

Top of The Web
Survey on quality and usage
of public e-services

November 2003

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1. *Executive summary*

Objectives

eGovernment has been on the international agenda for several years. The development in Europe and the rest of the world suggests a potential for more efficient and user-centered ways to deliver public services. Thus, awareness by users of these services, their willingness to use them and ease of use are important factors in the development of eGovernment.

This report presents the results from a survey on quality and usage of public e-services in Europe. The objectives of the survey are to:

- Identify which on-line public services are currently used by citizens/businesses in the participating countries
- Analyse the level of quality of on-line public services
- Gather information about to what extent (in percent) basic public services are being used and whether these services are responding to the needs and expectations of citizens/businesses in Europe.

Moreover, the study offers a set of recommendations to public e-service providers in the further development of eGovernment.

Conceptual model

Two different strategies for improvement of services are identified, *process integration* (back office) and *service delivery* (front office). The concept of *process integration* refers to the degree to which the service is re-engineered by the responsible authority in the transformation from an off-line service to an e-service. The demand side benefits of process integration can be found in further service improvements on top of the service improvements that automatically follow the channel improvement of going on-line. The concept of *service delivery* refers to the channel and distribution strategies in the provision of government services. The demand side benefits are that the web-site and the service become easier to find. Finally, *service integration*

means achieving the combined benefits of channel integration and process integration.

The study is based on a large-scale on-line survey among users and webmasters of public websites containing public e-services.

A total of 28,114 users participated in the large-scale survey, 24,788 citizens and 3,326 companies. The group of 28,114 is not representative for all users of public e-services in Europe, but it is a large heterogeneous group of respondents, who are spread across all countries and all service types, and therefore the results are quite interesting in themselves. The identification of users, has been carried out by involving webmasters of public websites. 3,767 webmasters have been contacted, and this dialogue has created immediate results by raising the awareness of e-services improvement among these key actors in the development.

Findings of the study

The study shows that the overall quality of public e-services is high. Almost 80% of the users approve of the quality of e-services and more than half of the users are very satisfied with the service. Moreover, almost 80% of the users indicate that they will recommend the service to other people they know. The users at this point could be more advanced users of information technology than the average European citizen, but the result is a clear indication that these early users are e-service ambassadors in Europe and play an active role in disseminating the knowledge about public e-services.

If we take a closer look at the actual benefit achieved by transforming a service from off-line to on-line, the most widely reported benefit among users is *saving time* and *gaining flexibility*. E-services are an improvement because the users can access the service on-line, 24-hours-a-day, instead of only during office opening hours. However, service improvements on top of the channel improvements are only experienced by 30-40% of the users. This indicates that public e-services are off-line services, which are then provided to users on-line without further development and optimization of the services. Funda-

mental process integration (back office) and improved service delivery (front office) is needed to create integrated services and thus achieve the combined benefits of both strategies. Hence, webmasters/e-service providers face the significant potential for improving the quality of their e-services.

The survey identifies usability as very important for user satisfaction. The overall picture is that the majority of the users are satisfied, but 28% experience usability problems in one way or another. A combined analysis of the overall evaluation and various indicators of user satisfaction show that the single most important factor for citizen satisfaction is *ease of use* of the websites. The most important factor for businesses satisfaction the speed of the websites. The most frequently experienced problem among the users is the difficulty in finding what they are looking for. Thus, *usability* is still an important issue in the provision of e-services and webmasters face the task of improving it, for example by better channel integration, and by focusing on the most important usability factors on their websites.

The level of use of public e-services is largely unknown to webmasters and e-service providers. Only figures for usage of the categories “public libraries” and “enrolment in higher education” are available. Public libraries are the public e-service with the highest level of on-line usage. An average of 50% of their users are on-line users. Enrolment in higher education has an on-line percentage of 33% on average. But in general the most interesting figure is that webmasters/e-service providers do not know how much their e-services are being used. This could be a problem for the further development of e-services.

A key to success for public e-services is the dissemination of knowledge about the services. One way to do this is providing e-services of high quality, because satisfied users will recommend the e-services to others. Another method is through marketing. Off-line information is currently the most commonly used method, but also public PC's with access to the service and information on other websites are fre-

quently used. Portals are used by 30% of the webmasters/e-service providers to inform about the e-services.

Table 1-1: Main findings

Area	Main findings
Over all user evaluation	<ul style="list-style-type: none"> ○ 65% of the users are <i>very satisfied</i> with the public e-services ○ 80% of the users <i>will recommend</i> it to others
Benefits for the user	<ul style="list-style-type: none"> ○ 70-80% saves time and gain flexibility ○ Real service improvements are only experienced by 30-40% of the users ○ The most important action item in order to improve value for citizens is to provide <i>better help</i> regarding the e-service on the website ○ The most important action item in order to improve the value for businesses is to provide a <i>faster service/ reply</i>
Usability problems	<ul style="list-style-type: none"> ○ Usability is still an important <i>issue for improvement</i> of public e-services ○ Not being able to <i>find the right service and information</i> is the most common usability problem ○ The most important action item in order to improve usability on citizens services is to make the website <i>easier to use</i> ○ The most important action item in order to improve usability of businesses services is to make it <i>easier to find the website</i>
Usage	<ul style="list-style-type: none"> ○ 75% of the webmasters/e-service providers do not know how many users or how many transactions they have on-line
Marketing	<ul style="list-style-type: none"> ○ Off-line information is the most used source to inform about the website ○ Public PC's with access to the service and information on other websites is used by almost 60%

Recommendations

Usability aspects were identified as the most important factors in the users overall evaluation of the e-services. Therefore this should have top priority in the further development of public e-services.

Citizens and businesses' answers suggest that the most important problems of usability are easiness of finding the service/website and easiness of use. Thus, suggested actions for webmasters are:

- Websites should be easier to use, which means improvement of navigation, content design and site design.
- E-services should be available not only at the public authority's own web site, but also made available from other web sites, or at least links from other pages should be established. Channel integration should not only be a matter of increasing the number of on-line and off-line access points available to citizens and business users, but rather of applying a coherent strategy for availability.

Basic usability problems still play a major role in the satisfaction and usage of e-services. However, as these problems are addressed by webmasters, and the underlying technology is getting faster (broadband, faster PCs etc.) these problems are expected to be minimized in the future, and users will turn their attention to other service improvements that require process integration.

The perceived benefits of on-line services for both citizens and businesses are, especially, saving time and gaining flexibility. The benefits related to process optimization such as faster case handling, better control and ultimately richer services are not achieved yet. The suggested further actions for webmasters are therefore:

- Providing more added value to the users by re-engineering of services and optimising of underlying workflows
- Automating and simplifying processes

- Re-use of information, e.g. by larger degree of coordination of information between authorities and internally

These elements are crucial in order to ensure that the development of public e-services will secure a high degree of user satisfaction and that the demand side gains from the transition to public e-services.

2. *Introduction*

2.1 **Background of the survey**

DG Information Society commissioned the study “Top of The Web”, a survey on quality and usage of public e-services. A consortium consisting of PLS RAMBOLL Management A/S (Denmark) and EWORX S.A. (Greece) was entrusted with the responsibility of carrying out the study. The survey was conducted in 2003 and will be repeated again in 2004.

Top of The Web is part of the European Union’s eGovernment Action plan - eEurope 2002 subsequently followed by the eEurope 2005 Action plan. eEurope 2005 is part of the Lisbon strategy to make the European Union the most competitive and dynamic knowledge-based economy by 2010. One objective of the plan is to modernise public services, through stimulation of *services, applications and content*. This is where this study fits in. By exchanging best practices and monitoring progress, we hope to inspire the development of public services across countries in Europe.

Former reports and studies in Europe have focused on the supply side and related developments, such as the European Commission’s measurement report ‘Web-based Survey on Electronic Public Services’, performed by Cap Gemini Ernst & Young (2001-2002). Our study focuses on the demand side of public e-services to close the knowledge gap in this area. The types of e-services measured in this study are the 20 basic services agreed by the Member States, which also were measured in the earlier surveys. 12 of the services relate to citizens and 8 relate to businesses. The participating countries are the 15 Member States of the European Union as well as Norway, Iceland and Switzerland.

The development in Europe and the rest of the world suggests a potential for more efficient and user-centred ways to deliver public services. The demands from users are high, and better and more effi-

cient administrations are needed and one of the answers is electronic public services. The take up of e-government depends on both the supply side and the demand side. Therefore user awareness of the services, their willingness to use it¹, ease of use and delivery of benefits with the services are important factors in the development of e-government².

The main aim of this study is to discover how citizens and businesses perceive the quality of public e-services. Furthermore it is important to raise the awareness of webmasters/e-service providers as to how they can improve the services they offer, from the user's point of view. This study is designed as a dynamic process based on activating and informing the webmasters/e-service providers.

This report presents the results and conclusions for the first year. These results are also being made available to the webmasters/e-service providers in the form of benchmarking and statistics on the website, www.topoftheweb.net.

¹ For information about this, see <http://www.sibis-eu.org/sibis/>

² Communication from the Commission "The role of eGovernment for Europe's future" {SEC(2003) 1038}

2.2 The objectives of the survey

The objectives of this survey are to:

- Identify which on-line public services are currently used by citizens/businesses in the participating countries
- Analyse the level of quality of on-line public services
- Gather information about to what extent (in percent) basic public services are being used and whether these services are responding to the needs and expectations of citizens/businesses in Europe.

In order to meet the above objectives, we have designed a survey based on a methodology which to a very high degree involves the providers of public on-line services in question, as well as the users of these services. The key target group are the webmasters/e-service providers of the public websites. 3,767 webmasters have been contacted and they have been used as the access point to the citizens and businesses in all of Europe.

2.3 Conceptual model for e-government services

E-government services have been launched or implemented by all countries included in the study, and the range of initiatives is continually evolving. This subsection provides a conceptual framework for understanding the various strategies for e-government services and the underlying need for development of the internal IT infrastructure of public institutions and the impact on user benefits.

The figure below serves to illustrate the correlation between process integration (back office) and service delivery (front office). The correlation is illustrated by a matrix showing where strategies of improved process integration and service delivery produce different generic public e-services.

Figure 2-1 Strategies for development of e-services

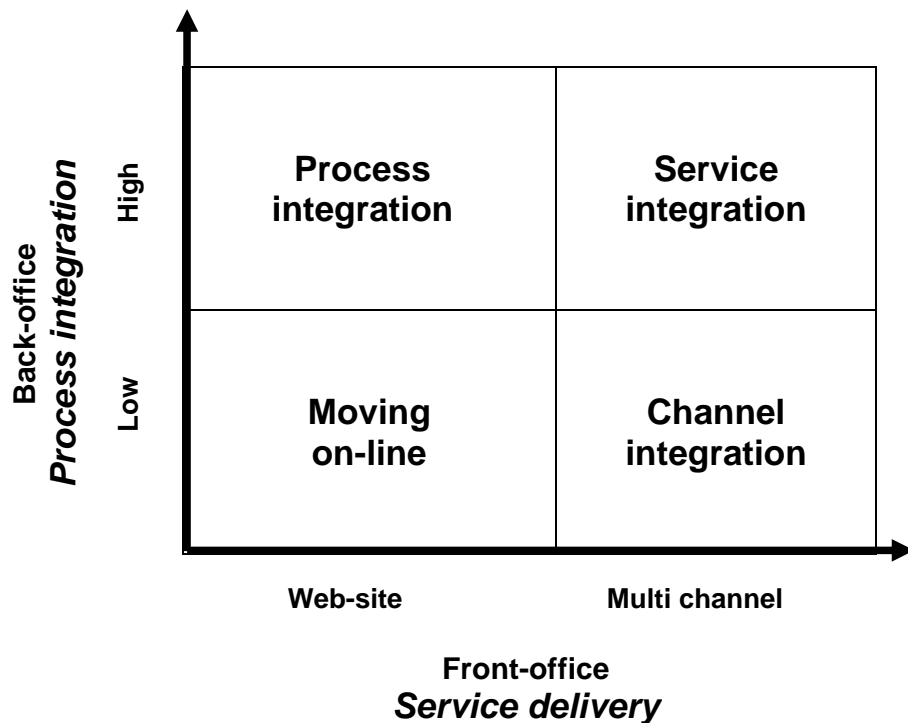


Figure 2.1 above illustrates that the most advanced e-government services are a result of a fundamental re-design of key processes (*process integration*) and improvement of front office (*service delivery*).

The concept of *process integration* refers to the degree to which the service is re-engineered by the responsible authority in the transformation from an off-line service to an e-service. A low degree indicates that the service is basically maintained, and just made available on-line. A high degree of process integration means that an intensive effort in re-thinking the service has been made. It is possible with the on-line services, given the new opportunities offered by new technologies and integration of these back-end systems, to provide a more advanced user experience.

The concept of *service delivery* refers to the channel and distribution strategies in the provision of government services. Relevant channel and distribution strategies are critical for future advancement of e-services to achieve accessible, customer-focused and responsive services. The development of e-services should not only focus on making the service available on the Internet, but also examine the different delivery platforms of the service: agencies, offices, telephone hotlines, etc. A multi-channel access mix with a range of different contact points: government office, help desk, telephone hotline, shops, internet, will enable the development of an improved and more coherent government service.

Each of the four quadrants of the matrix (figure 2.1) is described below. Furthermore benefits on the demand side for the different stages are presented.

Moving on-line low process integration and one website service delivery

Simply moving a service from off-line to on-line, and making it available on the Internet is a significant service improvement for many users. Information and transactions are now available 24x7x365. The user benefits are more flexibility and saving of time.

Channel integration low process integration and multi-channel service delivery

The Channel integration strategy focus on making the service available at multiple access points off-line and on-line. Moreover, on-line penetration of the service can be improved by establishing links, pop-up windows, etc. to make users more aware of the existence of the service. Making the service available at multiple access points off-line and on-line, including Internet, agencies, hotlines, etc., improves access to the services. Because the service are made available *where* and *when* it is needed it becomes easier to find Internet pages and easier to find services.

Process integration high process integration and one website service delivery

The process integration means re-engineering of the service by analysing and optimising the underlying workflow and each single element of the service. By automating and simplifying processes, the government can achieve increased productivity combined with a higher service level. Process integration can enable the service providers to provide service improvements beyond the improvements that come with moving on-line. Integration of single-standing IT applications such as databases, administrative systems and the front office systems are critical for process integration because they allow for reuse of data within the institution, and more intelligent use of data. The result can be the speeding up of case handling, which is a huge benefit for users. The process integration also enables the service providers to leave a larger degree of control over the process to the users, like we have seen with home banking as well as opens the opportunity to further service improvements like more and better information and saving money.

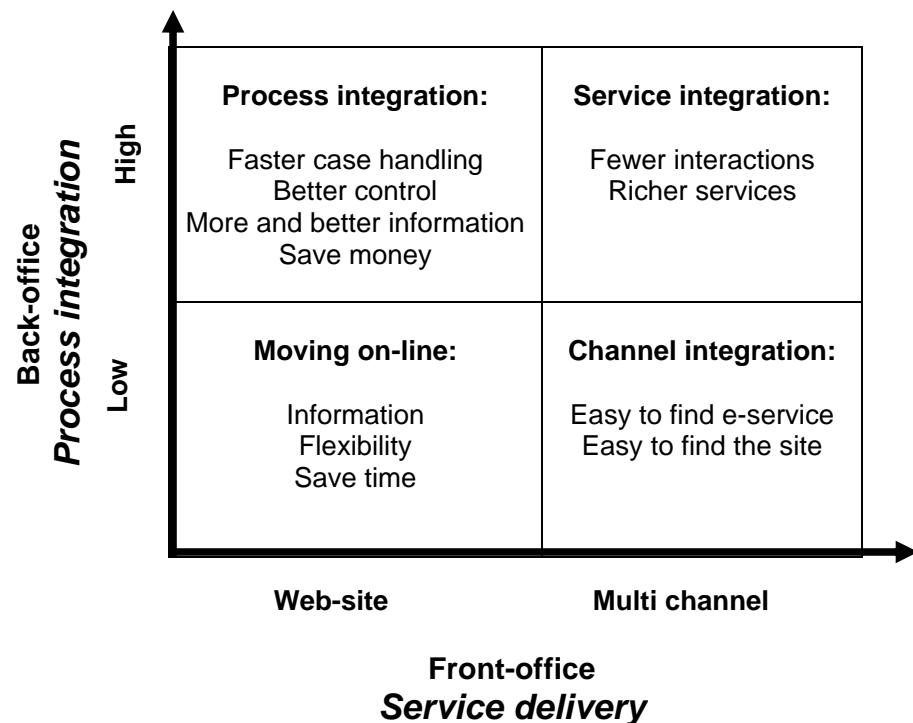
Service integration high process integration and multi-channel service delivery

The Service integration strategy means a decrease of necessary correspondence with governments, and *fewer* interactions between government institutions and the user. With service integration the combined benefits of channel integration and process integration are achieved. Furthermore an effect is efficient reuse of information, where one public institution uses information technology to coordinate information requested from other public authorities in order to prevent superfluous collection and registration of data. This enables *One-stop-Government*, which means that citizens and companies only need to report the same information once or only have to visit one website to complete their interaction with the governmental institutions.

Another possibility is pre-completed formulas by combining various data from the same or different government institutions, to deliver more accurate information to users. This last step opens up innovative uses of technology to offer an improved and richer service.

The figure below serves to illustrate the demand side benefits in relation to the different strategies.

Figure 2-2: Possible demand side benefits of the four strategies



The development described above from moving on-line to service integration means moving to a higher level of service, and thus value-added for the citizens and business. Another development is individually adapted services, personalised to the specific needs of the user. Through the use of new technology, the user will be offered information that is of specific interest.

2.4 Methodology used to measure the quality of public e-services

A user questionnaire has been employed on public websites in order to measure the quality of public e-services, as seen from the user point of view. The citizens and businesses are asked questions while in the actual user situation, which is necessary to secure the credibility of the answers. The providers of public on-line services place the on-line questionnaire on the website containing the e-service. The questionnaire is a so-called "pop-up" questionnaire, or is activated by the users via a link on the website. A total of 28,114 users have answered the questionnaire³, with 24,788 answers originating from citizens and 3,326 from business users. These answers derive from 184 different websites where the user questionnaire has been employed. While the 28,114 are not a representative sample, they stem from a large heterogeneous group of respondents, who are spread across all the member states, Iceland, Norway and Switzerland and who have used all types of services, and thus the results are quite interesting in themselves.

How citizen and business users perceive quality of public e-services is, as mentioned, a crucial factor for its use. There are three issues indicating the perceived quality of an on-line service, measured in the survey:

- Overall evaluation – All aspects can influence the answers. The most important factors are the overall satisfaction and whether the users expectations are met or not
- Five criteria of usability –⁴ Usability is about *effectiveness* (The degree to which users are able to complete tasks and achieve the intended goal), *efficiency* (The resources required by the

³ Unserious answers (inconsistent, tests and 90% unanswered) and answers from websites with fewer than 20 respondents have not been used in order to insure the data material is valid.

⁴ The International Standards Organization (ISO) defines usability as the "effectiveness, efficiency and satisfaction with which a specified set of users can achieve a specified set of tasks in a particular environment".

users to complete tasks and goals (e.g. measured in time) and *user satisfaction* (Do user's think the product is easy to use)

The usability criteria measured in this survey are:

1. Is the website easy to find?
2. Is the e-service easy to find?
3. Is the service easy to use?
4. Is the language understandable?
5. Is the speed of the website satisfactory?

If a user experiences problems or annoying factors, he/she may be less likely to use the public e-services in the future.

- 7 types of benefits –The benefits measured in this survey are the benefits of *moving on-line* as mentioned in the conceptual model:

1. Save time
2. Gain flexibility

And the further service improvements, possible benefits of high *process integration* also mentioned in the conceptual model:

3. Getting more and better information
4. Receive better help
5. Getting a faster case/ reply
6. Getting better control over the process
7. Save money

This issue covers the value and the utility of the service. If users feel they are gaining something they are more likely to use the public e-services.

The User-questionnaire has been presented to the users in 13 languages. It is presented in its full length in English, in Appendix A.

The methodology used in presenting the results aims at enabling remedial action by benchmarking the webmasters' own results against the EU average, presenting Top 10 lists and statistics. We hope to generate awareness concerning the quality of public on-line services, leading to an accelerated learning.

2.5 Methodology used to measure usage of public e-services

The usage of on-line services can be measured in two ways, number of *users* on-line and number of *transactions* on-line. A questionnaire for the webmaster/e-service providers has been designed to measure this. The questionnaire also includes measurements of whether the on-line possibility has resulted in greater usage and which methods are being used to spread the knowledge about the e-services.

The questionnaire is an on-line-questionnaire and 243 webmasters have answered the questionnaire.

2.6 Framework

Here the response rates for the different service types and the participating countries are shown.

Table 2-1: Answers by service type

	User questionnaire started	User questionnaire answers	Webmaster questionnaire answers
Income taxes	21	866	7
Job Search	39	2.106	21
Social Security Benefits	43	5.465	23
Personal Documents	51	273	18
Car Registration	16	88	5
Application For Building Permission	45	374	13
Declaration To The Police	20	605	7
Public Libraries	59	6.975	39
Birth And Marriage Certificates	59	1.599	20
Enrolment In Higher Education	35	2.672	28
Announcement Of Moving	35	1.107	19
Health-Related Services	8	2.658	7
Social employee contribution	4	709	4
Corporate tax, vat and custom declaration	12	208	2
Registration Of a New Company	18	604	6
Statistical Submission	4	990	3
Environment-Related Permits	31	661	11
Public Procurement	14	154	10
Total		28.114	243

Table 2-2 Answers by country

	User questionnaire Started	User questionnaire Answers	Webmaster questionnaire answers
AT	19	5.268	52
BE	6	3.031	7
DK	22	4.201	36
FI	2	151	2
FR	7	1.154	10
DE	18	2.332	27
GR	15	85	9
IS	1	125	0
IE	9	1.332	12
IT	12	2.067	22
LU	9	31	4
NL	2	752	11
NO	2	670	4
PT	2	886	3
ES	6	685	4
SE	8	2.661	8
GB	11	1.241	3
CH	33	1.442	29
Total	184	28.114	243

3. *Quality of public e-services*

In this chapter, we present the results of the survey of public e-services in Europe.

Throughout the chapter citizens and businesses' evaluation of public e-services are presented. The respondents have been asked to evaluate the e-services on a scale from 1-6, where 1 means very good and 6 very bad. The user evaluation of the websites indicates whether users are satisfied with the service, whether or not their expectations are met and which factors they find the most important. This indicates the areas where webmasters and e-service providers can improve, as well as which areas they should focus on in the future.

The issues dealt with in this chapter are: Overall satisfaction (3.1), Perceived benefits for users (3.2), Usability of public e-services (3.3), How to get satisfied users (3.4) and Best practices (3.5).

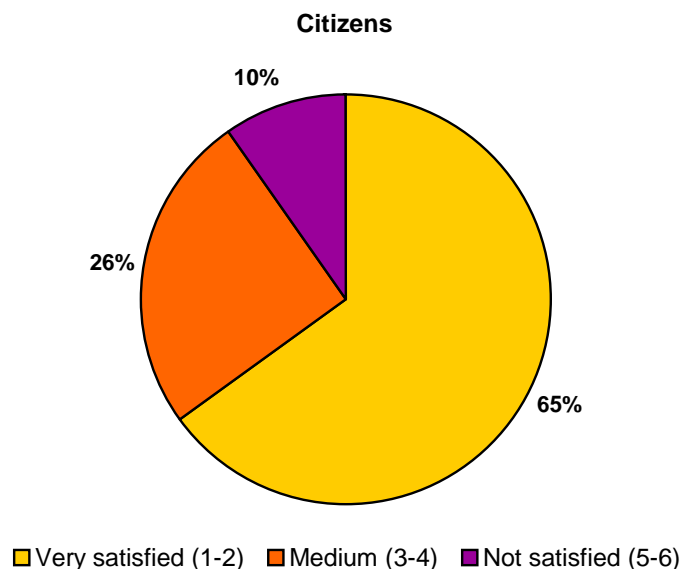
3.1 Overall satisfaction with the quality

3.1.1 Citizens

78% approve of the quality of public e-services and 65% are very satisfied

The majority of the citizens who participated in the survey are impressed with the quality of public e-services. In the overall evaluation, 78% rated the service between 1 and 3. More precisely 65% of the citizens rated the e-services 'good' or 'very good', 26% rated the service medium, and 10% rated it bad, see the figure below.

Figure 3-1: Overall evaluation - Citizens

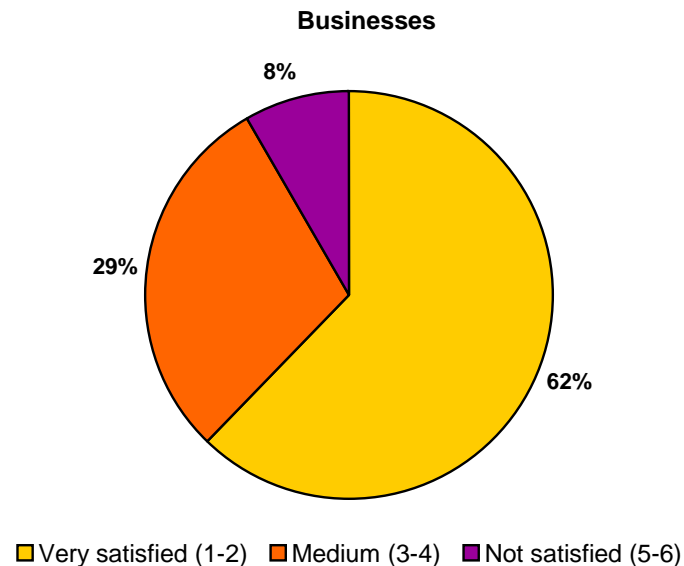


The positive evaluation of the websites indicates that citizens are satisfied with the public e-services, and that their expectations generally are met.

3.1.2 Businesses

The high overall satisfaction also applies to the businesses that use the on-line services. 62% are very satisfied, but 8% find the service quality unacceptable.

Figure 3-2: Overall evaluation – Businesses



The overall evaluation is fairly impressive, but leaves room for improvement. It is indeed possible that the websites, which the users had the opportunity to evaluate, were also the most successful ones. Still the overall satisfaction is a good sign for the take up of e-government in Europe.

79% will recommend the e-services to people they know

Furthermore on the positive side, the majority (79%) of citizens and businesses indicated that they would recommend the service to others.

Those who rate the e-services good are more likely to recommend the e-services to others: 90% of the satisfied users (mark 1 or 2) will recommend the service further, while 56% of the unsatisfied users (mark 5 or 6) will do the same. Thus, more than half of the users who rate the service bad will still recommend them to others. This indicates that they still consider the on-line possibility an advantage and improvement of the service, even though they are not completely satisfied with the way the service is implemented on-line. The figures also indicates that the unsatisfied users believe enough in a future

improvement of the e-services to recommend them further. To fulfil the expectations of this significant group of users, it is necessary to continuously develop the quality of the service on a number of parameters which further are described in the following sections.

Main findings...

- 65% of the users are very satisfied with the public e-services.
- 79% of the users will recommend it to others.
- Even among those who rate the e-services bad, the majority of the users will still recommend the service to others.

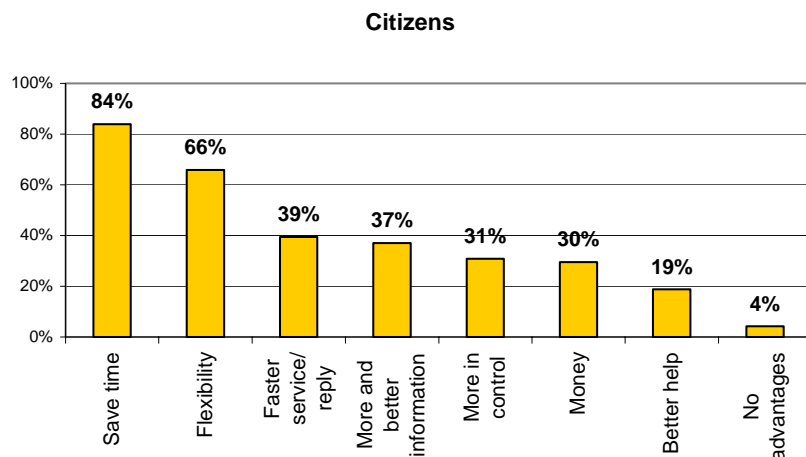
3.2 Perceived benefits for the users

3.2.1 Citizens

More than 90% experience benefits using public e-services

E-services are beneficial for citizens, almost all see an advantage in using e-services, and a mere 4% do not find there is any advantage. Saving time and gaining flexibility are especially perceived as advantages.

Figure 3-3: Perceived benefits of using e-services - Citizens



Time and flexibility are the advantages most of the citizens feel they gain from using the e-services. Citizens appreciate the change of channel, from having to go to an office or use the phone to go on-line

30-40% experience service improvements, while 80% experience channel improvements

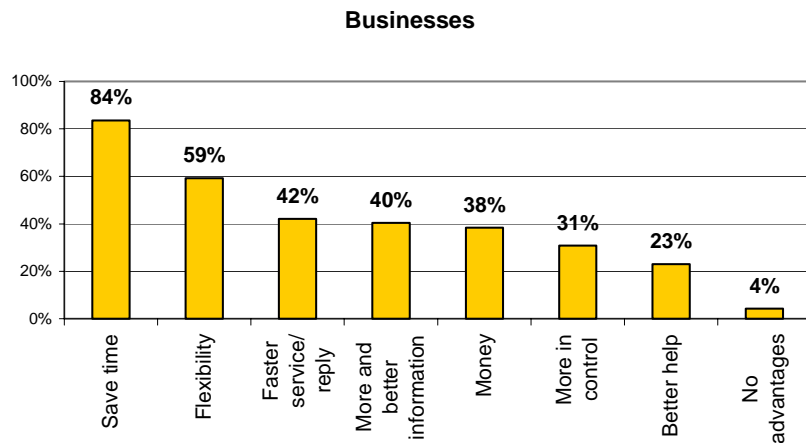
whenever they like. It is the value of “going *on-line* instead of *in line*”, that is appreciated. These are the advantages that in the conceptual model relate to the first step of “Moving on-line”. Service improvements that relates to higher steps of process integration like faster service reply, more and better information, better help and the feeling of being more in control of the process– are only perceived as an advantage by 30-40% of the citizens. On the basis of citizen experiences, the majority of e-services could be labelled “First generation” and reaping the internal and external benefits of e-services will require continuous effort and improvements by web masters, IT-suppliers etc.

3.2.2 Businesses

Public e-services can be an important instrument to ease the workload for businesses due to their obligations to report to public authorities, and decrease their administrative burdens. This can be done by providing business users with information on web-pages and allowing reporting and application via the Internet. More advanced e-services for business shares information from different authorities and reuse information to help the user spend less time fulfilling reporting obligations etc.

Generally, business users see the same benefits as citizens. Only 4% do not see an advantage in using the public e-services in question, and again time and flexibility score high on the list – especially time. More fundamental service improvements like getting a faster service/reply, more and better information and saving money are only experienced by approximately 40% of the businesses.

Figure 3-4: Perceived benefits of using e-services - Businesses



**Success with going *on-line*
instead of *in line***

It seems that public e-services have succeeded in providing the extra services of on-line use aimed at by the webmasters/e-service providers. The conclusion must be that the e-services are a success on the channel improvements, but there still is a potential for more advanced services with more benefits for the users.

Main findings...

- The users expect the normal on-line advantages, and their expectations are met in most cases.
- They save time and gain flexibility by going on-line.
- More fundamental service improvements are only experienced by 30-40% of the users.

3.3 Usability of public e-services

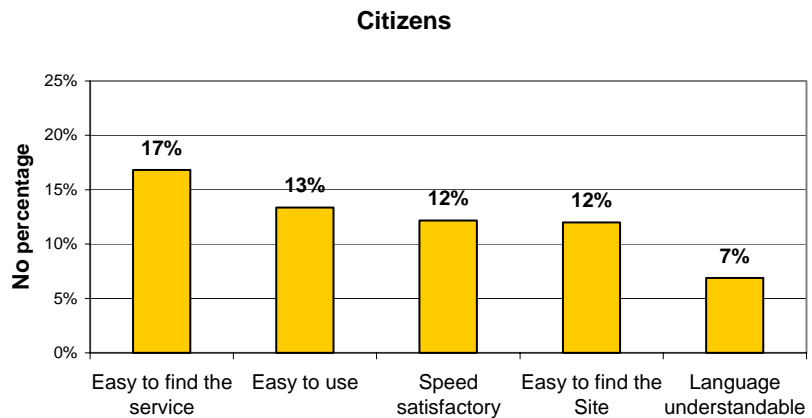
In the following, usability is defined as the ease with which visitors are able to use a web site (see section 2.4 for a more elaborated definition). Usability should not be confused with functionality, which is focused on functions and features. Increased functionality does not mean improved usability, and if a product is loaded with features, but users find it difficult to use it, then the usability will be low.

3.3.1 Citizens

More than *one out of four* users experienced a usability problem

The usability of the e-services is evaluated with five criteria. The majority of the citizens do not experience problems or annoying factors in the use of public e-services, but as many as 28% of the users experienced a usability problem. The figure below illustrates how many of the citizens said “No” regarding the different criteria’s fulfilment on the website.

Figure 3-5: Experienced usability problems - Citizens

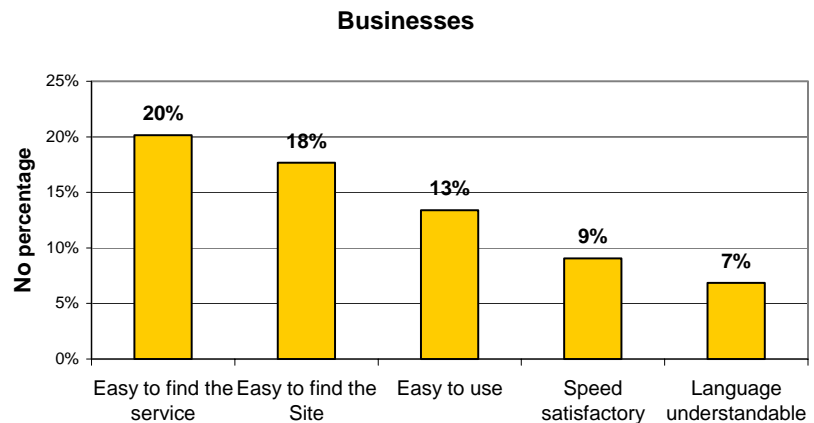


17% did not find what they were looking for and 13% did not think the service was easy to use. This means that there is room for improvement of the usability of the websites.

3.3.2 Businesses

The majority of businesses are also satisfied with the usability of the websites. The figure below illustrates how many of the business users said “No” to the different criteria’s fulfilment on the website.

Figure 3-6: Experienced usability problems - Businesses



Making services and information easy to find, can improve usability public websites

Still problems exist, 20% did not find what they were looking for and almost 18% had difficulties in finding the site. Again this leaves room for improvement of the usability on the websites. The biggest problems could be improved with a channel integration strategy and that makes the websites and services more easy to find.

The usability criterion that has the highest degree of failure (18% in total) is 'to find the wanted service'. The second largest problem is that the service is not easy to use. If these criteria were fulfilled to a higher degree, public websites would be improved. Users must not experience too many problems using e-services if the aim is to encourage more on-line use.

Main findings...

- More than one out of four users experiences a usability problem.
- The most common problem is that it is difficult to locate what you are searching for on the websites.
- Focus on improving the usability of the websites along with channel integration, would improve the quality of the public websites

3.4 How to get satisfied users

In order to discover how webmasters/e-service providers can best improve their services, as seen from the user point of view, we take a closer look here at what satisfied users have experienced.

An odds-ratio is calculated for how much more likely it is that a user is very satisfied if his/her specific expectation is met, than if this aspect is not fulfilled. The odds-ratios are therefore an expression for how much the aspect means for user satisfaction with the quality of a service. A high odds-ratio means a high degree of importance.

3.4.1 Citizens

It is very important to citizens that the usability criteria are met. An experienced problem is felt as a cost for the users, and if the cost exceeds the benefit they will probably not use the public e-service. Therefore the webmaster/e-service provider of the services that relate to citizens should focus on making the websites user-friendly.

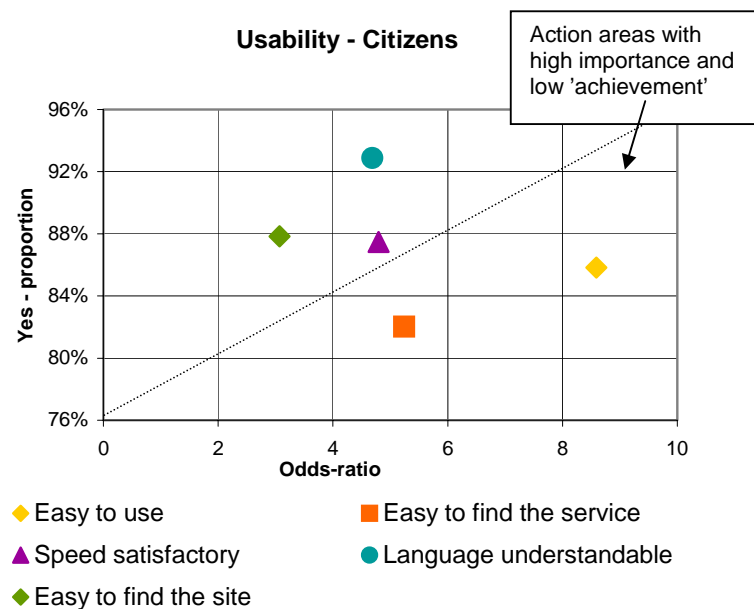
Table 3-1: Odds ratios for citizen evaluation

Citizens	Odds-ratio
Easy to use	8.6
Easy to find the service	5.2
Speed satisfactory	4.8
Language understandable	4.7
Easy to find the site	3.1
Receive better help	1.6
Save time	1.5
Get a faster service/ reply	1.5
Get a feeling of being in control of the process	1.4
Receive more and better information	1.3
Save money	1.3
Gain flexibility	1.2

The most important factor is that the e-service is easy to use and navigate. It is 8½ times more likely that the citizen is satisfied if this aspect is fulfilled than if it is not. Among the benefits, receiving better help scores highest in securing citizen satisfaction.

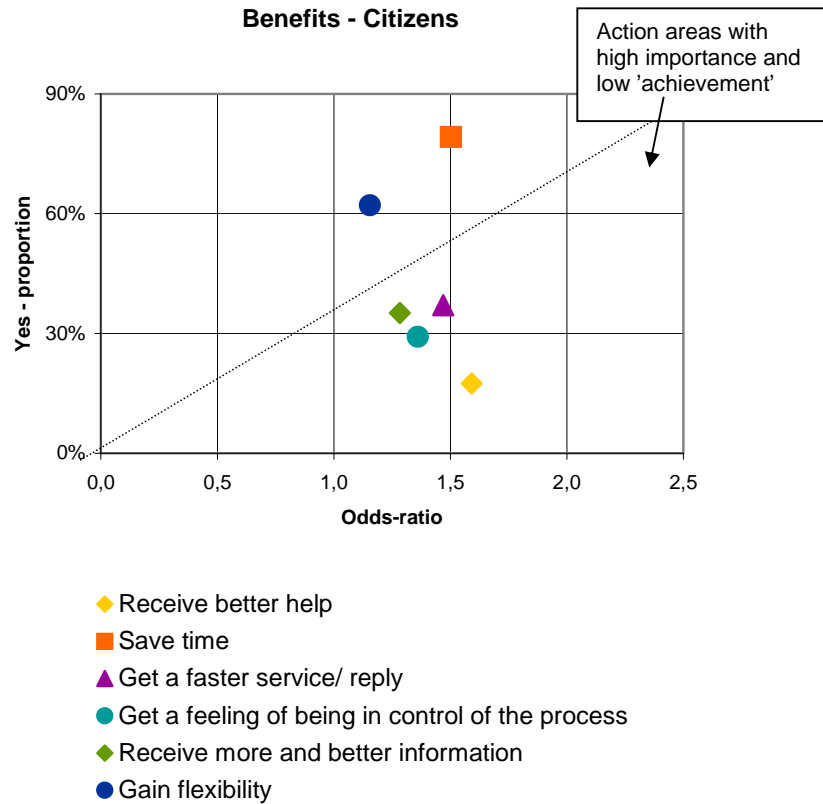
To get a better view of the most important action areas for improvements of public e-services, the odds-ratios for each aspect should be seen in conjunction with the current status for that aspect. This is shown in the following diagrams. The first diagram indicates how many percent of the citizens who experience that the usability criterion is all right now (yes-proportion) and how important it is (odds-ratio).

Figure 3-7: Status and importance of usability - Citizens



The most important usability factors for user satisfaction are that the service is easy to use and that it is easy to find the service or the information you are looking for. These are also the aspects that are achieved by the smallest number of the websites according to the users. Therefore these are clearly the most important areas to improve the quality of public e-services for citizens.

Figure 3-8: Status and importance of benefits - Citizens



The benefits webmasters/e-service providers should focus on to improve public e-services in the future, are the further service improvements. Even though to save time is the second most important factor for attaining citizen satisfaction, it is already accomplished by most of the public e-services. The most obvious areas, in regard to benefits, is of course to secure better possibilities for help on the websites a benefit which not many can provide. Help, for example, can be in filling out on-line forms. But also benefits such a faster service/reply, more control over the process and simply receiving more and better information are important areas for improving citizen satisfaction with public e-services.

3.4.2 Businesses

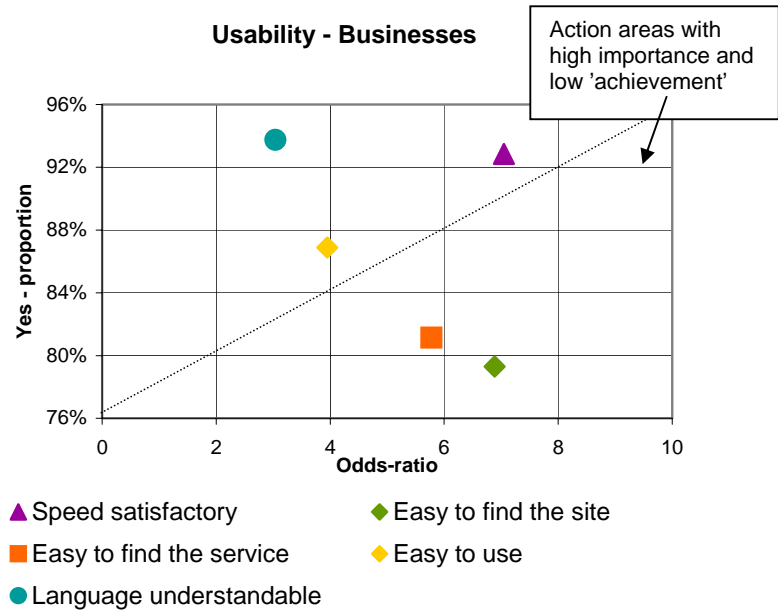
The table below shows the connection between various factors and business users evaluation of websites. Again the usability aspects are the most important.

Table 3-2: Odds-ratios for business satisfaction

Businesses	Odds-ratio
Speed satisfactory	7.0
Easy to find the site	6.9
Easy to find the service	5.8
Easy to use	3.9
Language understandable	3.0
Get a faster service/reply	2.1
Save time	2.0
Gain flexibility	1.7
Receive better help	1.4
Receive more and better information	1.2
Save money	1.2
Get a feeling of being in control of the process	1.0

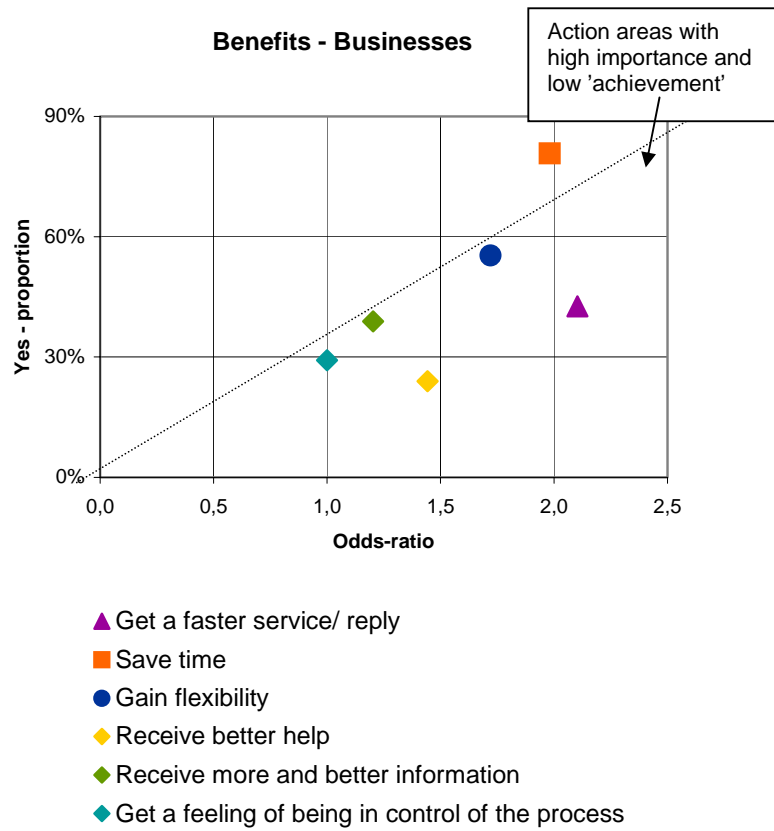
The table show that usability is very important to business users' evaluation of e-services. The top five most important factors are all related to usability. The most popular benefits are to provide a faster service/reply. This aspect doubles the possibility that the businesses will be satisfied with the service.

Figure 3-9: Status and importance of usability - Businesses



The most important action areas to improve the usability of public e-services would be to make the websites easy to find. Service and information *on* the websites should also be easy to find. It is however, still important to keep in mind that the website has to function fast, but indeed most of the websites appear to handle this aspect well.

Figure 3-10: Status and importance of benefits - Businesses



In order to increase value for businesses, the most important action areas for the webmasters/e-service providers are to provide a faster service/reply. Still they have to ensure that the businesses save time and gain flexibility, but that is fulfilled in most cases by being on-line.

These recommendations to the webmasters/e-service providers of public e-services for citizens and businesses support a scenario of the different kinds of situations that a user finds himself/herself in. The citizens use the service at home and other places and therefore it is important to them that the services are easy to use. The businesses use the service as part of their work and therefore it is important to them that they can use the service quickly and finish the task in a short time by getting a faster service/ reply.

Main findings...

- Usability has a great influence on user satisfaction.
- The most significant problem for citizens is if the service is not easy to use.
- Speed of a website is the most important issue for businesses.
- To make the websites and the e-services easy to find is important for creating improvements for citizens and businesses.
- The most important action areas to focus on in order to improve the value for citizens are to provide actual service – improvements, e.g. to provide a faster service/reply, better information, better help or more control.
- The most important action areas to focus on in order to improve the value for businesses are to provide faster service/reply and flexibility.

3.5 Best practice

The next two pages present a list of the Top 10 websites with the highest average in the overall user evaluation. These public e-services are characterized by:

- High maturity
- Many benefits
- Few usability problems

This Top 10 list is intended to serve as a source of inspiration to other webmasters and e-service providers.

3.5.1 Top 10 websites - Quality

	Website	Service	Score	Benefits (>50%)	Usability problems (>10%)	Maturity
1	Österreichische Sozialversicherung: http://service.sozialversicherung.at/eSV/container.nsf (AT)	Social Security benefits (medical costs)	5,33	Save time Gain flexibility Feel control Faster service/ reply	Easy to use	On-line application
2	Family Fund: http://www.familyfund.org.uk (UK)	Social Security benefits (Child allowances)	5,31	Save time Gain flexibility Feel control	None	On-line application
3	Wiener Gewerberegister: http://www.wien.gv.at/wgrweb/ (AT)	Business registration	5,18	Save time Gain flexibility	Easy to use Language Easy to find the site	On-line application
4	bibliotek.dk: http://www.bibliotek.dk (DK)	Public library (bibliotek.dk)	5,08	Save time Gain flexibility Faster service/ reply Feel in control	Easy to find the service Speed	On-line application
5	CLERMONT-FERRAND: http://www.ville-clermont-ferrand.fr/vivre/telepro/ (FR)	Birth certificate (Birth)	5,07	Save time Faster service Gain flexibility	Easy to find the service	On-line application
6	BREST: http://www.mairie-brest.fr/brest/extrait_actenaissance.htm (FR)	Birth certificate (Birth)	5,01	Save time Gain flexibility Faster service	None	On-line application
7	MusiCat'en: http://www.silkeborg-bibliotek.dk/basil/musik/ (DK)	Public library (music)	5,00	Save time Gain flexibility Faster service	Easy to find the service Easy to use	On-line search
8	Bibliothek München: http://www.muenchner-stadtbibliothek.de (DE)	Public library	4,86	Save time Gain flexibility	All problems exist	On-line application
9	bund.de: http://www.bund.de/jobboerse (DE)	Job Search	4,85	Save time Better info. Gain flexibility	Easy to find the service (32%) Easy to find site	On-line search
10	Ospedale Pediatrico Bambino Gesù – Roma: http://www.ospedalebambinogesu.it/ (IT)	Health related services (hospital appointment)	4,76	Save time Gain flexibility	None	Portal

4. Usage of public e-services

**The quantity of use
is unknown to webmasters/
e-service providers**

The usage of public websites is measured to inform about the on-line usage for the different types of e-services. We would have liked to present results for all types of services but unfortunately 75% of the webmasters answered that they do not know how much their e-service is being used off-line and on-line. We are however able to provide relevant data about the usage of the e-services at public libraries and from enrolment in higher education.

We also examine what webmasters do to spread the knowledge about the e-services.

4.1 Quantity of use

The *percentage* of on-line use of a service is obviously a success criterion. This indicates how many of the users that benefits from the advantages of the on-line services. The usage of on-line services can be measured in two ways, how many of the *users* who choose to use it on-line and how many of the *forms* are received on-line.

Public libraries have the highest number of responses to the service-questionnaire. The service has more than 100,000 users in some cases. The same on-line percentage is stated where webmasters have answered for both forms and users, but in most cases the on-line percentage relate to users. Usage of catalogue search is presented here:

Table 4-1: Usage of public libraries in 2002

	Observed maximum	Average
Users	177,871	44,659
Forms	7,297,160	506,086
On-line percentage	80	50%

The usage of on-line enrolment in higher education varies. It depends very much on the specific education whether or not on-line enrolment is relevant, but up to 95% is possible and the average of on-line usage is 33%.

Table 4-2: Usage of enrolment in higher education in 2002

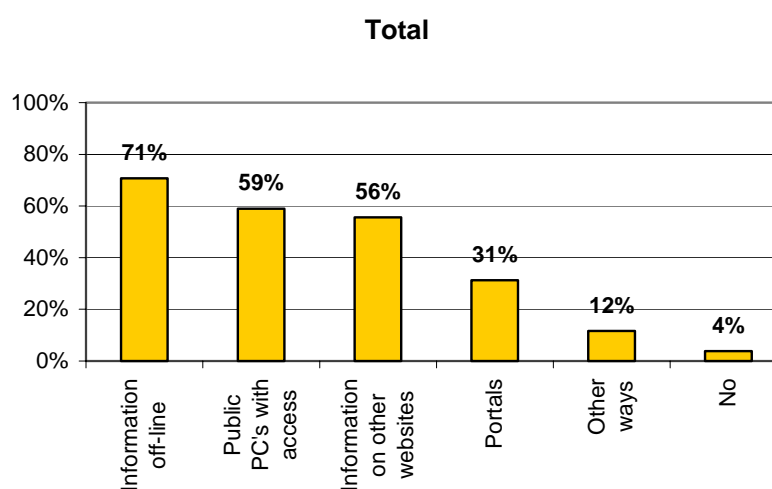
	Observed maximum	Average
Users	28,200	11,690
Forms	55,625	22,067
On-line percentage	95%	33%

Despite the responses from the two service types presented above the most interesting figures are that the webmasters/e-service providers generally are not aware of the usage of their e-services. This could be a problem and should be an important issue in the development of public e-services if the goal is to benefit as many users as possible.

4.2 Marketing

Off-line information is the most used channel to spread the awareness of the e-services.


Figure 4-1: Access points and marketing channels



Public PC's with Access and information on other websites are used by almost 60%. Portals are also used, but not on an equal level. This indicates that higher channel integration is possible. Only 5% do not inform about their website.

Appendix A
User questionnaire - English

Demonstration User Questionnaire Site
<http://www.topoftheweb.net>



da de el en es fi fr iz it nl no pt sv

Dear User,
Would you help us to improve the service? Some service?
If so, please use **2 minutes** of your time to complete the questionnaire!

	Yes	No	Don't know
Was it easy to find your way to this website?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Did you find what you were looking for?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is it easy to use the service?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Are you satisfied with the speed by which the pages appear on the screen?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is the language clear and easy to understand?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Do you gain one or more of the following advantages by using this service on the Internet? Please check off all boxes necessary.
You ...

save time	<input type="checkbox"/>
save money	<input type="checkbox"/>
gain flexibility (e.g. you can carry out the process anytime)	<input type="checkbox"/>
get a faster service / reply	<input type="checkbox"/>
receive more and better information	<input type="checkbox"/>
receive better help and assurance that the form has been filled in correctly	<input type="checkbox"/>
get a feeling of being in control of the process	<input type="checkbox"/>
gain no advantages	<input type="checkbox"/>

	Yes	No	Don't know
Would you recommend this service to friends and colleagues?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

On a scale from 1 to 6, how would you evaluate the service altogether?

1	2	3	4	5	6	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Very good			Very bad			Don't know

How many times have you used this service during the past year?

0-1 times	2-5 times	6 or more times
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Is there anything you miss on the homepage, or do you have any comments? Please state them below.

Thank you!