SIBIS

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Statistical Indicators Benchmarking the Information Society

Benchmarking *e*-Government in Europe and the US

RAND *Europe*

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Abstract

Existing studies of e-government concentrate on the supply-side by focusing on the availability and level of sophistication of online services and usage. This study addresses the demand-side of e-government - not only usage, but also perceptions and barriers to utilisation that have not been treated previously. Indicators to measure acceptance and adoption of e-government were used to build two surveys that were then piloted among members of the 'general population' in the 15 EU Member States, Switzerland and Europe and to decision makers (IT managers) in the commercial sector in seven EU countries. The results of first survey indicated a preference for online services that do not require users to provide a great deal of personal information. Also, familiarity with using the Internet tended to correlate with a higher interest in online services. Reasons for preferring online services to their traditional counterparts include added convenience and increased efficiency. Attitudes toward e-government tended to vary by country, although reasons for this are not clear at this time. The decision makers' survey shows that only about one third of businesses are currently using e-government. Among these, only about one third prefer this method over existing methods.

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Preface

This report represents one of the main deliverables of the SIBIS project (Statistical Indicators Benchmarking the Information Society), funded by the European Commission under the "Information Society Technology" Programme (1998-2002). The overall goal of SIBIS is to develop and pilot indicators for monitoring progress towards the Information Society, taking account of the "e-Europe action lines". On this basis SIBIS focuses on nine topics of interest, i.e. Telecommunications and Access, Internet for R&D, Security and Trust, Education, Work and Skills, Social Inclusion, e-Commerce, e-Government and e- Health.

Within the SIBIS project two surveys (a General Population Survey and a Decision Makers Survey – businesses) were conducted on the nine *e*-Europe topics between March and May 2002. This report analyses the outcomes with respect to the topic of "e-Government" and can be a support tool for views shared by experts in the area and defines indicators for quantifying some of the most critical indicators related to e-government such as familiarity, willingness to use, experience with the services, etc. The document has two main objectives: to report on the results of indicator testing and data gathering on the topic of e-government and on the basis of this and other relevant available indicators, specifying needs for further research into indicators in this field.

The report is organised in six chapters and two annexes. The first three chapters are designed to give the reader an idea of the main outcomes (Executive Summary), the context (Introduction) and the indicators developed (Identification of the Indicator Framework and Hierarchy). The core of the report is the analysis of indicators, provided in Chapter 4. This chapter focuses on an analysis by familiarity with online services and level of usage to understand their correlation with e-government attitudes and usage. Government services relevant to citizens are: library searching, job searching, notifying government of a change of address, completing car registration, requesting personal documents, completing tax declaration and completing declarations to the police. Business indicators on public procurement, obtaining environment-related permits, submitting data to statistical offices, paying VAT, paying corporate taxes and social contribution to employees were also examined. Important findings are presented in the body of the document and additional data are shown in the first annex. A second annex conceptualises for the reader a complementary survey to gauge government-to-government functions. A third annex provides the methodology of the surveys.

The main audience should be policy makers, statistical offices at all levels (national, e.g. CBS, Statistisches Bundesamt, Statistics Finland etc., and supranational, e.g. Eurostat, OECD), industry leaders and researchers in the domain and those involved and interested in benchmarking the domain throughout Europe and the world. The questions and the subsequent indicators developed by SIBIS should be considered by those institutions as a valuable input for their yearly surveys. The project includes a series of workshops with such institutions in the countries represented by the SIBIS consortium. The report should also be of interest to the European Commission (in particular DG INFSO) and to government officials dealing with e-government programmes.

In an earlier phase of the SIBIS project, another report for each of the nine topics has been developed. This report was aimed at setting the scene on the topic, defining the gaps in the statistical coverage and suggesting innovative indicators to be developed through the subsequent survey. A final summary version of the current report will be produced by July 2003.

SIBIS is led by Empirica (Bonn, Germany), and includes the following project partners: RAND Europe (Leiden, The Netherlands), Technopolis Ltd. (Brighton, UK), Databank Consulting (Milan, Italy), Danish Technological Institute (Taastrup, Denmark), Work Research Centre Ltd. (Dublin, Ireland), Fachhochschule Solothurn Nordwestschweitz (Olten, Switzerland).

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1. Executive Summary

The presence of e-government is expected to grow as online activities become more widespread. A number of indicators were piloted to understand the attitudes of Internet users toward e-government.

What is e-government?

Generally, e-government designates any transaction that involves the government and that is carried out, even partially, using electronic means. E-government plays an important function in mediating government actions and its role will continue to grow as communications technologies become more widespread. Already, communications technologies change the way that government operates by facilitating information dissemination, communications and transactions.

E-government is not simply the process of moving existing government functions to an electronic platform. Rather, it calls for rethinking the way government functions are carried out today to improve some processes, to introduce new ones and to replace those that require it. The range of services that may be provided by e-government spans from simple information sites to fully interactive experiences where users and government engage in a dialog mediated by information technology.

How is it organised?

Government operates on several different levels. One approach to dealing with this is to split e-government into three categories:

- Government to citizen (GtC),
- Government to business (GtB), and
- Government to government (GtG).

In all cases, the relationship is two-fold between the two parties; GtC designates just as well interactions that originate with government as with the citizen. Likewise, GtB designates interactions between businesses and government. GtG comprises all intra-government interactions within and across agencies (Figure S1).

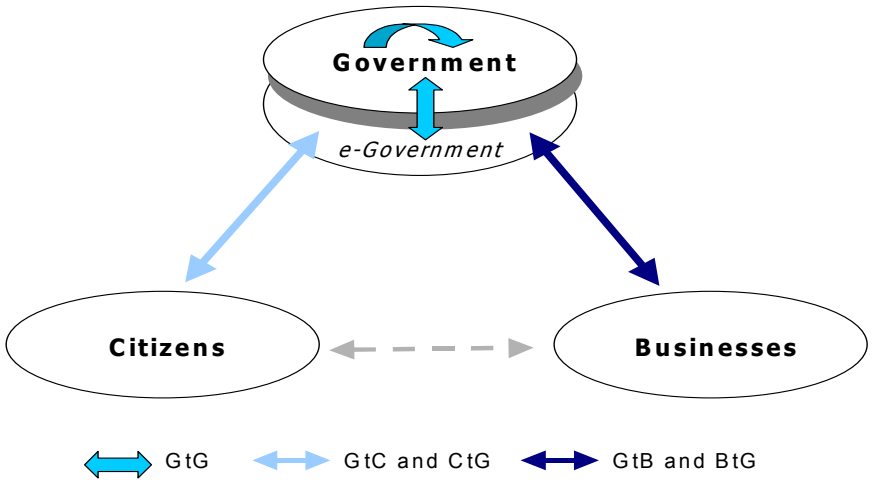


Figure S1: Interaction between stakeholders

What factors drive the success of e-government?

The realisation of e-government depends on two complementary aspects. First, the vision of e-government dictates the types of services that must be available online and the level of sophistication they must achieve. Second, the adoption of e-government by its intended users requires careful preparation, although this is not always possible, as the development of e-

government may seem to just happen at times. Ideally, development is based on a thorough understanding of how users perceive e-government, how well they can complete expected transactions, and what barriers stand in the way of successful adoption. The knowledge gained by studying both sides of e-government—vision, acceptance and adoption—provides a necessary foundation for its successful implementation.

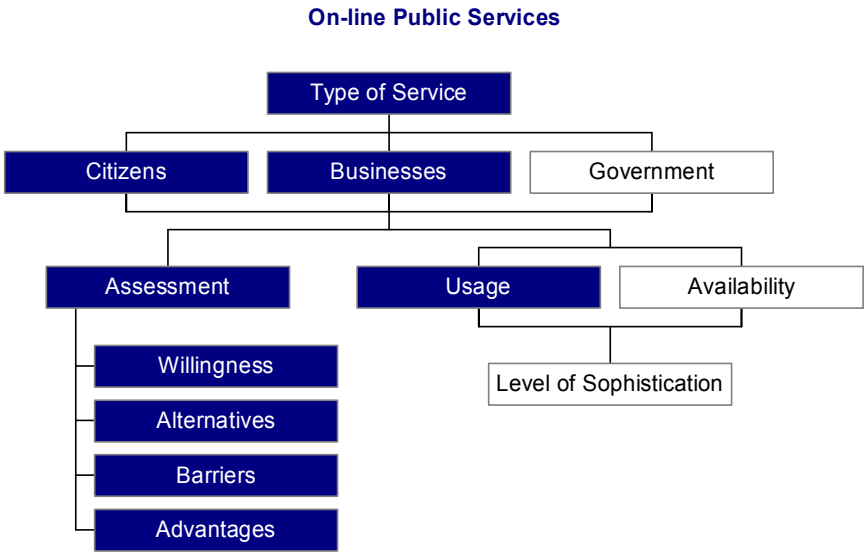


Figure S2: hierarchical structure on-line public services

What did SIBIS examine?

E-government is too broad to study exhaustively across all its dimensions. Existing studies concentrate on the supply-side of e-government, availability and level of sophistication of online services[1] and usage[2] (Figure S2). SIBIS complements these studies by addressing the demand-side of e-government, not only usage but also perceptions and barriers to utilisation that have not been treated previously. For this purpose a gap analyses was made of the policy needs for information and available indicators. The SIBIS indicators measure acceptance and adoption of e-government by its intended users and constitute a novel and necessary set of indicators. Some existing studies have looked at the preference of citizens for e-government or conventional means of transacting with government, but they have not sought to elucidate what drives citizens toward or away from e-government. Studies of the business preferences for e-government or existing means of transaction are non-existent. For this reason, SIBIS focussed on factors that either facilitate or impede the implementation of e-government based on user perception.

Two surveys looked at citizen and business attitudes toward e-government

Two complementary surveys were conducted in the SIBIS project, with e-government being one of the nine topics covered in these surveys. The survey of citizens covers the EU Member States, the USA and Switzerland. The survey of businesses covers Finland, France, Germany, Greece, Italy, Spain and the UK.

Regarding the e-government questions, the purpose was to query citizens and businesses about their views of e-government compared to traditional

[1] See for example the studies done by Accenture (2001, 2002; see references), the web-based survey on electronic public services by Cap Gemini Ernst & Young, the Global (2001), eGovernment survey by World Markets Research Centre (Sept. 2001) and several national surveys (2000/2001)

[2] Eurobarometer survey

modes of interacting with government. The government services addressed in the survey originated from the report "eGovernment Indicators for Benchmarking eEurope" of the European Commission and were already used in the EC survey on availability of those services, carried out by Cap Gemini, Ernst & Young (CGEY) in 2001 and 2002. While that survey sought to identify whether these services were available, the current survey provides a useful supplement to it by considering respondents' views of e-government.

The two surveys focused on GtC and GtB from the perspective of citizens and businesses. A third survey looking at GtG is necessary to get a complete picture of e-government. However, this was not possible in the current project.

The survey of citizens examined respondents' preferences for, access to, usage of and attitude toward e-government. Similarly, the survey of businesses examined respondents' usage of, preference for and attitude toward e-government. Additional analysis was carried out by combining knowledge gained from the SIBIS surveys with publicly available survey results from CGEY regarding the level of sophistication achieved for a number of e-government services.

Citizens prefer e-government services that do not require them to reveal a great deal of personal information

The preference for online or traditional access to government services varies across the chosen services. In this study, it was learned that citizens are interested in some aspect of e-government and show a significant preference for some e-government services over their traditional counterparts. Preference was not uniform, however. Thus, for example, the online search for books available in public libraries requires minimal information about the user and rates a high preference. The use of job search services can also be carried out by revealing minimal information about the user. The announcement of a change of address gives relatively little information about an individual. A similar interpretation can be assigned to the other services. Least preferred is the declaration to police, which requires that a great deal of private information be divulged.

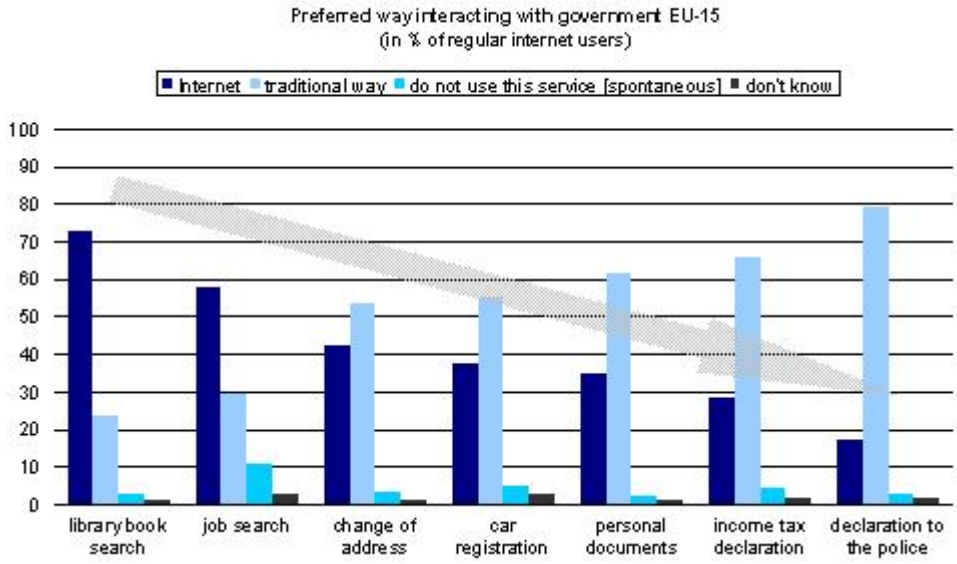


Figure S3: Degree of preference for online services for different services. Source: SIBIS, GPS 2002; weighted by EU15 population. Base: citizens who used the Internet in the last four weeks; N=4985

This is summarised in Figure S3, where the various government services are ranked so that the one that requires the least personal information about the user is on the left and the one requiring the most personal information is on the right. Generally, it appears that services which do not require users to reveal a great deal of personal information about themselves are popular while those that call for a great deal of personal information are less likely to elicit a positive response.

Familiarity with online services and greater online usage goes hand in hand with a positive attitude toward e-government

To better understand factors that may influence acceptance and usage of as well as facility with e-government, combinations are analysed crossing the responses obtained from the survey participants based on such variables as age, employment status, time spent online, level of Internet know-how and so on with the e-government questions. Statistical analysis of the differences in responses as a function of changes in these variables is used to confirm any correlations that may arise. While this may not explain why particular factors influence the affinity of respondents for e-government, it may suggest ways to enhance its acceptance and usage.

For example, respondents who reported using the Internet in the last month were asked whether they had used online services to declare their taxes. Among respondents, the response in favour of using the Internet to report their taxes was compared with their level of online activity in the last month. The responses shown compare the use of Internet with the use of conventional channels to report taxes. Familiarity with online services, which is expected to increase with Internet usage, tends to correlate with a preference for online tax declaration.

Likewise, familiarity with online services, gauged by the level of online access in the last month correlates with an increase in the use of Internet to request personal documents online. In addition, respondents who have more experience with Internet based on how long they have been using it show a preference for online tax declaration than those who lack this experience. Similarly, respondents with more experience online prefer to request personal documents via the Internet more than those without experience.

Awareness of e-government services is not uniform

Among respondents who indicated a preference for online government services, citizens were not always aware of which government services were available online. Again, the general pattern appears to be that citizens are well aware of e-government services requiring little or no personal information while they were not sure of whether those requiring a great deal of personal information were available to them. The exception to this pattern was income tax declaration, which over half of respondents identified as available to them.

Citizens make more use of e–government services that do not require much personal information

Further narrowing the subset of respondents to those who not only preferred online services, but also answered that specific services were available to them, citizens were asked about their use of online government services. Once again, use of a given government service appears to be inversely matched to the amount of personal information required by the service. Here also, the notable exception is income tax declaration online, which although it requires much personal information has been used by nearly half the respondents.

Convenience draws users to e-government

The attitudes of citizens toward e-government point to convenience of time and location as factors that strongly favour e-government over traditional government. In addition, citizens felt that e-government is faster than

traditional government. Nearly half of respondents did not feel that e-government services are difficult to use. The responses of citizens were more neutral regarding the usefulness of e-government, whether its use requires special equipment or whether fewer mistakes arise as a result of its use.

Attitudes toward e-government vary by country

Looking at responses for individual countries, important differences exist regarding preference for e-government, access to it and its use. Likewise, attitudes are not uniform across all countries. Figure S4 shows the SIBIS Attitude indicator, based on the survey question in which respondents were asked whether they agreed or disagreed with specific statements about e-government. Some of these statements were positive toward e-government—identifying advantages—while others were negative—identifying barriers. The responses to the questions are scored based how strongly the respondents agree with a number of statements presented, The responses are summed and combined in such a way that agreement with statements that describe advantages and disagreement with statements that describe barriers regarding e-government increase the attitude indicator. The value of the indicator ranges between 1 and 5, 5 means that citizens show a very positive attitude towards e-government. The Danish citizens show the highest value for the Attitude Indicator, indicating the most positive attitude towards e-government.

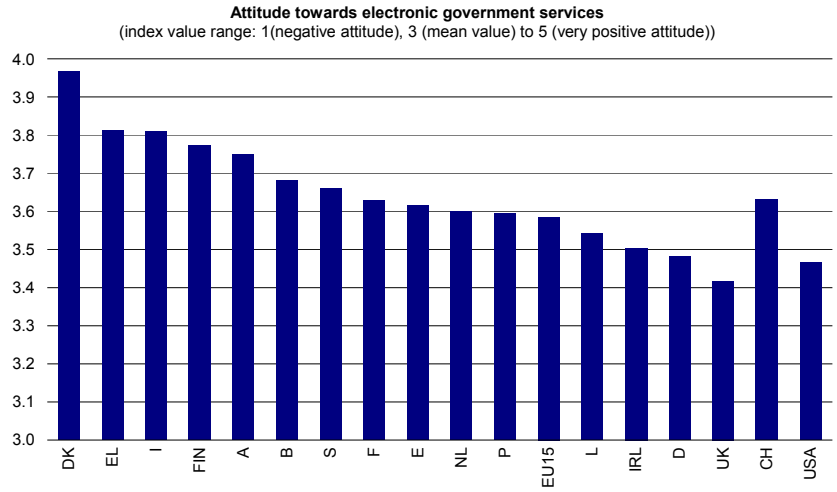


Figure S4: Attitude towards electronic government services per country. Source: SIBIS GPS 2002, N=5944; country results weighted, EU15 weighted by EU15 population. Base: citizens who used the Internet in the last four weeks.

About 1/3 of businesses are moving toward e-government

The survey of IT managers[3] showed that about a third of businesses are moving toward e-government across a variety of services. Among those not currently using e-government, only about one third of respondents showed interest in it. Even so, IT managers recognise positive aspects of e-government, such as faster transactions and greater convenience and do not believe that e-government is difficult to use or less safe that traditional government. Because the surveys were limited in length, only

[3] It has become clear as a result of the survey that IT managers may not always be the most appropriate respondents to GtB surveys. This is because even though they may be well versed in issues of information technology, they may not understand how businesses interact with government and they may not be the ones who make decisions about which services their companies choose to transact online.

selected indicators could be piloted in the current SIBIS study. Further surveys will afford the possibility to investigate other indicators that may point to ways to benchmark the information society.

Convenience draws businesses to e-government

Among businesses that reported using online means to transact with government, about one third preferred this method over traditional means. Among all business respondents, convenience of place and time were rated highly among qualities associated with e-government. Other answers did not favour e-government so clearly. Generally, e-government was viewed as useful, faster than traditional means of interaction, not difficult to use and no less safe than traditional government.

Government-to-business services that require personal data are more used and show a higher potential than those that relate to more general information

It is possible to distinguish specific clusters of GtB services within the business community. The first is the cluster that includes government services requiring confidential or personal information. Specific services are: payment of social contribution for employees, corporation tax declaration and VAT declaration. The second is a cluster that includes government services related to data and information exchange at a more general level. Specific services are: submission of data to statistical offices, obtaining environment related permits and participating in public invitation to tender. Looking at each of the surveyed countries, significantly higher use was reported for the cluster requiring confidential and personal information than for the cluster of services related to data and information exchange. Even for the first cluster, however, usage did not exceed 50% except in Greece. A similar trend was noticed regarding potential for online services, e.g. those people currently not using online services, but preferring to use it in the future, because the first cluster registered higher online preference than the data-information cluster did. This result is in contradiction with what has been found for citizens. Citizens seem to be more resistant to provide personal and confidential information than businesses. However, careful interpretation of the results of the Decision Maker Survey must be taken into account, as IT managers seemed not to be the most appropriate persons to answer the e-government questions.

Limited amount of e-government questions in surveys

Based on the survey work that was carried out, important lessons emerge. The length of the questionnaires was limited to provide the opportunity to cover a number of different research areas. For this reason, many questions in e-government could not be piloted at this time. In addition, answers to some questions determined whether additional questions would be asked of respondents. While this shortened the questionnaire, it decreased the value of the information learned and the data analysis reflects this.

More research needed

It is clear that the current study does not cover every single aspect of the demand-side of e-government and future research is essential to get a more complete picture of the perceptions and attitudes of the users of e-government services. Also, analysing why results per service or per country differ is of great interest for policy makers.

Extension with Candidate countries

Looking to the future, it is clear that further development of e-government in the EU Member States must occur. The extension of the SIBIS project with ten Newly Associated States (NAS) will provide innovative and unique data in a later phase of the project (mid-2003). An evaluation of the standing of the Candidate Countries relative to the EU will show how these nations can match the standing of existing Member States. The results of the EU Member States can serve as a guideline and example for the Candidate Countries and the Candidate Countries can take advantage of

the lessons learned from the EU countries to find the right way to speed up their processes towards the future.

2. Introduction

2.1. Topic Area Definition

2.1.1. Problem description

Since the mid 1990s, the public sector, like its counterparts in the private sector, has been struggling with how best to use emerging technologies like the Internet to build relationships with its customers and to deliver services.

Compared to businesses, which embraced this new service delivery channel rather fast, governments showed a more cautious approach. It is only in the last two years that governments started to actively develop online services[4].

Generally, e-government designates any transaction that involves the government and that is carried out, even partially, using electronic means. E-government plays an important function in mediating government actions and its role will continue to grow as communications technologies become more widespread. Already, communications technologies change the way that government operates by facilitating information dissemination, communications and transactions.

E-government is not simply the process of moving existing government functions to an electronic platform. Rather, it calls for rethinking the way government functions are carried out today to improve some processes, to introduce new ones and to replace those that require it. The range of services that may be provided by e-government spans from simple information sites to fully interactive experiences where users and government engage in a dialog mediated by information technology.

The successful execution of an e-government strategy consists of two complementary phases. In the first phase, the necessary infrastructure must be put in place for e-government to function. This requires an understanding of what e-government will do and how it will operate. In the second phase, the infrastructure is tested and eventually adopted as the preferred mode of interaction with and within government. During the latter phase, the infrastructure evolves in response to needs of users. During both phases, benchmarking through indicators is a critical part of the process of implementation.

Fully executable online service delivery benefits both government and its customers. In the long term those services will lower the costs of service delivery and make services more widely accessible to the general public, because they will no longer have to call, write or visit the government agencies to execute a specific service.

E-government is too broad to study exhaustively across all its dimensions. Existing studies concentrate on the supply-side of e-government, availability and level of sophistication of online services[5] and usage[6]. SIBIS complements these studies by addressing the demand – side of e-government, not only usage but also perceptions and barriers to utilisation that have not been treated previously.

[4] eGovernment Leadership, Rhetoric vs Reality – Closing the Gap, Accenture April 2001

[5] See for example the studies done by Accenture (2001, 2002; see references), the web-based survey on electronic public services by Cap Gemini Ernst & Young, the Global (2001), eGovernment survey by World Markets Research Centre (Sept. 2001) and several national surveys (2000/2001)

[6] Eurobarometer survey

2.1.2. Framework for Assessing the Area

Government operates on several different levels. One approach to dealing with this is to split e-government into three categories:

- Government to citizen (GtC),
- Government to business (GtB), and
- Government to government (GtG).

In all cases, the relationship is two-fold between the two parties; GtC designates just as well interactions that originate with government as with the citizen. Likewise, GtB designates interactions between businesses and government. GtG comprises all intra-government interactions within and across agencies.

By necessity, e-government comprises a number of functions currently filled by conventional modes of communications, while also offering the possibility for new ways of linking parties in government transactions. In some instances, transactions that today require face-to-face contact, letter writing, or telephone communication may be replaced by electronic interaction. This has the potential to facilitate and speed many processes. Finally, new functions may become available that do not exist today.

Citizens, operators of businesses and even government employees transacting government business will avoid standing in long lines and will perhaps be able to communicate with the government at any time of day or night. At the same time, governments and citizens will need to weigh the benefits of e-government against perceived or real dangers, such as loss of privacy and potential for fraud. In the same vein, the implementation of e-government should do more than merely map existing processes onto new technologies and instead force a re-evaluation of how GtC, GtB and GtG interactions occur today and how they may be improved in the future.

As e-government is too broad to study all its dimensions, the customer base of governments in this study is made up of two distinct groups, citizens and businesses. Within the context of the SIBIS project, the government-to-government category is not further analysed, as the set-up of the surveys of the project did allow to ask specific questions to citizens and businesses/governments, but did not allow to carry out separate questions for businesses and for governments, herewith excluding the possibility to ask specific questions about the interaction among and within governments. The following figure shows the focus of this study on factors that either facilitate or impede the implementation of eGovernment based on user perception (demand-side; CtG and BtG), while it also includes some analysis of the existing information and indicators on the supply-side (GtC and GtB) and excludes the GtG part.

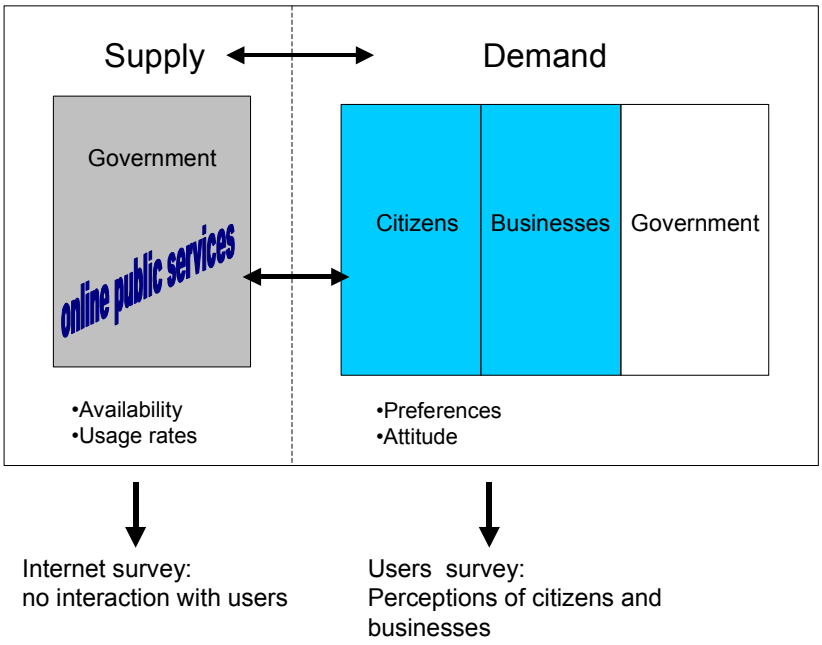


Figure 1: Types of indicators on e-Government: existing indicators (grey), SIBIS indicators (blue), still missing indicators (white).

2.1.3. Identification of the Stakeholders and their Interactions

To see how government can adopt information and communication technologies to implement e-government, it is necessary to understand who is affected by the development of e-government. Depending on whether one considers GtC, GtB or GtG, the stakeholders are governments and either citizens or businesses. Even in the case of GtG, the stakeholders include citizens and businesses, since information about them may transit from one government agency to another. Likewise, citizens may be stakeholders in GtB, and businesses in GtC, when information about them is provided to businesses and citizens, respectively, by government.

On the simplest level, government provides citizens, businesses and other government agencies with information and services.[7] This is usually obtained by visiting government offices, by requesting information in writing, or by telephone. With the advent of the Internet, government web-sites have replaced or duplicated some of these sources of information and services. Citizens and businesses also provide information to their government. Again, this may require office visits, mail, or telephone interaction. Government web-sites now offer new options to interact with the government electronically. As a result, government efficiency is increasing, because the labour of data entry by government employees is eliminated. It also provides improved accountability by making information more readily available among government agencies.

[7] The EU is a complex organisation with many different layers of government that span local and multinational functions. Each Member State is organised differently, making it difficult to discuss individual government functions as local or national. For this reason, the discussion does not provide a distinction between the levels of government studied. More detailed analysis of government services would be helpful, but the current study does not warrant this.

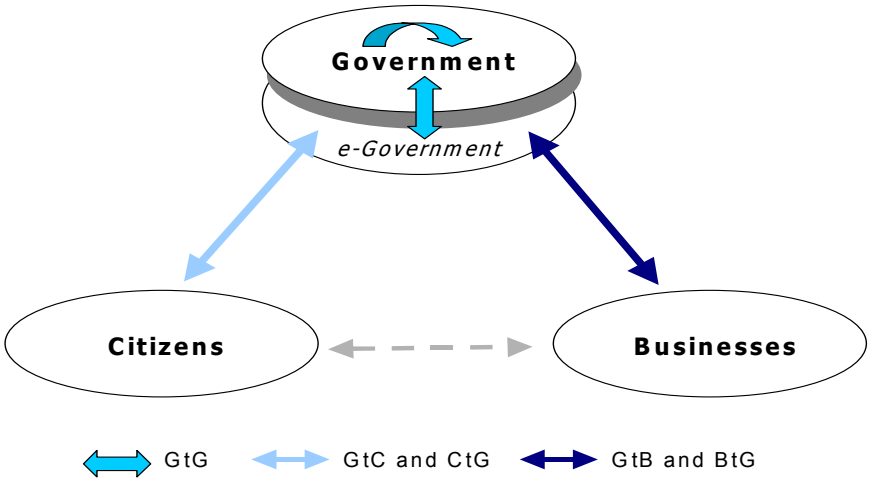


Figure 2: Interaction between stakeholders.

Figure 2 organises the areas for e-Government initiatives in terms of a map of possible communication flows:

- GtG: back office introduction of ICT, intra- and intergovernmental exchange, government networks, standards, expertise
- GtB: delivery of business services and information, e-Procurement (tendering), sales of government-owned business-relevant information
- BtG: filing of business registration information, taxes, regulatory information, etc.
- CtG: citizen information provision, tax filing, citizen reporting, electronic voting (e-Democracy), vehicle licensing
- GtC: provision of public information and transparency of information (both passive and active (in response to specific requests) about government workings and performance, electronic service delivery (including 'one-stop-shops')

As mentioned in section 2.1.2, the SIBIS surveys only consider the demand side of e-government. The range of services that may be provided by e-government spans from simple information sites to fully interactive experiences where users and government engage in a dialog mediated by information technology. Examples of areas where government and citizens or businesses communicate include, among others: Access to laws, rules, and regulations; information on parks and recreation; personal and corporate income taxes; unemployment or disability compensation; social security; personal documents; car registration; application for building permits; declarations to the police; public libraries; change of address announcements; census bureau surveys; corporate taxes; new company registrations and submission of data to statistical offices. This list is by no means exhaustive and serves to illustrate areas where e-government has or will make its presence felt.

The success of e-government depends on all the parties involved in e-government transactions. When seeking information from government, citizens, businesses and other government agencies must be able to easily find what they need and be confident that whatever information is available on-line is current and accurate. When providing information to government, all will want to feel secure in the knowledge that the information provided is recorded accurately and that their privacy is maintained. To that end, it is important to systematically analyse and monitor government links by the appropriate privacy and data protection agencies and to provide all with information regarding the level of security achieved.

2.2. Overview of the Report

The following chapters of the report will mainly elaborate on the findings of the SIBIS project. In chapter 3 the indicator framework and hierarchy of the indicators are explained, based on the results of earlier studies in the SIBIS project. Existing indicators that are of importance within the framework of the SIBIS project are briefly described and the indicators SIBIS develops will be placed within the total framework for e-Government.

In Chapter 4 the results of the SIBIS General Population Survey (citizens) and the Decision Maker Survey (businesses) are described, validated and analysed. The new SIBIS e-government indicators are described in more detail and were possible combined with already existing e-government indicators.

Chapter 5 describes which parts of analysis are still open for further developments in future surveys and indicator development studies.

Chapter 6 gives the conclusions of this benchmarking report on e-Government.

The Annexes contain more detailed information about the relevant e-government indicators, some initial ideas for a GtG survey and the methodology of the surveys.

3. Identification of the Indicator Framework and Hierarchy

The realisation of e-government depends on two complementary aspects. First, the vision of e-government dictates the types of services that must be available online and the level of sophistication they must achieve. Second, the adoption of e-government by its intended users requires careful preparation, although this is not always possible, as the development of e-government may seem to just happen at times. Ideally, development is based on a thorough understanding of how users perceive e-government, how well they can complete expected transactions, and what barriers stand in the way of successful adoption. The knowledge gained by studying both sides of e-government—vision, acceptance and adoption—provides a necessary foundation for its successful implementation.

Understanding the progress of e-government requires the synthesis of two complementary sets of indicators:

- Vision of e-government,
- Acceptance and adoption of e-government by its intended users.

Two sets of indicators are necessary to measure the successful implementation of e-government. Indicators that assess progress toward a vision of e-government have been elaborated and were examined in earlier studies by organisations such as Accenture, Cap Gemini Ernst & Young and World Markets Research Centre. Indicators that measure acceptance and adoption of e-government by its intended users constitute a novel and necessary set of indicators. The elaboration of these indicators depends on understanding the needs of users of e-government.

As explained, potential and existing users of e-government fall into three broad groups—citizens, businesses, and government. The potential barriers to the acceptance and adoption of e-government vary with the identified users of e-government. New indicators piloted in SIBIS measure the adoption e-government by comparing the use of and attitudes toward traditional and electronic channels to communicate with government.

Although the operation of online services underlying GtC, GtB and GtG differ, the general indicators of interest to benchmark performance follow the same general structure. From left to right, Figure 3 shows that assessment; usage and availability are the prime drivers. Assessment refers to decisions made by users about whether or not to access e-government. Usage measures actual access to e-government. Availability looks at what is actually accessible. Each driver can be examined in more detail.

Assessment provides a measure of how the user perceives e-government. The user may look at alternatives to e-government and decide on the preferred access method then. Barriers may exist that prevent the user from making full use of e-government services. Finally, the user may be unwilling to try using e-government for any of a number of reasons.

Usage is relatively easy to measure. It consists of determining how much time a user was online and how much of that was related to e-government. Availability seeks to measure what level of interaction the user can achieve. Both will tend to vary with the level of Internet savvy or sophistication of the users.

Indicators piloted in SIBIS complement existing indicators. Existing indicators focus on the ability of government to provide e-government services to citizens and businesses. Some studies have looked at usage and the preference of citizens for e-government or conventional means of transacting with government, but they have not sought to elucidate what drives consumers toward or away from e-government[8]. Studies of the business

[8] In the UK, an UK-based study has been performed on perceptions, barriers and advantages of e-government: e-Government ready or not?, BT government, July 2000

preferences for e-government or existing means of transaction are non-existent. For this reason, we have sought to identify barriers to the implementation of e-government based on customer perception.

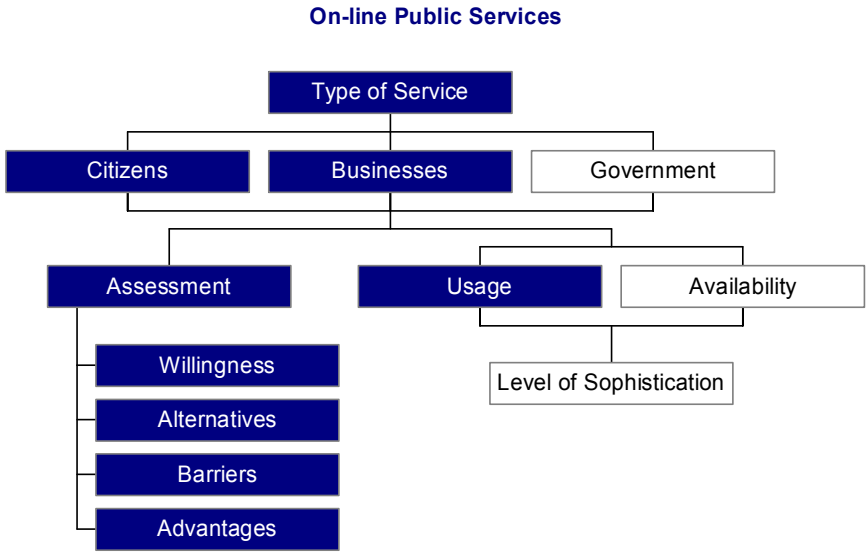


Figure 3: interaction of governments, citizens and businesses, prime drivers[9]

The customer is defined as the intended user of e-government; in this case citizens, businesses and government institutions. The study concentrated on citizens and businesses. However, the barriers and opportunities relevant to e-government identified and the method proposed to measure their importance apply to all three users, so we make use of the same hierarchy in all three cases in the report.

3.1. Citizens

Interaction between citizens and government can take various forms. A comparison between the level of sophistication of a given e-government function and its level of acceptance and adoption will guide the next step in building the appropriate indicator. The goal of the indicator is to understand why acceptance and adoption have reached the levels that they have. Thus, one may ask individuals their level of online interaction for a given e-government function. One may then ask what factors prevent more sophisticated online interaction. The factors of interest for this section depend on technology and on the technical knowledge of individuals. Technology determines what is possible and technical knowledge plays a role in how sophisticated an interaction users are willing to carry out.

One example of a government-to-citizen service is tax declaration. A comparison between online interactions and those carried out by traditional means will show what aspects of this function of e-government are accepted and adopted by citizens. This information can be compared to what is already known about the level of interactivity that has been achieved for this particular function based on well-defined criteria, such as those outlined in PRISMA.[10]

[9] It is expected that citizens and business will carry out some level of cost-benefit analysis when deciding whether to adopt e-government. This may not be done in a systematic way (especially by citizens), however, making it difficult to investigate. In this structure, cost and benefit items are part of the barriers and advantages

[10] PRISMA is a research project funded by the European Commission's Information Society Technologies (IST) Programme; www.prisma-eu.org. The program defines a scale of government interactivity spanning five levels ranging from posting information online to full interactivity.

This evaluation of the level of interaction achieved by citizens might show that the *potential* to carry out interactions regarding income tax has reached the level where the whole process can be carried out online, but that citizens limit their *actual* online activities to gathering information online about services and to the downloading of forms.

Understanding what guides the choice of citizens in their use of e-government is critical to ameliorating these services to increase their acceptance and use. Some users may decline to use e-government services because of a lack of access to computers. Alternatively, they may be unable or unwilling to search the government's site online for the necessary links, preferring instead to contact a government representative in person, by mail or by telephone. Barriers to citizens' use of e-government may thus fall in the following categories:

- Online services are not accessible due to lack of Internet access,
- User does not have sufficient training to carry out the desired interaction online,
- User is not willing to carry out the interaction online.[11]

Availability and level of sophistication of online services are already described in several studies such as PRISMA. Within SIBIS, the relationship of citizens with e-Government focuses on the use and assessment of electronic government. Are people willing to use online services that are made available by governments or do they prefer to have a more personal contact for certain occasions? What are their perceptions of the online services? SIBIS tries to develop indicators as a first step towards an answer to these types of questions to help governments develop those online services that are of value for citizens. In an earlier study of SIBIS about topic research and indicator development, a complete overview of existing indicators for e-government and ideas for new to develop indicators has been provided. A selection of those existing indicators relevant to the study of the relationships between governments and citizens within the SIBIS project and the new SIBIS indicators are shown in Table 1. The analyses of those indicators will be part of Chapter 4.

Table 1: Indicators[12] relevant for GtC and CtG[13]

[11] Many reasons may exist for one to choose online or face-to-face interaction with government. All of these could not be addressed in the present study and merit further investigation.

[12] Or statistics

[13] Indicators in this table that are not labelled as either "Existing indicators of Relevance for SIBIS" or as "New SIBIS Indicators" were initially developed as SIBIS indicators in Workpackage 2, but were not part of the analysis of this report; see also chapter 5 on future developments.

No.	Users	Interaction	Split by	Indicator Name[14]	Existing indicators of relevance for SIBIS[15]	New SIBIS indicators
1	Citizens	Assessment	- Type of service - Country - Internet Usage - Internet Experience	Preference of public online services		X
2	Citizens	Assessment	National government Local government	Barriers of public services online		
3	Citizens	Assessment	Type of service National government Local government	Perception of citizens – perceived advantages and benefits		
4	Citizens	Assessment	Type of Service	Willingness to use electronic services – improved service delivery		
5	Citizens	Assessment	Type of Service	Alternative methods for interacting with governments		
6	Citizens	Assessment	Country	Barriers and advantages of electronic services		X
7	Citizens	Assessment	Country	Attitude Indicator		X
8	Citizens	Availability	Type of Service	Accessibility of public online services		X
9	Citizens	Availability	Type of Service Country	Level of sophistication of public online services	X	

[14] More information can be found in the annex of the present document

[15] From published sources

No.	Users	Interaction	Split by	Indicator Name[14]	Existing indicators of relevance for SIBIS[15]	New SIBIS indicators
10	Citizens	Usage	Country	Government services online (% of Internet users visiting egov sites)	X	
11	Citizens	Usage	Type of Service	Experience of using public online services		X

3.2. Businesses

Just as with citizens, interaction between businesses and government is manifold and varied. As an example of the interaction between a business and government, the process of corporate tax declaration can illustrate the contrast between e-government potential and its adoption by the intended users. It might be expected that the possibility of carrying out tax declarations online has reached the level where the whole process can move online, but that businesses limit their use to a less interactive level.

Indicators were developed and piloted to determine whether and why businesses limit their level of interaction with government. The activities that were identified for the survey are: Payment of social contribution for employees; corporation tax declaration; VAT declaration; registration of a new company; submission of data to statistical offices; customs declarations; obtaining environment-related permits; and participation in public invitation to tender

It is assumed that businesses have access to computers and to the means of communication needed to participate in e-government. Businesses may place a premium on the cost of a transaction as well as on its convenience. Thus, if e-government transactions become more expensive for businesses than following existing protocol, they may avoid online transactions.

One reason e-government transactions might be more expensive is that businesses may continue to keep records in the traditional way, e.g. to be prepared for an audit. Another reason why businesses may not make full use of available e-government capabilities might be a lack of information or training within a business. Just as with the case of citizens, businesses may not know how to locate the online resources they need before they can execute a certain transaction online.

Barriers to the use of e-government by businesses may thus fall into the following categories:

- Online transactions are (or are believed to be) more expensive than their existing counterparts;
- know-how about how to carry out the transaction is not readily available;
- the business user is not willing to carry out the communication online.

Existing indicators focus mainly on the availability of online services. SIBIS focuses on the assessment and perception of businesses on online government services. In an earlier study of SIBIS about topic research and indicator development a complete overview of existing indicators for e-government and ideas for new to develop indicators has been provided. A selection of those existing indicators relevant to the study of the relationships between government and businesses within the SIBIS project and the new SIBIS indicators are shown in Table 2. The analyses of those indicators will be part of Chapter 4.

Table 2: Indicators[16] relevant for GtB and BtG[17]

No.	Users	Interaction	Split by	Indicator Name[18]	Existing indicators of relevance for SIBIS[19]	New SIBIS Indicators
1	Businesses	Usage	Type of Service Country, Industry sector, Familiarity e-government	Usage of online services		X
2	Businesses	Availability	Type of Service	Level of sophistication of public online services	X	
3	Businesses	Assessment	Type of Service Country	Preference/ potential of online services		X
4	Businesses	Assessment		Effectiveness of online services – perceived advantages		
5	Businesses	Assessment	Type of Service	Barriers of online services		
6	Businesses	Assessment	Type of Service	Willingness to use online services – Improved service delivery		
7	Businesses	Assessment		Perception – benefits online services		
8	Businesses	Assessment	Type of Service	Alternative methods for interacting with governments		

[16] Or statistics

[17] Indicators in this table that are not labelled as either "Existing indicators of Relevance for SIBIS" or as "New SIBIS Indicators" were initially developed as SIBIS indicators in Workpackage 2, but were not part of the analysis of this report; see also chapter 5 on future developments.

[18] More information can be found in the annex of the present document

[19] From published sources

No.	Users	Interaction	Split by	Indicator Name[18]	Existing indicators of relevance for SIBIS[19]	New SIBIS Indicators
9	Businesses	Assessment		Barriers and advantages of electronic services		X

4. Analysis of Data

4.1. Analysis of Indicators on Citizens and Society

Previous studies of GtC provide important insights into the evolution of this mode of interaction. Cap Gemini, Ernst & Young (CGE&Y) considered the availability of public services online. The services for citizen include: income taxes, job search, social security benefits, personal documents, car registration, application for building permission, declaration to the police, public libraries, birth and marriage certificates, enrolment in higher education, announcement of moving and health-related services. For each service, its availability was studied in each of the 15 EU nations, Norway and Iceland.

The conclusions of the study were that coordinated service provision was needed for the online development of public services and that complex administrative procedure requires important back-office reorganisation. The surveys that were piloted in the SIBIS project provide additional insights into the adoption of e-government by citizens. Most notably, SIBIS shows what factors may influence the ability and willingness of citizens to use e-government.

4.1.1. Availability and level of sophistication of online services

People can only use online public services once those services become available. In order to measure the level of online sophistication of these services, four stages can be distinguished:

Stage 1 - **Information**: online information about public services;

Stage 2 - **Interaction**: downloading of forms;

Stage 3 - **Two-way interaction**: processing of forms, including authentication;

Stage 4 - **Transaction**: case handling; decision and delivery (payment).

In this study on the availability of public services online of CGE&Y in 2001 and 2002[20], the online availability of public services has been determined by the extent to which it is possible to provide a service electronically. As, for some public services, the maximum stage is stage 3, stage 4 being not relevant, the score per public service is recalculated as a percentage of the maximum. The percentage indicates the extent to which each service has progressed towards full electronic case handling. The results for a selection of the services mentioned are summarised in Figure 4 (2002 results). Those services are further piloted on use and perception within the SIBIS project.

[20] Study in the 15 EU countries, Iceland and Norway; in the 2002 study Switzerland has been included as well

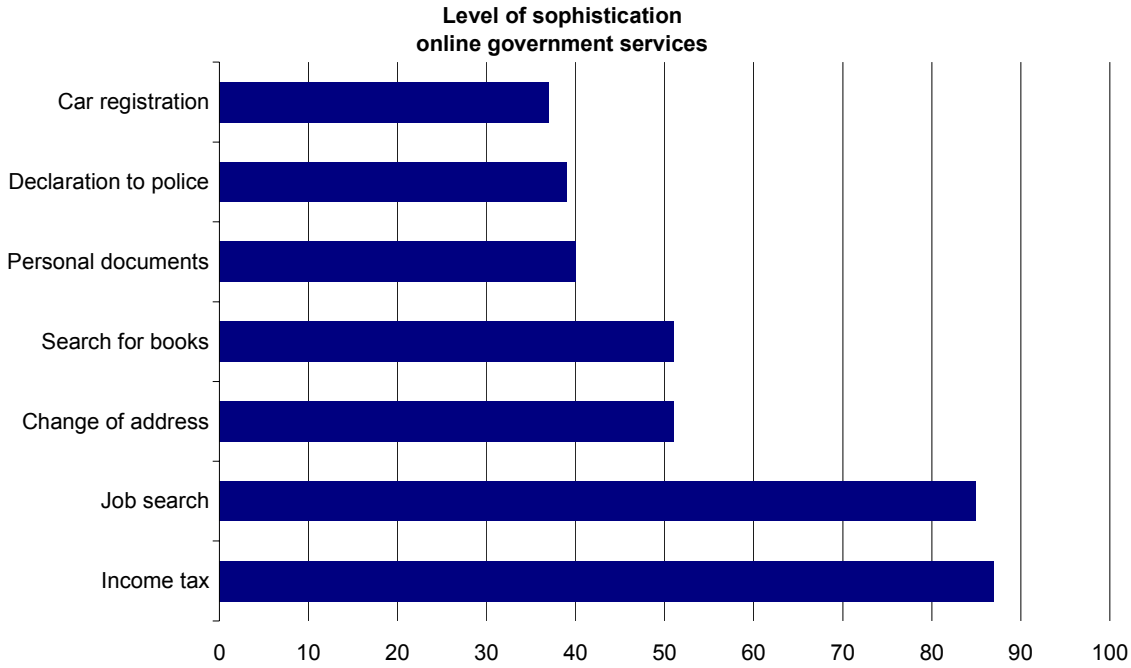


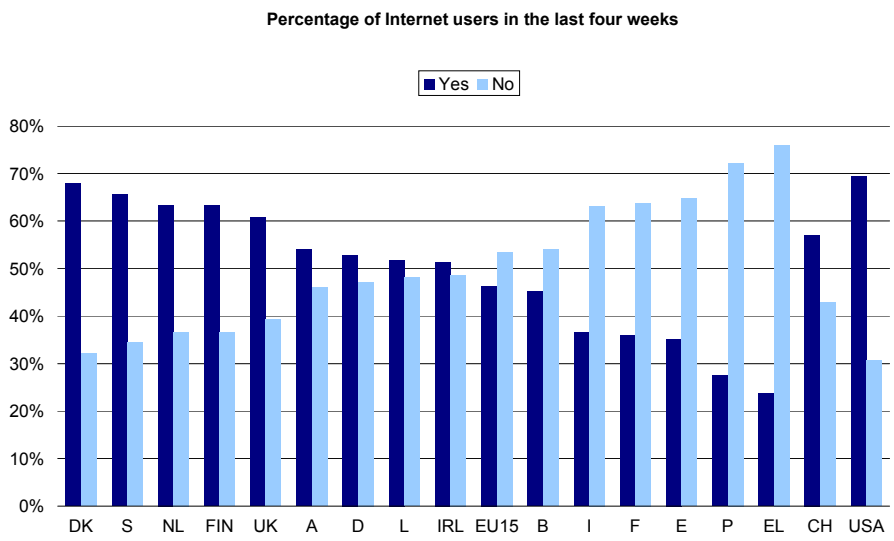
Figure 4: The level of sophistication achieved for selected government functions measure in the 15 EU countries, Iceland, Norway and Switzerland. (source: CGE&Y, 2002)

4.1.2. Usage and Assessment of public online services

Citizens choose to use online government services or traditional modes of interacting with government. Reasons for their choices may differ. Through a survey, residents of the European Union, of Switzerland and of the United States of America were questioned about their use, the availability of these services, their preference, their perception and reasons behind these choices. These results are presented across the various nations where the surveys were carried out to sketch a profile of e-government use and acceptance.

Further, responses were analysed to take into account factors that influence citizen preferences toward or away from online government services. Possible factors influencing citizen choices include, but are not limited to: age, employment status, experience and facility with online services, income and security concerns.

It is important to note that the base for all the questions about e-government are the persons who used the internet in the last four weeks (see figure 5: explanation note-1). This was done because, in pilot tests, respondents who had not used the internet recently were puzzled by many of the questions related to online services, including e-government, and lost interest in the survey as a result. This means that the questions regarding e-government were asked only to a subset of the population. In Greece for example, only 24% of the respondents were asked the e-government questions. Although the survey gives significant insights into the habits and attitudes toward e-government of recent online users, it leaves open to speculation what the rest of the population thinks.



Explanation note-1:

Figure 5: Base for all analyses and calculations for e-government are the persons who used the Internet in the last four weeks (Source: SIBIS GPS 2002, N=11832)

A general population survey was used to enquire about user preferences for, usage of, and attitudes toward e-government services. The survey consisted of four questions. In the first question, respondents were asked about their preferred method of interaction for specific government services. In the second question, respondents who expressed a preference for online services in the first question were asked about the availability of these same services. In the third question, respondents who reported that the services were available online were asked about the use of the services. In the fourth question, respondents were asked about their attitudes toward e-government, including barriers to access, convenience and the like.

Explanation note-2

Structure of the survey for e-government:

1. *People who have used the Internet in the last four weeks were asked about their preference of using the Internet or the traditional way for interacting with government.*
2. *People who said to prefer to use the Internet were asked about the availability of these services in the region were they live*
3. *Those people who answered that these services are available, were asked whether they ever used these online services.*
4. *People who have used the Internet in the last four weeks were asked about their agreement or disagreement with several statements about advantages and barriers about online services of public administration*

a) Preferences of Citizens

The first indicator studied in the general population survey is the preference of respondents for e-government or for traditional interaction with government. Individuals were contacted in

each of the Member States, along with Switzerland and the US. For the questions related to e-government, the number of respondents totalled 5944[21]. Respondents were asked about their preference for seven specific services: tax declaration, use of job search services, request for personal documents, car registration, declaration to the police, search for books in libraries, announcement of change of address. Across the EU nations, the preference for online services ranged from a low of 17% for declarations to the police, to a high of almost 73% for library book searches.

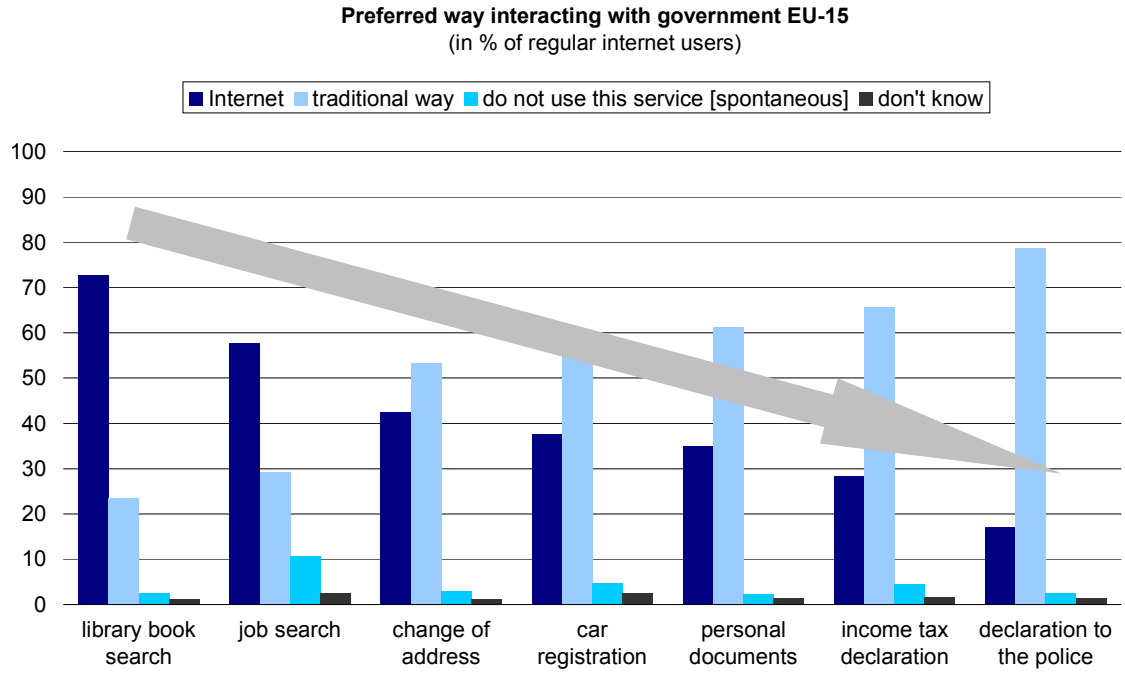


Figure 6: Online or traditional preference for government services among survey respondents in the EU.
Source: SIBIS, GPS 2002, weighted by EU15 population. Base: respondents who used the Internet in the last four weeks: N=4985

The results presented in Figure 6 provide percentages across the European Union. The preference for online or traditional access to government services varies across the chosen services. Looking at each one of the services in the survey, it appears that preference for Internet decreases as the interaction impinges more upon the privacy of the individual.[22] Thus, for example, the online search for books available in public libraries requires minimal information about the user and rates a high preference. The use of job search services can also be carried out by revealing minimal information about the user. The announcement of a change of address gives relatively little information about an individual. A similar interpretation can be assigned to the other services. Least preferred is the declaration to police, which requires that a great deal of private information be divulged. This is summarised graphically by the arrow pointing downward. It follows the trend of responses that favour the use of internet over traditional interaction for the various government services, which are ranked so that the one that requires the least personal information about the user is on the left and the one requiring the most personal information is on the right.

[21] Questions about e-government are only asked to persons who have used their PC at least once in the last four weeks

[22] Maintaining online security and privacy poses significant challenges and merits in-depth analysis. The issues associated with security and privacy are treated in a separate report.

b) Availability and usage of electronic government services by citizens

In addition to asking respondents about their preferred use of specific e-government services, they were queried about the availability of these services. For each service, respondents who preferred the e-government service were asked about the availability of this service. The number of respondents who preferred the service is shown along with the percentage of respondents for whom the service is available, is not available, or for whom this information is not known. These results are summarised in Figure 7. More than 50% of those respondents answered that online services like income tax declaration, job search and search for books in public libraries are not available. According to best knowledge of those respondents the availability of online services like car registration and declaration to the police are rather low.

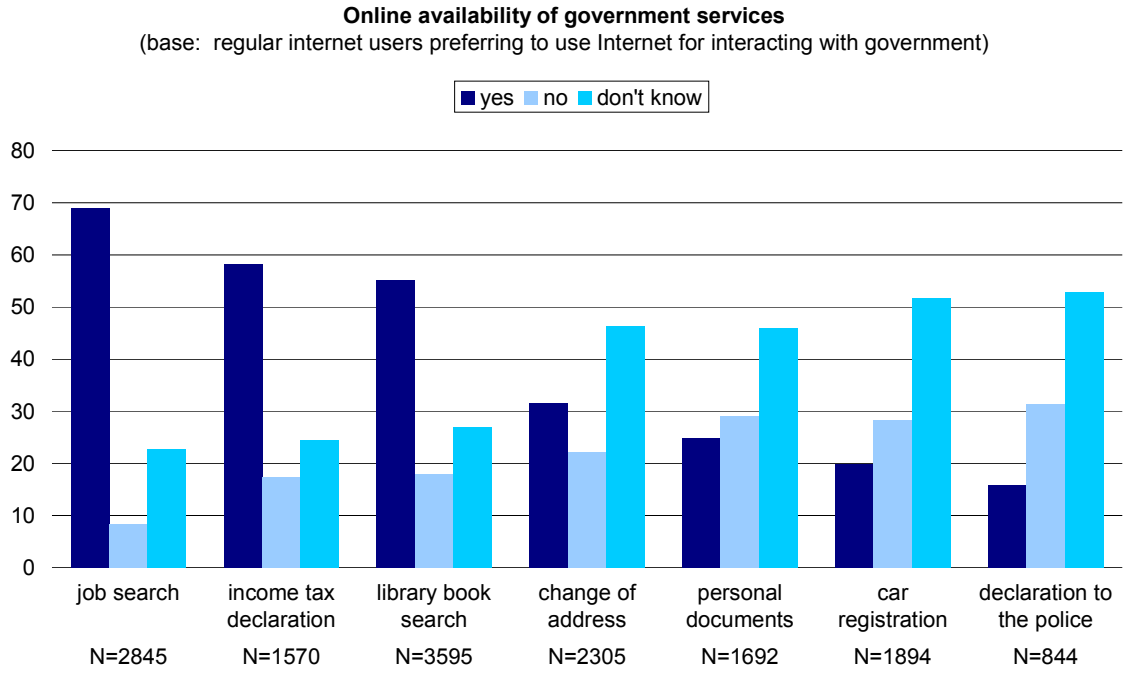


Figure 7: Online availability of specific e-government services.

Source: SIBIS, GPS 2002, weighted by EU15 population; Base: respondents who prefer to use the Internet for the specific online service and used the Internet in the last four weeks

Among respondents who have access to specific e-government services, respondents were asked whether they had in fact made use of these services online. This is shown in Figure 8. The number of respondents with access to the e-government service is shown for each case along with the percentage of respondents who used it, those who did not and those who were not sure of having used it. It is interesting to note that of those people who prefer to use Internet and have access to those services online, fewer than 50% really uses those online services. Only the online service for searching books online achieves a percentage of more than 50%.

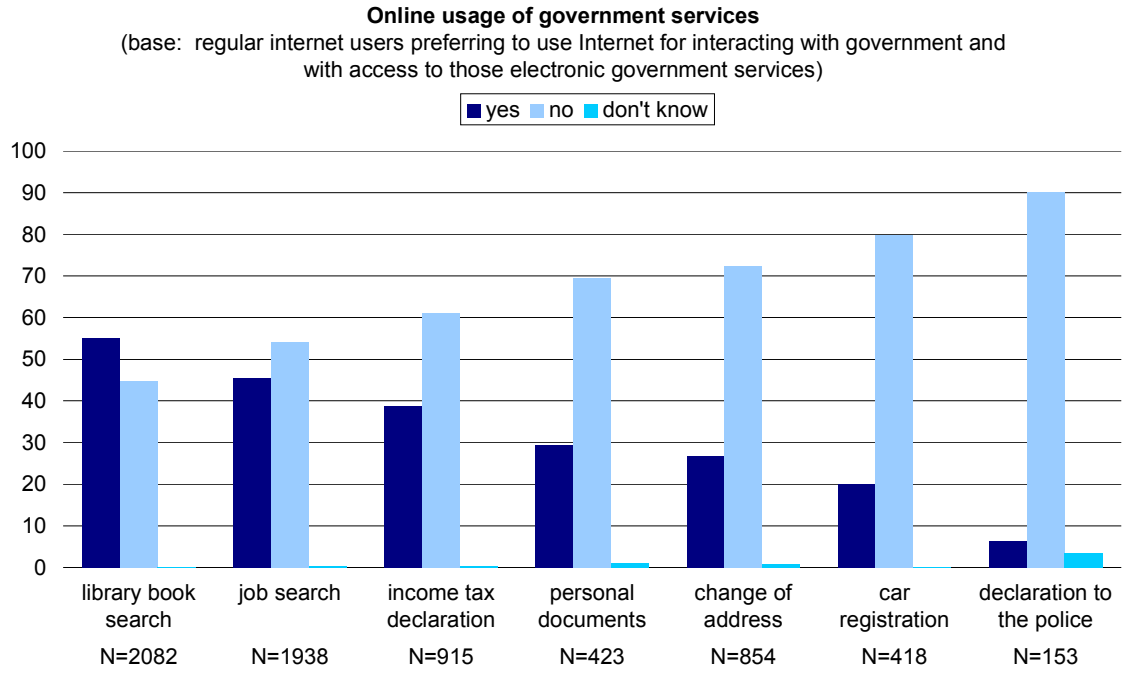


Figure 8: Use of online government services.

Source: SIBIS, GPS 2002, weighted by EU15 population; Base: respondents who used the Internet in the last four weeks, prefer to use Internet for interacting with government and have online availability of those services.

c) Country comparisons

Each of the countries included in the study differs somewhat from the others. For this reason, it is useful to compare how responses to the survey vary for each of the countries. Preferences for e-government services compared to their traditional counterparts can be quite dramatic for some services or for certain countries. This is illustrated by the responses given for each of the seven government services across the EU Member States, Switzerland and the US (Figure 9).

Finland is the only country that shows a higher preference to use online services over using government services the traditional way, while the Irish people have the strongest preference for using the traditional way for interacting with governments. The Portuguese people have a remarkable high percentage of people who answer that they do not use these services together with a very low number of people who do prefer to use the Internet for interacting with government. Out of the small amount of Portuguese people who do prefer to use Internet and have access to those services, around 50% says to use it (Figure 10). The USA shows the highest percentage of people using the Internet[23].

[23] Annex 1 shows a more detailed analysis of the country comparisons per online services

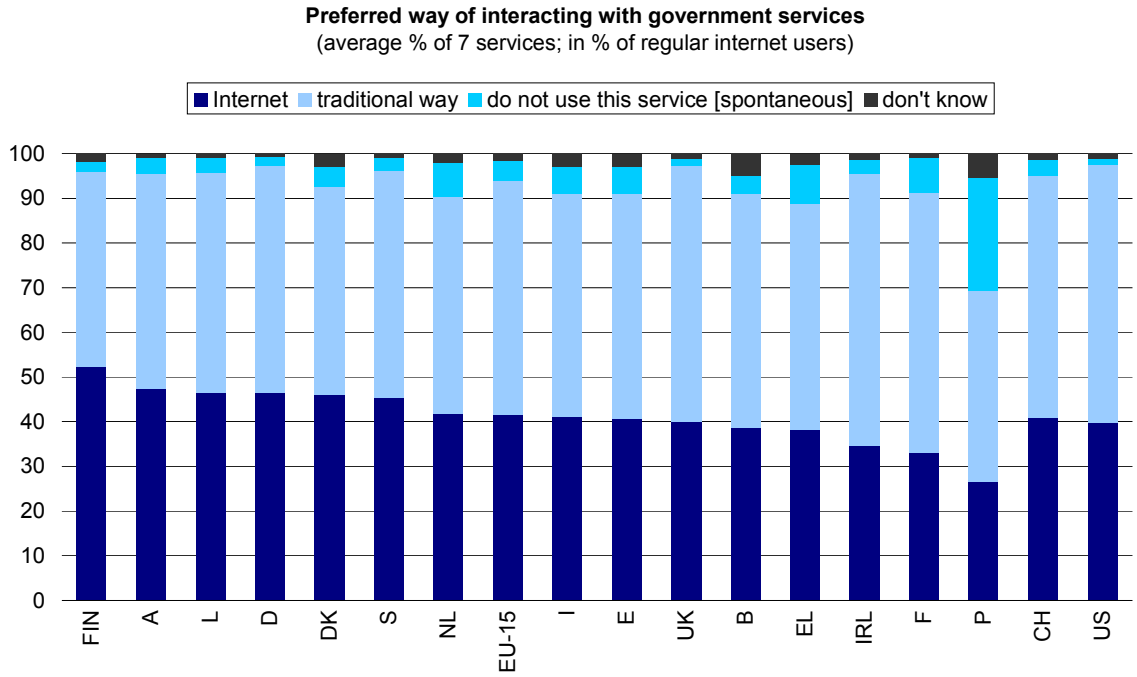


Figure 9: Preference to use the online services per country defined as the percent of Internet users who prefer to use e-government services averaged across all 7 services. Source: SIBIS, GPS 2002, N=5944; country results weighted, EU15 weighted by EU15 population. Base: citizens who used the Internet in the last four weeks.

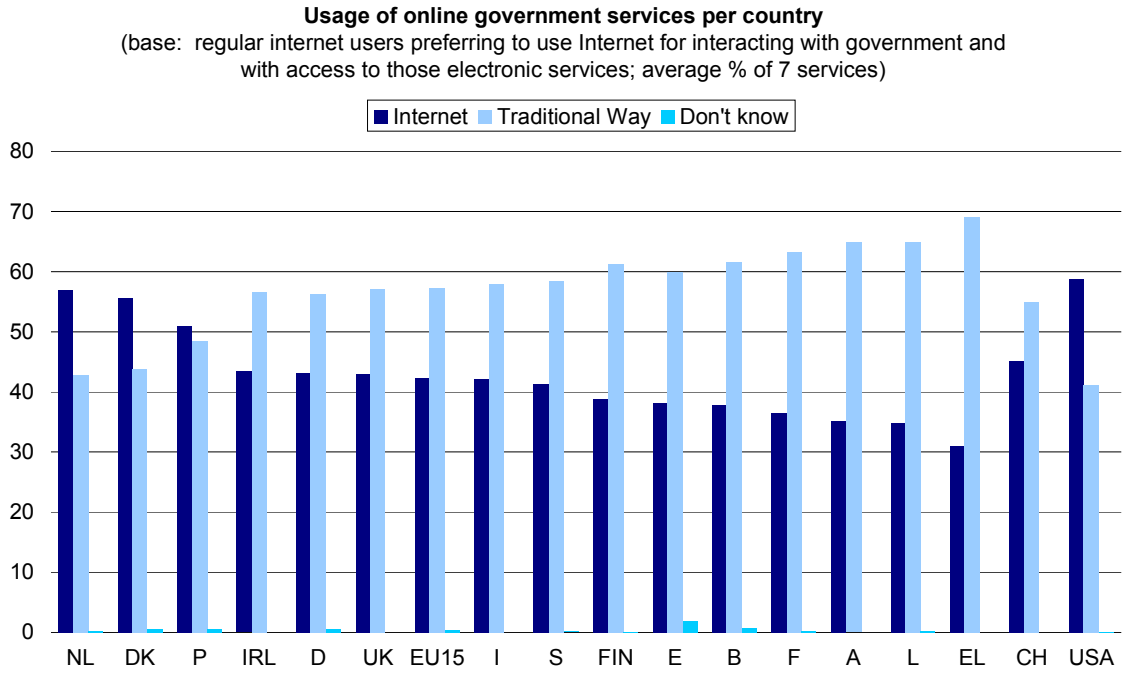


Figure 10: Use of online services per country defined as percentage of Internet users who prefer to use e-government services and for whom e-government services are possible to use averaged across all 7 services.
Source: SIBIS, GPS 2002; country results weighted, EU15 weighted by EU15 population (tax declaration N=1191, job search N=2361, personal documents N=537, car registration N=549, police declaration N= 172, search library N= 2583, change of address N= 1014). Base:

citizens who used the Internet in the last four weeks, respondents who prefer to use Internet and have online availability of those services.

d) Familiarity with e-government services

To better understand factors that may influence acceptance and usage of as well as facility with e-government, crosstables summarise the responses obtained from the survey participants based on such variables as age, employment status, time spent online, level of Internet know-how and so on. Statistical analysis of the differences in responses as a function of changes in these variables will be used to confirm any correlations that may arise. While this may not explain why particular factors influence the affinity of respondents for e-government, it may suggest ways to enhance its acceptance and usage.

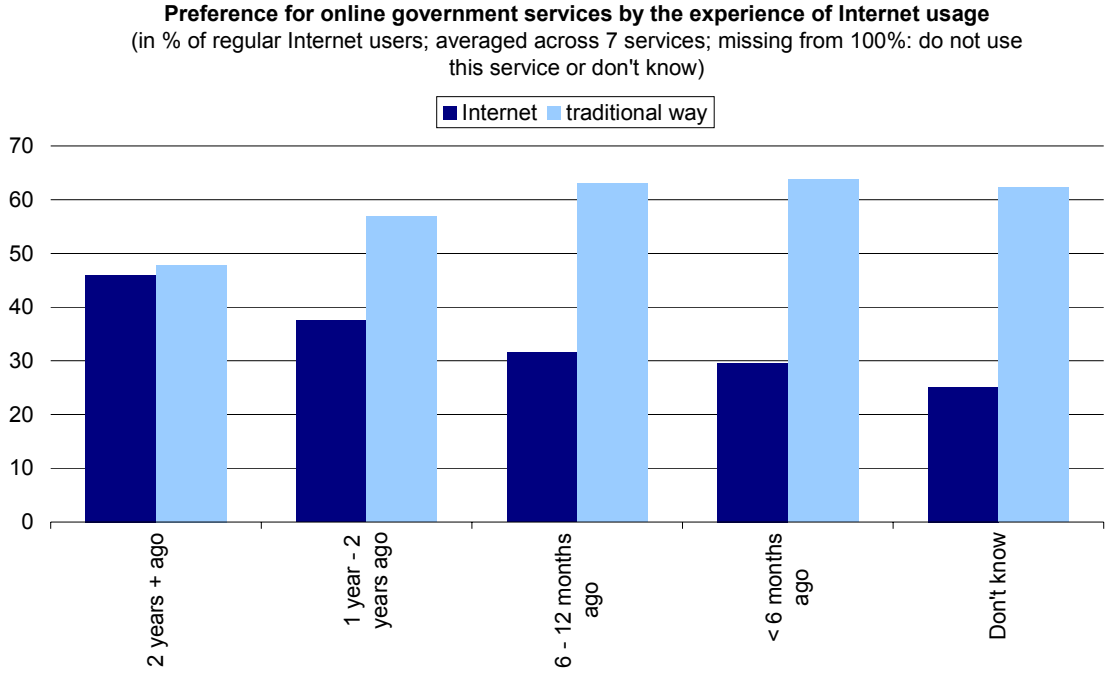


Figure 11: Preference for online government services by the amount of online usage (first use of Internet). Source: SIBIS, GPS 2002, weighted by EU15 population (N=4985). Base: EU citizens who used the Internet in the last four weeks.

Respondents who reported using the Internet in the last month were asked whether they would prefer online or traditional ways of carrying out government interactions (Figure 11). The questions explore each of the services separately, but these were aggregated here. Among respondents, the response in favour of using the Internet to interact with government was compared with how long they had been using the Internet. The results show that the longer the experience with Internet, the more likely a respondent was to report preference for online services. While this is not surprising, this has not been tested and reported previously.

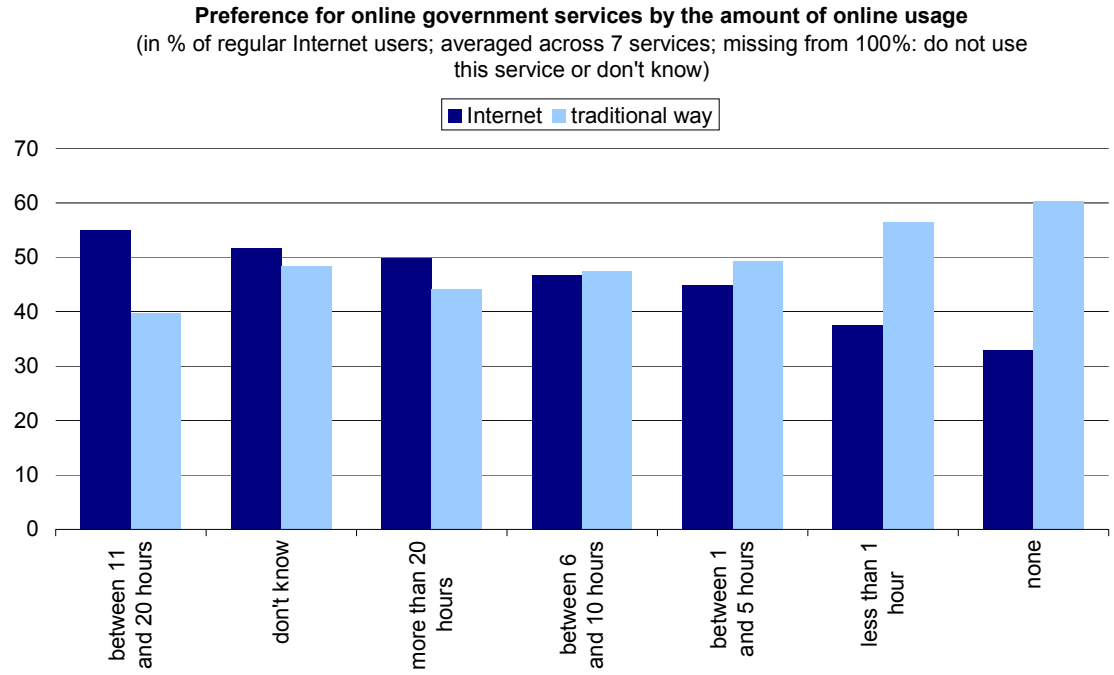


Figure 12: The tendency to use government services via Internet or by traditional means by the amount of online usage (at home) during a typical week. Source: SIBIS, GPS 2002, N=4985 weighted by EU15 population. Base: citizens of the EU who used the Internet in the last four weeks.

An alternative method to estimate familiarity with online services is by asking respondents how much time they spend online during a typical week (intensity of use). In this case, the expected trend (the more they use the internet the more they prefer to use the internet for interacting with government) do not always match the results obtained by measuring Internet familiarity in terms of the amount of recent online activity, although differences are small.

Other crosstables have been analysed, e.g. by age groups, household incomes, social grades and security concerns:

- In general, older people are somewhat less willing to use the internet for interacting with e-government than the younger generation
- Differences in household incomes and social grades do not really make a difference in their preferences, it is more the type of service that determines the preference for Internet or the traditional way
- Security concerns also show a strong relation with the type of service: concerns about security are more relevant for those services that are more private/personal related.

e) Attitudes towards electronic government services

In the SIBIS survey respondents were asked whether they agreed or disagreed with statements regarding e-government compared to traditional government. The answers were then compiled into Figure 13. The possibility to deal with government at more convenient places and times is often mentioned as an important advantage of using online services.

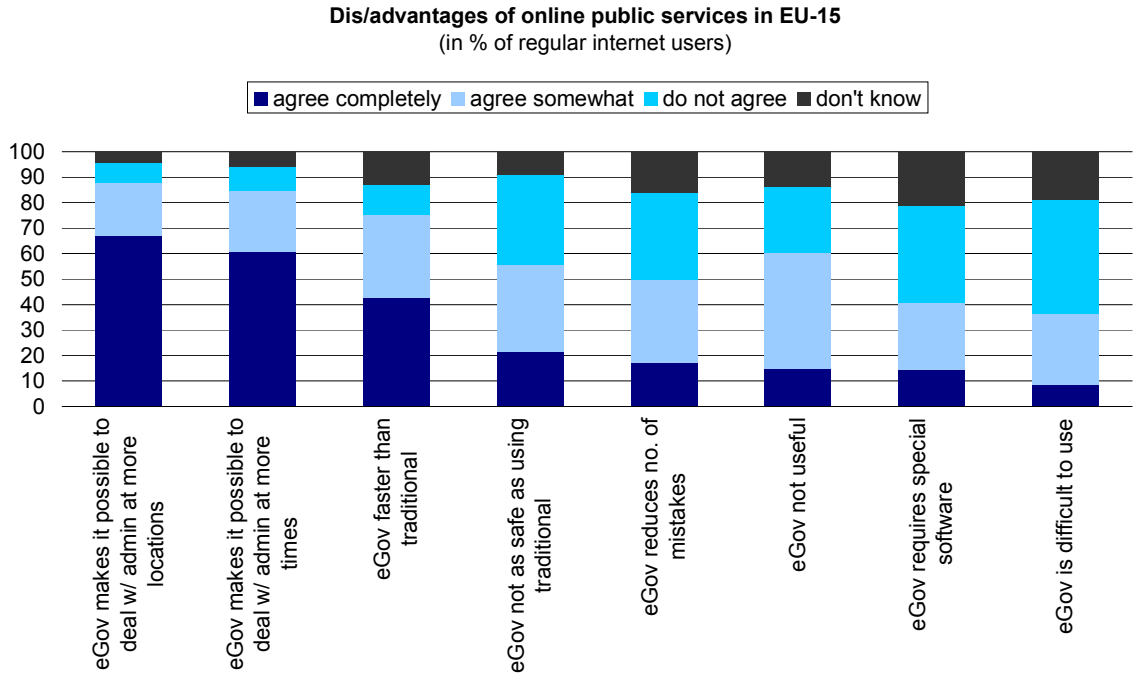


Figure 13: Agreement or disagreement with specific statements about e-government.

Source: SIBIS, GPS 2002, weighted by EU15 population (EU countries, N=4985), citizens who used the Internet in the last four weeks.

By combining and aggregating responses regarding the barriers and advantages that people face using electronic government services it is possible to create an Attitude indicator. Respondents were asked whether they agreed or disagreed with specific statements about e-government. Some of these statements were positive toward e-government—identifying advantages—while others were negative—identifying barriers. The responses to the questions are scored based how strongly the respondents agree with a number of statements presented (Advantages: 5 = I agree strongly, 1 = I do not agree, 3 = agree somewhat; barriers are valued the other way around). The responses are added so agreement with statements that describe advantages and disagreement with statements that describe barriers regarding e-government increase the attitude indicator.

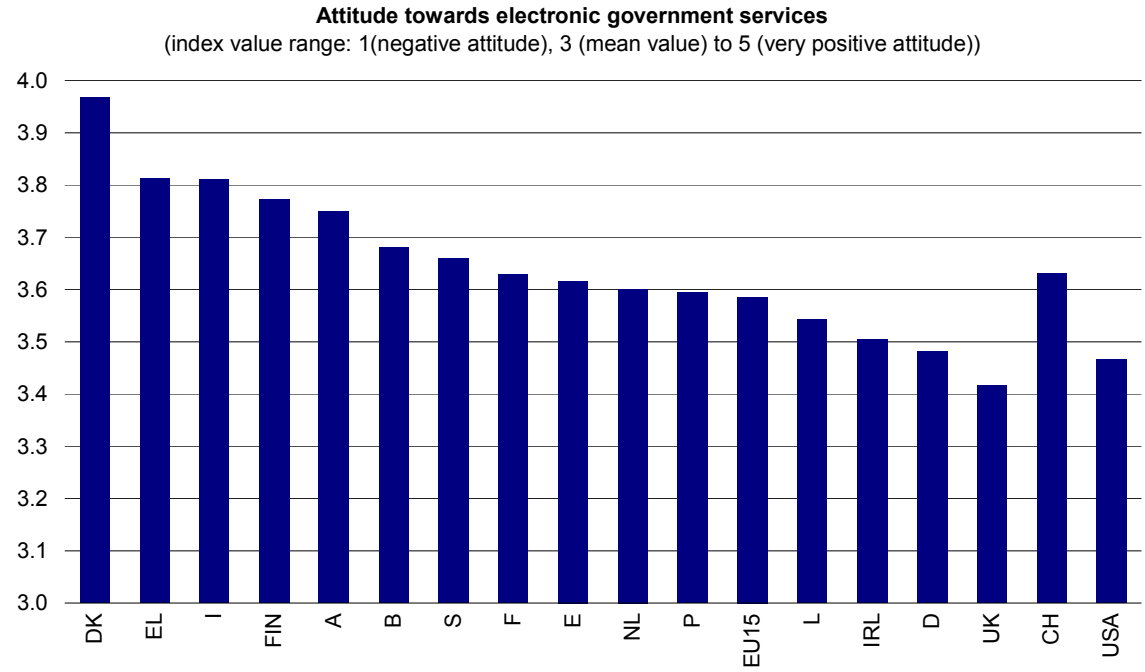


Figure 14: Attitude indicator for e-government among citizens.

Source: SIBIS, GPS 2002, N=5944; country results weighted, EU15 weighted by EU15 population. Base: citizens who used the Internet in the last four weeks.

Comparing the results for the EU countries, Switzerland and the US, all respondents are generally positive, ranking above the mean value of 3, about the contributions of e-government. The indicator shows us that the Danish citizens have the most positive attitude towards electronic government services, followed by Greece, Italy and Finland. The EU average index value is higher than the value for the United States.

f) Comparing the supply and demand-side of e-government

Comparing different indicators can be useful to answer more subtle questions than might be accessible by a single question. The results presented in this section look at the differences between the supply ("what is available") and the demand ("what do citizens want").

In the report by CGE&Y, the "sophistication of online services" rates how interactive a service is based on a four level scale and presents this value across 17 countries (see also section 4.1.1), including the EU Member States, Norway and Iceland. The results of the EU countries in the SIBIS survey were used to determine the citizen's preference to use the Internet to interact with government for public services. Both indicators are represented in figure 15 and are scaled from 1 to 100. Some caution must be used in interpreting the results of this analysis, as the SIBIS survey and the CGE&Y study are not based on exactly the same countries.

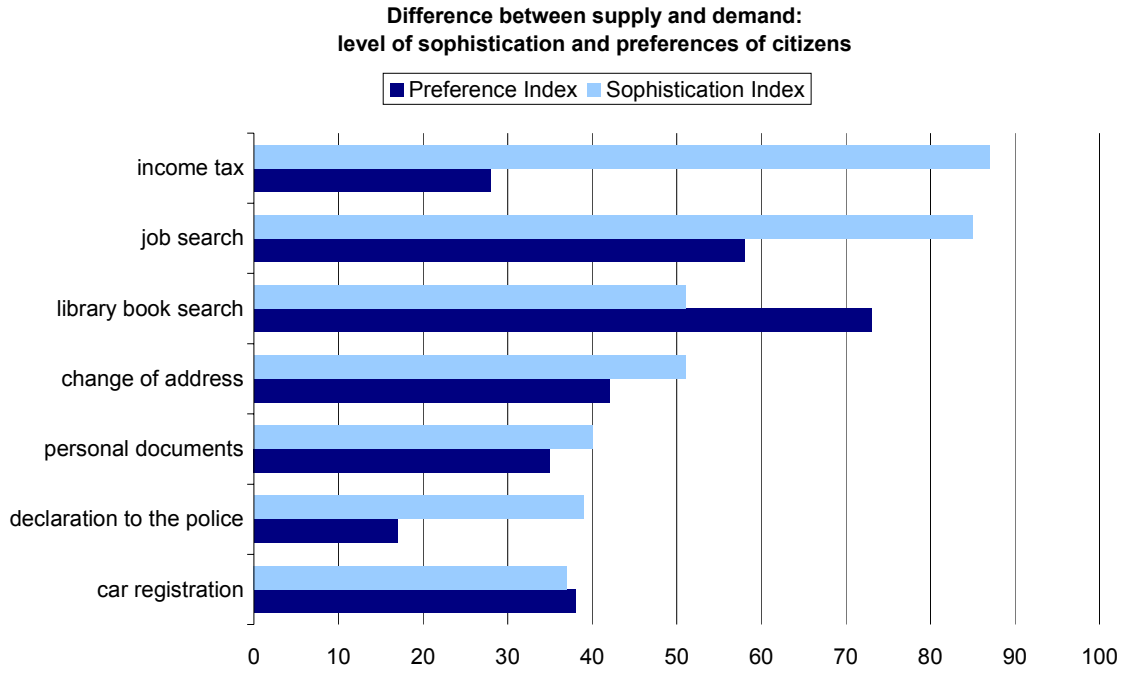


Figure 15: Sophistication and preference indices for selected e-government services. Source; CGEY, 2001 and SIBIS, GPS 2002 calculations (EU countries N= 4985)

Looking at the results in Figure 15, one can argue that it would be useful to put some effort in increasing the level of sophistication for the search for books in public libraries, as there is a high discrepancy between what is available and what is preferred. The level of sophistication in Figure 14 is averaged across the EU Member States and individual scores vary significantly from one country to another. Respondents throughout Europe expressed interest in using online library search services. However, this is not a service that is available across some Member States. By contrast, job search via the Internet is something that is highly appreciated by people and is also already rather sophisticated available. In this case, most of the Member States have achieved a high level of sophistication and respondents are using the service. Lastly, some services, such as tax declaration have achieved a high level of sophistication, but relatively few respondents prefer performing this operation online.

This is just a very simple approach to make a comparison of the discrepancies of the demand and supply side of e-government. However it triggers some interesting thinking and can help to structure future research on e-government indicators.

It is also interesting to compare the SIBIS results of the Attitude indicator (Figure 14) with the use of government services online by citizens from the Eurobarometer Survey (Figure 16). Denmark shows the most positive attitude towards e-government and is also among the leaders in the use of government services online. The results for the UK are interesting as the efforts put by the governments into promoting and developing e-government[24] are considerable, the attitude towards e-government is among the lowest of all countries analysed, and also in terms of usage the UK is not among the leaders.

[24] efforts form the Cabinet Office, Modernising Government, UK

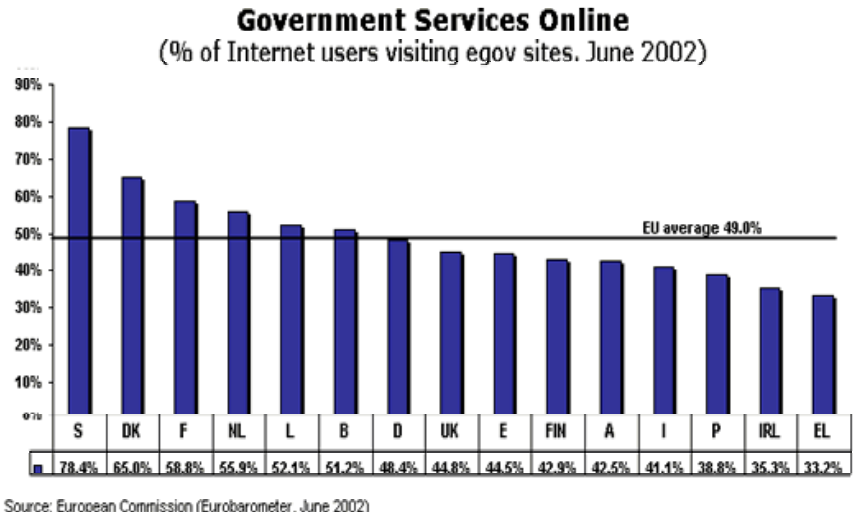


Figure 16: Government services online. Source: Eurobarometer, June 2002

Another interesting comparison is to look at the availability in terms of the level of sophistication of online services per country from the CGE&Y study (Figure 17) and the SIBIS attitude indicator. Caution need to be taken in this comparison as the results of the CGE&Y study only provides us with the total results for all services, while SIBIS used a subsection of the services for citizens and the SIBIS GPS survey only refers to government services for citizens and not for businesses.

Although the level of sophistication in Italy and Greece is among the lowest of all countries, their attitude towards e-government is very positive, intending that it would be useful to put some effort in the development of more sophisticated e-government services. Ireland seems to be the frontrunner on sophistication, while their attitude and use is not remarkably high.

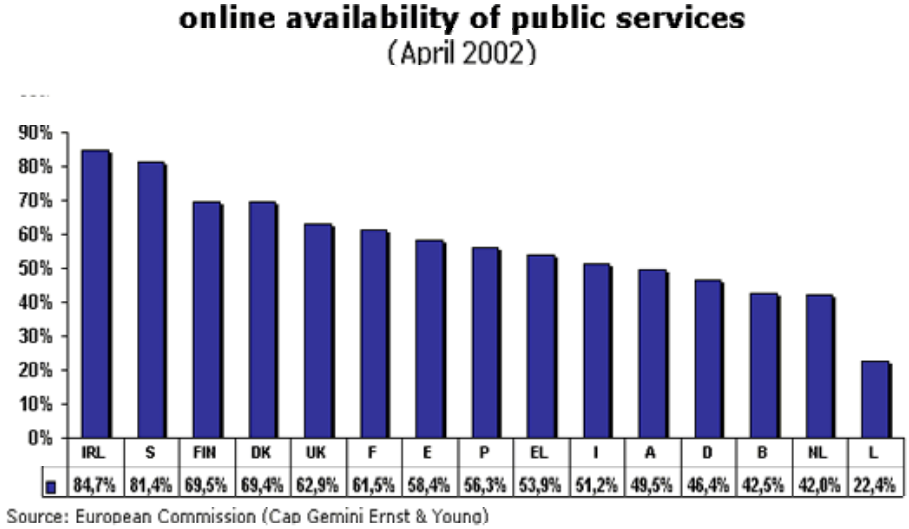


Figure 17: Availability in level of sophistication of 20 online services (12 for citizens and 8 for businesses) per country. Source: EC, CGEY 2002

4.2. Analysis of Indicators on Businesses

This section mainly deals with the description of the e-government indicators that are piloted in the SIBIS Decision Maker Survey. As a result of this pilot it turned out that careful interpretation of the results is needed. The target group of the Decision Maker Survey were the IT managers of the businesses and the pilot learned us that although those managers were the perfect persons to answer questions about the other topics that were covered by the SIBIS project, they were not always the right persons to answer the questions about e-government. As a result of this, only basic results are provided and no detailed analyses are carried out with this data.

4.2.1. Availability and level of sophistication of online services

The CGE&Y study also provides important insights on the availability of online GtB services. The services for businesses include: Social contribution for employees, corporate tax, VAT, registration of a new company, submission of statistical data, customs declaration, environmental permits and public procurement. For a selection of these services Figure 18 indicates the level of sophistication of these online services (see section 4.1.1 for further details about the methodology). Those services were further piloted and analysed on use, preference and perception within the SIBIS project.

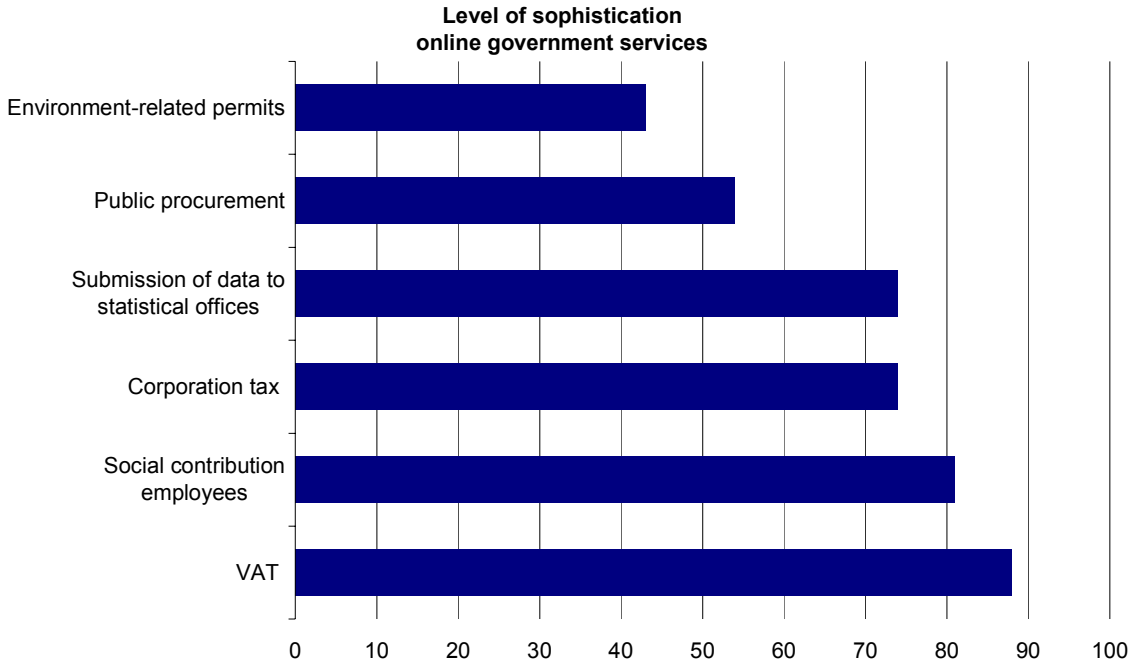


Figure 18: Level of sophistication for selected government-to-business services. Source: CGE&Y, 2002

4.2.2. Usage and assessment of online services

Different reasons may motivate businesses and citizens to use e-government. Likewise, barriers to using e-government may not be the same for businesses and citizens. For this reason, a second survey tool was created to enquire about e-government usage among businesses. This decision maker survey was used to ask businesses about their usage, preference and perception of government services online. The respondents to this survey were IT managers at companies.

Through this survey, IT managers of 7 countries (Finland, France, Germany, Greece, Italy, Spain and the UK) were questioned about their use, their preference of online services and their perception and reasons behind these choices. These results are presented across the various nations where the surveys were carried out to sketch a profile of e-government use and acceptance in those countries.

Further, responses were analysed to take into account factors that influence the use toward or away from online government services. Possible factors influencing this include, but are not limited to: age, familiarity with e-government and type of industry.

A Decision Maker Survey was used to enquire about usage of selected services available via e-government. Further information was gained by asking about those managers that do not use electronic services nowadays about their preferences to use these services online. Finally, respondents were asked about their attitudes toward e-government, including barriers to access, convenience and the like.

Explanation note-3:

Structure of the survey for e-government:

1. *Businesses that do have access to the Internet and are not a public administration body are asked if they are using the Internet for interacting with government (for several services).*
    a. *People who said not to use Internet for interacting with government were asked if they should prefer to use these online services for this purpose*
2. *All people were asked about their agreement or disagreement with several statements about advantages and barriers about online services of public administration*

a) Usage of and potential for online government services by businesses

The first indicator studied the use of government services online. Figure 19 shows that usage of these online services is still in the start-up phase. Although according to the results of the CGE&Y study, the availability of these online services for business is more sophisticated than the online services for citizens, the results of the SIBIS survey shows that more than 50% of the IT managers surveyed do not use these services and around 10 to 20% do not know if those services are used within their company. The relatively large number of people who answered “don’t know” can be due to the fact that the IT manager may not be the person responsible for interacting with government on those type of services. However, a more detailed look at the people who have not used these services up to now also suggests that willingness to use these online services is not very high. More than 50% of the people surveyed prefer the traditional way of interacting with government to using the Internet. The people who also answered “don’t know” for this question are probably the IT managers who have no responsibility to deal with those type of governmental issues.

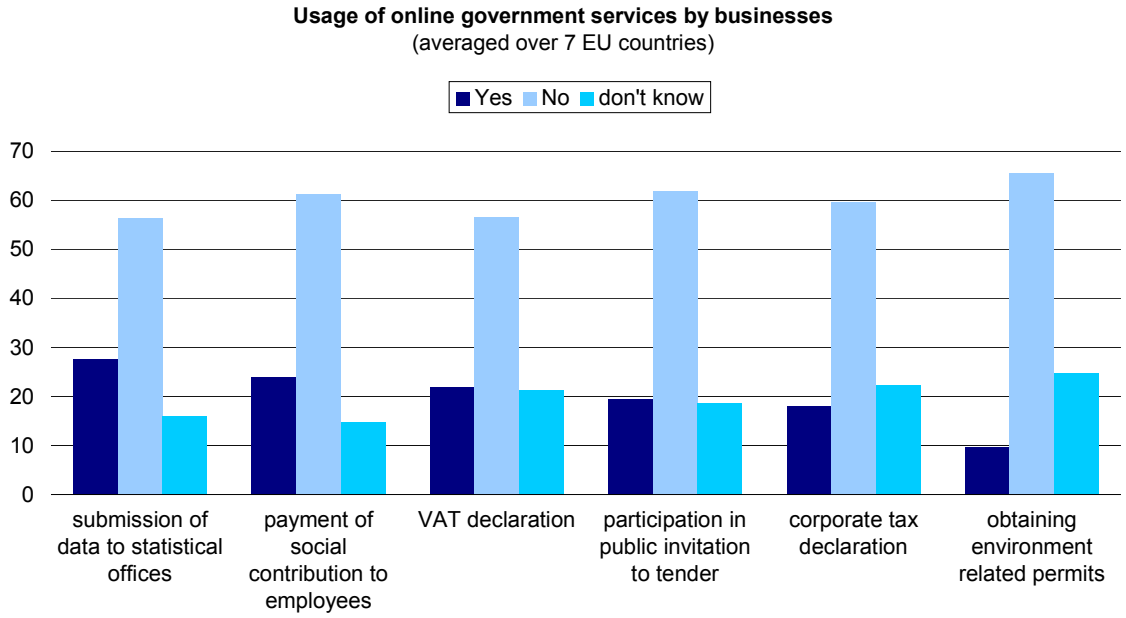


Figure 19: Usage of online government transactions for businesses. Source: SIBIS, DMS 2002, weighted by employment (N=2608). Base: establishments having access to the Internet (excluding public administration).

In addition to the relatively low usage reported by IT managers for e-government services, the potential by non-current users for online transactions is low as well. This is shown in Figure 20. The respondents to this question are IT managers who reported not using online versions of the services. Overall, approximately one third of IT managers not currently accessing government services online would prefer to carry out these transactions online.

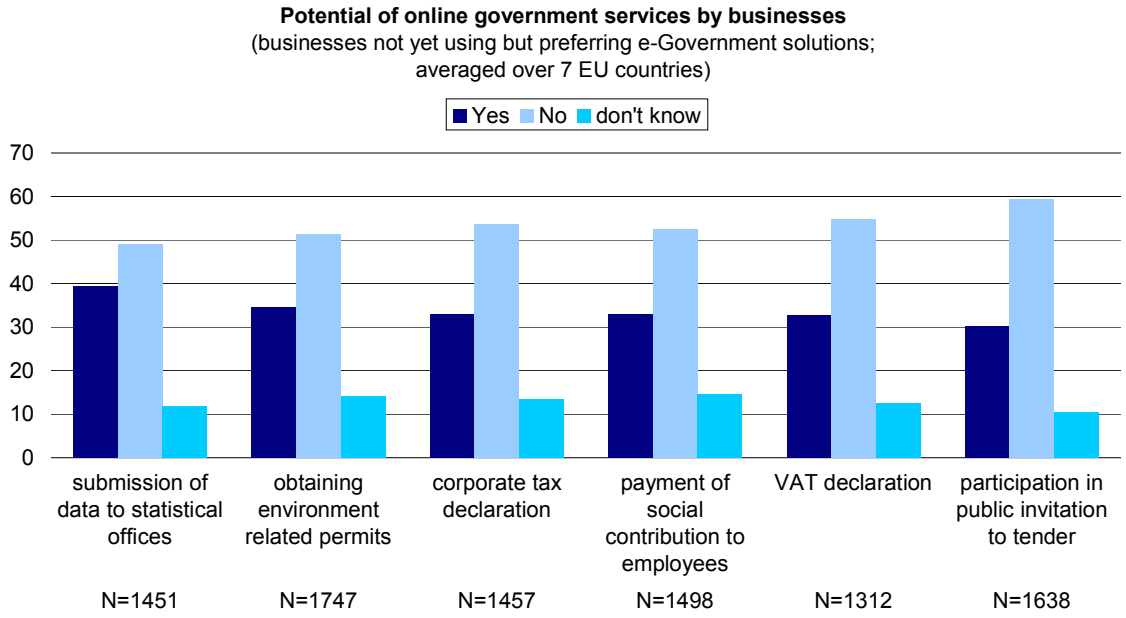


Figure 20: Preference for online transactions by businesses. Source: SIBIS, DMS 2002; weighted by employment; Base: establishments having access to the Internet (excl. public administration) and not using e-government services yet.

b) Country Comparisons

Looking at the six different types of online services specified, the following two separate clusters can be distinguished:

A finance and privacy cluster which deals with those government services that are requiring more confidential and personal information like Payment of social contribution for employees, Corporation tax declaration and VAT declaration.

The other services are those government services that have to do with data and information exchange at a more general level like submission of data to statistical offices, obtaining environment related permits, and participation in public invitation to tender.

Figure 21 gives the use of online services per surveyed country. The “finance and private” cluster is considerably more used than the “data and information” cluster. Overall, the number of people who do not use the Internet for interacting with government is rather high.

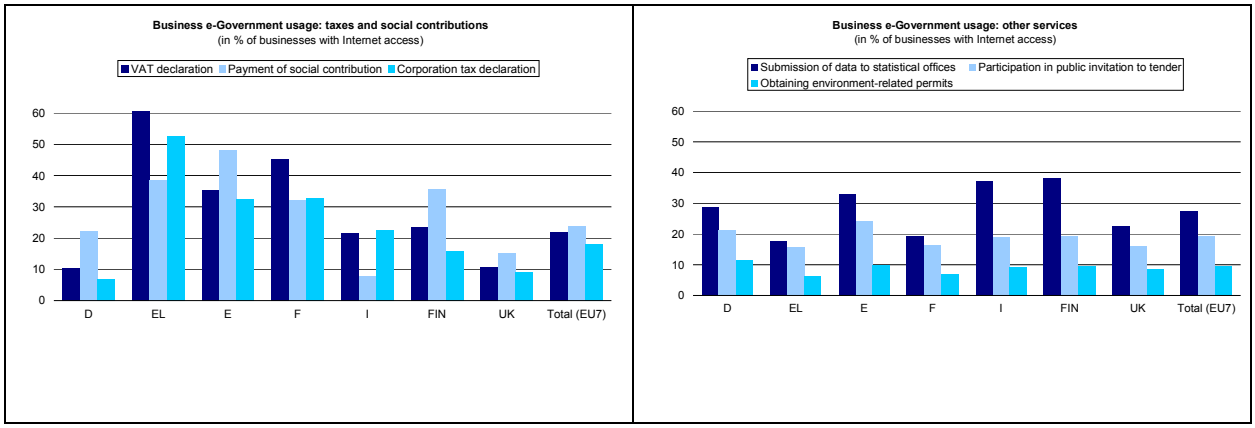


Figure 21: Use of electronic "finance or private" (a) and "data and information" (b) services. Source: SIBIS, DMS 2002 calculations; N= 2608 weighted by employment. Base: establishments having access to the Internet (excluding public administration).

The results for Greece are remarkable as this is the country with the highest percentages for taxes and social contributions. This can be explained by the bias that has been created in the survey by asking only those people who have used the Internet in the last four weeks. Especially for Greece, this limited the number of respondents considerably and the people who use the Internet quite regularly are in most cases more in favour to use the Internet. It is also the only country where use of Internet is higher than the use of the traditional way. Finland seems to be the most balanced country in both cluster, but further analyses shows also a high number of people who do not know if there company uses this service.

Figure 22 shows willingness to use online services for interacting with government among respondents not currently using e-government services broken down by country. The UK shows a high number of people who do not prefer to use the Internet. Companies in Greece are rather willing to use the Internet for finance and private interaction with government.

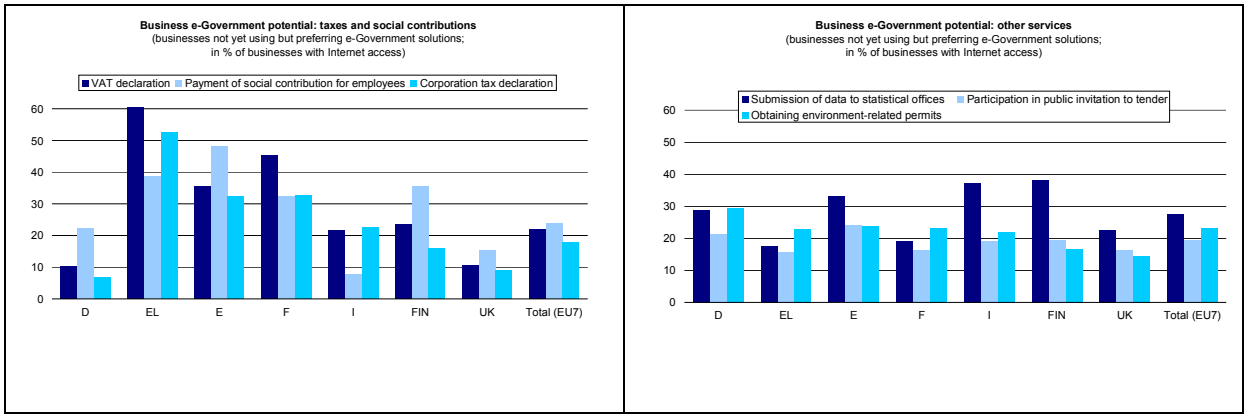


Figure 22: People who do not use online services, but would prefer to use it for "finance or private" (a) and "data and information" (b) services. Source: SIBIS calculations, DMS survey 2002;weighted by employment (payment social contribution N=1498, corp. tax declaration N=1457, VAT declaration N=1312, submission data statistical offices N=1451, obtaining environment related permits N=1747, public invitation to tender N=1638); Base: establishments having access to the Internet (excl. public administration) and do not use e-government services.

c) Perception of online government services

The third indicator analysed the advantages and barriers people face interacting with electronic government services. From those results one may conclude that people do see advantages of interacting with government online: It is faster than the traditional way, reduces the number of mistakes public authorities make and make it possible to deal with governments at more convenient times and places. The main drawbacks are the need to install special equipment software and security/safety concerns.

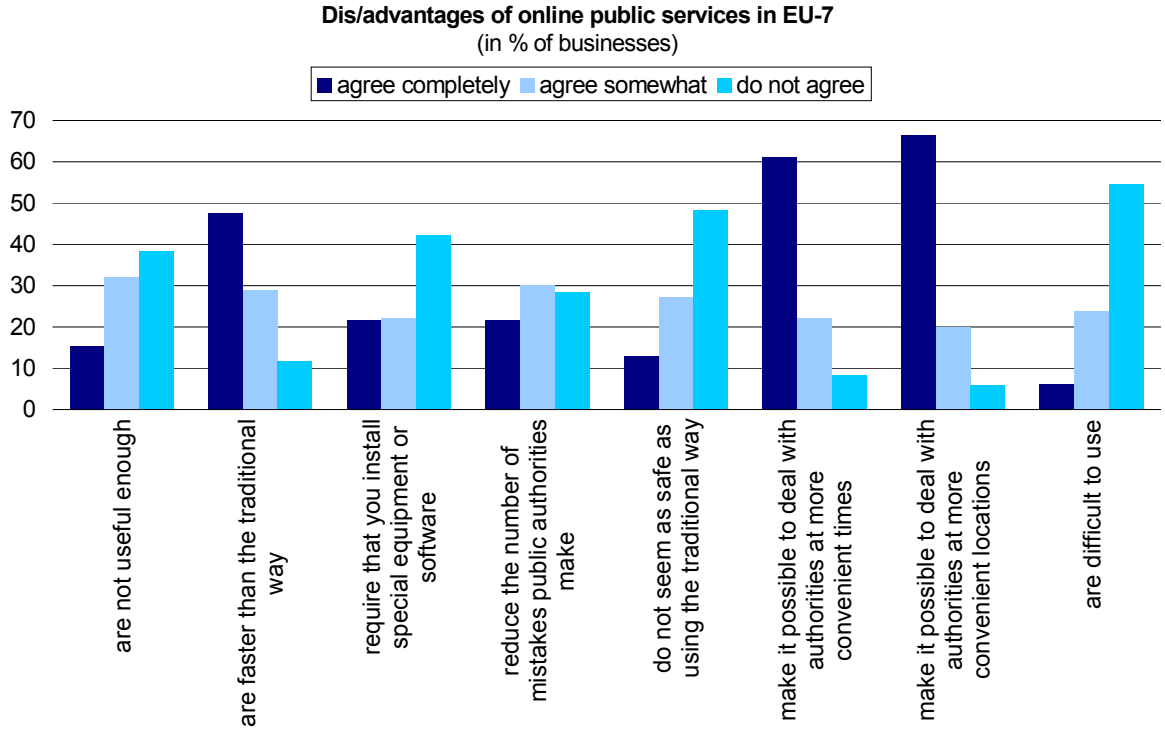


Figure 23: Agreement with statements regarding online government services for businesses. Source: SIBIS, DMS survey, 2002, weighted by employment (N=3139). Base: all establishments

5. Further Developments

GtG Services

Within the scope of the SIBIS project it was not possible to look at the interactions between governments. However, based on research earlier in the SIBIS project, the importance of the GtG business and the need to develop some indicators on existing.

Intra-government transactions are manifold. They generally involve the transfer of information from one agency or office to another. Many systems are already computerised and some are linked together so that explicit transfers need not occur because the information is available immediately between government users.

As information and communication technologies (ICT) continue to evolve, new applications may become available for online interaction between government agencies. Indicators must be developed to gauge progress of linking up new processes or sources of information. Barriers to adoption must be identified here also.

One area where the implementation of new and more sophisticated e-government functions may be hindered is where existing computer systems exist. Legacy systems that were built prior to widespread standards for the handling and storage of data must be replaced or somehow adapted to the new vision of e-government if information transfers are to occur.

It is essential to determine what proportion of intra-government transactions is already accessible via ICT and what level of online interaction they have reached. The same four-point scale can be used to characterise the level of interaction.

1. information—online information about the service, information sharing
2. interaction—downloading of forms,
3. two-way interaction—processing of forms, including authentication,
4. transaction—case handling (decision and delivery).[25]

Having established the level of sophistication of available intra-governmental online applications, the next step will be to measure whether potential users make use of these applications at the expected level of sophistication. If they do not, existing barriers to intra-government interaction should be identified.

Although most governmental agencies are investing in training employees in the use of their new e-government systems, lack of user know-how is likely to be a major barrier for the adoption of e-government. It may also be that the necessary equipment for using these new applications is not in place. In addition, ease of use and effectiveness of e-government functions should also be evaluated as a potential barrier to their adoption.

Technical barriers to the adoption of e-government by government agencies are thus:

- Insufficient training of potential users of e-government applications,
- lack of adequate equipment,
- ineffective or inefficient set-up and design of e-government applications.

For determining the hierarchical structure for governments' online services two issues are of importance:

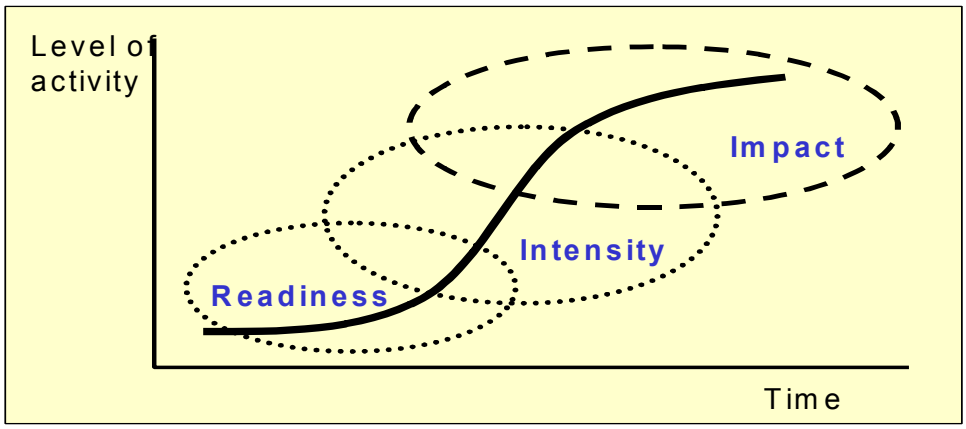
[25] eEurope 2002, Impact and Priorities. Communication from the Commission to the Council and the European Parliament. 23-24 March, 2001.

- potential for e-government (related to citizens, business and between governments)
- usage within and between governmental organisations.

In an earlier phase of the project some initial thinking about development of indicators on GtG has been done. More information can be found in Annex 2.

5.1. Further Development of Indicators

In addition to the indicators presented in this report, other indicators have been developed that may provide insights useful for benchmarking the information society. Because of limitations to the length of questionnaires, these indicators could not be piloted. Those initial ideas for new indicators are described in more detail in an earlier phase of the project and had to deal with more detailed questions and analyses on barriers towards e-government, perceptions, effectiveness of e-government, alternative ways of interacting with governments, the potential of e-government, type and level of usage for each of the services and a distinction between electronic government at the regional and at the national level. Future studies may afford the possibility to revisit these indicators and validate them by piloting them in new surveys.



WPIIS = OECD Working Party on Indicators of the Information Society

Figure 24: Level of activity as a function of time.

Market maturity determines research interest and needs, as seen in Figure 24. SIBIS focussed on the demand side of e-government, the usage (intensity) and perception (impact) of the users, as some indicators on availability (readiness) are already developed. It should however be interesting to look into more detail about the awareness of citizens and businesses on the availability of online services. SIBIS did take this into account partly, as people who preferred to use the Internet were asked if they knew that this service was available in the region were they lived. There are indications that people are not always aware of the availability of online services, so some more research on this topic would be useful.

5.1.1. Recommendations

Due to the limited length of the questionnaire and to avoid asking respondents questions about unfamiliar issues, a nested structure for asking the questions was chosen[26]. The effect was to shorten the time needed to complete the survey. At the same time, this limited the

[26] E.g. questions about the use of e-government services were only asked to those respondents who already answered that they prefer to use the internet for interacting with governments.

usefulness of the data, because only a subset of respondents provided answers to certain questions and it would have been useful for all to respond. Without these responses, it showed to be difficult to get the overall picture. Further research in this area should look into perspectives from different respondents, and be careful in excluding subgroups of respondents as was done here. Also, to make the results comparable with results from already existing studies on availability it is preferable to use exactly the same types of electronic government services and no sub-set or aggregations. In addition, for the Decision Maker Survey, the questions asked were not completely suitable to IT managers, leading to a large amount of "Don't know" results. As the questions for e-government where part of the total SIBIS survey and IT managers where the right persons to ask the questions of the other SIBIS topics, this problem could not be solved within the SIBIS project. Future studies should be aware of this and try to find the right persons to survey.

The structure of the survey should also be improved to provide a reliable baseline to evaluate the usage of e-government services. Based on the existing survey structure, it is difficult to interpret reported usage. A useful baseline was not established from the survey that gives the frequency of use of each government service by all means possible. In the survey, respondents were only asked whether or not they used specific online services. Figure 25 provides a schematic representation of the sequence of questions used in the survey on the left. The set of questions on the right proposes a more useful scheme, and as already mentioned it would have been even more useful to also ask the questions to those persons who answer "no".

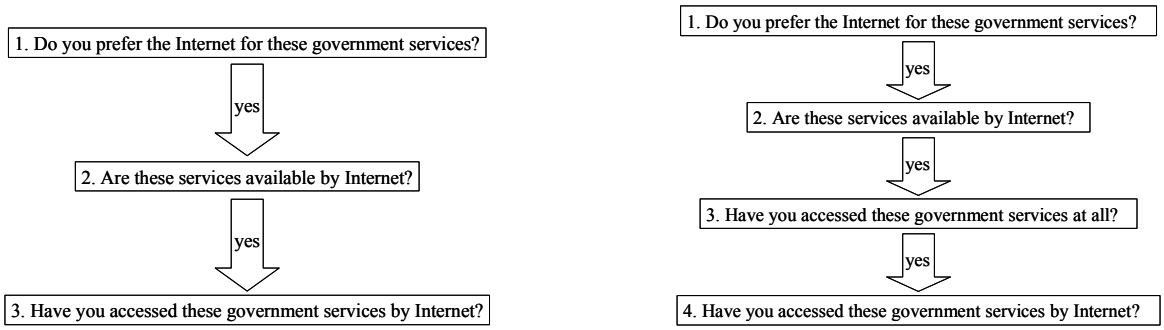


Figure 25: The questions used in the survey (left) and a more useful set of questions (right).

In the survey, respondents were never asked whether they used each of the government services. The difference between the existing survey questions and those proposed is the insertion of a new question that establishes the necessary baseline. In the survey, if respondents accessed a government service by electronic means, they responded positively to question 3. However, if they did not use the government service, or if they used it but opted for the traditional mode of using the service, they responded negatively to this question. This is because it selected only respondents who have used a specific government service before asking them whether they have accessed it online.[27]

The current survey inadvertently includes the frequency of use of each government service into the response to whether the service was accessed online. It is expected, for example, that most survey respondents do not make frequent declarations to the police. Some may never have done so. Their response would be that they have never accessed this service

[27] One may choose to be more selected in the new questions by asking respondents whether they have accessed a specific government service within a set period of time. This will tend to eliminate respondents who made use of a government service long ago, when the possibility of online usage did not exist.

electronically, but this does not mean that they accessed it by traditional means. Similarly, respondents who do not own a car responded that they did not register their car online, but this does not mean that they registered it in person or by mail. It might be fair to assume that respondents have more experience with services like the search for library books. However, because a baseline usage rate is missing, it is not clear how to interpret the fact that more than half of the respondents report accessing this service online.

6. Conclusions

e-Government is progressing all over the line like most IS applications, however e-government is not a goal in itself. The goal of e-government for public administrations is to create a more efficient and effective channel to provide services to users.

Up till now it has not been clear how this development has been received by the users of those services, as indicators measuring the demand perspective were not existing.

The indicators developed in this project are a first attempt to get a clearer picture about the use of electronic public services by citizens and businesses and their preferences and assessment of these services. This report presents the current state of the project. Further work is underway and new results of the survey on the ten Candidate Countries will become available soon. Just like traditional government functions, e-government spans a variety of services. For this reason, it is nearly impossible to consider interest in or the adoption of e-government as a single broad category.

Two complementary surveys, covering nine topics, were conducted in the SIBIS project. The survey of citizens covers the EU Member States, the USA and Switzerland. The survey of businesses covers Finland, France, Germany, Greece, Italy, Spain and the UK. The purpose for that part of the survey that dealt with e-government was to query citizens and businesses about their views of e-government compared to traditional modes of interacting with government. The government services addressed in the survey originated from the report "eGovernment Indicators for Benchmarking eEurope" of the European Commission and were already used in the EC survey on availability of those services, carried out by Cap Gemini, Ernst & Young (CGEY) in 2002. While that survey sought to identify whether these services were available, the current survey provides a useful supplement to it by considering respondents' views of e-government. The survey of citizens examined respondents' preferences for, access to, usage of and attitude toward e-government. Similarly, the survey of businesses examined respondents' usage of, preference for and attitude toward e-government. Additional analysis was carried out by combining knowledge gained from the SIBIS surveys with publicly available survey results from CGEY regarding the level of sophistication achieved for a number of e-government services.

In this study, it was learned that citizens are interested in some aspect of e-government and show a significant preference for some e-government services over their traditional counterparts. Preference was not uniform, however. Generally, it appears that services which do not require users to reveal a great deal of personal information about themselves, such as searching library books online, are popular while those that call for a great deal of personal information, such as reporting a crime to the police, are less likely to elicit a positive response. Other reasons may exist for one to choose online or face-to-face interaction with government. These could not be addressed in the present study and merit further investigation.

Among respondents who indicated a preference for online government services, citizens were not always aware of which government services were available online. Again, the general pattern appears to be that citizens are well aware of e-government services requiring little or no personal information while they were not sure of whether those requiring a great deal of personal information were available to them. The exception to this pattern was income tax declaration, which over half of respondents identified as available to them.

Further narrowing the subset of respondents to those who not only preferred online services, but also answered that specific services were available to them, citizens were asked about their use of online government services. Once again, use of a given government service appears to be inversely matched to the amount of personal information required by the service. Here also, the notable exception is income tax declaration online, which although it requires much personal information has been used by nearly half the respondents. It is

interesting to note that of those people who prefer to use Internet and have access to those services online, fewer than 50% really use those online services; only the online service for searching books online achieves a percentage of more than 50%.

The attitudes of citizens toward e-government point to convenience of time and location as factors that strongly favour e-government over traditional government. In addition, citizens felt that e-government is faster than traditional government. The possibility to deal with government at more convenient places and times is often mentioned as an important advantage of using online services. Nearly half of respondents did not feel that e-government services are difficult to use. The responses of citizens were more neutral regarding the usefulness of e-government, whether its use requires special equipment or whether fewer mistakes arise as a result of its use.

Looking at responses for individual countries, important differences exist regarding preference for e-government, access to it and its use. Likewise, attitudes are not uniform across all countries. Preferences for e-government services compared to their traditional counterparts can be quite dramatic for some services or for certain countries.

Additional knowledge gained from the survey of citizens shows that longer online usage, defined as the time span since respondents began using any online service, correlates with greater preference for e-government. Although this result is not surprising, it has not been confirmed previously. Similarly, the level of usage of Internet during a typical week tends to correlate with the preference for e-government. Again, this is not surprising, but has not been reported previously. Finally, differences in household incomes and social grades do not really make a difference in their preferences; it is more the type of service that determines the preference for Internet or the traditional way

Compared to citizens, businesses do not appear to be embracing e-government, although a direct comparison cannot be made between the two surveys. This is because the order of the questions was different in the two surveys and decisions about whether or not to ask specific questions differed. For the services studied in the survey, responses were similar except for the case of obtaining environment-related permits, where e-government use was significantly lower than for the other services. Two possibilities were considered to explain the results obtained from the survey: either the respondents were not the right ones to give information about the services of interest or businesses do not perceive a great deal of benefit from using e-government. This will require further analysis.

Among businesses that reported using online means to transact with government, about one third preferred this method over traditional means. Among all business respondents, convenience of place and time were rated highly among qualities associated with e-government. Other answers did not favour e-government so clearly. Generally, e-government was viewed as useful, faster than traditional means of interaction, not difficult to use and no less safe than traditional government. A significant number of respondents gave a “don’t know” answer for this question, suggesting that IT managers are not necessarily the ones responsible for dealing with those type of governmental issues.

It is possible to distinguish specific clusters of GtB services within the business community. The first is the finance and privacy cluster that includes government services requiring confidential or personal information. Specific services are: payment of social contribution for employees, corporation tax declaration and VAT declaration. The second is the data and information cluster that includes government services related to data and information exchange at a more general level. Specific services are: submission of data to statistical offices, obtaining environment related permits and participating in public invitation to tender. Looking at each of the surveyed countries, significantly higher use was reported for the cluster requiring confidential and private information than for the cluster requiring more general information. Even for this first cluster, however, usage did not exceed 50% except in Greece. A similar trend was noticed regarding preference for online services, because the

first cluster registered higher online preference than the second cluster did. This result is in contradiction with what has been found for citizens. Citizens seem to be more resistant to provide personal and confidential information than businesses.

Based on the survey work that was carried out, important lessons emerge. The length of the questionnaires was limited to provide the opportunity to cover a number of different research areas. For this reason, many questions in e-government could not be piloted at this time. In addition, answers to some questions determined whether additional questions would be asked of respondents. While this shortened the questionnaire, it decreased the value of the information learned and the data analysis reflects this.

Because intra- and inter-government services were not examined in the survey and so analysis of GtG was excluded from the current study, many questions remain regarding this side of e-government. The survey of citizens and businesses suggests that when seeking information from government, citizens, businesses and, by inference, other government agencies must be able to easily find what they need and be confident that whatever information is available on-line is current and accurate. Likewise, when providing information to government, all will want to feel secure in the knowledge that the information provided is recorded accurately and that privacy is guarded. To that end, it is important to systematically analyse and monitor government links by the appropriate privacy and data protection agencies and to provide all with information regarding the level of security achieved.

It is clear that the current study does not cover every single aspect of the demand-side of e-government and future research is essential to get a more complete picture of the perceptions and attitudes of the users of e-government services. Also, analysing why results per service or per country differ is of great interest for policy makers.

Looking to the future, it is clear that the further development of e-government in the EU Member States must occur. Looking at the considerable amount of respondents answering “don’t know” in the surveys, mainly for the Decision Maker Survey but also to a certain extent in the General Population Survey, governments could improve on “awareness-creation” of existing e-government services for citizens and businesses.

The extension of the SIBIS project with ten Newly Associated Countries will provide innovative and unique data in a later phase of the project (mid-2003). An evaluation of the standing of the Candidate Countries relative to the EU will show how these nations can match the standing of existing Member States. The results of the EU Member States can serve as a guideline and example for the Candidate Countries and the Candidate Countries can take advantage of the lessons learned from the EU countries to find the right way to speed up their processes towards the future.

7. References

Accenture (2001), *eGovernment, the commitment continues*

Accenture (April 2001), *Rhetoric vs reality – Closing the Gap*

Accenture (April 2002), *eGovernment leadership – Realizing the Vision*

Al Gore (June 1996)*, From Red Tape to Results: Creating a Government That Works Better and Costs Less*

Bertelsmann Stiftung in cooperation with Booz, Allen & Hamilton (2001), *Balanced e-Government; e-Government – Connecting Efficient Administration and Responsive Democracy*

BT Government, The Henley Centre (July 2000), *eGovernment: ready or not?*

Communication from the Commission to the Council and the European Parliament (March 2001), eEurope 2002, *Impact and Priorities*

European Commission, DG Information Society; Cap Gemini Ernst & Young (Nov. 2001), *Summary Report Web-based Survey on Electronic Public Services (Results of the first measurement: October 2001)*

European Commission, DG Information Society; Cap Gemini Ernst & Young (June 2002), *Summary Report Web-based Survey on Electronic Public Services (Results of the second measurement: April 2002)*

European Commission, DG Information Society; Cap Gemini Ernst & Young (June 2002), *Summary Report Web-based Survey on Electronic Public Services (Results of the second measurement: April 2002), ANNEX*ICL plc, William Heath (2000), *Europe's readiness for e-government*

IDA QA Framework contract no. 503336, (2001/2) *Benchmarking of electronic service delivery in the public sector, executive report*

Ministerie van Economische Zaken, Management & ICT Consultants (October 2000): *Quick Scan: ICT in de publieke sector*

World Markets Research Centre (September 2001), *Global e-Government Survey*

8. Glossary - abbreviations

GPS	General Population Survey, telephone survey among citizens in the 15 EU member states, Switzerland and the USA
DMS	Decision Maker Survey, telephone survey among businesses in 7 EU countries: Finland, France, Germany, Greece, Italy, Spain and the UK
GtG	government-to-government, e.g. back office introduction of ICT, intra- and intergovernmental exchange, government networks, standards, expertise
GtB	government to business, e.g. delivery of business services and information, e-Procurement (tendering), sales of government-owned business-relevant information
BtG	business-to-government, e.g. filing of business registration information, taxes, regulatory information, etc.
CtG	citizens-to-government, e.g. citizen information provision, tax filing, citizen reporting, electronic voting (e-Democracy), follow-up on ESD, vehicle licensing
GtC	government-to-citizens, e.g. provision of public information and transparency of information (both passive and active (in response to specific requests) about government workings and performance, electronic service delivery (including 'one-stop-shops')
CGEY	Cap Gemini, Ernst & Young

9. ANNEX 1 - Tables/graphs with data (analysing data)

9.1. Preference for selected e-government services

The format of the consumer survey was premised on a three step technology adoption model for e-government services. In the first step, potential users express an interest or preference in using an online service if it should be available. In the second step, they are aware of the service's availability. In the third step, they make use of the service online. The first and second steps are necessary for the third to occur. The order of the first and second steps could be reversed, but respondents who are not interested in a particular service may not care whether it is available. The order of the questions was chosen to maintain respondent interest during the survey.

Each of the three questions points to areas where government might seek to understand what factors guide the preferences of respondents. These are discussed in turn for the government services selected in the survey.

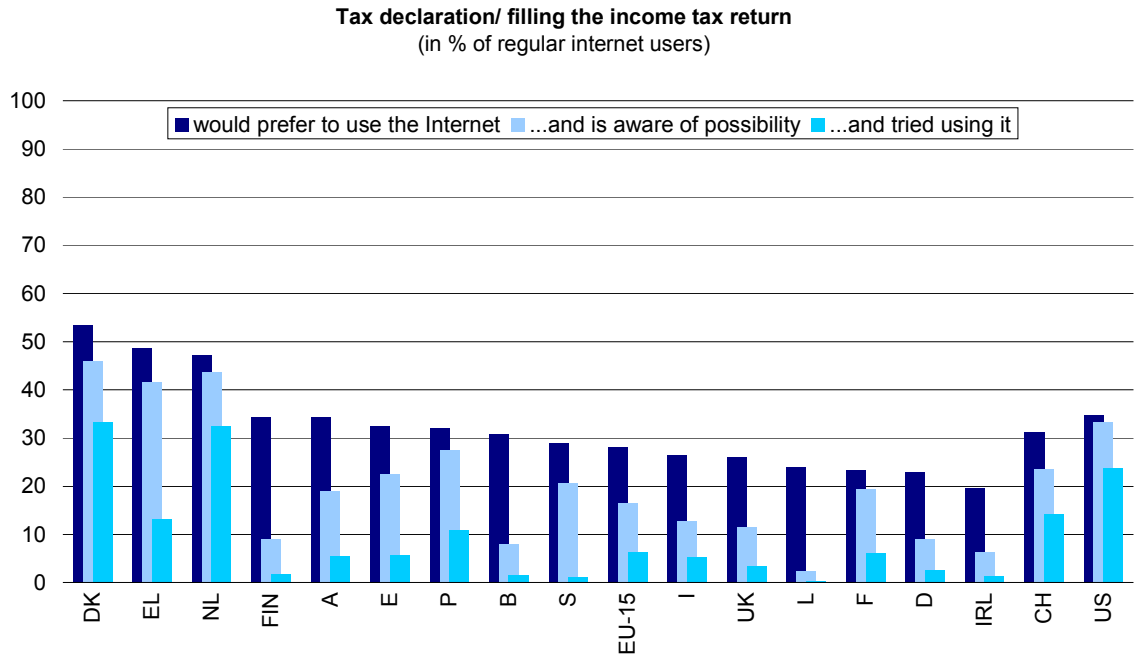


Figure A1: Preference for income tax declaration method by country

Tax declaration is a widely used government service, as anyone with income should prepare tax forms at some point during the year. Except for those from Denmark, respondents express a preference for filing income taxes by traditional methods rather than online. The factors that influence respondent perception about online tax filing may help explain the differences noted among the countries surveyed. What is most striking about the data is the difference in awareness of the availability of filing online among countries. It would be useful to understand why, for example, Finns report such low (awareness of) availability this service: is this because the service is not available online in Finland or are people not aware of the availability of this online services?. Likewise, it would be useful to understand what, if anything, prevents respondents who express interest in online tax filing and are aware of its availability from taking the last step and performing this process. This analysis may explain

why when comparing Denmark and the Netherlands to Greece, preference and awareness are comparable, but the rate of online filing differs significantly.

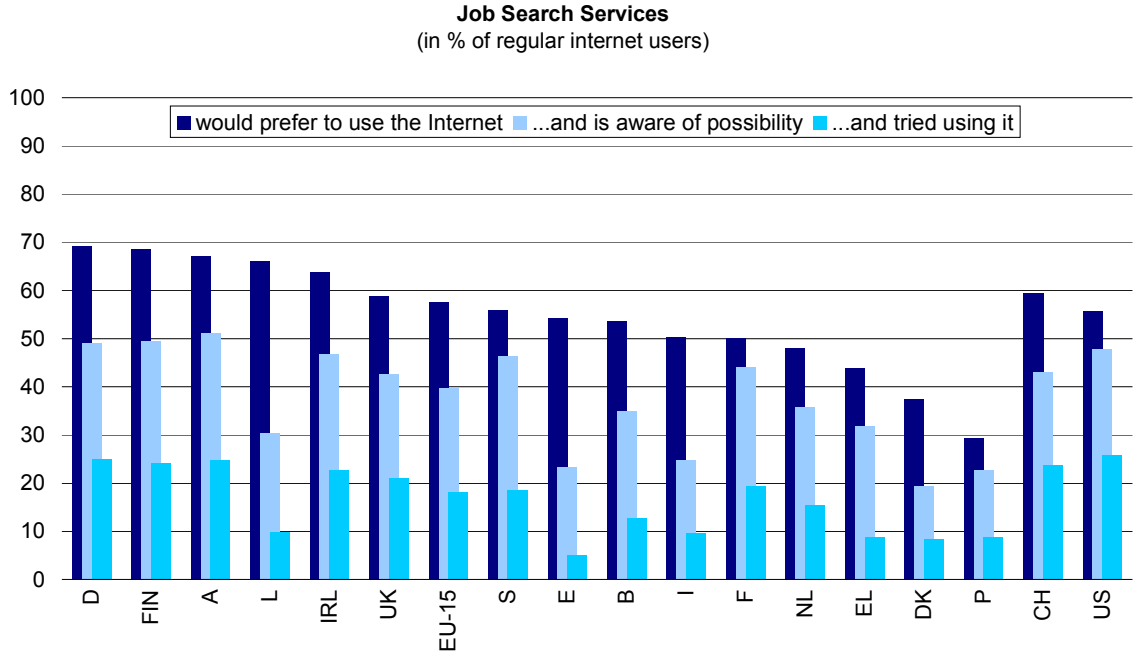


Figure A2: Preference for employment search method by country

Preference for online job search services varies significantly by country. Respondents generally prefer searching for employment online, except in Portugal. Where employment search may not rely on government services. EU, Swiss and US responses are quite similar in favouring online searches. Reasons for the differences in preference for online job seeking services might depend on how this process is normally carried out. If job seekers tend to work with recruiters face-to-face, they will notice a significant change when trying to use online services. If, however, they use ads in newspapers, the transition to online services will be minor. The fraction of respondents reporting awareness and availability of online job seeking services is rather low and could increase. Generally, individuals using job search services are interested in finding new employment. For this reason, they may be a limited subset of respondents, which may explain the low number of respondents who reported using this service.

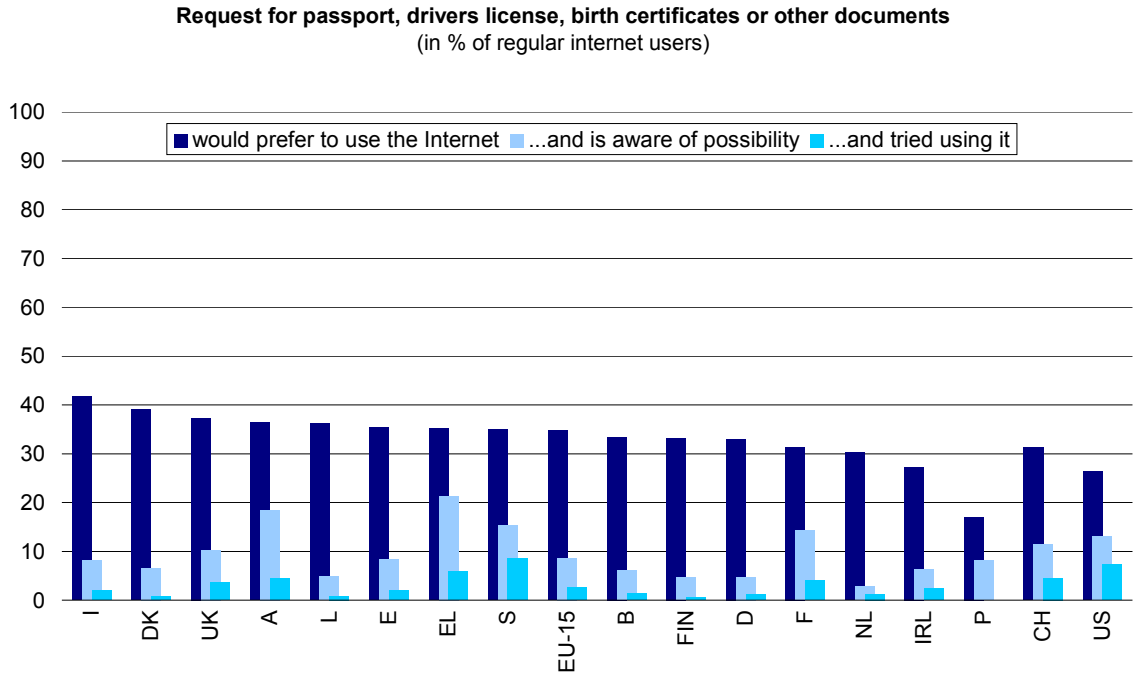


Figure A3: Preference for personal document requests by country

Respondents generally prefer to request personal documents by traditional means. This preference was expressed among respondents from the EU, as well as Switzerland and the US. Even among respondents who prefer the idea of requesting documents online, very few reported that this service was available to them or that they seemed aware that this service was available to them. Among those even fewer had actually requested anything. The low request rate may not only reflect a low adoption of this particular online service, however. This is because requests of documents may not be very frequent, regardless of the method used to do so.

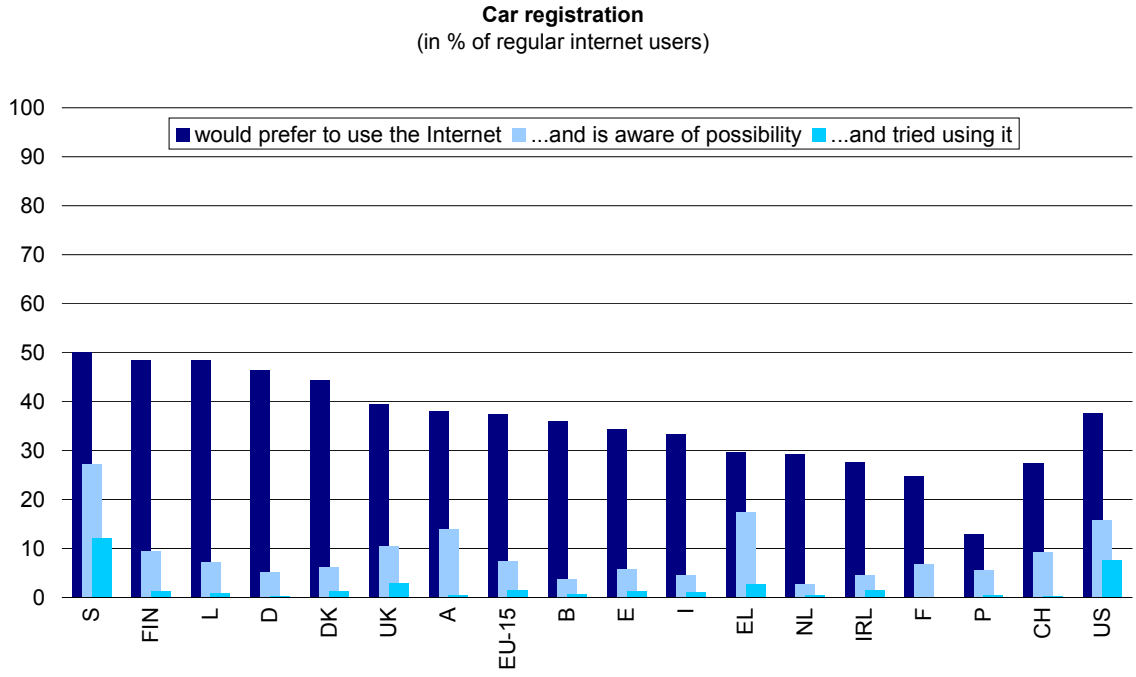


Figure A4: Preference for car registration by country

The preference for registering cars online or by traditional means varied across the countries surveyed. Overall in the EU, the traditional way of registering a car was preferred over online registration by a factor of about two. In Switzerland and the US, the preference for traditional registration was even stronger. (Awareness of) the ability to register a car online is very low, as is the rate of usage of this service. In both cases, this may be due to the relatively infrequent use of this service by any given person.

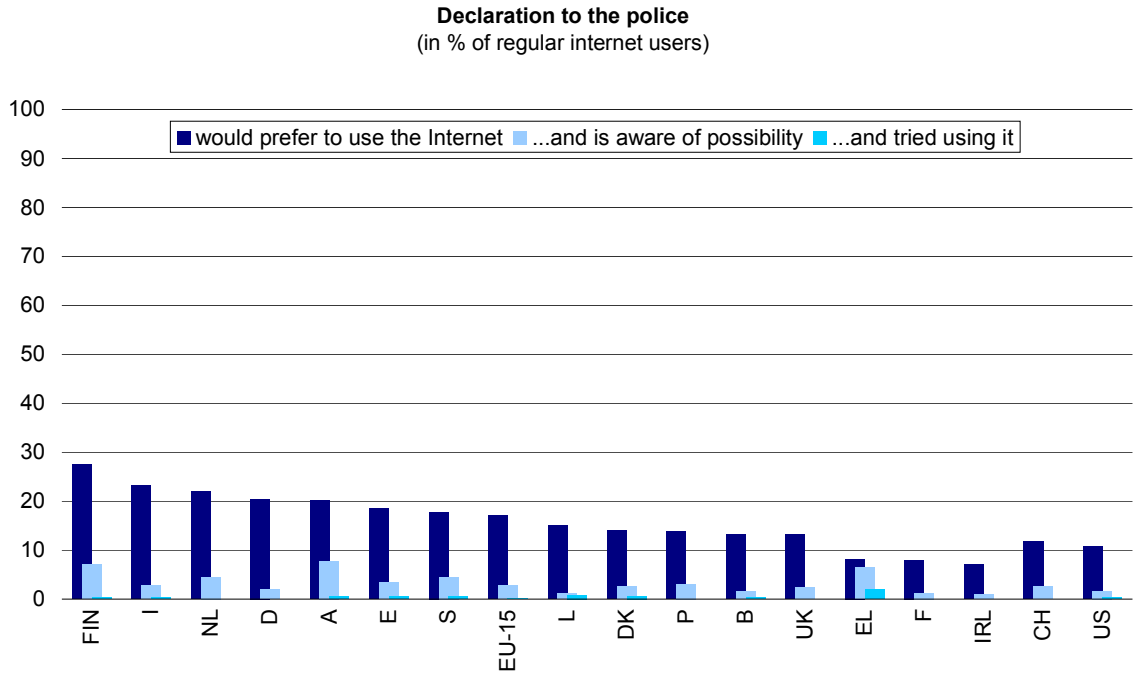


Figure A5: Preference for police declaration by country

By an overwhelming majority, respondents did not like the idea of making declarations to the police online. This was true in all countries surveyed. Respondents were not asked to provide reasons for their choices. However, making a declaration to the police is an activity that requires a great deal of personal information. Individuals may be reluctant to divulge this information online. Even among respondents who would elect to make a declaration to the police online, (awareness of) availability and use of this service are very low. This may be because citizens do not generally make declarations to the police, regardless of the method used.

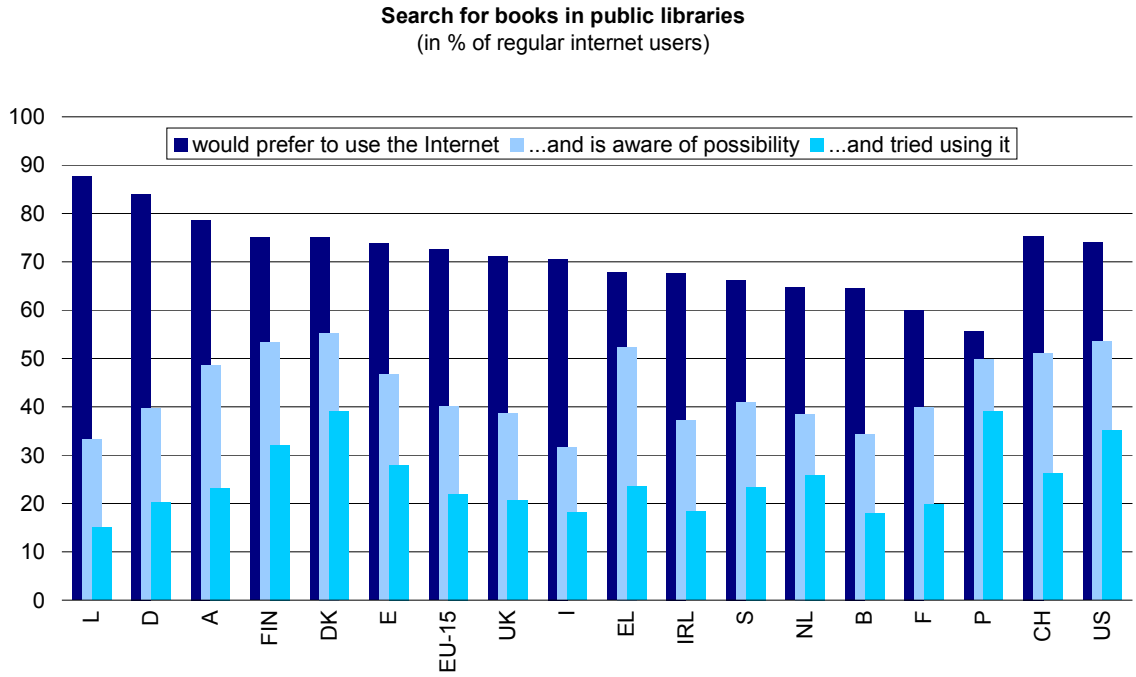


Figure A6: Preference for library book search by country

In all cases, respondents liked the idea of carrying out library book searches online. Even when carried out inside a library, book searches rely on computers to access data about availability and location. This function can be carried out from any location without changing it significantly. Respondents reported significant differences in (awareness of) the availability of this service by country. Also, significant differences were noted in the rate of usage of this service. Because it is not known whether respondents searched for books at all, regardless of the method, it is difficult to interpret the differences in the rates of usage of this service across countries.

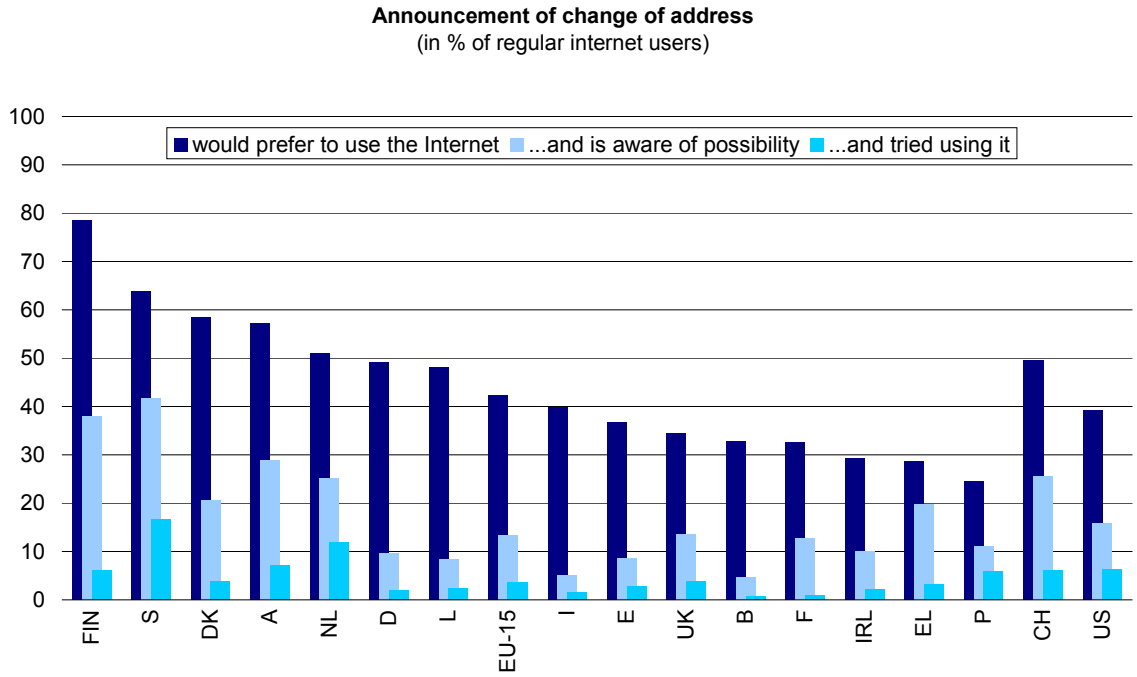


Figure A7: Preference for change of address announcement by country

Overall, EU respondents did not express a strong preference regarding the method they preferred to announce a change of address. In Finland, respondents would opt for online reporting of their address change by a margin of nearly four to one, while in France, Ireland and the UK, the traditional way is strongly preferred. In Switzerland, respondents were almost evenly split, while in the US, the traditional way was favoured, although not overwhelmingly. In most countries, (awareness of) the availability of this service online is quite low. Usage of this service is low almost everywhere surveyed. This may reflect the relative frequency of moves among respondents.

9.2. Opinion of e-government services

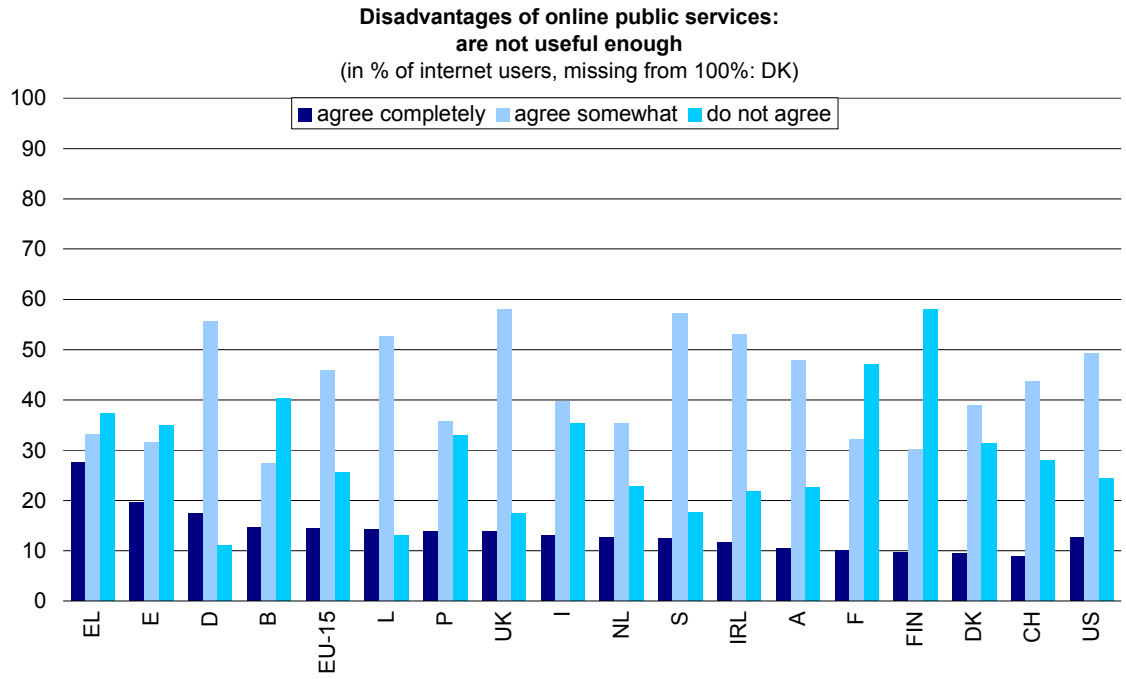


Figure A8: Opinion of the usefulness of e-government.

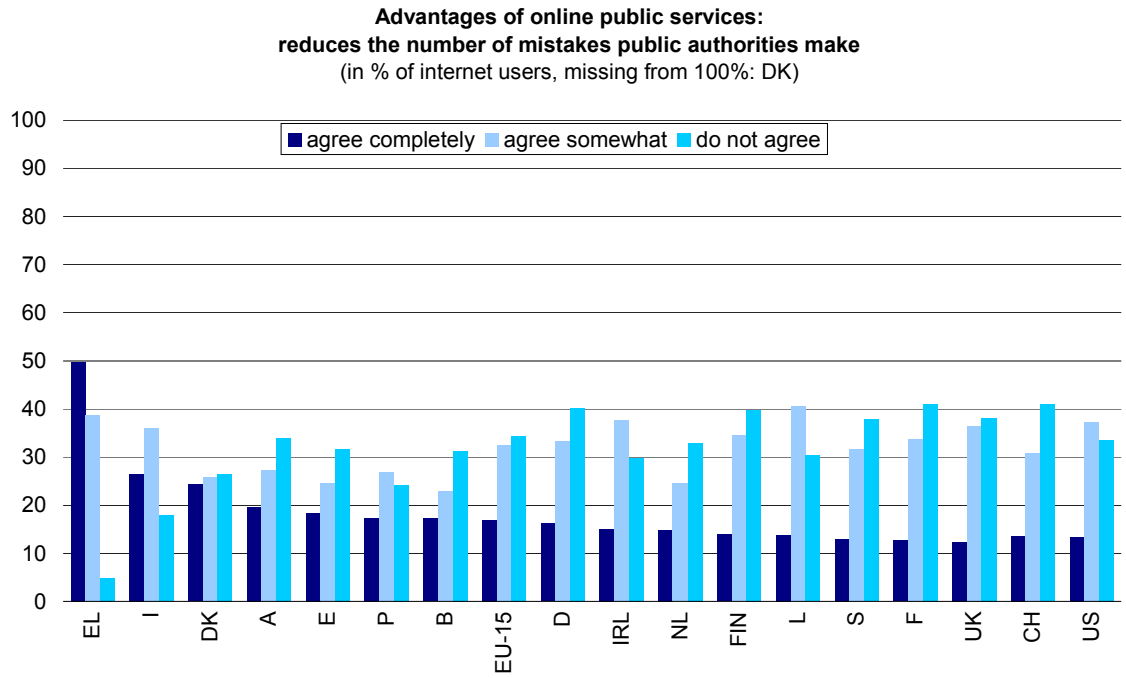


Figure A9: Opinion that e-government reduces the number of mistakes.

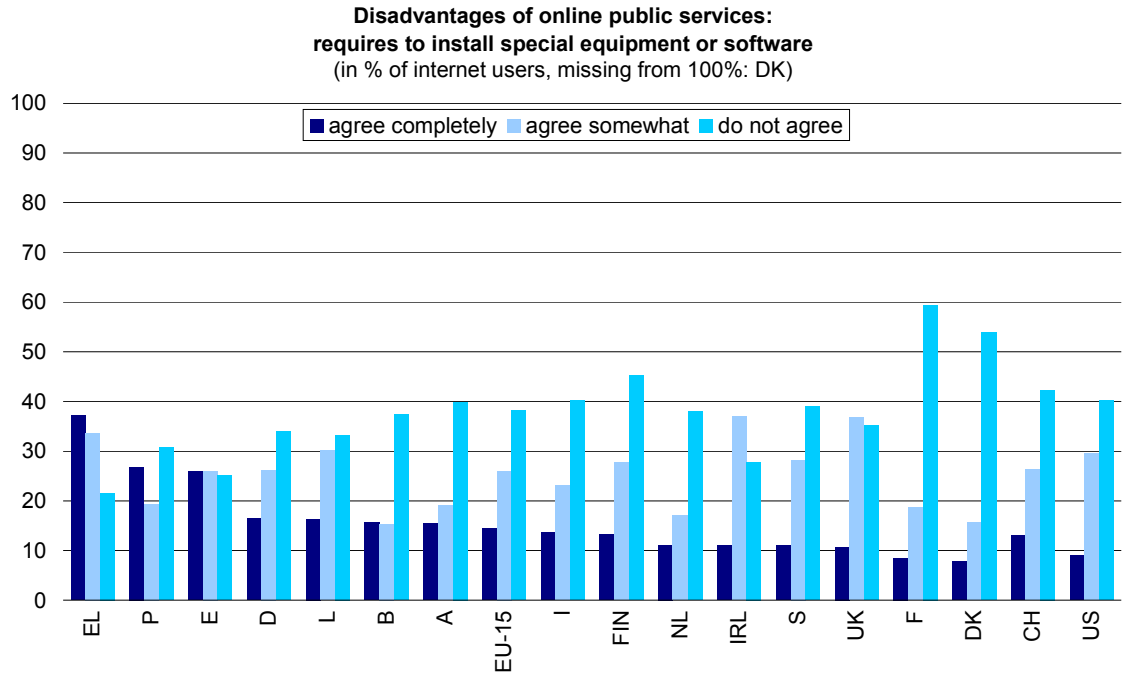


Figure A10: Opinion that e-government requires special equipment or software.

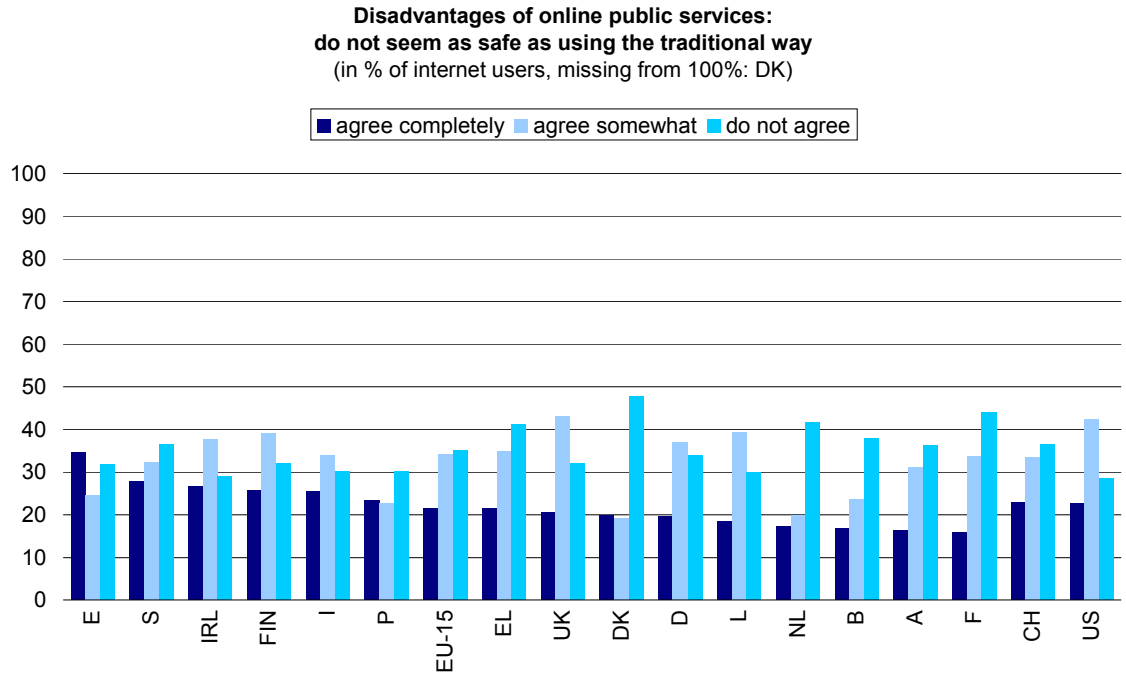


Figure A11: Opinion that e-government is not as safe as traditional government.

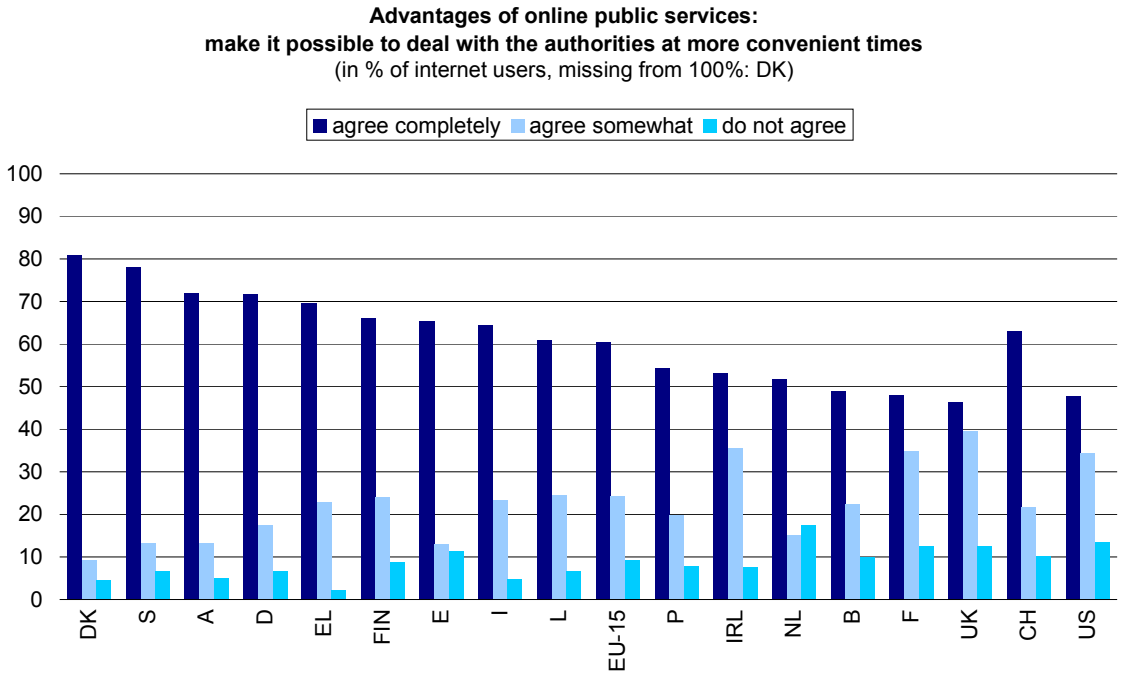


Figure A12: Opinion that e-government operates at more convenient times than traditional government.

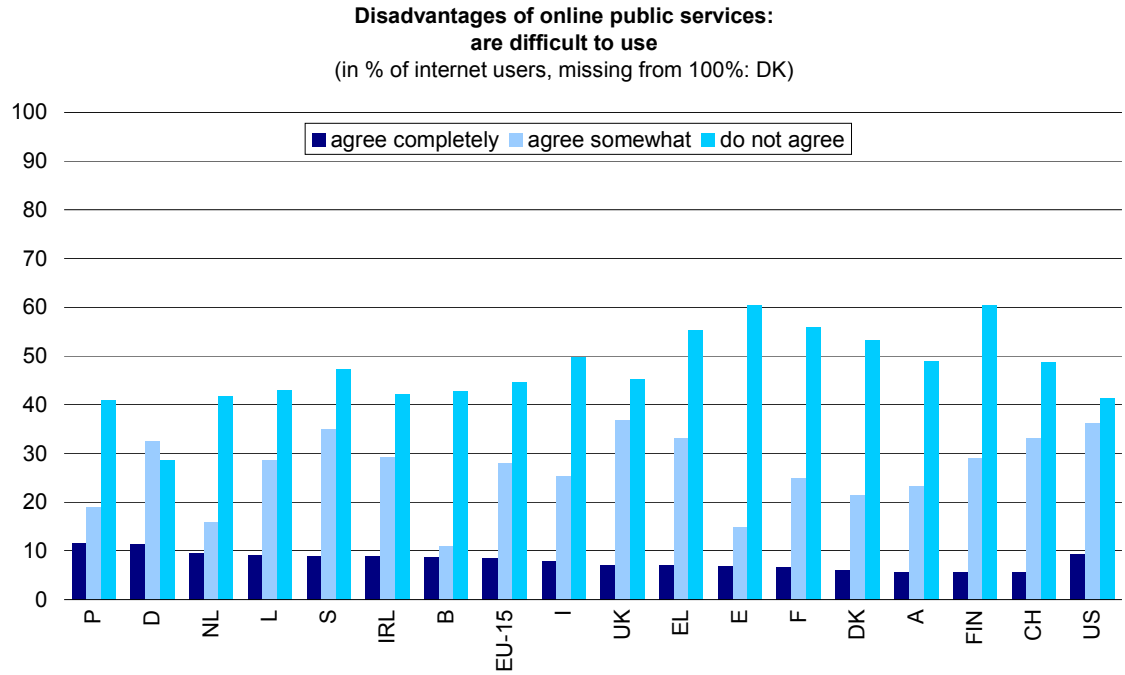


Figure A13: Opinion that e-government is difficult to use.

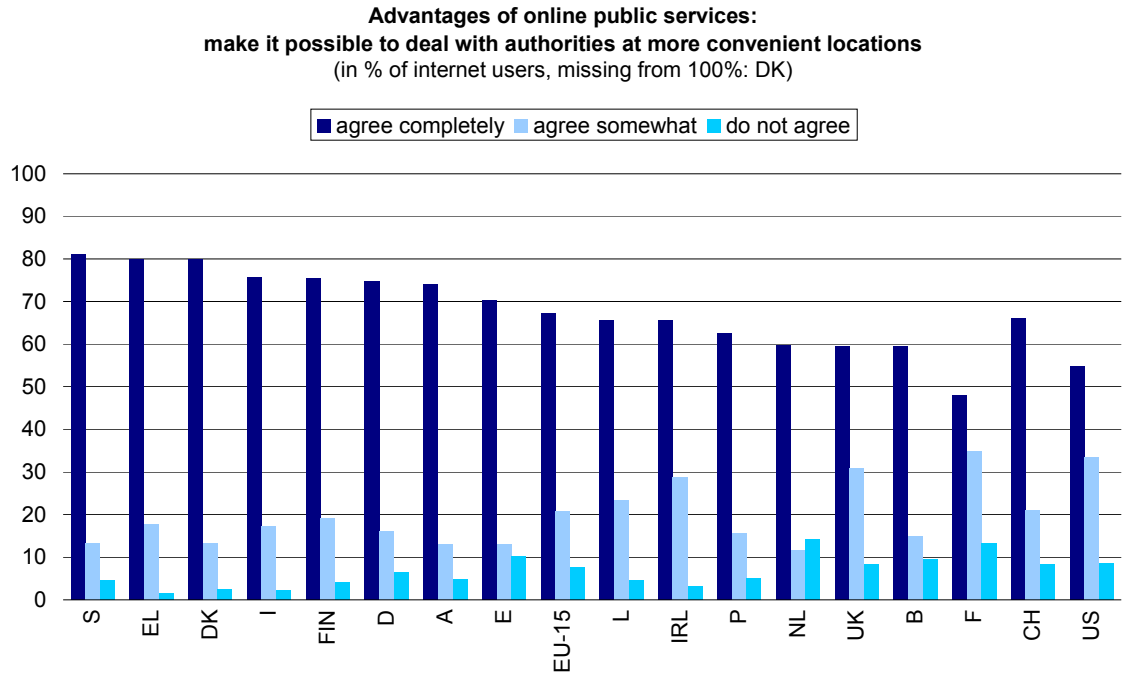


Figure A14: Opinion that e-government has more convenient locations than traditional government.

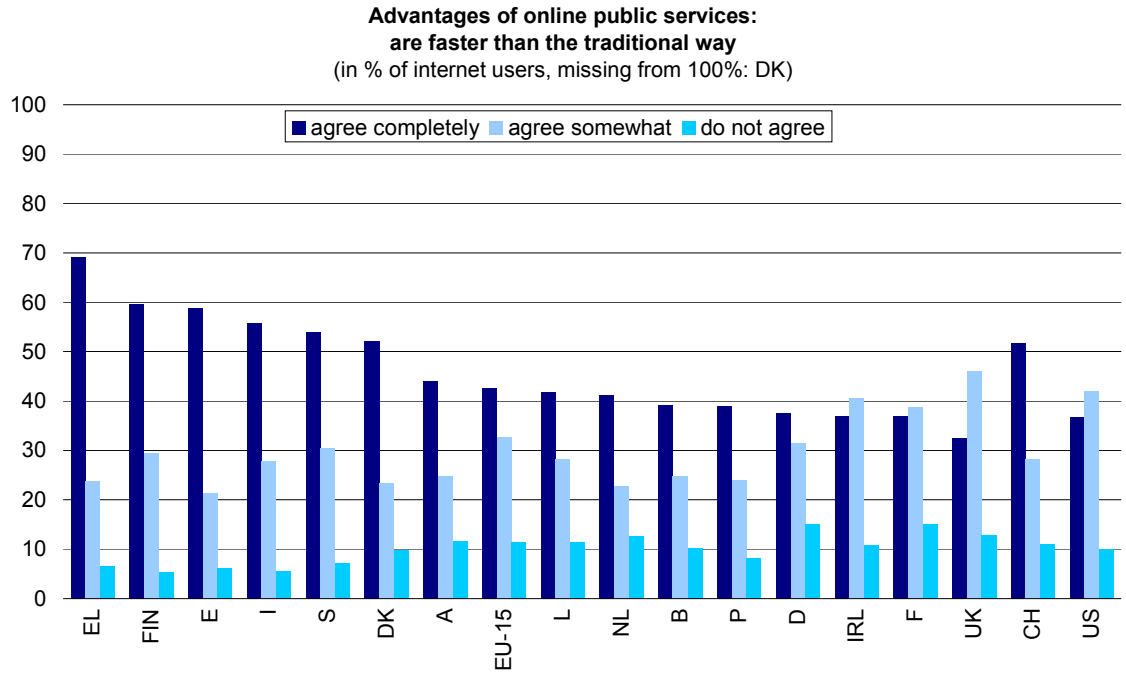


Figure A15: Opinion that e-government is faster than the traditional way.

10. ANNEX 2 – Some initial ideas for GtG survey questions

Type of Usage indicator

Question: Do you use electronic systems to

- Transfer information within your department?
- Transfer information from your department to another?
- Transfer information from other departments to your own?
- Transfer information to citizens
- Transfer information to business
- Download information

If yes: how often? When did you use it last?

If no: is it available?

If yes: will you try it next time?

If no: is there a plan for it to become available? If so when?

The next figure gives a schematic representation of this question:

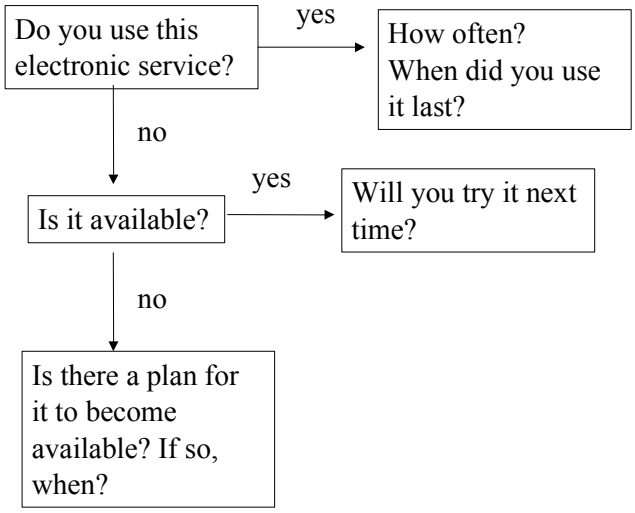


Figure A22: Schematic representation of a government-to-government e-government survey question.

Effectiveness indicator

Perceived advantage of Electronic Service Delivery – Governments

Question: What do you see as the main advantages, if any, of electronic service delivery?

Please indicate the level of importance for each of the services:

0 = don't know

1 = not important

2 = slightly important

3 = somewhat important

4 = important

5 = very important

Categories:

- Faster delivery of services to citizens
- Generally improved service delivery
- More accurate delivery of services to citizens
- Better Value-for-Money / Cost savings
- More convenient delivery of services to citizens
- Ability to cope with more enquiries
- Less duplication between departments
- More personalised/tailored approach to service delivery
- More accurate records/fewer errors
- An improved image for government/my service
- Better/more equal relationship with the citizen

Barriers indicator

Question: For each possible issue I read out, please tell me whether or not you see it as a barrier for your organisation?

Yes, this is a barrier for our organisation

No, this is not a barrier for our organisation

Categories:

- Lack of relevant skills among employees
- Too many overlapping initiatives/duplication
- Back-end integration of different IT systems
- Departmentalism / rigid structure
- Lack of funding
- Legacy systems
- Lack of common standards
- Information security / confidentiality

Perception indicator - Improved service delivery

Question: To what extent do you think each of the following can improve your organisation's service delivery?

Please indicate the level of importance for each of the improvements:

0 = don't know

1 = not important

2 = slightly important

3 = somewhat important

4 = important

5 = very important

Categories:

- sharing of information and resources across departments
- better use of ICT in dealing with public an business
- better training for staff
- better use of ICT inside your organisation
- more resources/staff
- clearer set of objectives on ICT
- best value reviews
- faster and more cost effective purchasing
- improved staff commitment

Alternatives indicator

Question: Which of the available alternatives (written, face-to-face, telephone, internet) do you use mostly for interacting with citizens? And for interacting with business?

Examples of Public Services for Citizens

1) Income taxes: declaration, notification of assessment
2) Job search services by labour offices
3) Social security contributions like:
   · Unemployment benefits
   · Child allowances
   · Medical costs (reimbursement or direct settlement)
   · Student grants
4) Personal documents (passport and driver's licence)
5) Car registration (new, used and imported cars)
6) Application for building permission
7) Declaration to the police (e.g. in case of theft)
8) Public libraries (availability of catalogues, search tools)
9) Certificates (birth and marriage): request and delivery
10) Enrolment in higher education / university

11) Announcement of moving (change of address)

12) Health related services (interactive advice on the availability of services in different hospitals; appointments for hospitals)

Examples of Public Services for Businesses

1. Social contribution for employees
2. Corporation tax: declaration, notification
3. VAT: declaration, notification
4. Registration of a new company
5. Submission of data to statistical offices
6. Customs declarations
7. Environment-related permits (incl. Reporting)
8. Public procurement

Categories

- written
- face-to-face
- telephone
- internet

Potential indicator

Question: We are interested in learning how well connected your system is. Please tell us whether the following processes can occur:

- Transfer information within your department?
- Transfer information from your department to another?
- Transfer information from other departments to your own?
- Transfer information to citizens
- Transfer information to business
- Download information
- Access intranet of your own agency
- Access intranet of other agencies

Categories:

Please use the following scale to rate the ability to carry out the processes above:

ns = not sure

0 = cannot carry out the process

1 = view information only

2 = can post and view information

3 = can modify existing information to tailor it to customer needs

Level of Usage indicator

Question: For the services explained in Indicator 11, when was the last time that you used the service? How often do you use it? Do you operate the same information transfer by other means (yes/no)? How often?

- Transfer information within your department?
- Transfer information from your department to another?
- Transfer information from other departments to your own?
- Transfer information to citizens
- Transfer information to business
- Download information
- Access intranet of your own agency
- Access intranet of other agencies

Categories:

Last time I used it:

- Today
- Last week
- Last month
- This year
- Never used it

How often:

- Each day
- > 3 times per week
- 0 - 3 times per week
- > 5 times per month
- 0 – 5 times per month
- less than one of the other options

11. ANNEX 3 – Methodology of the survey

11.1. General Population Survey (GPS)

Outline of the study

The survey was conducted in April-May 2002 in all 15 EU Member States plus Switzerland and the USA, using computer-aided telephone interviews. The survey was co-ordinated and executed by INRA, Germany. The population for this study is all persons aged 15 and over living in private households in the respective countries and speaking the respective national language(s). In Switzerland the survey was carried out in the German and French speaking parts of the country; in the USA the population includes English speaking people in the 48 continental federal states of the USA (excluding Alaska and Hawaii); in Finland, Finnish speaking population was interviewed. Subject discussed included ownership and use of ICT equipment, use of the Internet and e-commerce activities, competence in the use of new media, questions on health and the Internet, the Internet and security concerns, e-government, telework, mobile work and other new ways of working, as well as further education and satisfaction with working conditions. 11,832 interviews were successfully completed. The average interview length per country varied between 10 and 20 minutes.

Field Report and Outcomes

		B	DK	D	FIN	F	EL	UK	IRL	I	L	NL	AT	P	S	CH	E	USA
Method		C.A.T.I.																
1	gross sample (utilised addresses)	4506	3154	9999	2621	7300	5022	11392	3890	12006	8764	3640	4669	1403	5177	2327	6494	18162
1.1.	non-contacts – thereof:	311	242	1701	40	3401	2346	139	1111	4436	5023	803	193	91	455	638	1239	4192
1.1.1	unobtainable	0	235	1202	0	2342	2077	123	654	4436	3748	522	124	43	113	638	644	3656
1.1.2	engaged	3	7	436	0	57	206	1	316	0	705	164	8	32	55	0	5	536
1.1.3	answer phone, fax, modem	308	0	63	40	1002	63	15	141	0	570	117	61	16	287	0	590	0
1.1.4	other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.2	sample neutral non-response – thereof:	1874	1917	4492	984	511	1022	5088	1051	2659	1316	805	2322	410	2808	322	1095	8789
1.2.1	invalid telephone numbers	955	1516	3760	97	60	529	4308	498	1657	790	652	858	334	2297	230	398	5725
1.2.2	not in the population	472	202	41	782	374	176	119	405	364	0	153	1248	47	16	0	164	478
1.2.3	business numbers	300	82	285	12	27	220	437	0	340	455	0	75	15	193	0	434	1331
1.2.4	other	147	117	406	93	50	97	224	148	298	71	0	141	14	302	92	99	1255
2	net sample – thereof:	2321	995	3806	1597	3388	1654	6165	1728	4911	2425	2032	2154	902	1914	1367	4160	5181
2.1	refusal	1470	468	2451	912	2231	747	5012	1134	3592	1000	1248	1609	364	1246	529	2255	3198
2.2	termination	114	0	87	0	30	0	80	11	201	0	0	1	6	19	0	115	143
2.3	target person contacted but interview impossible – thereof:	152	26	267	16	127	402	73	83	118	925	254	44	32	146	316	775	836
2.3.1	possible appointment outside field time	0	23	14	1	23	9	26	14	106	763	208	7	6	30	80	321	156
2.3.2	appointments to continue interview outside field time	152	0	200	0	104	295	47	65	12	17	11	34	18	24	194	179	669
2.3.3	other	0	3	53	15	0	98	0	4	0	145	35	3	8	92	42	275	11
2.4	complete interviews	585	501	1001	669	1000	505	1000	500	1000	500	530	500	500	503	522	1015	1004
3	exhaustion rate (%) (2.4/(2.1+2.2+2.4))	27.0%	51.7%	28.3%	42.3%	30.7%	40.3%	16.4%	30.4%	20.9%	33.3%	29.8%	23.7%	57.5%	28.5%	49.7%	30.0%	23.1%

Weighting

1. Transformation from household sample to person sample

As only one person per household is interviewed, the described sample procedure provides a household sample, i.e. each household of the base population has the same likelihood of being in the sample but not each person. With the weighting stage of the transformation the equal likelihood of households is replaced mathematically by the equal likelihood of the individuals. To this end, each data set is multiplied by the amount of people in the household aged 15 or over. This number is subsequently divided by the average household size in order to obtain the actual case number.

2. Adjustment of the unweighted sample structure to the official statistic

Because random samples are not evenly distributed across all population strata, the distribution of unweighted samples regularly and systematically deviate from the population distribution from official statistics. Through the mathematical weighting the sample distribution is adjusted to the official statistics. The national weighting factor (P10), which results from the iterative weighting, was included in the data material. To this end the following criteria are used in the respective countries.
Austria: age, gender, region; **Belgium**: age, gender, region, locality size; **Denmark**: age, gender, region; **Germany**: age, gender, region, locality size; **Greece**: age, gender, locality size; **Finland**: age, gender, region; **France**: age, gender, region, locality size; **Ireland**: age, gender, region; **Italy**: age, gender, region, locality size; **Luxembourg**: age, gender, region, locality size; **Netherlands**: age, gender, region; **Portugal**: age, gender, region, locality size; **Sweden**: age, gender, region; **Switzerland**: age, gender, region; **Spain**: age, gender, region, locality size; **UK**: age, gender, region; **USA**: age, gender, region, locality size.

3. Adjustment of the weighted sample structure to the EU 15- member states population

This weighting factor was necessary to calculate total figures according to the whole population of the European Union member states. Furthermore it is useful to compare the EU with the US. Population sizes of each member state are weighted to reduce the distortion based on the sample sizes in each country. The different country-specific weighting factors are the following:

Austria	0.44	Italy	1.63
Belgium	0.48	Luxembourg	0.02
Denmark	0.29	Netherlands	0.80
Germany	2.29	Portugal	0.55
Greece	0.59	Spain	1.09
Finland	0.21	Sweden	0.48
France	1.56	United Kingdom	1.57
Ireland	0.20	*Switzerland, USA*	*none*

11.2. Decision Makers Survey (DMS)

Outline of the study

The survey was conducted in March-May 2002 in seven EU Member States using computer-aided telephone interviews. The survey was co-ordinated and executed by INRA, Germany. The population for this study is defined as all establishments belonging to four aggregated industry sectors in the seven Member States. The interview was conducted with IT responsible persons in companies across all sectors of the economy. Subjects discussed included ownership and use of ICT equipment, use of the Internet and e-commerce and e-business activities, e-business security, e-government, web-site accessibility and ICT in research and development. 3,139 interviews were successfully completed. The average interview length per country varied between 14 and 18 minutes.

Methodology

Field Report outcomes

		D	FIN	F	EL	UK	I	E
1	Sample (gross), i.e. number dialled at least once	4917	1923	8061	1728	8726	10846	8489
1.1	Telephone number does not exist	787	47	598	43	416	1160	808
1.2	Not an establishment (i.e. private household, etc.)	46	15	0	2	0	0	235
1.3	Fax machine/ Modem	81	0	152	31	0	0	519
1.4	Quota completed, therefore address not used	0	849	1599	2	2659	848	1397
1.5	No target person in establishment	858	226	1261	35	1766	822	2043
1.6	Language problems	0	15	0	0	0	0	10
1.7	SUM (1.1+1.2+1.3+1.4+1.5+1.6)	1753	1152	3610	113	4841	2830	5012
2	Net sample (1 minus 1.7)	3164	771	4451	1615	3885	8016	3477
2.1	Nobody picks up phone (and max. contacts not yet exhausted)	325	2	326	229	32	804	18
2.2	Line busy, engaged	45	0	31	235	2	1852	9
2.3	Answering machine	111	4	82	15	0	0	482
2.4	Contact person refuses (i.e. refusal at reception, switchboard)	436	228	912	38	1354	1056	1022
2.5	Target person refuses	1044	204	1569	107	1672	1410	896
2.6	no appointment during fieldwork period possible	33	14	356	36	176	680	203
2.7	open appointment	604	4	642	644	52	1668	111
2.8	target person is ill/ cannot follow the interview	1	3	18	0	0	0	18
2.9	Interview abandoned	53	1	14	4	97	34	102
2.10	Interview error, cannot be used	0	5	0	6	0	0	109
2.11	SUM (2.1+2.2+2.3+2.4+2.5+2.6+2.7+2.8+2.9+2.10)	2652	465	3950	1314	3385	7504	2970
2.12	SUCCESSFUL INTERVIEWS	512	306	501	301	500	512	507
3	Completion Rate (2.12 / (2.11+2.12)), in %	16.18	39.69	11.25	18.63	12.87	6.38	14.58

Target and actual number of interviews

			F	D	I	E	UK		FIN	EL
Quota Group		required	- *achieved* -					required	- *achieved* -	
I Manufacturing, construction, primary sector	1 - 9	*30*	33	30	34	33	32	*18*	18	17
	10 - 49	*35*	36	36	37	35	35	*21*	21	22
	50 - 199	*35*	38	37	40	35	35	*21*	21	25
	200 - 499	*40*	44	41	43	41	40	*24*	28	22
	500+	*15*	9	14	13	15	15	*9*	9	6
	Sum	155	160	158	167	159	157	93	97	92
II Distribution, catering, transport and communication	1 - 9	*45*	50	47	45	46	45	*27*	28	27
	10 - 49	*40*	42	41	41	43	40	*24*	24	25
	50 - 199	*30*	28	31	26	30	30	*18*	18	18
	200 - 499	*15*	19	15	16	15	15	*9*	5	9
	500+	*10*	5	10	8	10	10	*6*	5	6
	Sum	140	144	144	136	144	140	84	80	85
III Financial and business services	1 - 9	*30*	32	30	34	30	30	*18*	16	17
	10 - 49	*20*	19	21	23	21	20	*12*	14	11
	50 - 199	*10*	13	10	17	10	10	*6*	6	8
	200 - 499	*10*	13	10	6	10	10	*6*	7	6
	500+	*10*	8	9	4	7	8	*6*	6	6
	Sum	80	85	80	84	78	78	48	49	48
IV Public administration, education, health, other personal and social services	1 - 9	*20*	20	24	19	20	20	*12*	13	13
	10 - 49	*25*	29	25	26	25	25	*15*	16	16
	50 - 199	*30*	22	30	34	30	30	*18*	18	18
	200 - 499	*35*	32	35	31	35	35	*21*	23	20
	500+	*15*	9	16	15	16	15	*9*	10	9
	Sum	125	112	130	125	126	125	75	80	76
	Total	*500*	501	512	512	507	500	*300*	306	301

Weighting

For the SIBIS DMS a sample stratified by sector/ size cells was used which ensured that in each sector, establishments from all size classes were sampled. In order to be able to raise figures to national level, some form of weighting is required which adequately reflects the structure and distribution of establishments (or related variables) in the universe of the respective country (and, by implication, EU15). All presentation of SIBIS results indicates clearly which of these weighting schemes was used.

Original Weighting

Within each country, the interviews were split according to a quota plan which guaranteed that the sample is not dominated by micro and small companies. The quotas roughly reflect the distribution of employment over sector and establishment size bands in the EU, and derive from research into establishment sampling frames undertaken for previous studies by Infratest and GfK in the course of ECaTT. They represent best estimates, but do not take account of country differences.

The quota scheme looks as follows:

empirica			SUGGESTED QUOTAS: Sectors (aggregated) X Size											
			1- 9		10 - 49		50 - 199		200 - 499		500+		Total	
			% of total	abs	% of total		% of total		% of total		% of total		% of total	
Quota I	Manufacturing, Construction, Primary Sector, includes:		6%	30	7%	35	7%	35	8%	40	3%	15	31%	155
	1	Mining, Energy												
	2	Manufacturing												
	3	Construction												
Quota II	Distribution, Catering, Transport & Communication includes:		9%	45	8%	40	6%	30	3%	15	2%	10	28%	140
	4	Distribution												
	5	Hotels, Restaurants												
	6	Transport, Communication												
Quota III	Financial & Business Services includes:		6%	30	4%	20	2%	10	2%	10	2%	10	16%	80
	7	Banking, Insurance												
	8	Business Services												
Quota IV	Public administration, education, health, other personal & social services includes:		4%	20	5%	25	6%	30	7%	35	3%	15	25%	125
	9	Public Administration												
	10	Education												
	11	Health and Social Work												
	12	Other personal or social services												
		Total	25%	125	24%	120	21%	105	20%	100	10%	50	100%	500

(The absolute numbers refer to countries with n=500)

Weighting was used in cases where the quotas could not be reached exactly in line with this quota plan (mostly due to the limited absolute number of establishments in the two biggest size classes). Note that because of the use of a single quota plan for all countries, country differences in the distribution of employment over establishment size bands which occur in reality are not reflected in the data. This is due the lack of available data on the distribution of employment across establishments size bands in almost all EU Member States, and constitutes a considerable problem. This weight is therefore not used for presenting SIBIS results.

Weighting by employment

The data available on the distribution of employment over establishment size bands is very limited for most EU Member States. SIBIS used data from a variety of sources, including:

- BT database (United Kingdom)
- ISTAT Industry and Services Intermediate Census – latest available, 1996 (Italy)
- National Statistical Service of Greece - latest available, 1995 (Greece)
- SIREN (France)
- Tilstokeskus Official Statistics (Finland)
- Heins + Partner B-Pool (Germany)
- Schober Business Pool (Spain)

and adjusted using data from the DG Enterprise/ Eurostat SME Database (latest available, 1997), to estimate the establishment/ employment structure for each country in the sample. The table below shows the resulting establishment size structure per country.

		Country							
		D	E	EL	F	FIN	I	UK	*EU7*
Establishment size band	1 to 9	23%	23%	59%	17%	13%	38%	14%	*23%*
	10 - 49	19%	28%	16%	22%	16%	22%	31%	*24%*
	50 - 199	21%	21%	8%	21%	19%	14%	26%	*20%*
	200 - 499	13%	9%	6%	14%	16%	7%	13%	*12%*
	500 and more	25%	18%	10%	25%	37%	19%	17%	*21%*
Total	Column %	100%	100%	100%	100%	100%	100%	100%	*100%*

Using this weight, the weighted sample for each country therefore reflects employee distribution between the five establishment size bands within that country. This means that a data reference of, for example, ”20% of all establishments in country A” should be understood to mean ”establishments accounting for 20% of all employees in country A”.

Weighting by employment for EU-7 average

Additionally another weighting factor was created to calculate average figures for all countries in the sample (which together represent roughly 82% percentage of total EU employment). Each country is represented in this weight according to its share in the total employment of the 7 EU countries in which the survey was conducted.

11.3. Questionnaires

11.3.1. Questionnaire for the General Population Survey (GPS)

Structure of the questionnaire:

Module IN: Introduction and screening
Age
Educational attainment
Employment status
Occupation
Type of organisation
Main working place

Module A: Basic ICT equipment access and use
Use of computer
Use of e-mail
Internet access and use
Methods of Internet access
Effects of Internet use
Barriers to using the Internet
Access to mobile phone
Mobile data services
Effects of mobile phone use

Module B: E-commerce and other uses of the Internet
Online activities
Barriers to buying online

Module D: Skills
Internet user experience and know-how

Module L: e-Health
Use of online health information
Perception regarding the trust placed in online health information provider
Rationale for health info search

Module J: Security
Security concerns

Reporting of security violations
Security-related awareness and behaviour

Module K: e-Government
Preference for e-Government services
e-Government experience
Barriers to e-Government

Module E: Telework
Home-based telework
Intensity of home-based teleworking
Duration of telework:
Financing of tele-workplace
Interest in telework:
Perceived feasibility
Effects of telework

Module F: Mobile work
Mobile work (Intensity):
Mobile telework

Module G: Tele-cooperation/Tele-collaboration
Co-operation with external contacts using ICTs
e-Lancing

Module H: Outcomes of work
Work-family balance
Job quality
Job satisfaction

Module C: Educational attainment and lifelong learning
Company-provided training
Training provided by other organisations
Self-directed learning
Modes of training (use of eLearning)

Module Z: Standard demography
Household size
Disability
Income

Module K: e-Government		**GPS**
Transition K *IF A7=1*	Now I would like to ask you a few questions about the contact to government agencies through the Internet.	
	PROGRAMMING: K1 to K3: for each item in K1=1 ask directly K2, If K2=1 ask directly K3, then go to next item in K1	
K1 *IF A7=1*	Here is a list of activities that require citizens to get in touch with public administration. For each activity, please answer whether you would prefer to use the Internet or prefer to use the traditional way, that is face-to-face, by postal mail, fax or phone: *[INTERVIEWER: Repeat answer categories for the first 2 items]* (a) Tax declaration / filing your income tax return (b) Use of job search services of public employment service (c) Request for passport, driver's licence, birth certificates or other personal documents (d) Car registration (e) Declaration to the police, e.g. in case of reporting theft (f) Searches for books in public libraries (g) Announcement of change of address	FOR EACH (1) Internet (2) traditional way (3) do not use this service [DO NOT READ OUT] (4) DK
K2 *IF K1=1*	FOR EACH Is it possible to use the Internet for this in the area you live?	FOR EACH (1) yes (2) no (3) DK
K3 *IF K2=1*	FOR EACH Have you ever tried using the Internet for this?	FOR EACH (1) yes (2) no (3) DK
K4 *IF A7=1*	For each of the following statements about online services of public administration, please indicate whether you agree. Public services on the Internet ...[item]. *[INTERVIEWER: Read out answer categories for the first 2 items]* (a) are not useful enough (b) are faster than the traditional way (c) require that you install special equipment or software (d) reduce the number of mistakes public authorities make (e) do not seem as safe as using the traditional way (f) make it possible to deal with the authorities at more convenient times (g) make it possible to deal with the authorities at more convenient locations, e.g. from home or from the workplace (h) are difficult to use	(1) agree completely (2) agree somewhat (3) do not agree (4) DK

11.3.2. Questionnaire for the Decision Maker Survey (DMS)

Structure of the questionnaire:

Introduction and Screener Section

Module A: Basic characteristics
Type of organisation
Number of staff (employees)
Turnover

Module B: Module B: Basic ICTs take-up and intensity of use (e-Business)
e-Mail
Internet
Intranet
EDI
Video-conferencing
Call-centre
Staff access to ICTs

Module C: e-Commerce
Website/ Internet presence
Online sales
Barriers to e-commerce (selling)
Benefits from / Outcomes of e-commerce
Online procurement
Barriers to online procurement
Benefits from/ Outcomes of online procurement
Online supply chain integration
e-Marketplaces

Module D: e-Business security
Security breaches
Information security strategy
Barriers to security
Security provisions

Module F: e-Government
Use of e-Government services
Barriers to e-Government

Module G: Website accessibility
Design for all" / "universal design" principle awareness

Module E: R&D
R&D staff
Computer staff in R&D unit(s)
IT staff providing computer services to R&D
Outsourced computer services for R&D
Vacancies in IT for R&D

Module F: e-Government		**DMS**
Transition F *IF B2=1*	Now let´s turn to the topic of using online services for interacting with public administration.	
F1 *IF B2=1 AND A11 (NACE-Code) NOT =75 (Public Admin)*	***Progr.: Note for F1 to F2:*** ***For each item in F1=2, ask directly F2; then go to next item in F1!!*** I am going to read you a list of activities for which establishments have to get in touch with public administration. For which of these activities do you already use online media such as EDI or the Internet? What about ...[item]? Do you use online media such as EDI or the Internet for this? INT.: ONE ANSWER PER ITEM. (a) Payment of social contribution for employees (b) Corporation tax declaration (c) VAT declaration (d) Submission of data to statistical offices (e) Obtaining environment-related permits (f) Participation in public invitation to tender	FOR EACH (1) yes (2) no (3) DK
F2 *(For Each Item)* *IF F1=2*	Would your establishment prefer to use online media such as EDI or the Internet for this purpose?	FOR EACH ITEM IF F1=2 (1) yes (2) no (3) DK
Transition F3 *IF B2=2 or 3*	Now let´s turn to the topic of using online services for interacting with public administration. It is now possible to conduct at lest some of the interaction with public administration online, i.e. by using EDI or the Internet.	

F3 *ALL*	Now I will read you a list of statements about using online media for interacting with public administration. Please tell me for each statement whether you agree completely, agree somewhat or do not agree. Public services on the Internet ... [item]. Do you ... *INT.: READ OUT ANSWER CATEGORIES. ONE ANSWER PER ITEM.* (a) are not useful enough (b) are faster than the traditional way (c) require that you install special equipment or software (d) reduce the number of mistakes public authorities make (e) do not seem as safe as using the traditional way (f) make it possible to deal with the authorities at more convenient times (g) make it possible to deal with the authorities at more convenient locations, e.g. from the workplace (h) are difficult to use	FOR EACH (1) agree completely (2) agree somewhat (3) or do you not agree (4) DK