

DOES E-GOVERNMENT PAY OFF?

Appendixes: cases studies

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Table of contents

Management summary	3
1 Introduction and methodology	6
1.1 Introduction	6
1.2 Methodology	6
1.3 Case studies	7
1.4 Structure of the report	8
2 What are the returns of e-government?	9
2.1 Introduction	9
2.2 Improved quality of information and information supply	9
2.3 Reduction of process time	10
2.4 Reduction of administrative burdens	11
2.5 Cost reduction	12
2.6 Improved service level	13
2.7 Increased efficiency	15
2.8 Increased customer satisfaction	16
2.9 Conclusion	17
3 Changes in the backoffice	24
3.1 Organisational changes	24
3.2 Process changes	28
3.3 Technology and information flow	29
3.4 Policy and legislation	32
3.5 Personnel	33
3.6 Finances	35
3.7 Conclusion	36
4 Conclusions	41
4.1 Introduction	41
4.2 Main findings	42
4.3 Recommendations	48
Annex A – Sources of information	53
Annex B – Analysis framework	54
Annex C – Case studies	55

Management summary

Under the authority of the Dutch Ministry of the Interior and Kingdom Relations a research has been carried out into the effective use of information and communication technology (ICT) in the public sector in Europe. The objective of the study was to investigate if it is worth investing in eGovernment initiatives, and to identify the backoffice changes required for that. The study is made by collecting information on a number of “European exemplary public services – Eurexemps” with significant changes in the backoffice of the public organisations involved.

Two Dutch companies, Capgemini Netherlands and TNO – Strategy, Technology and Policy, have carried out the study. After developing and agreeing on an analysis framework paying attention to returns on investment and conditional changes in the back office, an inventory of candidate services from a number of sources was made. Subsequently, eight exemplary services to be studied in detail were selected, using agreed selection criteria. The case studies were conducted using agreed questionnaires. The data thus obtained was analysed, conclusions were drawn and recommendations made, all resulting in the report at hand.

The analysis framework, selection criteria, analysis, conclusions, and recommendations were discussed with the E-government Working Group of the European Public Administration Network during its successive meetings in April, September, and October.

A clear conclusion of the study is that eGovernment does pay off and that backoffice changes are required to achieve results.

The benefits that have come to the fore in the studied cases can be grouped into seven categories: improved quality of information and information supply, reduction of process time, reduction of administrative burdens, cost reduction, improved service level, increased efficiency and increased customer satisfaction. These benefits prove to be closely interconnected and strengthen one another.

In the cases studied, public authorities themselves profit more from eGovernment than citizens and businesses. The Eurexemps show a focus on efficiency with the objective to reduce administrative burdens for customers and to increase productivity. The resulting benefits –reduction of process time and cost reduction– prove to be reaped more by public authorities than by their customers. This is primarily caused by the fact that the number of transactions is highest for the public authorities. Of course the public value of their efforts increases this way, of which citizens and businesses profit in the end.

The level of returns for the citizens and the businesses depends on the potential impact of the services on the one hand, and on the level of user uptake on the other hand. The larger the target group of customers for the services (e.g. tax payers), and the more frequent services are rendered (e.g. in the area of social benefits or student loans), the higher the potential returns will be. And, of course, the higher the user uptake, the higher the actual returns.

Something which is evident from this study, is, that savings are hardly ever quantified by the organisations involved in the cases studies. The facts that costs are paid for by (an)other organisation(s) than the one(s) where the benefits are reaped, and that backoffice processes of multiple organisations are involved, are considered to be the main factors due to that.

The case studies show that at least some changes in the back office are necessary to obtain improvements such as time and cost reduction, and an increased service level. Especially co-operation, both between public organisations and with private organisations, is essential to realise results. A striking conclusion of the study is that, in order to realise quick short-term returns, fundamental organisational changes in the back office are not really necessary. A useful strategy proves to be to realise a short-term maximum of returns with limited organisational back office changes. This way the willingness of involved parties and persons to adopt new services increases, and the foundation for more revolutionary backoffice changes is laid. Achieving major (economic, social and even democratic) impact asks for a more substantial, somewhat revolutionary transformation and redesign of public administration back offices.

Promising investments to achieve quick, short-term results, which are extracted from the Eurexemps, are:

- inter-organisational co-operation (the re-use of data and processes);
- the use of pro-active services (for instance by pre-filling forms);
- the application of private sector solutions (for instance transaction platforms and authentication methods);
- digitising processes (for instance for risk analysis and management information);
- multi channelling (increasing the number of channels, including more advanced and technologies that have a widespread use among customers, such as SMS).

After analysing and interpreting the collected information from the case studies, and exchanging views on the results with the E-government Working Group of the European Public Administration Network in September, Capgemini and TNO recommend the following:

- a) An integrative and multi-staged approach which is geared to a combination of several public services and different target groups –along a two way street of short-term evolutionary steps, next towards a more revolutionary simultaneous transformation of both backoffices and the use of ICT;

- b) Generic information infrastructures that are agreed upon by all parties involved and that incorporate aspects such as the protection of privacy;
- c) Facilitating the uptake of electronic public services by various forms of stimulation (legislation, incentives, public relations and marketing);
- d) Stimulation of measurement of costs and benefits in a broad sense (quantitative and qualitative), focus on set up, but also on innovation, actual uptake and societal (social, economic, judicial and democratic) impact.

1 Introduction and methodology

1.1 Introduction

In preparation of the chairmanship of the Netherlands for the European Union from July to December 2004, the Dutch Ministry of the Interior and Kingdom Relations has issued a study concerning the effective use of ICT in the public sector in Europe. The study is done in close co-operation by two Dutch companies: Capgemini Netherlands and TNO – Strategy, Technology and Policy.

It is generally assumed that the use of ICT and the accompanying organisational changes can contribute to the improvement of public services and democratic processes. The objective of this study is to answer the question if it is indeed rewarding to invest in the use of ICT for public services in Europe. The results may inspire Member States in their e-government initiatives.

1.2 Methodology

This report is based on a qualitative study of eight selected case studies. First, a long list of successful e-government initiatives in the 25 countries of the European Union has been drawn up.¹ From that long list eight cases have been selected, from Denmark, Estonia, Finland, France, Germany, the Netherlands, Slovenia and Spain. The selection criteria used were:

- Does the case present an innovative service using ICT?
- Does the case contribute to improvements for customers and organisations involved?
- Does the case involve multiple changes in the backoffice?
- Is there co-operation between organisations (sharing of information) involved in the case?

Next, cases have been selected so that they represent several different areas of public services and several regions within the new European Union.

The selected cases and the criteria have been presented and discussed with the E-government Working Group of the European Public Administration Network (EPAN) in April 2004.

For the analysis of the eight cases, an analytical framework has been set up.² Relevant documents and websites have been studied and the most important parties involved have been interviewed. If possible the representatives of the organisations involved

¹ The sources of information used can be found in Annex A.

² The analysis framework is included in Annex B.

and representatives of customers have been inquired concerning the themes in the framework.

The results are based on desk research and interviews. Conclusions about specific returns and backoffice changes are based on information provided by the interviewees. The most important overall findings are described in this report. More information about specific cases can be found in the case study reports.

The report has been presented at the EPAN E-Government Working Group and at the 3rd Quality Conference for Public Administrations in the EU, both in September 2004. Review by and discussion with the Working Group members have been used to finalise the report.

This report is a qualitative study and provides a general overview of possible returns of ICT investments and conditional changes in the backoffice. If possible, quantitative information is used to substantiate the results.

1.3 Case studies³

The following table presents an overview of the case studies in alphabetical order.

Country	Short description of best practice
Denmark	The Danish SU-Agency (State Education Fund) is responsible for the administration of student grants in Denmark. In order to ease the transactions between the students, the educational institutions and the SU-Agency, a web based system called 'My-SU' has been implemented. My-SU aims at easing the administrative workload for educational institutions, giving student applicants access to information and providing a better service in general.
Estonia	The Estonian Tax and Customs Board (Maksamet) is a legal government agency ensuring the receipt of state taxes into the state budget. Maksamet aims for more online private income tax declarations each year, improving customer satisfaction, reducing process time and saving costs. They offer an E-Maksamet environment with pre-filled electronic tax declarations for private persons. After the acceptance of the tax declaration by pushing a single button, and an electronic risk analysis procedure, refunding can be made the very same day.
Finland	The Finnish ministry of the Environment has developed a database VAHTI, using TYVI, for environmental compliance and monitoring . In VAHTI all relevant environmental information is stored, using the already available TYVI-system for electronic data interchange. TYVI is used by several public authorities and was developed by the ministry of Finances. The objective of VAHTI with TYVI was to make reporting easier for customers. Furthermore the objective was to help regional public authorities with decision making and control and to create an integrated tool for all participating backoffices.

³ The case studies can be found in Annex C.

France	Service-Public Local (SPL) is the result of a partnership between the central public authorities Caisse des dépôts and Documentation française . SPL was set up to improve the quality of local e-government, to organise the sharing of information and services between local authorities, and to standardise the quality of services. By ‘co-branding’ with www.service-public.fr (the national one-stop government portal), a platform has been created to share relevant local, regional and national content and services.
Germany	Bremen Online Services (a public private partnership including the city of Bremen and big local companies) has developed an on-line transaction platform called Governicus . The platform used by Bremen facilitates full automatic financial transaction processes for government services. With Governicus the city of Bremen aims at reducing transaction costs for customers and reducing workflows and operating budgets of the public administration.
The Netherlands	The Dutch ministry of Spatial Planning, Housing and the Environment (VROM), has issued the EOS-project to optimise the filing process of the execution of the housing benefits law . This is done by revising the process for first applications as well as continuances. Organisational changes (centralisation) have been made and data are shared with other organisations.
Slovenia	The “owners” of registers are responsible for putting registers online in Slovenia. The most important register, serving as a “reference base” to other registers, is the Central Register of Population (CRP) owned by the Ministry of Interior . The aim is to harmonise, connect and integrate public-legal registers, records and other important data collections, and to prepare multi-purpose support for public administration functions. Physical and old media (magnetic tapes) have been replaced by new information and communication technologies.
Spain	The Spanish Tax Agency (AEAT) has developed several electronic services for companies (i.a. the monthly filings of VAT) as well as for citizens (mainly the income tax applications). The objective of AEAT was to develop and implement digital services and suggest legislative changes which improve service, usability and efficiency for all parties involved, including end-users. With the use of ICT, AEAT has simplified procedures, for example by offering electronic forms and pre-filled forms, and by far reaching automatic processes.

1.4 Structure of the report

In chapter 2 the main returns or improvements for customers and public authorities are described.

Chapter 3 focuses on the backoffice changes, which are necessary to achieve the returns discussed in the previous chapter. Where relevant, highlights from the case studies are described. When the name of a country is mentioned, the case studied in that country is referred to, not the country as a whole.

In chapter 4 the main conclusions of the study are summarised.

2 What are the returns of e-government?

2.1 Introduction

This chapter presents the main returns of ICT investments for both customers and organisations.⁴ Returns are often not the result of one single change in the process or of the organisation, they are often related to one another and can also strengthen one another. The returns can be divided into seven categories:

1. improved quality of information and information supply;
2. reduction of process time;
3. reduction of administrative burdens;
4. cost reduction;
5. improved service level;
6. increased efficiency;
7. increased customer satisfaction.

These seven returns are interconnected. If an organisation invests in multiple areas, the returns will strengthen one another. For example, the improved service level does not directly improve process time and cost savings, but it does directly affect customer satisfaction and this, in turn, can affect process time and costs. If governments do not invest in the service level, user uptake will not increase significantly, and efficiency targets will not be achieved. Most returns apply to both customers and organisations, although the impact may vary for each party involved.

Each return is described here in general terms, and illustrated by specific examples from the case studies. The next chapter will discuss the backoffice changes which are conditional in order to achieve the results mentioned here.

2.2 Improved quality of information and information supply

Thanks to the use of ICT, and more specifically the digitisation of information (both from customers and from organisations involved), in most case studies organisations claimed that the quality of information and information supply was higher.

First of all, the conversion of information supplied in paper forms into electronic forms or into data systems is not necessary anymore. Therefore, less typing errors occur. Because the information is digitally available, it is possible to generate high

⁴ In this report, when the term customers is used, we refer to citizens as well as businesses that have contact with public authorities with respect to one or more public service. When the term organisation is used, in general, we refer to the public authority involved in the public service mentioned.

quality management information by simply combining different sets of information (for example by running a query).

DENMARK

Instead of endlessly collecting and typing over applications and send (paper) information back and forth, this can now be done electronically, which means that less typing errors occur and information is more reliable.

FINLAND

Because of the VAHTI-database, management information has improved, customers and government have a better overview of current and previously filed information and can perform data analysis faster and more easily. Instead of combining information manually, in VAHTI many useful selections and combinations of information can be made automatically (for example regional information about pollution).

Furthermore, the shared use of information and databases can also improve quality of information and information supply. This is especially true in Estonia, Finland, The Netherlands and Slovenia. In some cases, public authorities can generate information from data already available in other databases (data is often transferred from one organisation to another). In other cases organisations actually have shared access to one database. This supports the idea of the once-only supply and multiple use of data. Provided that these databases have the most up to date and reliable information, the quality improves.

SLOVENIA

Interconnection of registers and other data collections improve the quality of data and therefore the quality of administrative work. Institutions retrieve data directly from the Register of Spatial Units which is the basic source of addresses and their geo-locations. The Central Register of Population daily receives all online updates on the addresses from the Register of Spatial Unites (during the night). The CRP receives also daily changes for deaths, migrations, changes of names while mutations for births will be automated in July 2004. In the same manner the CRP also receives tax numbers.

SPAIN

The quality of data has improved because fewer errors are made thanks to controls in the program, and because it's easier to identify and correct mistakes once they have been made. Furthermore, data is available almost immediately after electronic filing by the customer.

2.3 Reduction of process time

As expected, one of the main returns both for customers and organisations is the reduction of the time it takes to deliver a service (process time). Process time can be achieved in many different ways.

In paragraph 2.2 is mentioned that digitisation of information improves the quality of data. Furthermore, digitisation can quite easily reduce time needed for the public service. Because of electronic information provided by customers on the one hand and because of organisations sharing electronic data on the other hand, it is possible to review the provided information real-time and on-line. Manual reviews and extra communication about missing or incorrect information is replaced by direct on-line electronic reviewing.

For customers, filling the electronic forms can take slightly less time. Since customers still have to fill in the data themselves, advantages in time are limited. In some cases forms are pre-filled, partly or even entirely. This can reduce process time significantly. Organisations with many customers using electronic forms in stead of paper forms, no longer need administrative personnel or even a data input bureau as was the case in Denmark. Furthermore, the availability of electronic data (from customers and other organisations) makes it possible to perform risk analysis automatically, instead of carrying out a time-consuming risk analysis based on manual reviewing and auditing.

In some cases the decision-making process is also electronic, which of course, speeds up the process even further. In both Spain and Estonia this has led to major time reductions for refunding.

ESTONIA

Process time for refunding decreased from six months (paper form), to three months (electronic form), to one day (pre-filled electronic form), thanks to advanced pre-filling and electronic risk analysis. Before, the forms were filled manually, customers collected information from several organisations and they personally had to deliver them. For this, customers had to queue for up to three hours.

SPAIN

Process time for refunding decreased from about eighty days to seven days for private persons (this is seven days because an administrative action by an employee is obligated by law). For companies it decreased from two months to one day.

2.4 Reduction of administrative burdens

Some of the already mentioned changes also contribute to the reduction of administrative burdens. Eliminating specific steps in the process and replacement of paper-based forms by electronic forms on-line (which eliminates the typing over) are important examples.

Thanks to advanced data sharing agreements between organisations, in combination with the use of electronic forms, the possibilities for pre-filling forms are very promising. Standard information already stored in other registers, or specific information provided at an earlier stage by customers themselves, no longer need to be typed over or re-filled, but can appear pre-filled in the electronic forms. This

reduces the administrative burdens for both customers and public authorities. The Dutch, Estonian, Finnish, German and Spanish examples are particularly insightful in this respect. In the Estonian example, customers only have to review the pre-filled form and push a single button for acceptance. In the Finnish case, customers (companies) no longer need to fill in the already available standard information, and –more importantly– customers can generate their annual reports more easily, based on the information they provide on a monthly basis. Although in this case, this goes hand in hand with initially higher levels of investment in technology.

FINLAND

In stead of manually drawing up yearly reports by collecting and analysing data, companies can generate yearly reports almost automatically, combining the data they have already provided on a monthly basis. After initial investments in ICT, it now is more cost efficient to do this. The monitoring task of inspectors is also less time consuming and therefore more cost efficient as well, since information can be generated automatically.

GERMANY

Customers can order, pay and receive services online. They no longer need to contact other backoffices involved themselves, which saves a lot of time. In the internal backoffices procedural burdens are reduced: the online payment application replaces the workflows between public offices and the cash desk by a more efficient electronic way. The cash desk does not need to confirm the payment and to take the fee from the bank.

2.5 Cost reduction

Another important return is cost reduction. Cost reductions for individual citizens are limited by nature, because their time is not (calculated as) money. The benefits for the individual citizen is rather reduction of (process) time (paragraph 2.3). Cost reductions for customers *as legal entities* are larger, however this has been described in the previous paragraph as reduction of administrative burdens. This paragraph therefore focuses on cost reduction for public authorities.

Organisations offering electronic services can also realise cost reduction because the same work can be done requiring less time and less personnel. As mentioned in paragraphs 2.2 and 2.3, leaner process design and automation of parts of the process is possible because an increasing amount of data comes in electronic form. Parts of the process can be eliminated (like conversion of paper forms into electronic forms: Denmark, Finland and Spain), and parts of the process can be automated (like the risk analysis in Estonia). Also, the increased electronic communication with customers (instead of using the telephone and normal mail), also leads to cost reductions.

FINLAND

Because of VAHTI, the monitoring task of inspectors is less time consuming and therefore also more cost efficient. Information can be generated automatically and analysed more easily.

Cost reductions are also realised because activities are initiated more centrally. Therefore development costs are shared and more efficient since organisations do not have to individually invest (Germany, Finland, France and The Netherlands).

FRANCE

The used platform Service-Public Local makes it possible for local authorities to share information and services. Before each local authority developed its own content and services, which of course is more expensive. Now standardised information and services can be adapted to the local situation with little investments. Since presently more than 450 local authorities are using the platform, the gains at a national level are quite significant.

In some cases time reduction does not necessarily mean that cost reductions can be achieved because savings are used for spending more time on non-standard customers (see paragraph 2.6) and thereby increasing their service level, in other cases this time reduction has led to a clear reduction in required personnel.

2.6 Improved service level

Another important return is the improved service level, more precisely the increased flexibility, transparency, and the increased time available for custom-made services, which are described here.

2.6.1 *Higher flexibility*

The relation of government institutions with their customers has become more and more flexible. In all case studies this was very apparent. Almost all e-government services were available online 24 hours a day, seven days a week, meaning that customers can fulfil their administrative obligations any time, any place. They can visit websites for background information, and –more importantly– fill in electronic forms, download files and forms, and –in some cases– make financial transactions at times that suit them best.

Besides unlimited access, customers are offered more flexibility to choose their preferred way to fulfil their administrative obligations: this is the so called *multi-channelling*. In most cases at least a combination of paper-forms and electronic-forms is available. However, in some cases (Finland and Spain) electronic filing is obligated for large companies. In several cases customers can order relevant information in paper form, online or on CD-ROMS, or they can contact a call centre. In many cases face to face contact is also still possible, although organisations do not stimulate this. They improve the service level through other channels, to minimise face to face contact. Customers can often also send information via various channels: via a website, diskette, CD-ROM or the traditional forms. In one case a pilot started for

using an SMS-service (see below). The use of multi-channelling offers organisations more flexibility with respect to dealing with their workload.

SPAIN

The Spanish Tax Agency is continuously developing its services. This means that various channels are used for information and services. These channels are all interconnected. When a customer has problems filing via the internet, he can contact the call centre via a web call for example. The employee can see the same screens the customer sees and can therefore offer better assistance or complete the form with the customer.

Before, paper forms were the only possibility. Later, PDF-forms (using a barcode with pre-filled information), CD-roms and online forms were developed. Alongside this, more services are continuously being developed and better adjusted to one another. Although it is still a pilot, the Spanish Agency offers customers who want to fulfil their (pre-filled) income tax declarations, the possibility to accept the latest tax-declaration by phoning or even by sending an SMS.

2.6.2 *Higher transparency*

In all case studies higher transparency is reached by offering complete related legal and policy information via a website and in some cases by offering more specific (status) information. Innovative use of ICT makes it possible to do tracking and tracing, for both customers and organisations offering the service (see also paragraph 2.2). Customers and public authorities have a better insight in information and can more easily monitor information. In Finland it is possible to see when a certain application was sent, in what stage of the process it is, within what term a response will follow, and what the final decision is. In other countries similar information is available or will be developed in the future.

In some cases, customers can also consult a quite complete *historic overview* of their formal (and informal) electronic correspondence (Estonia, Finland). In Finland, data can also be used by other public authorities.

ESTONIA

The Estonian Tax & Customs board generates pre-filled tax declarations, based on information provided by several governmental organisations and legal entities. Customers only have to check the pre-filled form. After that, a single push button is sufficient for refunding that very same day. The status of their applications can be monitored, just as all other electronic tax-related communication. Before, the forms were filled manually, and contact about inconsistencies or progress took place by having personal contact, phoning or regular mail.

FRANCE

Customers visiting a website using the SPL-service, have access to central (national or regional) information, completed with the local information. The information is more customer oriented and more accurate (up to date and more specific). Before, information was not available online, or could only be found via different websites.

2.6.3 *Custom-made services*

In many cases, one of the reasons for the use of ICT is that it allows a more efficient way to process standard cases, thus leaving increased time available to spend on custom-made services. This is true for specific public services as well as for more platforms such as solutions like the service-public local in France.

With respect to specific services, complex cases and exceptions can be processed more carefully and more thoroughly. Thanks to advanced automation of (parts) of the processes, the bulk of customers can be processed requiring less time. The time saved can be invested in helping customers in non-standard situations. Instead of saving time (and money), we found evidence in several case studies that a stronger focus on non-standard customers is prioritised instead of savings in time and money (the Netherlands, Denmark, Estonia).

When joining a platform like solution, there is more time for core processes and keeping information up to date and more time for subject in stead of technological matters. Both in Finland and France, these returns are reported.

NETHERLANDS

The local intermediaries no longer have a formal role in the execution of the housing benefits law. Because these intermediaries have saved time, they can spend more time to assist customers requiring more information or customers in exceptional positions.

2.7 **Increased efficiency**

In general, the returns described in paragraphs 2.2 to 2.6 have contributed to increased efficiency and customer satisfaction. Since these two returns are highly dependent on more than one factor, these returns are described in this and the next paragraph.

In general, the use of ICT has contributed to increased efficiency or will contribute to increase efficiency in the near future. All cases show examples to prove these conclusions. As mentioned, many examples have been given in the previous paragraphs. Therefore this paragraph will be restricted to some of the major general returns in terms of efficiency, for public authorities involved.

Changes made, such as the improved information supply and improved services, have contributed to a more efficient organisation in general. Tasks are more efficiently distributed between different organisations or organisational units. In the Danish case, one organisation in the service chain is eliminated, because of the use of ICT. The data input bureau for converting paper applications into digital forms is now superfluous, as more and more students use the electronic application service.

A more efficient service delivery can take place and costs can be distributed more effectively. In many cases, the costs for the service delivery have been reduced. In the Finnish case, time can be used more efficiently, because the investments and maintenance regarding ICT and customer to government communication are transferred to private operators. For most public authorities it is very time consuming to invest in ICT themselves, since most often they are no expert in this area. Because of the TYVI-business model, governments can focus on their core tasks.

THE NETHERLANDS

By redesigning the process, the process time for applications is reduced significantly. This is especially true for the continuation of benefits; the total number of process steps has been halved. Customers no longer have to file for continuations (fill in the form), they merely check the information. Backoffices no longer have to process these applications, the benefit is automatically continued. Also, the time and effort saved by automatically generating information stored in other databases, is contributing to a more efficient process. Since more than 1.000.000 applications have to be processed every year, this reduction increases efficiency.

SLOVENIA

Because civil servants have an improved access to registers, and because administrative procedures are shorter now, this saves time and costs. For example, the time needed for an administrative procedure can be reduced by a factor 20 and one of the ministries expected to save 1.000 workdays a year. Naturally this saves many costs. Another example: taking into account that the time for entering and checking data by the office official at the Centre for Social Work, is reduced to approximately 3 minutes for one entry, the calculations show a time saving of 503 days/office official.

The French case is a clear example of how joint investments in ICT and content can contribute to a more efficient government in general.

FRANCE

The platform Service-Public Local provides standard information and services that can be adapted to the local situation with little investments. Standardisation is of course more efficient than developing new content and services over and over again (more than 450 organisations use the platform). Co-branding with www.service-public.fr (which is the national e-government portal) is also profitable, acquaintance with the service and the image of the local authority can improve. Since initial investments are low and maintenance costs are limited for local authorities, the costs saved can be invested in other areas.

2.8 Increased customer satisfaction

Customer satisfaction was an important return in all case studies. Although customer satisfaction is difficult to quantify, there are several indications that pinpoint the achieved result. There are high usage figures (Estonia and France), decreasing helpdesk calls (Estonia and Spain), high scores for customer satisfaction (Slovenia and Spain). It is striking that at some point, levels of satisfaction do not seem to increase anymore, which is probably due to the increased customer expectations.

SLOVENIA

The Ministry of the Interior carries for citizens surveys for administrative units. The latest survey shows an increase in citizens' approval of service delivery by them. Generally, the citizens are satisfied with the level of service local public bodies are providing.

SPAIN

Customer satisfaction regarding electronic services is high. In 2000 and 2001, 87% respectively 81% of the customers were satisfied or very satisfied. Although the Tax Agency is still investing in electronic services, the percentages did not increase further.

'By offering innovative electronic services, we have created expectations we can't keep up with.'

2.9 Conclusion

As shown in this chapter the use of ICT in the public sector is rewarding and shows different returns for both customers and public authorities. As mentioned earlier on, all returns described in this chapter are interrelated and contribute in some way to the most tangible and in many cases most appealing returns: reduced process time and reduced costs. These returns apply especially when changes are made that improve services which are either delivered to large groups of customers, or delivered with a high frequency. However, the returns in terms of time and cost savings will not be as high as they might be when public authorities do not invest in other areas as well, for example the service level.

2.9.1 *Returns for citizens*

The advantages for citizens are mostly advantages in terms of improved service level and reduction of flow time. Citizens normally only have few contacts with the government each year (annual services such as the tax declaration, or a periodic service such as a passport). In some cases customers do have frequent contact with government agencies, for example with respect to some social benefits, and returns can be more significant. In general, improved services do contribute to increased customer satisfaction, and improved quality of information.

The government has become more transparent, citizens can approach government agencies more easily (higher service level, multi-channelling, one stop shop) and transactions are processed more quickly. Although cost advantages are not as high as they are for public authorities, citizens do benefit. Since citizens spend less time to fulfil their administrative obligations, costs can also be reduced. This is especially true when forms are partly or even totally pre-filled (pro-active services). When pre-filling can be applied, citizens no longer have to fill in the forms. Often, this can be a time-consuming activity. The improved service level and increased customer satisfaction are most important here, since this can contribute to a higher user uptake (which influences time and cost savings for public authorities) and an improved image of public authorities.

2.9.2 *Returns for businesses*

Returns for businesses are basically the same as the returns for citizens. However, since most businesses have other and especially more frequent contacts with public authorities, returns can be more significant. For businesses the advantage of reduced process time (for filing) and reduced administrative burdens, directly contribute to cost savings. This is logical, since their administrative obligations are more frequent and take up more time than for citizens. The annual and monthly obligations can be fulfilled more easily, quicker, and cheaper. An additional advantage which contributes even more to the businesses themselves is the higher quality of (management) information.

2.9.3 *Returns for public authorities*

The returns described in this chapter all more or less lead to reduced process time and reduced costs. Potential time and cost advantages are highest for public authorities, since in many cases time and costs per transaction can almost directly be reduced because of the use of ICT and of course the number of transactions is highest for public authorities. Time and cost reduction can be achieved at different levels:

Online information and higher service level: because information is of higher quality, and access to information has improved, public authorities have less customer contacts (less questions and less complaints for example).

Electronic processes (mainly filing): Less process steps are needed because forms do not have to be typed over, or because data can be automatically collected by using other databases. Furthermore, less time is needed for checking forms for errors. In addition to the reduction of time needed for administrative processes, thanks to machine to machine communications (no typing over and checking for errors), processes can be even more efficient because specific steps have been eliminated or digitised. Also the co-ordination between organisations, regarding sharing data or processes, is faster and fewer errors occur. The more transactions or customer contacts, the higher the number of potential advantages will be. For monthly processes, savings seem to be well worth the investment.

Automatic or pro-active services: This seems to generate more work for public authorities, since backoffice systems have to be linked for example. But because of the automatic generation of information, fewer errors occur and less customer contacts are necessary. Therefore, advantages are far more extensive.

Co-operation: In general, returns are difficult to specify. Public authorities can be more efficient, because of co-operation (shared databases for example) and joint investments.

The table on the next pages presents a summary of the most important returns in each case studied. If possible more specific returns in terms of time and cost reduction are reported. The next chapter will present the changes made in the backoffice in order to reach the returns presented here.

	Most important returns	More specific returns
Denmark	<ul style="list-style-type: none"> • Cost reduction on personnel since administrative functions concerning collecting applications, storing and keying these into the system, sending information back and forth, are superfluous. • Processing time has been reduced for Student Grants applications. • Improved service level by offering a single point of access. 	<p>Reduction of staff in SU agency with 18%, in Agency for Governmental Management the administration staff is reduced with 12%. Savings on data entries leads to disintermediation of the Data Input Bureau.</p> <p>In 2002 39% of the applications were processed within 10 days. In 2004 this percentage increased to 47%. If the process is fully digital, workflows are reduced from 8 to 6 and the number of stages (organisations involved) from 6 to 5.</p> <p>From 2002 tot 2003 the number of new mySU users increases from 21,037 to 53,217. Improved service level is increased by automatic feedback by using digital early warning system, which provides students more information on their grant situation and personal income.</p>
Estonia	<ul style="list-style-type: none"> • Process time reduced for refunding taxes. Since filings are processed electronically the quality of information increases. • Transition to digital processes leads to reduction on costs • Improved customer satisfaction 	<p>The process time from refunding taxes has been reduced from six months (paper form) to three months (electronic form) to one day (pre-filled form).</p> <p>Reductions took place in the amount of local tax workers, typing-in workers, temporarily hired by the Maksuamet (students). The amount of people making general declaration audits almost disappeared (<i>no quantitative figures available</i>).</p> <p>In 2003 61% of the taxpayers use electronic declarations and expectations for 2004 are 80%. Electronic tax-related communication is faster and taxpayers save time and don't have to phone or to queue anymore. By pre-filling applications, a check and a push on the button is sufficient. In the old situation a taxpayer had to queue for approximately three hours. In the new situation queuing is no longer necessary.</p>
Finland	<ul style="list-style-type: none"> • Information supply has improved. Customers file electronically and data is checked by an inspector before the filing is accepted in the database. Therefore, quality of information is higher and administrative burdens can be reduced. Customers can also view historic data (transparency) and inspectors have better management information and can make cross data analysis more easily. • Because the improved quality of 	<p>Public authorities that use TYVI do not have to invest in the development of a system for data interchange with customers. They can concentrate on their core processes and do not have to worry about maintenance and ICT-related issues. However, the ministry did invest in adapting VAHTI to the TYVI-model. At first the profitability of TYVI was low. Since the number of companies reporting and the volume of services offered have risen, the revenues from TYVI are now rising.</p> <p>Handling paper forms is most time consuming and expensive. Many paper forms used to come in every month. The checking and typing over of these data was very time consuming. Now data is available in VAHTI almost immediately after they have been sent and can be used for monitoring more easily. Especially with respect to periodical reports major savings can</p>

	<p>information and information supply, the inspectors' monitoring tasks can be performed more efficiently (less actions needed and less time needed per action). The service makes it easier to adapt to future complexity.</p>	<p>be made. For waste management (this is a periodical report), there are 6,000 organisations involved. VAHTI now has 600 users. Savings can amount to more than 50 hours every month, for typing over forms only.</p> <p>The reduced work regarding the typing over of forms represents only a small fraction of the total savings. It is not possible to express the more efficient processes in specific cost reductions since no figures are available and cost savings are divided over several organisations and several activities.</p>
France	<ul style="list-style-type: none"> • The quality of information and services to customers has improved: information is more complete and easier to find (one stop shop and multi-channel). • The generation of content and services is standardised and less time consuming and therefore also less expensive. Cost can also be reduced since investments in technology can be limited when the platform is joined. 	<p>More and more services are offered through www.service-public.fr (about 2,700). At the moment there are more than 450 local authorities who are members of the platform. These serve more than 20 million citizens.</p> <p>Participating authorities save money for building online services themselves and for collecting and updating national and regional information, online forms and services. It is difficult to express this in exact figures.</p>
Germany	<ul style="list-style-type: none"> • Reduction of administrative burdens and transaction costs for customers in ordering and delivering public (paid) services. • Reduction of personnel costs for agencies involved. • Receipt of investment costs provided a solid base for future developments 	<p>For a particular service "Outstanding Liabilities" the online register handled 20,000 requests and this led to a reduction in personnel dedicated to answer the phone with one third.</p> <p>The service "Outstanding Liabilities" roughly saves €7 per transaction. 100 lawyers and 500 businesses have been used the court services, together saving € 630,000.</p> <p>In Bremen the construction department issues around 6,000 calls for public tenders each year. Assuming a similar take-up as actually did happen with the court administrations, 2,000 applications are likely to be received online. Already, staff in these offices is being reduced accordingly.</p> <p>A federal grant of €10M provided investments capital. In addition the involvement of local businesses (mainly banks) offering money and expertise made it possible to develop e-government at relatively low cost.</p>
The Netherlands	<ul style="list-style-type: none"> • Increased overall efficiency, more specific: red tape is reduced (less typing over) and data are shared (reuse of data already available). This reduces administrative burdens. There are now fewer organisations involved, due to the simplified procedure and the sharing of data and services. The process is much 	<p>In 1998 the coalition agreement stated that by 2002 the cost for the execution of the housing benefits would have to decrease by 50 million guilders a year (which is almost 23 million euros). The organisations involved (the ministry, local authorities and renting agencies) were jointly responsible for reaching this cut back. The execution costs were relatively high, yearly costs were between € 68 million to 90 million a year. Both have decreased in the new situation, however, no figures are available to demonstrate the exact changes.</p>

	<p>faster.</p> <ul style="list-style-type: none"> • Also a more pro-active service is now offered, especially with respect to the continuation of housing benefits. Customers are no longer responsible for collecting data at several organisations themselves. • Since the larger part of the applications can be processed more or less automatically, there is more time available for services related work, for example custom made information and dealing with exceptions. 	<p>Due to the inefficient process, process time in the former situation could amount to 4 or 5 months.</p> <p>Now, only faulty applications and the exceptions have to be processed manually. This means about 180,000 applications are processed manually instead of more than 1,000,000 in the former situation. The extremely high peaks have decreased, and the ministry no longer has to hire temporary staff at peak times.</p>
<p>Slovenia</p>	<ul style="list-style-type: none"> • More transparency and better access to qualitatively better data for agencies. • Reduction of administrative burdens and more efficiency and time savings for customers. • Accessing online registers reduces process time of administrative procedures and reduces personnel costs. 	<p>The use of online CRP data increases. In 2003 there was an increase of 173% in comparison to 2002. The classical data exchange shows a small growth. And a better quality and timeliness of data (updates) improves the quality of administrative work.</p> <p>In the first nine months of 2003 58,017 certificates are issued what means a decrease of 35% in comparison with 2001 and 19% decrease in comparison with 2002. These figures demonstrate that citizens do not bring many additional certificates anymore to apply for service. This also results in fewer personal contacts with public bodies.</p> <p>With the electronic requests for data, the Government Centre of Informatics expects an additional reduction of 150,000 requests each year (measured for two institutions of public administration). They expect that the time for resolving an administrative procedure will be reduced by a factor of 20.</p> <p>Time savings for resolving administrative procedures will be used for the rationalisation of work of office officials; only at the Ministry of Labour, Family and Social Affairs, a saving of 1,000 workdays at an annual level can be expected.</p> <p>In six months, there were 80,601 entries of CRP recorded from the application Information System of Centre for Social Work. Taking into account the fact that the time for entering and checking data, which is performed by the office official at the Centre for Social Work, has been reduced to approximately 3 minutes for one entry; the calculations show a time saving of 503 days/office official.</p>
<p>Spain</p>	<ul style="list-style-type: none"> • Reduced process time, especially in terms of reduced paperwork and reduced red tape. 	<p>Over 22.000 large companies file monthly through the internet-channel, they represent more than 600.000 filings a year. It used to take AEAT 2 months (flow time) to get the quality of data</p>

	<p>Since filings are processed electronically, time needed to get the quality of data right has reduced significantly.</p> <ul style="list-style-type: none"> • Because of the reduced process time costs have been reduced as well. For example, there are almost no process costs for online filings. • Customer satisfaction is high (more than 8 on a scale of 10). 	<p>right. Now, one day after filing all information is available.</p> <p>If we estimate the returns in terms of time and cost savings, the following can be said: 600,000 filings a year * 5 minutes per filing = a saving of about 50,000 working hours each year. This is at least 38 administrative fte's each year (50,000/1,300) and this amounts to a saving of at least 460 fte * € 30,000 = € 1,150,000,-- in personnel costs can be made every year, compared to manual processing.⁵</p> <p>With respect to the income taxes (for citizens), all online filed applications are almost free of process cost, except for development and maintenance of the system. At the moment this is about 12% of the total amount of almost 15 million declarations. Before it would take about 80 days to process and finalise an application for income taxes and get the quality of data right. Now, using the PDF-files with the unique barcode, this takes less than 20 days and using the internet it takes about 7 days.</p> <p>If we estimate the returns in terms of time and cost savings, we can state as follows: 1,720,000 million * an average of 5 minutes to process = more than 143,000 working hours each year. This is about 110 administrative fte's and about € 330,000,-- a year. Since most filings are the PDF-forms, major returns should be expected here.</p>
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⁵ We made the following assumptions: processing 1 filing costs at least 5 minutes (for intake and typing over); 1 fte equals more than 1,300 working hours and 1 administrative fte costs at least € 30,000,--.

3 Changes in the backoffice

In order to achieve the returns mentioned in the previous chapter, changes have been made to the backoffice. This chapter presents the main changes in the backoffice, based on the results of the eight case studies. Each change is explained in general terms, and illustrated by relevant data from the case studies.

3.1 Organisational changes

Although many specific organisational changes have been made, there are some changes which occur in more than one case. These are discussed in the underlying paragraph.

3.1.1 *More co-operation with private or public-private companies*

In some cases (Germany, Finland, Estonia) the digitising of workflows and services has led to complications. An interesting change strategy which has been chosen, is to outsource specific workflows and activities to private or to public-private companies. In Finland data exchange and data interoperability has been outsourced to operators (clearing houses). They ensure that data exchange and outsourcing in this situation is cheaper than making process or organisational changes in backoffices. In Germany the transaction process is digitised and some parts of the transaction process have been outsourced to companies who can do this type of work better and cheaper than the public authorities themselves. In the case studies significant outsourcing of processes, workflows and authentication mechanisms do result in changes to internal operations and resourcing. It simply takes time to adjust workflows. However, these changes do not have far-reaching implications for backoffice changes.

GERMANY

Bremen Online Services is a newly founded public-private company developing e-government services for intermediaries, businesses and citizens. University of Bremen is an important partner. The university develops e-government concepts combining theory and practical solutions.

ESTONIA

The largest private bank in Estonia offered Maksuamet their authentication system for free. Furthermore, the bank helped the Income Tax Declaration project team: they have sent personnel to co-operate. The bank also invests € 5,000 each year, and the Head of eState Services of the bank invests, 30% of his time, during 6 months each year.

The pro-active role of banks is interesting. They are pioneers regarding online transactions platforms and digitised data. It is in their own interest that transactions between authorities, banks and customers may proceed more efficiently. Banks

participate also because they can offer their customers a more comprehensive service, and in some cases banks get paid for their service. In the cases of Denmark, Estonia, Finland, Germany, Slovenia and Spain public authorities have worked with banks on authentication matters. As an alternative to developing a new method for authentication, these governments have decided to use the already available unique codes customers use for internet banking. This, of course, saves development costs, but is also user friendly, since customers do not have to get a new code for government transactions.

It seems that private partners have taken up a responsibility for enhancing e-government in their country, in some cases encouraged by government policy. In practice, this means that private partners are either investing in services and solutions which can be used by public authorities (among others Finland and France), or that private partners support the development of e-government by funding local or national initiatives (Germany).

3.1.2 *More co-operation and shared services between governments*

In every single case study, co-operation between governments and/or other organisations in the service chain has been a critical change strategy to achieve a more efficient use of ICT. Sharing data between organisations is more common now and can really improve services, especially in terms of process time (and therefore costs) and customer satisfaction. More co-operation between public authorities seems to be inevitable when governments want to work more efficiently and offer more customer friendly services. Not surprisingly, in all studied cases, the co-operation between governments has been initiated or enhanced. Co-operation should be seen on the level of a better interoperability of data and information. Due to the digitisation of workflows and services (records, databases, filled in entries) in network environments sharing of information (more or less in all eight cases) is possible. Databases or services are shared (Denmark, Estonia, Finland, France, the Netherlands and Slovenia). In France a new organisational unit has stemmed from this co-operation. Better co-operation leads to a better informed government, standardisation of procedures, reduction of time delays, simplification of information transfer, reduction of errors.

Organisations requiring information from other organisations have often set up agreements to share data or databases. In the Netherlands for example, information from other databases (from the Tax administration and the municipal administrations) is generated to pre-fill forms for housing benefits.

FRANCE

The platform SPL is the result of a partnership between la Caisse des dépôts and la Documentation française. From the start, two other partners have been important: ADAE (French Agency for the Development of the Electronic Administration) and the French Ministry of the Interior.

SLOVENIA

Several government institutions have created direct links to the databases of the Surveying and Mapping Authority of the Ministry of the Environment, Spatial Planning and Energy, enabling data interconnectivity.

Although the advantages of more co-operation seem to be obvious for public authorities, and the management commitment is strong, co-operation and making agreements on information exchange between administrations is not always easy. It takes time to establish a good infrastructure, concerning human, material, financial and information resources. Legal obligations to exchange data and some political pressure are important conditions in this regard. And of course the willingness of civil servants themselves to co-operate is important. Common goals are important drivers. In the taxes and housing benefits for example, the organisations involved want to have more control over customers and often big expenditures. Expected expenditures and benefits can be better calculated by better information exchange. Besides the quality of risk analysis may be performed better.

3.1.3 *Centralisation or concentration of backoffices functions*

In all cases the effect of a better co-operation between backoffices is a higher rationalisation of the information household: information sources grow, they are better connected and better accessible. More specific, typing over applications by several organisations is not necessary, it reduces errors and time delays, and multiple administrations about the same applicants no longer exist. As a consequence of more co-operation due to interconnectivity, changes in the distribution of information are required. Formerly, information was sometimes locally stored or difficult to access. Public administrations are now more simplified, reengineered or more computerised due to database interconnectivity. This offers insights in several areas of public administrations. This means more transparency on the one hand, but it also leads to centralising or concentrating backoffice functions (data storage, data provision), which in turn leads to the strengthening of co-ordination mechanisms and management of information flows higher up in the hierarchy.

The design of this centralisation may vary. In the Finnish and French cases one central organisation has taken up some tasks that were previously performed by the individual organisations. In these cases the co-ordinating organisations did not have a formal responsibility, but they have taken the initiative, mainly to cut costs and help other public authorities to offer services or standardised procedures. A kind of extra organisational level (in France the platform and in Finland the TYVI-operators) has

been created to centralise processes. Although work can be carried out locally by other organisations or customers in Denmark, for example by allowing them to file electronically themselves, the organisation of the backoffice has been centralised. Services are more and more integrated, and students now have a single point of access. In the Slovenian case, the organisation of the public-legal registers has been centralised. Formerly decentralised stored (digital) databases are now connected and data entry is reduced. In the Netherlands the ministry has been able to centralise tasks, by making the process more efficient (some tasks have become superfluous) and by taking up formerly decentralised responsibilities. The ministry now has a more important central backoffice responsibility. The local organisations are now more service oriented frontoffices, with no formal role in the housing benefits filing process.

FRANCE

In the example of Service-Public Local, the development of services and content has been centralised. Local authorities can still develop their own services and content or they can join SPL and adjust the services to specific needs, which is of course more efficient with respect to development and maintenance costs.

THE NETHERLANDS

The entire process of the execution of housing benefits has been redesigned in order to be more efficient. The ministry is now fully responsible for the process. Intermediaries no longer have a formal responsibility in the filing process.

In the Estonian, German and Spanish case, centralisation has not been relevant, since the organisations involved already have a central responsibility. However, within the organisations (between departments or different backoffices), centralisation took place at a more modest level. In Spain a large number of data sources across the country has been centralised in order to provide a unified instant access service.

3.1.4 *Changing roles of frontoffices*

In almost all cases the computerisation of backoffices leads to fewer contacts between governments and customers and to more single points of access (often directly to databases). The public employee has access to databases containing citizen information resulting in a decreasing need for information requests from citizens. In certain cases citizens' information supply to the government is simplified and reduced (Finland), or citizens only have to confirm the information or check changes (pre-filled tax forms in Estonia, Netherlands and Spain), or are not obliged to seek for register information anymore (Slovenian).

An important effect is the strengthening of the position of the government towards the citizen. Due to interconnections and use of central databases, information is often available and provides the government with important management and policy information to carry out their service tasks to the citizen. The traditional role of the

frontoffice changes: the gathering of information and communication between public employees and citizens are gradually disappearing. On the one hand this leads to cost savings, on the other hand this opens up possibilities to create new functions. In the Netherlands frontoffice functions disappeared leading to savings in terms of personnel costs for employees working in local administrative functions. These savings have been used to further improve the service organisation by making particular changes. This means a shift in focus of the organisation: from gathering information to a supportive role, e.g. informing customers about specific situations and details. This is also the case in Denmark. Organisations become more pro-active service organisations, offering more and better information through frontoffice desks, call centres and websites.

THE NETHERLANDS

In the Netherlands the local organisations now have a more service oriented task. They provide information and help customers with their communication about the filing. The ministry has set up a new department to facilitate the local organisations. For the end customers, the information on the website has been improved and a call centre has been set up.

SLOVENIA

Physical and old media (magnetic tapes) have been replaced by new information and communication technologies. Citizens do not need to enclose documents from official records that are kept by the public sector. The obligation for gathering data was placed upon the citizens, although these data already were stored in state's evidences or registers. Also the expenses for gathering the data were for the citizens, not to mention the loss of their time. The new situation implies fewer inquiries and fewer face to face contacts with public employees.

3.2 Process changes

In almost each case, the processes or workflows have been optimised or changed. The most important changes are: direct access to backoffices and interoperability of databases and underlying workflows. By digitising the transaction process (sometimes compromising the whole process of authentication, ordering, access, paying and delivering) customers or public servants obtain direct access to backoffices and don't need the frontoffice functions anymore. Another major process change is the interoperability of databases which reduces the number of steps to obtain information.

In many cases the number of steps in the process has been reduced and forms have been simplified. Because of the reduced process time, applicants are more rapidly informed and serviced about the main steps in the process. The process is easier and faster for customers. In order to do this, investments were necessary, e.g. to be able to use information from other databases. A first step is to revise the process or workflow. In most cases the execution of some steps has also been digitised. This can be done relatively easily, since structural organisational changes are not necessary. However,

in most cases a combination of technological changes, organisational changes and digitised processes is implemented.

GERMANY

There were many administrative workflows to start with. The registry office had to authenticate the applicant, handle the payments (acceptance of fees and the accounting to the cash desk). The number of steps has been reduced, automated and the new intermediary replaces manual steps from the workflows of both backoffices, e.g. authentication can be done online.

SLOVENIA

For civil servants making inquiries by means of correspondence between public and state institutions has changed considerably. In the former situation more correspondence and personal contacts were necessary before the information could be obtained. The high search costs then were due to a limited interconnection between registers.

In addition to changes in the processes of the public services itself, some organisations have also changed their business model. Please refer to paragraph 3.1 for a description of these changes.

3.3 Technology and information flow

In paragraph 3.1 the importance of co-operation and interconnectivity between backoffices is described. In practice it is sometimes difficult to realise this on an organisational and operational level, because of different interests or because of the use of different standards. In most cases the initiators build on existing technology, neither making it too complicated, nor making drastic changes, choosing for a more gradual solution. If many conflicting interests are at stake, a good starting point is imperative. Looking for joint objectives could be a successful change approach here. Both approaches will be explained in the following sections.

3.3.1 *New technology or build on existing technology*

In the Estonian case, they were able to start from scratch. The German case is a clear example of learning by doing. All other cases are examples of a step by step change approach.

After independence, in Estonia the initiators were able to start from scratch regarding organisation, technology and infrastructure, because there was no technology infrastructure. Also Germany (Bremen) started ad hoc. There was no history regarding online transactions. Hence, Bremen consciously chose for a complex development approach taking three main aspects into consideration simultaneously: user access, applications and infrastructure. This is risky because sometimes applications cannot run without a good infrastructure or users do not yet accept particular innovations. But Bremen did not want to wait until these different aspects

had been developed (and were working), but just wanted to bring it in practice and to learn from experience. Bremen used a ‘learning by doing’ approach.

In all other cases, organisations have mostly built on an existing infrastructure, and have gradually renewed or added hard- and software. In Denmark, for example, the mainframe is still intact, and direct access has been increased. In Spain the original database is still operational, new features have been added and the design has been modernised. In the case study of Slovenia different IT environments and platforms have been in preparation since 1996. New IT hardware and applications could build forth on this. In complex situations which involve multiple organisational stages, a focus on technical aspects and too drastic technological changes has been mentioned as being an unsuccessful approach by many interview partners. Regarding the change process, the step by step approach has been most widely used.

3.3.2 *Interoperability and open standards*

As mentioned in paragraph 3.1, co-operation has become more important to improve service delivery, organisational as well as technical. This paragraph describes interoperability, which can be described as *‘the ability of a system or process to use information and/or functionality of another system or process by adhering to a common standard’*.⁶ Taking into account the ambitions of various organisations with respect to future development of the use of ICT, considerable steps towards interoperability will have to be taken in the near future in order to produce real benefits.

Semantic interoperability

To make sure exchanged information can be read by the receiving application, organisations often develop connections on an ad hoc basis. In most cases, an integrated overall solution has not yet been implemented. The TYVI-concept in Finland and the XML forms for registers in Slovenia are the most progressive examples of semantic interoperability (see figure 3.1 below).

Technical interoperability

Since semantic interoperability often has not been achieved yet, technical interoperability has not been well developed either. For the interchange of data, XML is the standard in use. Again, the TYVI-concept is the most progressive example. In Slovenia a platform for linking registers was made: the electronic administrative affairs (generics). It is being implemented through the information system for acceptance, delivery, and notification. Via central numeration, meta-data, and link modules, electronically signed e-application forms in XML forms with the use of http

⁶ Key principles of an interoperability standard, EPAN e-government working group, 2004.

protocol can be administered. This assures the tracking of e-application forms and linking with different registers.

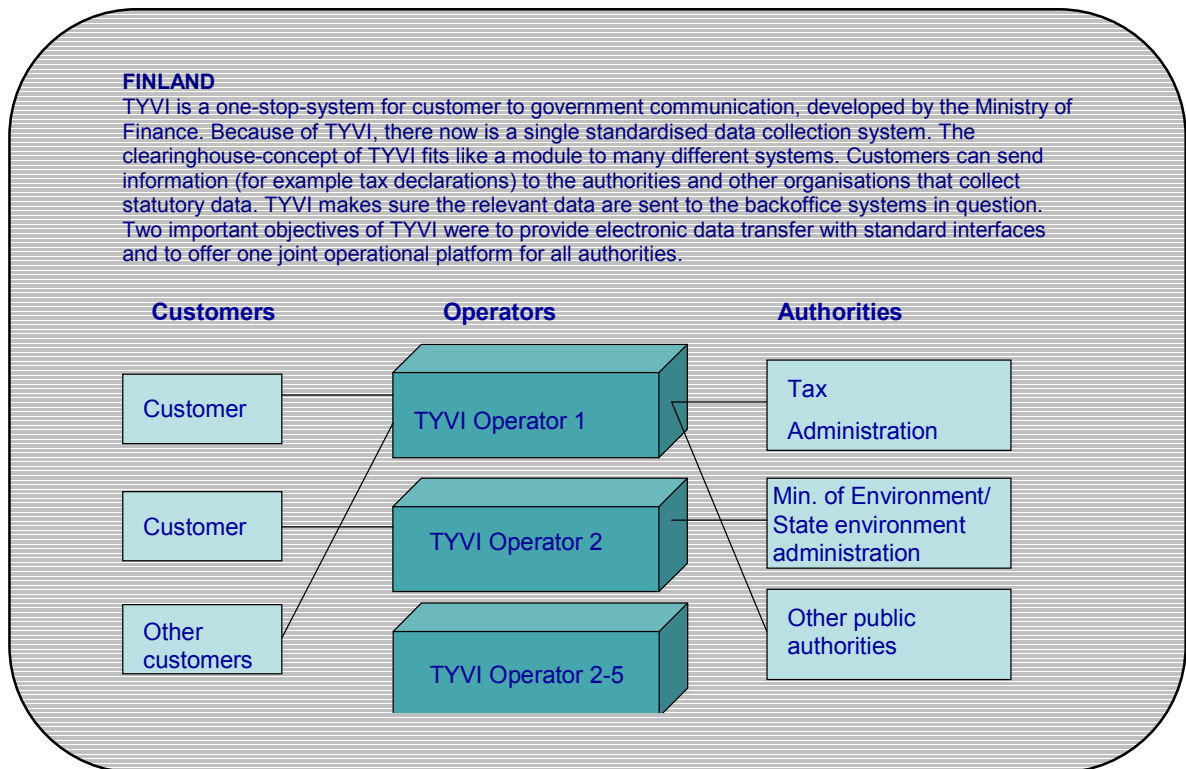


Figure 3.1 Interoperability in the TYVI-model

Open standards

A necessary condition for interoperability is the use of open standards. In many cases, the willingness to use open standards is no problem anymore; capacity, costs and technological problems are (with respect to semantic and technical interoperability).

GERMANY

In Germany the transaction platform Governicus uses open standards. By doing this it achieves platform and application independence. This offers good opportunities for out roll to other public services. New services can be settled down via Governicus avoiding rethinking of new online transaction schemes for each type of service over and over again.

FRANCE

For the Service Public Local, open standards have been used. A server contains www.service-public.fr data in XML. XML has been chosen to allow the exchange of information between different IT applications in the different local and regional e-government environments.

Even the organisations that can operate more or less individually regarding the public service described here (for example tax filing in Spain and Estonia), take into account that open standards will become more and more important in the future. Although at

the moment they can set the standard by themselves, in order to really improve services, they are taking issues of open standards into account, for example regarding other national e-government initiatives and international developments.

3.3.3 *Authentication*

The availability of a secure authentication process is an important success factor. Two separate services should be identified: authentication for electronic payment and the digital signature. As mentioned in paragraph 3.1.1 Denmark, Estonia, Finland, Germany, Slovenia and Spain work together with banks to ensure a safe authentication without having to develop a (costly and time consuming) new method. In the Estonian and Finnish case the unique bank code has also been used as the signature for public services. In Denmark, Germany and Spain, customers receive a digital signature, which is a unique code.

In Denmark and Germany the development of the digital signature has been problematic. In Denmark it took some time to order a signature and there were some security issues. Now each student receives a digital signature in his first year of study. In Slovenia a unique PIN gives access to a limited number of databases. In the Dutch case authentication (for end customers) is not relevant yet, since the access to information online is limited to intermediaries only.

In some countries a smart card for the use of more public services will probably be used in the future (for example in Estonia, Germany and Finland). However, at this moment the use of smart cards is not very common. The uptake by users is low. It is too sophisticated and there are not enough services to make a smart card worthwhile using.

3.4 **Policy and legislation**

In every case specific e-government policies, on a national as well as on an organisational level, have been a driver for using ICT in public services. In some cases legislation has been a more specific driver, for example in the Netherlands, where domain specific legislation (the housing benefits law) has been renewed. In most cases changes in the legislation have not been a driver, but were required for an effective use of ICT.

In some cases legislation or the legislation process delayed or hampered the development of e-government, mainly with respect to legislation for secure authentication and privacy. With regard to authentication, organisations have set up their own procedures instead of waiting for national standards. There are laws on personal data use, with restrictions on the connection of private and public data, using

personal numbers. Especially in Germany there is a traditionally strict law which makes the exchange of information difficult.

In some cases specific regulations have been set up, mostly to stimulate the uptake. In almost all cases regulations are focused on publishing and distributing information online, or on legal issues regarding authentication. The obligation to share information for example, has led to a high uptake in Denmark, Estonia, Finland and Slovenia.

ESTONIA

New legislation obligates legal entities to deliver information in digital form about citizen's payments. First, it enables the Maksuamet to have more and better information available in digital form for making more complete and better pre-filled tax declarations and increase the quality of risk analysis. Second, the legislation obligates for all state institutions to electronically communicate with the Maksuamet. This amendment to the Taxation Act is planned to be expanded to private companies too.

In Finland and Spain the use of electronic filing has been made mandatory for specific groups (larger companies). This of course has led to a high user uptake and considerable savings with respect to administrative processes and other costs. Specific target groups that also have many contacts (such as small and medium enterprises and intermediaries) are more actively approached, in order to try to increase utilisation. Moreover, Finland is thinking about introducing incentives, such as limited payments for filings through traditional channels, to encourage the use by other groups as well. In Estonia and Slovenia the incentive of faster flow times for e-filings is used to try to increase the user uptake.

SPAIN

In Spain, large companies are obligated to file taxes electronically. Although they were reluctant in the beginning, large companies now ask the Tax Agency for more and more electronic services.

In most cases a specific incentive has been crucial for encouraging co-operation and the further development of e-government. For example, Germany was a pioneer in digital signatures legislation. To bring digital signatures into practice, a contest has been held, awarding a grant of 10 million euros, for the best proposal to promote the digital signature. In Finland the co-ordinating (and financing) role of one party has contributed to the success. And in the Netherlands the driver was a change of the law and a political goal to cut costs.

3.5 Personnel

With respect to personnel, different change aspects are addressed here. These concern the number of personnel and type of work, training and resistance to change.

3.5.1 *Number of personnel and type of work*

As expected, the most important finding regarding personnel is that organisations can save personnel costs and that administrative and service related jobs disappear. In the Danish case the choice was made not to replace retired people. In the Netherlands hiring of temporary staff, centrally as well as locally, is not necessary anymore. In most cases however the decrease of the number of employees is not that high. Functions can disappear, and organisations save on personnel costs, but quite often these employees do not disappear. They acquire new functions or new roles in the organisation (see also 3.1). Moreover, savings can be used to be able to anticipate on a higher service level (the Netherlands, Spain for example) or to anticipate future complexity. In Finland for example, it is expected that because of new legislation, more personnel is needed.

3.5.2 *Training*

The changing technology or new service concepts automatically lead to a shift in personnel requirements and culture (with respect to content and skills). In almost every case, personnel have been trained to acquire new skills. In Slovenia the ministry has introduced quality management and has sent people to a specific training. In many cases, the need for skilled ICT-personnel is growing. In Estonia a shortage of people with ICT knowledge and lack of financial resources were reasons to wait with investments in open source software.

3.5.3 *Resistance to change*

As mentioned in paragraph 3.1, co-operation is becoming more and more important, but at the same time real interoperability is difficult to implement in practice. An important barrier for organisational interoperability seems to be the alignment of different organisational objectives and interests.

In many cases, a successful change strategy is to look for joint objectives at the starting point of a project. Most often this has been very time consuming, without showing actual results in the short run. Although co-operation does frequently take place now (and is often successful), the cases show a long history of consultation and negotiation in the preparation phase.

To anticipate on the resistance to change or the rough co-operation process, in many cases they followed either a step by step strategy with a lot of interaction between parties involved, or one organisation has taken the responsibility for the whole process.

3.6 Finances

3.6.1 *Investments made*

Of course, for the use of ICT, financial investments are required, mainly on the side of public authorities. The main specifics about necessary investments are described here.

There is no single way in which ICT investments are made. In some cases investment costs are shared by organisations (France, Denmark, Germany and Slovenia). In others, one organisation is the main financing body, which can be a driver for other organisations to participate (Estonia, Finland and the Netherlands). In Finland this has definitely been the case.

Estonia had little budget for ICT-investments, which has not been addressed as a barrier, since it forced them to look for simple solutions. In Estonia development costs mounted to about € 60,000 each year. In Spain, AEAT was the only organisation that more or less had an individual responsibility (or at least a very strong leading role) for the public service described. In this case, investments made can be regarded as continuously necessary. In some cases, private partners have also invested in the development of e-government, because of their responsibility as (larger) companies to invest in their country or region (Estonia, Finland and Germany).

GERMANY

The public-private partnership Bremen Online Services is financed 51% by the city of Bremen and 49% by the private sector. The companies match the necessary funds. The companies in BOS don't expect returns on the short term. Main reasons to invest are to stimulate the local economy and to gain knowledge and experience in digitised service delivery. The city of Bremen benefits directly through the matching funds. Furthermore, outsourcing of some elements of the infrastructure and service provision to BOS works more efficiently.

FINLAND

Since consultation with other public authorities did not lead to action, the Ministry of Finance started to build on the TYVI-concept. The Tax Agency was the first user. The Ministry of Finance has made the initial investments regarding TYVI, which amounts to about € 250.000. The further development of TYVI is financed by the private operators. Since costs to join are low, many authorities are now connected to TYVI. Public authorities pay operators for each communication from and to customers. Only when the participating authorities want special adjustments for TYVI, which was necessary for VAHTI, the authority involved finances the investment.

Investments made by customers as private persons are not necessary. The only condition is access to internet. In some cases (Finland and Spain) larger companies have had to make some investments to upscale their information systems to be able to meet the obligation to file electronically.

3.6.2 *Financial gains*

As mentioned in chapter 2, one of the main returns of e-government is cost reduction. In every case the expected efficiency gains have been one of the main motives for changes. However, these expected gains are hardly ever quantified and measured. The idea that a more efficient process design or organisational structure contributes to financial advantages seems to be specific enough to motivate changes made. In some cases however, a clear financial target has been an important driver for the backoffice changes. Denmark and the Netherlands are good examples of this. But also in these examples the financial gains have not been measured (yet).

3.7 **Conclusion**

This chapter shows that many different changes in the backoffice are necessary in order to gain improvements such as time and cost reduction and an increased service level. However, most cases show that structural organisational changes in the backoffices are rather limited. For example, there are no clear examples of integration or substantial re-organisation of backoffices. The Dutch and Finnish cases show the most far-reaching organisational changes. What does change in many cases, though, is the distribution of information, and, therefore, control between organisations. Moreover, most case studies focus on the redesign of workflows and other ways of interacting between public authorities and other parties involved.

The chosen change strategies seem to realise a maximum of returns with limited organisational backoffice changes. This may imply that backoffices in the studied cases are functioning not that bad at all, but it may also point to the fact that the re-organisation does not have a top priority, possibly because e-government initiators realise that a fundamental reform of backoffices is quite difficult to accomplish (with respect to the right momentum, commitment needed and expected resistance) and will delay innovations. We may conclude that fundamental re-organisation is not needed to achieve quick, short term returns. By digitising workflows, by putting information and services (forms, databases) online, and by less radical organisational changes, quick wins can be established.

As we saw in chapter 2, returns for public authorities are the highest. Considering the type of changes made, this seems to be logical. To further improve public services for public authorities as well as for customers, more radical changes should be made.

The case studies show interesting examples of ‘smart investments’. Instead of developing a new method for authentication for example, some governments decided to use the already available unique codes customers use for internet banking. This of course saves development costs, but is also user friendly, since customers do not have

to get a new code for government transactions. Another example is the purchase of already available transaction platforms.

The role of the private sector is evident in most cases. If the public service provision contains financial elements (supporting transactions, taxes, grants), the role of the banks is prominent. As pioneers in e-banking, they provide knowledge and application tools, sometimes free of charge. Banks and Trusted Third Parties play a role in supporting fully digital transaction processes. Complicated technical changes in the backoffices' information infrastructure are not necessary. Conversion of electronic data interchange between customers and public authorities can be carried out by service operators.

The table on the next pages summarises the most important backoffice changes in each case studied.

Case study	Most important backoffice changes
Denmark	<ul style="list-style-type: none"> • Some administrative functions concerning collecting applications, storing and keying these into the system, sending information back and forth, have become superfluous. Adjusting the workflows and almost disintermediation of a data input bureau. • Low investments costs: <ul style="list-style-type: none"> ○ Low costs for development web tool, because the tool was very simple. ○ Costs for a single sign on for students with a digital signature were reasonably low, because the company who offers signatures recently developed a similar system for another agency. ○ No need to invest in often expensive, propriety software. Open source web technology based on XML, serving as middleware between the existing systems, is cheaper. • Collaboration necessary between three organisations. They launched a service community with a joint login service for students with a digital signature, creating a one-stop-shop service and enabling students to visit any of the services of the three agencies by logging in once. They implement an automatic feedback function by using digital early warning system, which provides students more information on their grant situation and personal income.
Estonia	<ul style="list-style-type: none"> • A strong push for legal adjustments to force legal entities to share relevant information about payments from citizens (like educational costs, gifts, pensions, etc.). However, sometimes the Law poses restrictions on information exchange. • Low investments costs: <ul style="list-style-type: none"> ○ Sharing activities with private sector: authentication system is developed by private banks (costs € 85,000) and the bank helps the yearly formed Income Tax Declaration project team of the Maksuamet by giving them feedback on visual design, and navigation decision ○ For budgetary reasons Maksuamet start with use of open standards as much as possible (XML, web services), leaving behind for the time being, more expensive solutions like open source applications. • Process reduction has been achieved by: <ul style="list-style-type: none"> ○ Integrating national registers in the board's database, as are the many registers of legal entities. ○ Electronic risk analysis. In the former situation, all declarations had to be audited individually and manually. An electronic risk assessment procedure has been developed. The electronic risk analysis can reduce the amount of income tax declarations to be audited to 30%. Fast refunding decisions are now possible.
Finland	<ul style="list-style-type: none"> • A new business model has been set up, TYVI, for electronic data interchange. TYVI is highly flexible and uses open standards. The Ministry of Finance took the initiative to get started, to take risks and invest in a standard for government to customer communication. • More co-operation between public authorities, and between government and private organisations (operators and banks, among others regarding authentication) • Large companies have been obligated to file electronically, communication efforts have been made to help meet this obligation in time. New regulation should make it possible in the future to charge businesses when they chose to file paper tax declarations. This of course, to stimulate electronic filing.

Case study	Most important backoffice changes
France	<ul style="list-style-type: none"> • The shared platform and the use of open standards is the main difference. Before, all local authorities were responsible themselves for developing content, services and technical solutions. Now one organisation is responsible for controlling the platform, and all participating organisations have a joint responsibility for sharing content. • A new business model has been designed for Service-Public Local focussing on standardisation and co-operation. The exchange of data is free for those who contribute and give access to their (local) data. A low fee for membership is asked from local authorities who use the platform for co-branding in their web site. (From € 150 a year for a town with less than 3,500 inhabitants to € 4,000 a year for Paris).
Germany	<ul style="list-style-type: none"> • Only with the use of additional secondary services (authentication, payments) offered by BOS and private companies, a full integration of backoffices workflows was possible. The transaction platform is called ‘Governicus’. This application has been used particularly in cases with “frequent” users like large companies and lawyers. • “Governicus” uses open standards achieving platform and application independence. This offers good opportunities for fast and cheap roll out to other public services. • A regional collaborative network (city, banks, universities) has been set up in a public-private partnership construction. This ‘BOS’ brought in expertise and money to develop e-government. A federal grant of € 10M provided a solid base for this.
The Netherlands	<ul style="list-style-type: none"> • Centralised execution of the housing benefits law; fewer organisations have an actual role in the application process. This has meant a shift in responsibilities has taken place. The local organisations now have a more service oriented task (with respect to providing information to customers). • To share data and automatically check information with the databases of the Tax Agency and the local authorities, agreements between organisations have been made and technical solutions were created.
Slovenia	<ul style="list-style-type: none"> • Adjustments in legislation mean that data which are already kept in various states’ registers should be assured by public bodies and not by citizens. This means an important change in the shift of responsibility for accessing the data from citizens towards public employees in assuring data. Now public authorities have to organise to fulfil this obligation. • Just digitising: applications for computer-to-computer communication have been prepared physical and old media (magnetic tapes) have been replaced by new information and communication technologies. • A platform for linking registers was made, called: electronic administrative affairs (generics) Via central numeration, meta-data, and link modules, electronically signed e-application forms in XML forms with the use of http protocol can be administered; the tracking of e-application forms and linking with different registers (CRP, RTE), sight-demands of the land register and land cadastre has been assured. A two-way asynchronous communication between registers and other important data resources has been set up. Every day the CPR receives online all the updates on the addresses from the Register of Spatial Unites on daily bases (over the night). The CRP receives also daily changes for deaths, migrations, changes of names while mutations concerning births will be automated in July 2004.

Case study	Most important backoffice changes
Spain	<ul style="list-style-type: none">• Redesign of processes: digitised filing and highly automated transaction of data and services (filings and payments). Since the organisation was already designed to cope with these new processes, changes mainly concerned the further step by step development of the systems and communication standards.• The Tax Agency has been able to reduce administrative work, and invest in more service related work.• Changes in legislation have been made to obligate large companies to file electronically. This has contributed to a high user uptake and relatively high cost savings.

4 Conclusions

4.1 Introduction

The objective of this study was to answer the question if – and how - it is rewarding to invest in the use of ICT for public services in Europe. A positive answer to this question may inspire Member States for setting up and/or improving their own e-government initiatives. In general, it is assumed that the use of ICT for public services involves organisational changes, particularly in the backoffice. Against that background, the second question to answer in this study was what kind of changes in the backoffice are required in order to achieve pay-offs in e-government services.

The results are based on a qualitative approach: eight selected cases have been studied in depth. These cases were selected from a long list of successful e-government initiatives in the European Union. The selection criteria for these cases were:

- Does the case represent an innovative service using ICT?
- Does the case contribute to improvements for customers and organisations involved?
- Does the case involve multiple changes in the backoffice?
- Is there co-operation between organisations?
- Do the cases represent different areas of public services and different regions within the expanded European Union?

For each case study relevant documents and websites have been studied, and the most important parties involved have been interviewed. If possible, the representatives of organisations and customers involved in the case have been questioned. We have used a standardised analytical framework to collect and analyse data. (See Annex B.) If available, quantitative information has been used to substantiate the results.

In this final chapter conclusions are drawn: is the use of ICT in the public sector indeed rewarding, based on empirical evidence from best practices throughout Europe? More specifically, what are the most important returns that can be observed? How are these returns accomplished? And how are returns and successful change approaches related? What are the critical success factors (or conditions) for realising backoffice changes and returns? The chapter ends with recommendations.

4.2 Main findings

4.2.1 *Main returns*

In the study we have made a distinction between seven kinds of returns:

- (1) improved quality of information and information supply;
- (2) reduction of process time;
- (3) reduction of administrative burdens;
- (4) cost reduction;
- (5) improved service level;
- (6) increased efficiency;
- (7) increased customer satisfaction.

The results of the case studies show that the use of ICT in the public sector can indeed be rewarding. All case studies show different degrees of improved service delivery (more digitised information, more transparency, more flexibility, faster delivery), and a reduction of transaction costs (reduction of process time, saving on costs, more efficiency and –especially for businesses– a reduction of administrative burdens). Furthermore, we have observed different returns for customers on the one hand, and governmental/public authorities on the other hand: the public authorities themselves appear to benefit most from investments in e-government. The most striking result of this study is that quick wins in particular can be obtained relatively easily, that is, without fundamental organisational changes.

The most tangible, and, in many cases, most appealing returns are: *reduced process time and reduced costs (e.g. in terms of reduction of administrative burdens for businesses)*. This is particularly the case for services delivered to large groups of customers, or services delivered with a high frequency. However, the study also shows that returns in terms of time and cost savings are even higher when public authorities invest in other areas as well, for example service level. There is a strong interrelatedness of returns: one return may follow from another return, and, thus, returns strengthen one another. For instance, returns in terms of process and cost reduction may improve both the service level and the efficiency, which in turn may increase customer satisfaction. Therefore, a well developed view on how these different returns may influence and strengthen each other, is a critical success factor since it contributes to the maximisation of overall returns and has a more profound impact on citizens and business that make use of (electronic) public services.

Looking more specifically at the returns for different target groups, the advantages for *citizens* are mostly an improved service level and a reduction of flow time. However, most citizens normally only have few contacts with the government each year, which make these returns relatively small. Returns are most significant for those customers

who have frequent contact with governmental or public bodies (e.g. in the area of social benefits or student loans).

Salient returns for *companies* are basically the same as for citizens. But, since most businesses have other and especially more frequent contacts with public authorities, for them returns are more significant. For instance, reduced process time (for filing) directly contributes to cost savings for companies, since their administrative obligations take much more time than for citizens. Their administrative burden can be reduced significantly this way. An additional advantage that is more significant for companies is the higher quality of (management) information.

The returns for *public authorities* themselves are most significant, as the number of transactions is also highest for them. Returns are highest in terms of time and cost reduction, since in many cases the time and costs per transaction can almost directly be reduced because of the use of ICT. The most important success factor for governments is to provide data interconnectivity and use digital transaction mechanisms which reduce transaction costs and improve services to the citizen and businesses.

Overall, a high frequency of transactions is very important to achieve high returns, especially cost reduction. Therefore, in some cases we have seen segmenting strategies by governments: they have focused their e-government activities on specific groups that maintain frequent contacts with the government (because of administrative obligations) and on specific citizen groups that are more or less compelled to use digital platforms or online services (taxpayers, students). In those cases a certain scale (critical mass) can be achieved, which is indeed a critical success factor. In specific cases, stimulating the use of the electronic channel via statutory requirements (e.g. in the fiscal area) or other (e.g. financial) incentives can be seen as a critical success factor for uptake of eGovernment services too.

Returns are relatively easily to achieve if information or workflows are standardised and structured, and the ‘product’ can be dematerialised and substituted by electronic forms. In that case, transactions are not so complicated and can be done online quite easily. Examples are information enquiries, online forms, register information, accessing of databases and retrieving specific information. A drawback is that particular technical aspects such as online authentication and payments by transactions or the ‘communication’ between data and the conversion of data are sometimes difficult to realise, driving up the costs. Outsourcing is an option to limit these costs to a certain extent.

The conclusions point to the rewarding potential of a ‘strategy’ focusing on *quick wins*, particularly because such a strategy does not involve fundamental transformations of the backoffice (we shall elaborate on this in the next section). This is an important factor for success, because it increases the willingness of involved

parties to adopt these new services and, with that, lays the foundation for more revolutionary changes in backoffice organisation and processes that can lead to more substantial returns and impact on e.g. customer satisfaction. However, we can also make the observation that the relatively easily gained returns based on quick wins are often only returns in terms of process time reduction and cost reduction, while there are many other areas where returns may be gained. A more integrative approach will probably not only maximise returns, but will also have a more enduring long-term effect. Whether this does involve more structural changes in the backoffice, is an important question to answer. In general, it seems that achieving a really major (economic, social and even democratic) impact asks for more a more substantial, somewhat revolutionary transformation and redesign of public administration backoffices.

4.2.2 *Change approach*

The results of the case studies show that at the least some changes in the backoffice are necessary in order to obtain improvements such as time and cost reduction, and an increased service level. For instance, in many cases the distribution of information and, therefore, control between organisations changes. Furthermore, most case studies show a redesign of workflows and new ways of interacting between public authorities and other parties involved. Especially co-operation, both between public organisations and with private organisations, is essential to realise returns (think of ‘collaborative government’ and forms of public private partnerships). However, the cases also show that until now, *fundamental* organisational changes in the backoffice are rather limited. For instance, there are little examples of a full integration of service delivery channels or of substantial redesign of backoffices. In this sense, the Dutch and Finnish cases are showing the most far-reaching changes. But again, it is important to realise that fundamental changes do not appear to be necessary to obtain quick wins. This underlines the conclusion that a useful strategy is to achieve a short term maximum of returns with limited organisational backoffice changes.

These quick wins can easily be reached through e.g. digitising workflows, or by offering information and services (forms, databases) online. Organisations with a high information capacity, with information that is particularly structured and standardised, and with intensive or high impact clients contacts have succeeded in making their information household more transparent (interconnected and accessible), efficient and customer friendly. In more complex organisational chains, where multiple stages are necessary to produce services, we have also observed centralisation or concentration tendencies – especially where it concerns the information infrastructure. In these cases, the distribution of information and division of (at least operational) powers change.

If local or regional services do not have a primarily local character, we have seen that they can easily be transformed to more central or national organised public services (e.g. student grants, taxes, housing benefits). In those cases, the combination of modern ICT and organisational redesign does not seldom lead to concrete savings for local offices or frontoffices (see, for example, the case study on housing benefits in the Netherlands). Building online transaction platforms can be a useful strategy, as it reduces contacts with citizens and makes it easier for citizens to apply for services. This strategy is working quite well if there is a high frequency of transactions between government and citizens. Sometimes organisations save on personnel costs and some administrative costs when some (local or physical) frontoffice functions become obsolete, and can therefore disappear. However, sometimes other functions are created in turn, demanding personnel with particular new qualifications. For example, if the greater part of (more routine) transactions can be dealt with electronically, the smaller part of (more complex) services delivery transactions can receive much more tailor-made attention. As a result, part of the personnel can be given a new role with specific skills geared to handling these more complex cases of applications for a variety of public services.

So, in general, e-government pays off when a quick win-strategy is adopted. This result may point out that the backoffices of the organisations that have been studied, are not functioning that bad at all. On the other hand, it may also underline that (firmly) re-organising backoffices does not have top priority at this point in time. E-government initiators seem to be aware of the fact that a fundamental reform of backoffices is quite difficult to accomplish at short notice – it needs the right momentum and commitment and not seldom substantial resistance may be expected. One is afraid that this will delay innovations.

The case studies show interesting examples of ‘smart investments’. For example, instead of developing a new method for authentication, some governments decided to use the already available unique codes customers use for internet banking. This of course saves development costs, but is also user friendly, since customers do not have to get (used to) a new code for government transactions. Another example of such a smart investment is the purchase of transaction platforms which are already available. The crucial role of partners from the private sector in gaining returns is evident in most cases. For instance, if public service provision contains financial elements (supporting transactions, taxes, grants) the role of banks is a prominent one. Banks and Trusted Third Parties play an important role in supporting fully digital transaction processes. In those cases, complicated technical changes in the backoffices’ information infrastructure are not (yet) necessary. Conversion of electronic data interchange between customers and public authorities can be carried out by service operators that are already fully operational (in the private sector).

To sum up the results that came up in the case studies, quick wins can be gained relatively easy by investing in, for instance:

- interorganisational co-operation (the re-use of data and processes; e.g. making use of Shared Service Centres or Trusted Third Parties);
- the use of pro-active services (for instance by pre-filling forms);
- the application of private sector solutions (e.g. transaction platforms or authentication methods);
- digitising processes (for instance for risk analysis and management information);
- multichannelling (increasing the number of channels, including more advanced and technologies that have a widespread use among customers, such as SMS).

Although we have concluded that fundamental changes are not immediately necessary in order to realise quick wins, a willingness to change may improve a broader take up of e-government services, and may result in a fuller spectrum of returns. The following success factors may contribute to a willingness to change:

- To start with a quick win-strategy appears to be effective especially for larger organisations with employees who are reluctant to change or with employees with little ICT-experience;
- The cases show that an innovative climate in the organisation is a driver for change. There should be a positive attitude towards the introduction of innovations. Time and money should be made available, and ICT needs to be considered as important tool to improve services;
- A conditional factor is also the availability of the right people at the right time. A high level of ambition and a common understanding of those ambitions among the involved parties can add value to a project. The cases show that the participation of inspiring partners from the private sector or universities can make a difference;
- This also underlines that an open mind for the outside world and a willingness to bring public and private partners with a shared vision together, can be a driver for success, especially in complex projects. In certain circumstances, the government itself does not have the expertise for e-government implementation, in which cases hiring and outsourcing expertise appears to be very effective.
- Some political pressure is needed. If there is a sense of urgency – expressed in political pressure – organisations are more inclined to realise changes. Binding new legislation can oblige administrations to act according to new laws. An example of this in the case studies is the obligation to exchange data within the public sector itself (instead of asking customers for the same data over and over again);
- Another, more positive strategy which contributes to the willingness to change is the use of financial incentives such as subsidies and prizes (cf. the case study on Bremen Online Services which contributed to full integration of backoffice workflows, but also incentive referring to rewarding public authorities if they reach their targets on increase of electronic transaction uptake);

- The use of existing infrastructures works well. In most cases existing infrastructures can be used relatively easy and this lays a foundation for a future, more radical information infrastructure redesign without disturbing the existing division of powers overnight, nor causing unnecessary delay in the use of ICT for improvements of efficiency, effectiveness or service delivery. Moreover, high investments in time, money and training are needed if one decides for a totally different infrastructure, and the use of existing infrastructures creates room for a longer period of organising more revolutionary changes.

Furthermore, in order to develop an adequate change approach, background factors need to be taken into consideration. The uptake of e-government and the underlying organisational changes are influenced by the specific social-economical circumstances in Member States, their culture and traditions, and their political system or constitution. The cases have shown that for example a strict privacy law in a specific country considerably limits the extent of data interchange (e.g. Germany). A strong tradition of co-operation between public and regional private companies creates excellent opportunities for public-private partnerships (e.g. Germany and Finland). A high degree of willingness to modernise government could be explained by the strong desire to leave the old ‘communist bureaucracy’ behind, as can be observed in Estonia and Slovenia. The most successful e-government initiatives take these social, cultural and constitutional factors into consideration, and translate them in specific solutions.

To conclude, the most striking result of this study is that quick results can be achieved without a fundamental re-organisation of backoffices, which means: without internal or external re-organisation of backoffice structures. On the one hand, this is a quite promising result, as it shows that e-government investments do indeed pay off – and often rather easily – and do not force governments to rush into complicated re-organisation processes, which may lead to re-bound effects (particularly in terms of time and costs!). On the other hand, we have also concluded that this seems to imply a quite narrow range of returns (particularly in terms of cost and time reduction), from which especially public authorities themselves seem to profit. This brings us to some specific recommendations based on what we have observed in the eight European cases.

4.3 Recommendations

Having described the main findings of our study, we notice three conclusions that stand out. First, we have concluded that quick wins can be realised quite easily without fundamental backoffice changes. Second, we have concluded that returns vary substantially for different target groups. And third, the range of returns is still quite limited, which implies that a further maximisation of returns is still in order. Based on these conclusions some recommendations can be made, which we will present in the following.

If we take a closer look at the type of returns that we have found in the cases, we have particularly observed process time returns and cost returns. These are also the areas where the quick wins can be realised most easily. On the long term, however, a more integrative approach – which focuses on a broader range of returns and also on the way these returns impact each other – may not only maximise the potential for success but may also increase the returns for different target groups. Moreover, what we have observed, is that governmental and public authorities themselves profit most from e-government initiatives, while the returns for individual citizens still remain quite limited. Only those specific targeted groups of citizens who have frequent, regular and a more or less institutionalised contacts with government authorities (such as tax payers, students, citizens who use social services) enjoy the real benefits of, for instance, reduction of administrative burdens or shortening of waiting times. Of course the public value of the efforts of the public authorities increases, of which citizens (and businesses) profit in the end.

Companies benefit slightly more than citizens from investments in e-government, particularly because they usually have more frequent contacts with governments than individual citizens. Furthermore, for businesses reduction of administrative burdens automatically also involves cost reductions. It may be expected, however, that in the future, the number of digital contacts between government and citizens will increase and, thus, the need for clear returns on the citizen side will become more urgent, particularly if the trend towards a more emancipated citizen will continue. Of course, this also applies to companies, because they too will increasingly use digital public services and will have more detailed needs accordingly. These developments will result in a more articulated and more complicated demand for public service delivery and quality of service in the near future.

In that sense, it will be necessary to look beyond the current, more or less one-sided focus on returns, such as process time and cost reduction. This involves a more integrative improvement of the quality of services and service delivery, which – particularly if we look at it from a citizens' perspective – also implies returns such as the improvement of *transparency*, *accountability*, and *trust* (principles of 'good governance'). This will force government and other public-service providers to

broaden their objectives, and become more responsive towards citizens, businesses and societal movements. Objectives will go beyond a narrow, primarily economically based perception of e-government, which focuses on the rationalisation of public services and will have to include aspects of *e-governance* as well. This, in turn, will also bring about new challenges for backoffices, and, accordingly, a willingness to change more fundamentally.

Therefore, we recommend developing an integrated and multi-staged approach. Such an approach may start with the short-term quick wins that can be realised quite easily without revolutionary changes, but at the same time develops a long-term perspective, which covers the full range of returns to be realised and takes into account how these returns may reinforce or hinder each other. Such an approach specifically addresses the needs and expectations of different target groups, both in the short run, and in the long run. The first stage of such an approach focuses on the short term returns, which may create the right conditions for a climate that is open to more fundamental backoffice changes and more far reaching service innovations in the long run.

This can be translated into the following recommendations:

Develop an integrated and long-term approach towards the realisation of returns, including multiple objectives for different target groups and translate those into necessary short term and long term backoffice changes.

This integrative approach may maximise the potential for success and increase the returns for a broader range of target groups. Possibly, the development of such an approach needs to be based on more thorough research of e-government developments throughout Europe, and an analysis of expected trends in this field. Constituting new challenges for future e-government services should be done on a national scale as well as on a European scale.

For the short term focus on quick wins:

- Start with using modern ICT for *high impact services*: services that focus on large and clearly recognisable target groups, who have an established relationship with governmental bodies, and a clear need for frequent contact;
- Take the *existing organisational, functional and technical situation* as a starting point for rolling out these services;
- Apply *working or proven solutions and technologies* (also those which have been proven to be successful in the private sector) as “e-government building blocks”, based on *open standards*;
- Consider the potential for *scaling* and for *stimulating via regulations or other incentives* (e.g. pay substantial attention to the marketing aspects of new, electronic channels for service delivery or electronic participation or consultation –also see the following recommendation).

As we have seen, the use of ICT in organisational chains provides opportunities to concentrate or centralise the information household. Often, customers have direct access to centralised databases via a single point of access. Digitised contacts increase (heavily), face to face contacts decrease (gradually). Scaling local services to a national level is an attractive perspective; however, the extent of ‘scaling’ depends on different factors such as the complexity of service (generally low complexity contributes to larger scale solutions); the complexity of organisations involved (higher complexity and divergence of visions and interests makes co-operation and centralisation difficult) and the availability of networks or ‘organisational chains’ that are willing to co-operate.

Develop and implement a generic information infrastructure, which is agreed upon by all (or the most important) parties involved and that incorporates aspects such as the protection of privacy, security and openness adequately.

In almost all cases we’ve found that building new electronic services has been made possible by either building on existing technology, organisation and regulation infrastructures (in ‘quick win’ cases) or, in developing more radical or multiparty e-government projects, we’ve seen that a centralisation or concentration of the information infrastructure facilitates the return on investments.

On the specific matter of privacy concerns, the case studies have shown that the right for personal data protection, or the right to be informed with regard to the collection, treatment, storing and use of personal data can pose restrictions to the use and exchange of information by public authorities, and, thus, can be a barrier to innovative and/or effective public service development. In transaction processes the traceability of the usage of personal data is also demanded for privacy reasons. In the latter more work and bureaucracy is required, leading to more costs. Privacy legislation varies across the EU countries. There is a need for a balance between privacy issues and efficiency, or quality of service, issues. This issue needs to be addressed at the European policy level, as e-government is a crucial part of the eEurope agenda. One option could be that government position themselves as launching customer, for privacy enhancing technologies or creating the right conditions to use privacy enhancing technologies.

Find out if the uptake of e-services can be boosted through binding legislation or, in a more positive way, by providing financial incentives, or by the use of marketing techniques or campaigns.

More research into the factors which influence the uptake and use of e-services by specific groups (both governmental bodies and customers) is needed to use these instruments in a productive way. The question whether a certain degree of pressure (through legislation) or stimulation (e.g. campaigning) improves or accelerates the uptake of e-government can not be answered very easily. In our study most authorities are still reluctant to *oblige* their customers to use electronic services. Finland and

Spain have made it mandatory for large companies to use their electronic services – and the Tax Authority in the Netherlands has also announced to do so. Most public authorities still have a more modest approach by investing in persuasive communication and other marketing efforts (cf. Denmark, Estonia, France, Germany, the Netherlands and Slovenia). We may stress here, that, as government itself is a frequent user (maybe even the most frequent user), large returns can be made by encouraging the uptake of electronic services *within* public authorities and governments. For all user groups, it may be wise to have a more articulated picture of their needs and how these may be translated into higher returns. More research is needed to map these differentiated needs.

Stimulate the measurement of costs and returns of e-government initiatives quantitatively as well as qualitatively in order to increase the awareness of success factors and their interrelatedness.

In measuring costs and benefits, do not only focus on ‘delivery benchmarking’ (progress in establishing electronic channels, their content and specific economic returns in terms of efficiency and effectiveness), but try and shift the focus to (1) innovative projects as such (as examples to learn from), and (2) the impact and actual uptake of e-government initiatives; focus on benchmarking the social, economic and democratic impact and uptake of electronic service more dominantly than before by not focusing one-sidedly on benchmarks of the provision of electronic services itself, but rather on the impact of eGovernment initiatives in a more broader sense.

The results of broader cost/benefits analysis and benchmarking may contribute to the long-term integrative approach, as recommended above. This also involves the development of a methodology for measurement and/or measuring indicators on a European or national level, which takes into account quantitative (output) and qualitative (outcome) indicators. The case studies show difficulties to measure and quantify costs and returns of e-government initiatives. They are usually spread over more than one process and more than one organisation. In many cases, returns are used to invest in other areas, which means returns in terms of costs or number of employees are difficult to identify. We recommend working on this in close collaboration with several parties which have expertise in specific disciplines, for example Eurostat for Statistics on uptake, and administrative scientists on politico-administrative or societal effects.

To sum up, we recommend:

- a) An integrative and multi-staged approach which is geared to a combination of several public services and different target groups – along a two way street of short term evolutionary steps, next to a more revolutionary simultaneous transformation of both backoffices and the use of ICT;
- b) Generic information infrastructures that are agreed upon by all parties involved and that incorporate aspects such as the protection of privacy;

- c) Facilitating the uptake of electronic public services by various forms of stimulation (legislation, incentives, public relations and marketing);
- d) Stimulation of measurement of costs and benefits in a broad sense (quantitative and qualitative, focus on set up, but also on innovation, actual uptake and societal (social, economic, judicial and democratic) impact).

To conclude

Thus, we have brought up some suggestions concerning ways to deal with e-government initiatives in individual cases, on organisational or sometimes multi-organisational level. Moreover, one can make a distinction between e-government on the national and on the European level. In this study, only national, regional or local case studies have been involved. Therefore, the recommendations presented above mainly involve future development and implementation of (inter)organisational e-government initiatives within the borders of a country or part of a country. However, in the specific case of cross-border e-government initiatives, most of these recommendations can actually contribute to the success of international projects or programmes as well. This is the case in the area of privacy and security regulations –and not only because in our present networked society the physically drawn borders are becoming more or less irrelevant in the emerging virtual world (e.g. think of the war or terrorism, prevention of child abuse (such as in the recent case of Michel Fourniret) but also think of less horrifying examples such as cross-border service delivery to migrating citizens, health service delivery or enforcement of environmental regulations).

In fact, we think that almost all policy areas that are (or will be) explicitly subjected to the field of work for the European Union (e.g. agriculture, asylum policy or transport), are (or will be) confronted with the advantages of using modern ICT. Therefore, intensive international co-operation will be required on matters such as backoffice transformation (with multiple objectives and target groups), the establishment of a working international system of central registers with key data on persons and businesses, regulations that provide for one-time-only data collection and multiple use within public administrations, and European decisions on interoperability and technical standards.

International agreements on technical, organisational, legal and financial matters are in place on the way to a European Community that strives for a less bureaucratic and more citizen-centric ‘world class public administration’. In that, we fully agree with the recent CoBra recommendations for e-government beyond 2005: there should be a shared European resource of building blocks and joint action for pan-European services – and at the same time we should strengthen local and regional implementation. To conclude: ‘e-government is at least as much about people, organisation and institutions as about technology’ – and keeping that in mind we must be able to make e-government into a phenomenon that in the first place has considerable pay offs for citizens and business.

Annex A – Sources of information

Best Practices From European eGovernment, Forrester, June 2003

Better eEurope practices eGovernment – <http://www.beepgovernment.com> en
<http://www.beepknowledgesystem.org>

Capgemini international network

Cobra Recommendations to the eEurope Advisory Board: eGovernment beyond 2005 – Modern and Innovative Public Administrations in the 2010 Horizon, 3rd eEurope eGovernment subgroup meeting, Amsterdam 27-28 September 2004

eEurope Awards for eGovernment – 2003 Exhibition Catalogue

eGovernment Leadership: Engaging the Customer, Accenture, April 2003

Dutch eGovernment Outline of electronic services from foreign governments –
http://matrix.overheid.nl/matrix.jsp?id=5242&sortfield=int_country

Inventory of the 3rd Quality Conference for Public Administrations in the EU

Reorganisation of Government Backoffices for Better Electronic Public Services – European Good Practices (Back-office reorganisation), Danish Technological Institute & University of Bremen, January 2004

The Stockholm Challenge – <http://www.challenge.stockholm.se/>

Top of The Web – Survey on quality and usage of public e-services, November 2003

Web based surveys on electronic public services, CGE&Y, January 2004, October 2002, April 2002, October 2001

Annex B – Analysis framework

A guideline for analysing and describing the Eurexemps in an unambiguous, logical and consistent way:

1. Case background
 - Objectives
 - Motives (e.g. government policy, cutbacks, customer needs, ...)
 - Background information on organisations involved
2. Actual, improved situation
3. Improvements made, compared to the former situation
4. Return on improvements (in quality and quantity)
 - For society
 - For the organisations involved
5. Conditional changes in the backoffice
6. Change approach
 - Steps taken
 - Co-operation between parties
 - Critical success factors
 - Barriers and solutions

Annex C – Case studies

- 1. Denmark**
- 2. Estonia**
- 3. Finland**
- 4. France**
- 5. Germany**
- 6. The Netherlands**
- 7. Slovenia**
- 8. Spain**