between e-government and competitiveness, it is usually limited to the role of ICT in reducing 'red tape' and the cost of regulatory compliance for businesses. While this is undoubtedly one of the key links between e-government and competitiveness, it is far from being the only one. To grasp the full extent and complexity of the relation between e-government and competitiveness, it is necessary to investigate in detail the role of government as an **actor** of competitiveness, before addressing the way e-government can be leveraged as a real competitiveness **factor**.

[20] "E-government benefits study", National Office for the Information Economy, April 2003
http://www.agimo.gov.au/government/benefits_study
[21] High Payoff in Electronic Government, General Services Administration, May 2003
http://www.gsa.gov/Portal/gsa/ep/contentView.do?contentId=10293&contentType=GSA_DOCUMENT
[22] IDA Value of Investment Method, European Commission, October 2003
http://europa.eu.int/idabc/servlets/Doc?id=1596
[23] "Traditional ROI measures will fail in government", Research note by Gartner, 9 July 2003
http://www3.gartner.com/DisplayDocument?doc_cd=116131
[24] "The Public Sector Value Model for Government", Accenture, November 2003
http://www.accenture.com/xd/xd.asp?it=enweb&xd=industries\government\capabilities\public.xml
[25] "Citizen Advantage: Enhancing Economic Competitiveness Through e-Government", Deloitte Research, September 2003
http://www.deloitte.com/dtt/research/0,1015,sid%253D2230%2526cid%253D26333,00.html

II Government as an actor of competitiveness

II. 1. Government levers for increasing competitiveness

The **European Competitiveness Report 2004**, released by the European Commission in November 2004, investigated the impact of public policies on economic performance, and in particular the impact of the public sector on productivity growth[26].

The report identifies three main levers through which 'government' (understood as the public sector) can influence the economic performance of economic actors: taxation, government spending, and regulations.

II. 1. 1. Taxation

Taxation is necessary in order to finance governments. Empirical research on the relationship between the overall tax ratio (total taxes to GDP) and GDP growth has not yielded conclusive results. However, there is plenty of empirical evidence on the distortive effects of specific taxes. High taxes on labour are found to affect labour market participation as well the willingness to acquire skills and human capital. High taxation also acts as a brake on entrepreneurship, although some authors argue that the incentive effects may not be very large. International differences in taxation affect foreign direct investment flows and may affect productivity growth in countries that rely on foreign investors to acquire new technologies and modern management methods.

In 2002, total taxation (including social security contributions) in EU-15 amounted to 40,5 % of GDP, while in the US and Japan the tax ratios remain below 30 % of GDP. However, there are large differences in the tax burden between the EU-25 member states. In Sweden and Denmark, the sum of taxes and social security contributions equals half the value of GDP (51% and 49% respectively). At the lower end of the range, Ireland and Lithuania have tax ratios just below 30%. The average tax ratio in EU-25 is 40%, the same level as in the mid-1990s.

II. 1. 2. Government spending

Government spending on areas such as **education**, **research and development**[27] or **infrastructure**, affects the production possibilities and costs of private enterprises. Government spending is thus a determinant of competitiveness and affects the location decisions of international enterprises. Available empirical evidence suggests that government spending has generally a positive impact on economic performance. In particular, public education helps develop an economy's human capital, and public R&D expenditure can enable long-term research not provided by short-time horizon business investment. However, there is much more ambiguity surrounding the estimates of the optimal extent of government spending on education, infrastructure, or research: while an increase in government spending may have a further favourable effect on growth, in some cases the additional resources might have been in a more productive use in the private sector. There is some evidence suggesting that smaller governments are more efficient than larger ones, which points to the **existence of diminishing marginal products of public spending**.

[26] "European Competitiveness Report 2004", Commission Staff Working Paper SEC(2004) 1397 of 8.11.2004 http://europa.eu.int/comm/enterprise/enterprise_policy/competitiveness/doc/comprep_2004_en.pdf

[27] Chapter 2 of the European Competitiveness Report 2004 is dedicated to the impact of public sector R&D on innovation, productivity and growth in the EU.

In 2003, overall government spending amounted to 49 % of GDP in EU-15, vs. 40.2% in Japan and 34.2% in the United States (figures of 2002[28]). Differences in expenditure levels across the Member States are large, with the Czech Republic (65%), Sweden (58%), Denmark (56%) and France (55%) displaying the highest public expenditures and the Baltic States and Ireland the lowest (34 to 36%). In most EU-15 Member States, the share of public spending in GDP has declined since the early 1990s. By far the largest part of overall public spending in EU-15 goes to social protection which amount to almost 19 % of GDP and is a major instrument of redistribution. The next two largest spending items in EU-15 are health and general public services[29]. The high spending on social protection is the most important single feature which distinguishes the EU from the US and Japan (where public spending on social protection accounts for 7 % and 10 % of GDP respectively). On health, EU-15 governments spend slightly more than the US, while the GDP share of education spending in EU-15 is slightly below that of the US. On defence, EU-15 Member States spend on average 1.7 % of GDP, less than half of the US defence spending.

II. 1. 3. Regulations

Regulations may promote objectives such as economic and social goals, consumer protection, fair competition or the quality of environment. At the same time, regulations limit the choices that individuals and enterprises can make; and compliance with regulations usually involves costs. An efficient regulatory system thus promotes efficiency, competition and innovation while excessively bureaucratic procedures or outdated technical regulations can reduce competition, thus harming productivity and ultimately reducing competitiveness. However, the productivity effects of regulations come as a by-product and are often hard to measure in quantitative terms.

Similarly, the costs for businesses of complying with administrative burdens are difficult to quantify. However, recent calculation attempts have shown that **administrative compliance costs are substantial for businesses and for the economy as a whole**:

- An OECD survey of almost 8,000 small and medium sized enterprises (SMEs) in 11 countries, published in 2001, found that administrative compliance costs represent around 4% of Business Sector GDP across the countries surveyed, with estimates varying from less than 2% in Finland to 7% in Spain. On average, SMEs surveyed declared to spend an average of US$ 27,500 per year complying with the **administrative requirements of tax, employment and environmental regulations** – representing US$ 4,100 per employee and around 4% of the annual turnover of these companies. The survey also found that regulatory and formality costs have a **disproportionate impact on smaller companies**, and that compliance costs are **proportionally higher in the services sector than in the manufacturing sector**[30].
- The Dutch Government has calculated that the cumulated cost of administrative burdens amounts to € 16.4 billion per year for Dutch businesses, representing 3.6% of GDP[31].
- In Belgium, a similar calculation estimated the cost of administrative burdens for the economy to € 9 billion in 2002 or 3.4% of GDP (€ 6.3bn or 2.4% of GDP for companies, and € 2.7bn or 1.0% of GDP for self-employed persons)[32].

[28] Source: European Central Bank, http://www.ecb.int/mopo/eaec/html/index.en.html
[29] According to the UN's classification of the functions of government (COFOG), general public services are composed of expenditures for executive and legislative organs, financial and fiscal affairs, external affairs; foreign economic aid; general services; basic research; R&D, general public services; public debt transactions; and transfers of a general character between different levels of government. The COFOG is available at: http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=4
[30] "Businesses' Views on red tape: Administrative and Regulatory Burdens on Small and Medium-sized Enterprises", OECD, October 2001 http://oecdpublications.gfi-nb.com/cgi-bin/OECDBookShop.storefront/EN/product/422001101P1
[31] Press release of the Dutch Ministry of Finance, 10 May 2004 http://www.minfin.nl/default.asp?CMS_NOCOOKIES=YES&CMS_ITEM=MFCWDE70C08A23BBE4B6BA6DC4A760A0197A4X7X61031X56
[32] "Les charges administratives en Belgique pour l'année 2002", Bureau Fédéral du Plan, Décembre 2003 http://www.simplification.fgov.be/downloads/Plan_rapport_final_2002.pdf

- In the UK, the Government's Better Regulation Task Force recently evaluated that the cost of red tape for the British economy could represent up to £ 100 billion a year (€ 142.23bn) or about 10% of GDP, with a fourth of that amount (£ 25bn - € 35.56bn) spent enforcing rules[33]. A survey published in November 2004 by the Institute of Chartered Accountants in England & Wales (ICAEW) estimated the cost of implementing new legislation to the UK economy at £7 billion (€ 9.96bn) in 2004, representing a £1bn (€ 1.42bn) rise from the figure estimated in 2003 and around £13,500 per company (€ 19,200). 69% of this burden fell on micro businesses and just 3% on large businesses.

Taking into account the OECD estimate of an average of 4% of GDP, **the cost of red tape for the EU-25 could represent approximately € 400bn** (the EU-25 GDP being estimated at around € 10,000bn by Eurostat[34]).

Many economists argue that Europe's excessive regulatory burden is one of the main causes of the current gap in growth and GDP per capita between the EU and the US, where lower regulatory obligations and costs are reflected in more competitive markets and lower mark-ups. A paper published in April 2004 by the US Federal Reserve uses a general equilibrium model to assess the macroeconomic effects that increased competition, triggered by a reduction of the regulatory burden, could have in Europe. The study estimates that an increase in competition in labour and product markets to US levels could boost GDP in the euro area by more than 12 %, as both investment and hours worked would rise markedly (over 20 % and 10 %, respectively). This is an important empirical finding and suggests that **incompletely competitive markets in the EU, caused by excessive or ill-adapted regulation, are leading to sub-optimal economic performance**[35].

To tackle these issues, Member States have launched a number of initiatives in recent years:

- The German Federal Government adopted in July 2003 an 'Initiative to Reduce Bureaucracy' (*Initiative Bürokratieabbau*), which specifically aim at increasing Germany's attractiveness for businesses by reducing red tape in five key areas: the labour market and self-employment, small businesses and the private sector, research and technology, civil society and volunteerism, and government services for businesses and individuals[36].
- The French Parliament adopted two "legal simplification" laws, in July 2003 and November 2004, which enable the Government to use a fast-track procedure to simplify legal and administrative provisions in a number of domains.
- Italy also adopted a legal simplification law in July 2003.
- Belgium and the Netherlands organised online consultations to enable citizens and businesses to report cases of unclear, contradictory or excessive regulation and bureaucratic complexity. In Belgium[37], the reports of this consultation have helped the government to identify 119 simplification measures, 55 of which have already been implemented. In the Netherlands[38], the results of the consultation have helped the government set up plans to reduce total administrative burdens on businesses by 25% by 2007.

Action is also required at EU level to reduce administrative burdens on the European economy and stimulate growth. According to the Dutch authorities, more than 40% of administrative charges supported by Dutch businesses are the result of regulations adopted at EU

[33] "Annual Report 2004: The Challenge of Culture Change: Raising the Stakes", Better Regulation Task Force, June 2004
http://www.brtf.gov.uk/docs/pdf/brtftext04.pdf
[34] "Portrait of the European Union", Eurostat, 2004
http://epp.eurostat.cec.eu.int/cache/ITY_PUBLIC/KS-60-04-523/EN/KS-60-04-523-EN.PDF
[35] "Benefits and Spillovers of Greater Competition in Europe: A Macroeconomic Assessment", Bayoumi, T., Laxton, D. and Pesenti, P., Papers No. 803, Board of Governors of the Federal Reserve System, April 2004
http://www.newyorkfed.org/research/staff_reports/sr182.pdf
[36] Initiative Bürokratieabbau, http://www.staat-modern.de/-,10008/Buerokratieabbau.htm
[37] See www.kafka.be
[38] See www.administratievelasten.nl

level[39]. In the UK, Prime Minister Tony Blair recently declared that "half of all our major new regulation comes from the EU"[40]. According to a recent study by the UK branch of the European Movement, this figure is greatly exaggerated: "while there may have been years in the 1980s and 1990s when EU-originating legislation came forward in greater quantities, for the past five years the figure is less than 10%", the study says[41]. Nevertheless, the improvement of the regulatory framework at EU level is now clearly accepted as a key priority of the Lisbon agenda.

A Better Regulation Action Plan was launched by the European Commission in 2002[42], and an Inter-Institutional Agreement on Better Law-making was concluded in 2003 between the Commission, Parliament and Council[43]. To give more impetus to this 'better regulation' agenda, the consecutive Irish, Dutch, Luxembourg and UK presidencies of the Council of the EU, spanning 2004 and 2005, presented in early 2004 joint proposals for reforming the EU regulatory framework. Building on these plans and progress achieved to date, a new joint statement was presented at the end of the Dutch Presidency of the EU, extending the joint initiative to include the forthcoming Austrian and Finnish Presidencies (2006). This new statement presents further concrete proposals for reform to enhance and improve the European regulatory framework during 2005 and 2006 in support of the Lisbon strategy. In particular, it calls for the **development of a common European methodology for the measurement of administrative burdens**[44]. Similarly, the Kok report stated that "the Commission and the Member States should agree on a common definition of administrative burden before or at the Spring 2005 European Council. The Commission must assess the cumulative administrative burden on companies and set a target for reducing this burden. Similarly the Member States must undertake an analysis of their national law and set themselves a target for reducing the national administrative burden. Both the Commission and Member States should indicate before July 2005 by how much and by when they are going to reduce the administrative burden in key priority sectors"[45]. The European Commission will shortly present a Communication on the issue of measuring administrative burdens.

In addition to better regulation and law-making, there is little doubt that the reduction of administrative compliance costs supported by businesses, and by the European economy as a whole, requires an increased use of ICT in the provision and delivery of administrative services. E-government is indeed the key enabler that makes it possible to streamline the service supply chain and simplify compliance mechanisms and controls, while raising service quality and reducing processing times. When relating e-government to competitiveness, most observers therefore tend to insist primarily on the potential for reducing administrative burdens on businesses and citizens through e-enabling public service provision and delivery. While this is undoubtedly a key aspect of the relation between e-government and competitiveness, it is not the only one. E-government can indeed also have a significant impact on the other government levers for boosting competitiveness, government spending (by freeing up resources previously used for standard service processing) and taxation (by reducing the cost of government operations, and therefore potentially the required level of taxation).

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[39] Press release of the Dutch Ministry of Finance, 10 May 2004
http://www.minfin.nl/default.asp?CMS_NOCOOKIES=YES&CMS_ITEM=MFCWDE70C08A23BBE4B6BA6DC4A760A0197A4X7X61031X56

[40] Prime Minister's Speech to the CBI Conference, 18 October 2004
http://www.number-10.gov.uk/output/Page6454.asp

[41] "Regulation by Brussels? The Myths and The Challenges", by David Stephen, European Movement, November 2004
http://www.euromove.org.uk/publications/regulations.pdf

[42] Action plan "Simplifying and improving the regulatory environment", Communication from the Commission, Brussels, 5.6.2002, COM(2002) 278 final
http://europa.eu.int/eur-lex/en/com/cnc/2002/com2002_0278en01.pdf

[43] Inter-Institutional Agreement on Better Law-making, (2003/C 321/01)
http://europa.eu.int/eur-lex/pri/en/oj/dat/2003/c_321/c_32120031231en00010005.pdf

[44] "Advancing regulatory reform in Europe: A joint statement of the Irish, Dutch, Luxembourg, UK, Austrian and Finnish Presidencies of the European Union", 7 December 2004
http://www.hm-treasury.gov.uk/media/B39/14/advancing_regulatory_reform_in_europe.pdf

[45] "Facing the Challenge. The Lisbon strategy for growth and employment", Report from the High Level Group chaired by Wim Kok, November 2004
http://europa.eu.int/comm/lisbon_strategy/pdf/2004-1866-EN-complet.pdf

But **the key relation between e-government and competitiveness may be found in what represents government's main competitiveness lever: government itself**. Indeed, the role of the public sector in boosting economic growth and competitiveness goes beyond the simple management of taxation, government spending and regulations to create a favourable environment for the business sector. Public administrations themselves play a considerable economic role in the European economy as large-scale economic actors: service providers, employers, purchasers, etc.

A background document prepared for a meeting of the extended Ministerial Troika of Ministers of Public Administration, held on 4 November 2004, stresses that "at present, the role of the public administrations in the Lisbon Strategy is limited. The conditioning role of governments (for example setting targets for R&D) is considered rather than their performing role as large organisations. Since governments have a large share in the realisation of the social and economic development in the European Union, **it is worthwhile to revalue the role of the public administrations in the Lisbon process**"[46]. In addition to the competitiveness levers discussed above, the revision of the Lisbon strategy should thus recognise modernisation and innovation in public administrations as one of the essential factors to achieve the Lisbon goals. The so-called 'CoBrA recommendations for e-Government beyond 2005', adopted in September 2004 by the e-Government subgroup of the *e*Europe Advisory Group, stress that "efficient, high quality public services for all are fundamental for economic growth, more and better jobs and affordable solidarity in Europe", and that "an essential objective of the strategy shall be to ensure that modern and innovative public administrations make a substantial contribution to European competitiveness and to keep Europe attractive as a place to live, work and invest"[47].

II. 2. The key role of government efficiency and productivity

II. 2. 1. The size and weight of the public sector in the European economy

The public sector has a considerable weight in the overall economy of the EU, which can be measured through:

- **Government spending**
  As mentioned above, overall government spending amounted to 49 % of GDP in EU-15 in 2003. Differences in expenditure levels across the enlarged Europe are large, with the Czech Republic (65%), Sweden (58%), Denmark (56%) and France (55%) displaying the highest public expenditures and the Baltic States and Ireland the lowest (34 to 36%)[48]. For a number of industries, this high level of government spending means that the public sector is the largest vertical buyer of their products and services. Total public procurement in the EU – i.e. the purchases of goods, services and public works by governments and public utilities – is estimated at about 16% of the Union's GDP or € 1,500 billion in 2002. Its importance varies significantly between Member States, ranging between 11% and 20% of GDP[49].
- **Government employment**
  In 2003, Government employment represented 16.7% of total employment in the EU-15, vs. 15.7% in the US and 8.7% in Japan. About 50 million Europeans are employed in the public sector, representing a very important part of the total workforce. Once again there are wide variations between Member States, with Sweden (31.7%),

[46] "Innovating Public Administration and the Lisbon strategy", Background document for the Ministerial Troika on 4 November 2004
http://www.eupan.org/cms/repository/document/2004-10-28%20ENG%20App%203%20back%20ground%20paper.doc
[47] "CoBrA recommendations for e-Government beyond 2005", by the e-Government subgroup of the *e*Europe Advisory Group
http://europa.eu.int/idabc/en/document/3594/254
[48] "European Competitiveness Report 2004", Commission Staff Working Paper SEC(2004) 1397 of 8.11.2004
http://europa.eu.int/comm/enterprise/enterprise_policy/competitiveness/doc/comprep_2004_en.pdf
[49] See http://europa.eu.int/comm/internal_market/publicprocurement/index_en.htm

Denmark (30.4%), Finland (25.6%) and France (23.0%) having the highest level of public sector employment, and Ireland (12.0%), Germany (11.1%) and the Netherlands (11.0%) the lowest.

Even if significant differences exist between Member States, the relatively large size of the public sector is a characteristic of the European economy and differentiates it from the US and Japanese economies.

The question of a possible correlation between the size of government and economic growth has been dividing economists for a long time. Some of them argue that a correlation can be identified between GDP growth and the growth rate of government, and to a lesser extent between GDP growth and the size of government, suggesting that there is a strong positive externality between public and private sectors (i.e. public spending has a multiplier effect over private spending). These economists usually also argue that there is a strong correlation between public sector size and the existence and efficiency of automatic stabilisers, so larger public sectors indicate higher economic stability[50]. Some even identify further benefits to 'Big Government': countries with larger governments are less corrupt, have fewer bureaucratic delays, better provision of public goods, but also higher tax rates; freer governments are larger, more efficient, they intervene less and provide better public goods; larger governments on average perform better with respect to performance indicators such as the quality of business regulation, bureaucratic delays and infrastructure[51].

On the contrary, other economists support the view that a large public sector is detrimental to economic growth. Instead of considering the multiplier effects of government spending, they identify diminishing marginal products in public spending and consider that the lack of a competitive dynamic in the public sector often results in an inefficient use of resources at macroeconomic level.

Overall, **no clear and straightforward relation can be established between government size and economic performance**. While the available empirical studies suggest that the size of government spending has some positive effects on economic performance, the net effect of government activities on the economy often remains unclear. Therefore the concept that must be used to relate pubic administration to economic performance and competitiveness is that of **public sector efficiency** rather than that of public sector size.

II. 2. 2. Measuring efficiency and productivity in the public sector

Efficiency means achieving maximum output from a given level of resources used to carry out an activity. Measuring an organisation's efficiency thus means assessing the **relationship between the outputs it produces and the inputs it uses**. An efficient organisation is one that produces the maximum possible outputs given its inputs, or one that produces a certain level of output with the minimum amount of inputs. Efficiency thus means the best possible use of resources available, whatever the quantity and quality of these resources may be.

The concept of efficiency is related to that of productivity, but is not identical[52]. While productivity is an end-result measure that relates the quantity of output produced to one or more inputs used in its production, irrespective of the efficiency of this use, the concept of efficiency adds an element of comparison to some known potential: an organisation will therefore be considered as inefficient if it would be capable of producing more output with existing inputs.

[50] "Structure and size of pubic sector in an enlarged Europe", by Andrés Maroto and Luis Rubalcaba, Publin Project (Innovation in the public sector), April 2004
http://www.step.no/publin/reports/D5-final15April2004.pdf
[51] The quality of government, La Porta, R. et al., Journal of Law, Economics, and Organization, April 1999
[52] "Measuring productivity", Paul Schreyer and Dirk Pilat, OECD Economic Studies No. 33, 2001/II
http://www.oecd.org/dataoecd/27/42/1959006.pdf

The efficiency of the production and delivery public services is very difficult to evaluate, for a number of reasons related to the measurement of outputs and outcomes. This measurement is indeed more difficult in the public sector than in the of private sector, because public services are often provided to the customer for free or at a subsidised price, and no market prices can thus be used to valuate them. As a result of these difficulties, the measurement of public services' efficiency and productivity has historically tended to ignore outcomes and outputs to focus instead on the magnitude of inputs: increased expenditure on public services has historically been regarded as equivalent to an identical increase in output. Such an assumption is no longer tenable, and efforts are currently being made at national and international level to produce more meaningful estimates of public sector output.

A study published by the European Central Bank in July 2003 provides an attempt to overcome these measurement difficulties[53]. It first computes indicators of public sector performance (which describes the outcomes of public sector activity) for a sample of 23 OECD countries in 2000. These indicators are based on selected socioeconomic data regarding public administration, education, health, infrastructure, income distribution, economic stability and economic performance. This computation shows that, in general, differences across countries are rather limited. On average, countries with small public sectors (i.e. where government spending represents less than 40% of GDP) report the highest scores in terms of administrative and economic performance, while countries with large public sectors show more equal income distribution. The overall performance score for the EU-15 is clearly below the average of the 23 OECD countries surveyed (0.94 against a normalised average of 1.00) and below the scores of the US and Japan (1.02 and 1.14 respectively).

The study then computes indicators of public sector efficiency by relating these performance measures to inputs used, evaluated as government spending on each type of activity. While cross-country differences were rather limited in terms of performance, the efficiency scores suggest rather large differences. Countries with small public sectors report significantly higher efficiency indicators than countries with medium-sized or large public sectors. Overall efficiency is highest in Japan, Luxembourg, Australia, US and Switzerland. At the other end of the range, Italy, Sweden, France and Belgium report the weakest scores. The EU-15 ranks below the sample average of 1.04 with a score of 0.94, vs. 1.26 for the US and 1.38 for Japan. The study then calculates overall input efficiency scores (indicating how much less input a country could use to achieve the same level of output) and output efficiency scores (indicating how much more output a country would be able to produce with the same inputs as currently employed). These scores show that the US, Japan and Luxembourg are identified as the most efficient countries in the sample, followed by Australia, Ireland and Switzerland. **In the EU-15**, the average input efficiency is estimated at 0.73, meaning that **the same level of public sector output could be attained by using 73% of the inputs currently used** (or about 35% of GDP rather than close to 50%), and the output efficiency score shows that **the current performance only reaches 82% of what could be achieved with the current level of public expenditures**.

Even though these results are indicative and need to be interpreted with caution, they clearly indicate that most European governments have a wide margin of progress in terms of efficiency. Some countries have already undertaken to develop specific **public sector efficiency and productivity programmes**:

- In the UK, the Independent Review of Public Sector Efficiency led by Sir Peter Gershon – also known as the '**Gershon Review**' – delivered its report, "Releasing resources for the front line", on 12 July 2004[54]. The review identified a number of areas where efficiency gains should enable the government to trim down the back-office, thereby releasing significant extra resources for front-line services such as schools and hospitals and deliver further improvements in the performance of the whole pub-

[53] "Public Sector Efficiency: An International Comparison", by A. Afonso, L. Schuknecht and V. Tanzi, ECB Working Paper no. 242, July 2003
http://www.ecb.int/pub/pdf/scpwps/ecbwp242.pdf
[54] "Releasing resources for the front line - Independent Review of Public Sector Efficiency", July 2004
http://www.hm-treasury.gov.uk/media/B2C/11/efficiency_review120704.pdf

lic sector. These identified efficiency gains amount to 2.5% of the cost of public services per year over three years and would reach £ 20 billion (€ 28.45bn) per year in 2007-08, of which over 60% would be directly cash releasing. The proposals would also result in a gross reduction of over 84,000 posts in the Civil Service and military personnel in administrative and support roles. The UK Government endorsed these objectives in its 2004 Spending Review, which set departmental spending plans for the three years from 2005-06 to 2007-08. An Efficiency Programme has been set up within the Office of Government Commerce (OGC) to drive forward and coordinate implementation of the government's efficiency agenda.

- In France, each Ministry has been requested to produce a '**Ministerial Reform Strategy**', identifying an action plan to increase the efficiency, productivity and quality of its services and delivery capabilities[55]. 225 priority actions have been selected out of the 500 proposed by the ministries, for which detailed timetables and cost/savings estimates have been prepared. Most of these actions impact the direct action means of the State (wages and general services expenditure, which represent about € 95 billion a year), and shall make it possible to save € 1.5bn per year by 2007 (about 1.5% of the target expenditure) and to reduce staff numbers by 10,000. These savings will cumulate over time with new ones that will be identified in similar exercises in the coming years.

In both cases, e-government is instrumental to these efficiency and productivity plans. Further investment in ICT, as well as strategies to drive take-up of e-services, are essential to deliver the envisioned productivity and efficiency gains. This role of e-government in increasing productivity and efficiency should be considered as **its main contribution to the promotion of economic competitiveness**.

II. 2. 3. Public sector efficiency and economic competitiveness

Efficiency and productivity gains in the public sector contribute to boosting economic competitiveness through their **impact on productivity growth in the wider economy**, at local, regional, national or Community level. As mentioned above, productivity growth is the prime driver of competitiveness.

The impact of public sector efficiency on productivity growth is twofold:

1. Due to the size of government activity in European economies, labour productivity in the public sector is in itself an important determinant of average labour productivity at national level. Raising efficiency and productivity levels in government thus mechanically provides a significant contribution to higher overall productivity.
2. Due to the nature and spread of government activity, efficiency gains and better internal performance in public services have multiplier effects across the economy and enable private sector companies to become more efficient and competitive. More productive and higher quality service provision by public administrations leads to increased productivity and competitiveness in the private sector, by reducing the cost of the public service itself, transaction costs on customer side (time, effort), and the number of administrative errors.

Therefore, modern, innovative and efficient public services contribute to increased productivity by better internal performance and by multiplier effects that enable companies to lower their administrative costs and raise their competitiveness. They reinforce innovation across the economy by being pro-active in delivering higher quality and new services and through their leveraging effect given their weight in GDP as major spenders and purchasers.

[55] Les stratégies ministérielles de réforme (SMR) 2004, Délégation à la Modernisation de la Gestion Publique et des Structures de l'Etat, Octobre 2004
http://www.dmgpse.gouv.fr/article2660.html?id_article=60

The multiplier and leveraging effect of the public sector on overall productivity and competitiveness is even increased by the use of ICT, which, as mentioned above, has become the main driver of productivity growth. A survey of European private sector executives conducted by the Economist Intelligence Unit (EIU) for its recent study on the link between ICT and productivity growth[56] has shown that the best thing governments can do to promote effective and efficient use of ICT to boost productivity across the economy is probably to practise what they preach and "**lead by example**". More specifically, governments can play two important roles as ICT users, which will have multiplier effects across the economy. The first is by demonstrating the benefits of ICT use through initiatives to bring efficient public services online. Government innovation in providing online services was selected by 44% of EIU survey respondent as the most important government initiative to promote the diffusion of ICT in a country, ahead of any other. The second is by becoming "intelligent customers" and "smart purchasers", favouring suppliers that use ICT to offer innovative services and better value for money. By promoting and rewarding innovative behaviour, and because of the sheer weight of the public sector in the European economy, this type of public procurement can significantly contribute to spread productivity gains across the economy. For example, the move to electronic public procurement methods can accelerate the pace of ICT adoption and productivity gains among private suppliers, particularly small and medium-sized enterprises (SMEs).

Public sector efficiency and productivity gains, particularly when achieved through an increased and smarter use of ICT, therefore represent the most powerful government lever for increasing overall productivity and economic competitiveness. This lever does not replace the other levers mentioned above (taxation, government spending on education or R&D, regulation) but adds up to them and also multiplies their effects. Raising public sector efficiency – i.e. efficient use of public resources – means that the tax pressure on taxpayers can be reduced or better adjusted, that more resources can be freed up for priority areas (e.g. education, R&D), that regulations can be better prepared and assessed, therefore leading to higher overall public sector effectiveness – i.e. achievement of policy objectives – and increased competitiveness. On the contrary, public sector inefficiency – i.e. wasteful use of public resources – means that more tax than necessary needs to be levied to provide a given level of services (or that fewer services are provided at a given level of taxation), that resources may be missing for investment in priority areas, that capacities to produce adequate policies and regulations are reduced, therefore leading to rising public sector ineffectiveness – i.e. non-achievement or slow/partial achievement of objectives – and hampered competitiveness.

This fundamental link between public sector efficiency and competitiveness is increasingly being recognised and acknowledged at international level. The International Institute for Management Development (IMD), which publishes an annual World Competitiveness Yearbook (WCY)[57], ranks government efficiency as one of the four key factors of competitiveness, together with economic performance, business efficiency, and infrastructure. The IMD calculates a 'government efficiency index', based on a set criteria that measure the extent to which government policies are conducive to competitiveness. These include public finance, fiscal policy, institutional framework, business legislation, and societal framework. The ranking of surveyed EU Member States in the 2003 WCY government efficiency index is as follows: Finland, Luxembourg, Denmark, Estonia, Ireland, Austria, Spain, Sweden, United Kingdom, Netherlands, Germany, France, Portugal, Czech Republic, Belgium, Italy, Hungary, Slovakia, Greece, Slovenia, Poland.

II. 2. 4. Towards a "competitive government"

The link between government efficiency and competitiveness is considerably reinforced by globalisation and the increased mobility of production factors that it brings. In today's world, governments must not only provide the adequate conditions for domestic eco-

[56] "Reaping the benefits of ICT - Europe's productivity challenge", Economist Intelligence Unit, April 2004 http://graphics.eiu.com/files/ad_pdfs/MICROSOFT_FINAL.pdf
[57] http://www.imd.ch/wcc/yearbook/

nomic agents to strive, but also create an environment which incites increasingly mobile agents – both companies and individuals – to locate or remain located within their jurisdictions. This is true for companies and capital: European countries must deal with the growth of offshore outsourcing and its expansion to a number of business sectors, while at the same time trying to attract foreign companies. Both the importance of foreign direct investments (FDI) and the risks of offshore outsourcing ("de-localisation") are already well documented. But this is also true for individuals: growth and wealth creation increasingly require the capacity to attract and retain talented workers, students, researchers, entrepreneurs, innovators, etc. Public sector efficiency and effectiveness, increasingly, is becoming a key element of this capacity.

Therefore, government must be seen as a real actor of competitiveness. To use a cinematographic analogy, government is not only the film director and producer, but also one of its main characters. The quality of the movie thus depends on its performance in each one of these roles.

To succeed in this endeavour, governments are coming under increasing pressure to not only promote competitiveness, but also to become competitive themselves. The concept of '**competitive government**', which emerged in the US in the 1990s, originally referred to the promotion of government efficiency through the injection of competition into public service delivery. In a competitive government, public sector employees would compete (through an "insourcing" alternative) with market vendors (as "outsourcers") for "non-core" government functions.

However, there is another possible meaning of 'competitive government', which refers to the capacity to steadily improve government quality, and to always strive to serve the public more efficiently and effectively. In that sense, a competitive government means competitive tax rates and accountability to the taxpayers, it means making responsible choices, protecting the most vulnerable and being forward-looking. Competitive government is not necessarily small government; rather, it is government that provides services most people and businesses want at tax rates they are willing to pay. Defined as such, **competitive government is one of the fundamentals for a competitive economy**, and it can add value to a city, a region, a nation, a state, citizens and businesses, through quality and performance. In today's Europe, with its ageing population, competitive government is also necessary to keep public expenditure growth under control without either a dramatic reduction in welfare or social protection or a dramatic increase in the tax burden in the years to come.

A number of requirements can be identified for a successful transition to competitive government. The most important one, without doubt, is the capacity to **leverage e-government as a factor of competitiveness**.

III Leveraging e-government as a factor of competitiveness

In order to achieve the vision of a competitive government, e-government policies must incorporate two complementary strategic objectives:

1. Delivering efficiencies across the public sector.
2. Reducing the cost of regulatory compliance for government customers.

III. 1. Gearing e-government efforts towards public sector efficiency

III. 1. 1. Identifying the potential for efficiency gains

The potential for improvements in public sector internal efficiency is large and remains widely unfulfilled. As noted by the report of the UK Independent Review of Public Sector Efficiency ('Gershon Review') [58], efficiency in the public sector involves making best use of the resources available for the provision of public services. Achieving efficiency gains (or 'efficiencies') thus requires changing resource (including workforce) utilisation and service delivery processes in order to reach one or several of the following objectives:

- Reduce the amount of inputs (e.g. people or assets), whilst maintaining the same service provision level.
- Lower prices for the resources needed to provide public services.
- Produce additional outputs, such as enhanced quality or quantity of service, for the same level of inputs.
- Improve ratios of output per unit cost of input.
- Change the balance between different outputs aimed at delivering a similar overall objective in a way that achieves a greater overall output for the same inputs ('allocative efficiency').

The Gershon review identified six main potential areas where efficiency gains could be made, which can be seen as valid even outside the UK context:

1. **Back office operations**
   Back office functions in the public sector provide essential support to the delivery of frontline services. They include, for example: finance, human resources, information technology support, procurement services, legal services, facilities management, travel services, marketing and communications.
2. **Procurement**
   The public sector is one of the biggest purchasers of goods and services in the economy, and procures goods and services in a wide range of sectors and industries (e.g. utilities, ICT systems and services, professional services, temporary labour, construction, social housing, social care, and environmental services).
3. **Transactional services**
   For most citizens and businesses, the transactional services provided by the public sector are their most common interaction with government at both a local and national level. The transactional services undertaken by government include the payment of benefits and pensions, the collection of taxes, charges or fees (for example, income tax, TV licenses and road tax). Transactional services also include the public sector's role in the collection and exchange of information, such as the registration of births and deaths and the calculation of benefit entitlements.

[58] "Releasing resources for the front line - Independent Review of Public Sector Efficiency", July 2004
http://www.hm-treasury.gov.uk/media/B2C/11/efficiency_review120704.pdf

4. **Policy, funding and regulation for the public sector**
   Effective strategy, evidence-based policy and focused inspection and regulation are critical to driving up performance in public services. Some parts of government therefore develop policy, provide funding to, inspect or regulate other parts of the public sector. It is important to ensure, however, that the costs of these activities (including the consequent costs for the frontline delivery organisations) are proportionate to their added value, whilst ensuring that frontline public service providers receive the support they need and are pursuing a well designed overall strategy.
5. **Policy, funding and regulation for the private sector**
   Some government activity is specifically designed to impact on, or intervene in, the private sector. For example the government regulates certain industries to protect consumers' interests, or ensure compliance with regulation, for example on working conditions and environmental protection. Government also sets policy for, and funds, private sector bodies in support of wider objectives, such as productivity growth and job creation. Government interventions in the private sector need to be carefully weighed against the compliance costs that may be imposed on firms, and should seek to ensure that these interventions remain efficient and effective.
6. **The productive time of front-line public service professionals**
   The mission of front-line staff is to deliver services to the user. Reducing the amount of time they spend away from these core activities is an important part of efficiency reforms.

In most of these areas the use of ICT represents the main lever for delivering productivity and efficiency gains, be it by automating back-office functions, building electronic procurement capabilities, delivering fully transactional services online, managing information resources for better decision- and policy-making, or maximising productive time of front-line civil servants.

While being an enabler of efficiency gains in government, the increased use of ICT and the move to electronic service delivery also reinforce the need for identifying and achieving them. In a paper on "The Economics of e-Government" prepared for the European e-Government Conference that took place in July 2003[59], researchers from the Maastricht Economic Research Institute on Innovation and Technology (MERIT) stressed that the move to e-government provides users of public services with easier and wider access to service information, increases the transparency on transaction costs and empowers the customer through 24/7 multi-channel access to customisable services. Therefore, e-government is stepping up pressure on the public sector to become more responsive and to adapt to varied and evolving customer needs, which in turns requires efficient service delivery processes to be in place.

III. 1. 2. Achieving efficiency gains through e-government

A July 2003 study by Deloitte Research[60] classifies the effects of e-government on public sector efficiency (and the resulting cost savings) into six categories:

1. **Lower service processing costs through automation**
   E-government allows the public sector to automate many routine interactions with citizens and businesses and back-office processes, eliminating paperwork and reducing processing costs, such as sorting, stuffing, mailing, and printing.
2. **Lower service delivery costs through self-service transactions**
   Letting customers serve themselves through self-service electronic counters allows governments to increase service quality – reduced waiting times, round the clock access, more specialised services, better service information – while significantly reducing customer service costs. In particular, it allows reducing the physical service deliv-

[59] "The Economics of e-Government: A bird's eye view", by Luc Soete and Rifka Weehuizen, MERIT, University of Maastricht, June 2003
http://www.ijclp.org/8_2004/pdf/weehuizen-paper-ijclp.pdf
[60] "Cutting fat, adding muscle", Deloitte Research,
http://www.deloitte.com/dtt/research/0,2310,sid%3D5601&cid%3D21475,00.html

ery infrastructure (i.e. number of local offices) and the number of employees needed for over-the counter customer service. Ultimately, much of the savings from self-service e-government interactions and transactions will come from lower workforce costs (salaries, benefits, and overhead). As more citizens interact with government over the web, governments will need fewer clerks to process requests, fewer human resource professionals to fill out personnel forms, and fewer data processors to transfer information from paper to computers.

3. **Lower public procurement costs through e-procurement**
   E-procurement, which encompasses electronic catalogues, web-based bid notifications, purchase cards for smaller purchases, reverse auctions, and end-to-end paperless transaction capabilities, holds tremendous promise for reducing procurement cycle times, speeding up transactions, increasing competition, slashing costs for postage, printing, and copying, freeing up staff time, cutting administrative costs, and driving down costs of procured goods and services by enabling more leveraged, consolidated purchasing. According to the e-Procurement Action Plan recently published by the European Commission[61], if online procurement is generalised, it can save governments up to 5% on procurement expenditure and up to 50-80% on transaction costs for both buyers and suppliers. The Extended Impact Assessment that accompanies the plan[62] estimates that, on the basis of the relatively conservative figures of 5% savings on the purchasing price and € 50 savings per invitation to tender in administrative costs, annual savings from full implementation of electronic public procurement would amount to almost € 19 billion by 2010 (€ 18.75 billion per year on purchasing costs and € 8.3 million per year on administrative costs), based on a 25% uptake figure (calculations for the EU-15).
4. **Improved supply chain management**
   Following the private sector, government bodies are in the early phases of using technology to better integrate and automate their supply chains (sourcing, purchase orders, and logistics). The best short-term opportunities to reduce costs through better supply chain management lie with organisations that procure large quantities of supplies and equipment (e.g. in the areas of defence, transportation, health and human services, etc.), which can move away from the practice of stockpiling months' and even years' worth of supplies.
5. **Reduced training and travel expenses through e-learning and e-collaboration**
   E-learning, together with electronic collaboration technologies such as teleconferencing, e-rooms and 'webinars' (web seminars), can help governments slash travel and training costs. Much of the savings would come from reduced travel expenses, which typically amount to up to 50% of training budgets, and lower off-site, instructor, and training administration costs.
6. **Reduced errors, fraud and abuse**
   Significant amounts of government money are wasted each year because of overpayments, errors, false claims, and outright fraud. Technology is making it easier for governments to detect and reduce this waste (e.g. neural networks, data mining, data brokers, eligibility systems, audit recovery, biometrics).

Alongside these efficiency gains that translate into cost savings, e-government also enables to achieve efficiencies in revenue collection. New technologies indeed offer new opportunities for maximising existing revenue sources by reengineering business processes and employing sophisticated revenue optimisation tools. The most common of these tools are 'tax discovery' systems, which use data warehousing and other technologies to identify taxpayers who are either not paying, or only partially paying, their taxes. In a period of budget shortfalls, e-government thus provides valuable new tools to achieve greater efficiency in tax administration and collection.

[61] Action plan for the implementation of the legal framework for electronic public procurement, Communication from the Commission, December 2004
http://europa.eu.int/comm/internal_market/publicprocurement/docs/eprocurement/actionplan/actionplan_en.pdf
[62] "Impact Assessment of the Commission on an Action Plan on electronic public procurement", Commission Staff Working Document, December 2004
http://europa.eu.int/comm/internal_market/publicprocurement/docs/eprocurement/2004-12-impact-assessment_en.pdf

III. 1. 3. Measuring the impact of e-government on public sector efficiency

High expectations of significant efficiency gains and cost savings are hardly new: in Europe as in other advanced economies, they have been one of the main drivers of e-government since the mid-1990s. However, in practice, not much has been demonstrated so far. Although some savings (in terms of paper, staff, or shortened process times) may have been identified for individual projects, **no overall evaluation of savings and efficiencies has yet been made on a countrywide scale**.

In trying to quantify real cost and benefits resulting from the introduction of ICT, governments inevitably run into the same type of difficulties that make it difficult to assess the impact of ICT on the productivity of the economy as a whole, or even of individual companies. These difficulties include the need to reach a minimum threshold of ICT development before significant effect on productivity occurs, or the time lag that separates ICT investment and returns, which corresponds to the time it takes for organisations to assimilate and adjust to new technology. Another difficulty is to isolate the impact of ICT from all other factors that influence productivity and efficiency, which often proves elusive.

On top of this, this kind of evaluation is made more difficult by the fact that public sector bodies, unlike private companies, do not operate on competitive markets where prices are a competitive factor. For most public services there is no competition and the fees charged are not necessarily related to costs. In addition, government bodies are not subject to consumer or financial market disciplines, which require a continuous monitoring of costs, efficiencies and performance. Therefore public bodies have no pressure to assess the cost of single services. As a result, most public administrations do not have accounting and controlling systems providing data about the cost of each individual service, the cost of key processes or the cost of their ICT systems and operations.

It is thus often technically very difficult for public sector bodies to measure the overall economic and financial implications of e-government, especially when service delivery involves several administrative organisations. Furthermore, it tends not to be part of the way the public sector operates, especially because it is complex, politically sensitive, and often needs a long term view to really assess beneficial results. When public bodies do closely examine the costs and benefits of specific activities, they may be wary of publishing the results, unless specifically required to do so by politically set targets, performance measurement initiatives, users' charters, etc.

The impact of e-government on overall public sector efficiency (and thus on competitiveness) is therefore very difficult to quantify. However, there is a growing willingness to be able to measure and realise the benefits from IT investments. This involves everything from developing more rigorous business cases and sophisticated return on investment (ROI) models – capturing quantifiable returns for the administration as well as the 'public value' created – to following through with the necessary back-office adjustments, while measuring impact and controlling quality on a continuous basis.

As mentioned in a study on 'back-office reorganisation' prepared for the European Commission in early 2004[63], a consensus has emerged that three fundamental conditions need to be fulfilled for e-government to deliver tangible and substantial efficiency gains and cost savings:

1. **Service delivery efficiencies can only be realised if take-up is sufficient**
   Unlike private companies, governments cannot refuse to deal with customers that have no or limited access to electronic service delivery channels, especially when these are precisely the users who rely most on public services and tend to use the

[63] "Reorganisation of government back-offices for better electronic public services", Report to the European Commission, February 2004
http://europa.eu.int/idabc/en/document/3587/5713

more traditional channels to access them, such as the elderly, disabled, sick, poor or deprived. Thus, electronic services often need to be added to existing delivery channels rather than replace them, at least during a certain period of time. As a consequence, efficiency gains and savings on service delivery costs cannot be realised until a significant proportion of users has effectively migrated from the traditional delivery channel to the electronic channel. If adoption of an online service remains very low, the costs of implementing and maintaining the electronic channel adds up to the existing costs of supporting the physical service delivery infrastructure, therefore leading to an overall increase in service delivery costs. Governments must thus focus their efforts on driving take-up of their online services before they can start realising significant cost savings.

2. **Major efficiency gains arise from back-office re-engineering**
   It is now widely acknowledged that real e-government cost savings, quality improvements and efficiency gains come from re-engineering the internal structures and processes of government rather than from simply moving services online. Transformation requires a fundamental restructuring of the public administration's organisation, integrating work processes across agencies to put the citizen at the centre and simplify interaction, reduce costs and improve services. According to the 'back-office reorganisation' study, experience to date suggests that the technology itself may deliver 20% of a given e-government saving, while the remaining 80% is provided by the redesign and automation of back-end processes and functions. As a consequence, internal functions such as finance, training, payroll, and human resources (HR) management represent the best short-term opportunity for governments to achieve tangible cost savings from ICT. Unlike most citizen and business services, these functions can indeed be fully migrated to an electronic environment according to a fixed timescale.
3. **Back office changes must go along electronic service delivery**
   Another important lesson is that efficiency gains are only generated when the organisation and human resources change immediately when the technology is implemented. If electronic services are introduced without such changes it is very hard to push for organisational changes and efficiency savings afterwards. This drastic step is needed in order to push the organisation into using the new system in an optimal way. Furthermore, this tends to motivate personnel to do what they can to get citizens to use the new systems since it saves them effort every time this happens.

These key conditions for reaping effective efficiency gains were confirmed by the findings of the 'Net Impact 2004' study published by Cisco Systems in March 2004[64]. Based on a survey of European public sector IT and business decision makers, the study found that organisations that use Internet business applications, have sophisticated network and technology infrastructures, and align business processes with their technology-enabled capabilities can achieve an average 3-7 times greater performance improvement than organisations that do not pursue such combination. The best performing organisations are those which:

- Change (or re-engineer) their business processes prior to deploying a new application aimed at increasing efficiency.
- Automate business processes with Internet applications and integrate those processes with other service functions.
- Ensure that organisational culture is focused on improving process and delivery of citizen services.
- Implement measurement systems to track operational performance.

The Net Impact 2004 also found that:

- The timing of business process re-engineering is important to reap full benefits in terms of performance and savings. Organisations that re-engineered processes prior to introducing an application realised cost savings of 20-30% over 12 months, whilst

[64] "Net Impact 2004: From Connectivity to Productivity", Cisco Systems, March 2004
http://www.netimpactstudy.com/pdf/NetImpact_04b.pdf

those that re-engineered the process after application deployment were likely to achieve only half that result.

- A 100% increase in citizens using online services in a year could result in up to a 45% increase in citizen satisfaction as well as a 10% reduction in operating costs.
- A 100% increase in the number of cases resolved through self-service could lead to a 15% reduction in operating costs.
- The main barriers to productivity improvement through networking, processes and applications are organisational obstacles such as internal resistance to change, lack of worker training and lack of support and leadership from the management.

To achieve efficiency gains and unlock large cost savings, governments thus need to combine electronic service delivery and IT productivity improvement projects with an enterprise-wide transformation initiative of programme restructuring, business process redesign, and rigorous performance management. In addition, effective take-up strategies are needed to achieve savings on service delivery costs, based on effective marketing approaches and on an appropriate balance between encouraging, incentivising and mandating use of electronic services.

III. 2. Reducing administrative burdens for government users

The second key objective for a competitiveness-oriented e-government strategy is to help reducing the cost of interacting/doing business with government.

The specificity of the government sector is that most interactions citizens and businesses have with public administrations result from legal or regulatory obligations they have to comply with rather than from their choices as customers. Laws and regulations are usually designed to promote societal or economic progress (e.g. welfare, consumer protection, fair competition, quality of the environment). However, they usually place a number of compliance obligations upon citizens and businesses, which limit their choices and usually involves costs for them. As mentioned previously, the costs for businesses ands citizens of complying with administrative burdens are difficult to quantify. However, there is a growing consensus that **administrative compliance costs are substantial for economic agents and for the economy as a whole**, and that excessive or ill-adapted regulation often hampers economic performance and competitiveness.

The first way to address this issue is to take steps towards **better regulation and law-making**, with a special focus on better assessing the impact of regulations. Government interventions indeed need to be carefully weighed against the compliance costs and obligations that they may impose on firms, and should seek to ensure that these interventions remain efficient and effective. There is no shortage of strategies that governments can use in this respect: generalising cost-benefit analyses or regulatory impact assessments, setting performance standards, deregulation, etc. A number of initiatives have already been launched in this respect, at EU and Member State level, which have been previously evoked. The use of advanced ICT systems can be a key enabler for these initiatives, by providing the appropriate information management tools to support effective decision-making, evidence-based policy, and efficient regulatory impact assessment mechanisms.

However, regardless of the quality of rule-making, e-government can play a major role in driving down the costs for businesses and citizens to comply with regulations and administrative requirements. By helping to minimise the amount of time and effort it takes to comply with government red tape and complete government transactions, e-government can have a positive impact on both business productivity and people's quality of life.

III. 2. 1. Understanding administrative compliance costs

A report published in September 2003 by Deloitte Research provides some insight into the way ICT can be used to reduce the cost of administrative compliance for government customers[65]. The report identifies that most citizens and businesses' interactions with government fall into one of the following categories:

- **Registering**
  Legally forming and operating a business often requires registering the business with multiple government agencies across multiple levels of government. For citizens, countless activities also require registering with the state, from getting a license plate to obtaining unemployment benefits.
- **Credentialing/licensing**
  Many professions require obtaining a license or credentials from government, including architects, land surveyors, barbers, lawyers, real estate brokers or taxi drivers. Citizens are also required to obtain licenses for a number of things from going fishing to driving a car.
- **Permitting**
  Governments require citizens and businesses to obtain permits for thousands of different activities, ranging from building an addition onto a house to transporting nuclear waste.
- **Reporting**
  Every citizen and business face some level of reporting obligation to government. For most citizens the bulk of this burden lies in the tax returns they must file each year, while businesses must file frequent reports on a number of issues, from environmental impacts to compliance with labour rules.
- **Paying**
  The largest number of transactions people have with government fall in this category. Payments, of course, will often occur as a result of one of the other four categories of interactions.

For each one of these types of interactions, the costs for citizens and enterprises of doing business with government can generally be broken down into three main categories:

1. **Finding which rules and regulations are needed for compliance**
   The discovery costs of finding out what rules and regulations are applicable for certain types of interactions or activities are often extremely high. They range from the opportunity costs of having to devote resources to complete certain activities to the direct costs of hiring a lawyer, accountant or consultant to carry out more complex interactions. These costs are even increased by the frequent regulatory changes introduced by governments.
2. **Understanding the regulations and how to comply with them**
   After finding applicable rules or regulations, it is still necessary to figure out what they mean and what has to be done to comply with them. The huge number, complexity and frequent changes of government regulations can make this process extremely costly and time-consuming. In particular, it is nearly impossible for the average small business owner to understand certain regulations without help from a consultant or lawyer.
3. **Complying with applicable rules and regulations**
   Actual compliance with the identified rules and regulations – including paying fees and user charges – is typically the biggest cost driver for businesses and citizens. The costs of compliance can include everything from gas, postage, time, and consultant fees, to the expense associated with buying and installing new equipment or hiring more people.

[65] "Citizen Advantage: Enhancing Economic Competitiveness Through e-Government", Deloitte Research, September 2003
http://www.deloitte.com/dtt/research/0,1015,sid%253D2230%2526cid%253D26333,00.html

Usually, each of the three stages is proportionately more costly for individual citizens and small businesses than for larger companies, which can hire a stable of lawyers and consultants to help them manage their legal and regulatory obligations.

III. 2. 2. Driving down compliance costs through e-government

E-enabling and streamlining permitting, licensing, reporting and payment requirements can save businesses and citizens considerable time and money. It can do so in five ways: 1) providing easy-to-access and user-friendly service information; 2) simplifying and streamlining reporting requirements; 3) reducing the number of forms; 4) making transactions (paying fees, obtaining permits) easier; and 5) helping citizens and businesses understand what regulations apply to them, and how to comply with them.

Depending on the nature of the interaction and the type of electronic solution implemented, e-government can potentially impact all three cost categories – find, understand, and comply – for each of the five common types of transactions citizens and businesses have with government – registering, licensing, permitting, reporting, and paying.

- **Find**
  The cost of finding the applicable rules and regulations needed for compliance can be reduced by web portals, search engines, and expert advisor systems that inform government customers of exactly what rules and regulations apply to them, based on their answers to a series of questions. Governments worldwide have begun to set up one-stop shopping sites for citizens and businesses that incorporate many of these capabilities.
- **Understand**
  Expert systems, as well as other forms of artificial intelligence, can trim the costs involved in understanding regulations by diagnosing how rules apply to an individual business or citizen. Other ways that e-government can reduce the costs of understanding regulations include: posting detailed answers to frequently asked questions; pre-populating forms; and hosting bulletin board discussions about the regulations.
- **Comply**
  Just as compliance constitutes the largest government-imposed cost driver, it is also the area where savings from e-government are potentially the largest. Gas, postage, time, and resource savings are all possible from providing e-enabled interactions and transactions. Compliance savings are also possible when governments use common data standards and middleware technology to merge forms and applications, thereby enabling businesses and citizens to do one-stop shopping online instead of filling out multiple forms with the same information for multiple agencies. Even greater benefits are possible when governments use web-based technologies to share information across geographical boundaries and across levels of government, enabling 'mobile' citizens and businesses operating in multiple jurisdictions to reduce the paperwork they have to complete with each one. In this respect, the use of standard XML data formats and the linkage of government systems is a key element to drive down compliance costs for government users.

Overall, the Deloitte report mentioned above identifies that e-government provides the following savings opportunities for government users:

- **Direct costs savings**, e.g. postage, printing, gas/travel, professional fees (lawyers, accountants, consultants), personnel (fewer staff time needed to engage in regulatory compliance), and regulatory savings via transition from enforcement to compliance.
- **Opportunity costs savings**, resulting from time savings for business compliance and filing. For example, a reduction of the number of days needed to receive a permit and license can enable a company to go to market more quickly, therefore reducing time-to-market costs.

III. 2. 3. Measuring the impact of e-government on administrative burdens

Just as the impact of e-government on public sector efficiency is very difficult to measure, its impact on the reduction of administrative burdens and costs for citizens and businesses is not easy to evaluate. The lack of adequate metrics and measurement tools makes it difficult to make meaningful calculations of direct costs savings for public services users.

According to Deloitte, the main and most tangible benefit of e-government for users is the time it saves them to comply with government regulations and complete transactions. This amounts to some kind of '**time rebate**' – equivalent to a tax rebate – on regulatory compliance obligations. The time rebate will be all the more significant when government e-services – and supporting processes – are user-centred and customer-focused, and when they offer end-to-end transactions that walk businesses and citizens through each phase of the compliance process.

The results of a recent survey of EU citizens and businesses[66] confirm that **time saving and increased flexibility are the most commonly perceived benefits of e-government**. According to these results, citizens and businesses save an average of over one hour per service transaction thanks to e-government services. In the taxation area, e-tax filing applications are already saving European citizens 7 million hours a year on the time it takes to do their income tax returns. If generally available and widely used in all Member States, the savings could rise to more than 100 million hours for citizens each year. These time savings are the key driver of the high level of satisfaction with e-public services: 90% of users surveyed declared to appreciate the quality of services offered electronically and over 60 % even said they were very satisfied with these services. 77% also said they would recommend the online services already used by them to others.

The data available regarding direct cost savings is more limited and fragmented. However, the above-mentioned survey found that online Value-Added Tax (VAT) declaration systems, for example, were saving EU firms an average of € 10 per declaration. If maximum take-up was achieved, this could translate into savings of some € 0.5 billion for businesses across the EU each year.

Unfortunately, such benefits are still insufficiently reflected in the evaluation of government IT investments. With governments at all levels struggling to balance their budgets, robust business cases are more necessary than ever for all new e-government investments. But most government ROI and business case methodologies still focus on direct returns for government bodies and do not measure the benefits of e-government investments for citizens and businesses. **Internal efficiencies are important, but governments also need to measure the value e-government generates for those they are serving**. To the extent feasible, the complete spectrum of economic, social, and cultural costs and benefits of each individual element of an IT investment or e-government programme should be taken into account. To this end, thorough methodologies and instruments should be developed, ideally consistent at European and international level in order to enable meaningful comparisons and benchmarking to be performed.

[66] "Top of the Web: User Satisfaction and Usage Survey of eGovernment services", December 2004
http://europa.eu.int/information_society/activities/egovernment_research/doc/top_of_the_web_report_2004.pdf

Conclusion

In March 2000 Europe set itself the ambitious goal of becoming the most competitive economy in the world by 2010. Progress to date has been insufficient, and efforts need to be stepped up to try to catch up for lost time. The key to making the European economy more competitive is to increase the rate and pace of productivity growth. This in turns requires, among other things, making the most of investments in ICT across society.

Governments have a crucial role to play in this endeavour. First of all by making better use of their traditional levers for boosting competitiveness: taxation, spending on R&D, education or infrastructure, and regulation. But governments also have to acknowledge that their weight and role in European economies gives them specific responsibilities to become 'competitive' themselves. This means increasing the efficiency of public sector operations and service delivery, building capacity to steadily improving government quality, striving to serve the public more efficiently and effectively, looking to the future and promoting a culture of innovation.

E-government is a key enabler of the transition to competitive government. Application of ICT in government services can indeed increase both the efficiency and the quality of public services, while reducing the cost and hassle of administrative compliance for citizens and businesses. E-enabled public services can be produced and delivered much faster, thus saving considerable time and money for both service providers and users. Even though precise measurements are still missing, there are strong indications that these benefits are substantial and are likely to have a multiplier effect across the economy. Therefore, governments need to re-focus their e-government efforts towards two key objectives: the identification and realisation of productivity and efficiency gains across the public sector, and the reduction of administrative burdens for both citizens and businesses.

There is today a momentum to establish a stronger relation between the modernisation of public administrations and the Lisbon strategy, and it is crucial to do so in order to revitalise the agenda and bridge its implementation gap. In today's Europe, with its ageing population, a competitive government is necessary to keep public expenditure growth under control without either a dramatic reduction in welfare or social protection or a dramatic increase in the tax burden in the years to come. Even though it is only one piece of the equation, e-government is the key enabler for the transition to competitive government, and should now be seen as a key element of Europe's competitiveness agenda. The mid-term review of the Lisbon strategy should thus acknowledge the role of public administration e-transformation as an important factor in the realisation of the Lisbon objectives.

The next European Ministerial e-Government Conference, which will be organised in the autumn of 2005 by the UK Presidency and the European Commission, will place particular emphasis on the economic and social impact of e-government and on the development of related indicators. These indicators will provide for further progress in assessing the connection between e-government, competitiveness and economic performance.

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