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Organisational Changes, Skills and the Role of Leadership required by *e*Government

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Survey for the 44th meeting of the Directors general responsible for Public Administration of the EU member states

Table of Contents

List of contributors

EIPA team
Christine Leitner, Project Leader and Senior Lecturer
Antonio Alabau, Visiting Professor
Guadalupe Soto Mora, Senior Lecturer
Matthias Kreuzeder, Assistant to Project Leader

External experts
Daniel Hallencreutz, Intersecta (SE)
Jeremy Millard, DTI, Senior Consultant (DK)
Anna Ullsten, Intersecta (SE)
Giuseppe Zilioli, Consultant (BE)

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Christine Leitner

Executive Summary

The European Public Administration Network (EPAN) Mid-Term Programme 2004-05 aims at "identifying the acquisition of the different skills (not only technical skills) which are needed by managers and clerical staff to govern and manage change. By the end of 2005 the *e*Government skills required will be appraised and recommendations will be agreed by the Member States".

In response to that, the Ministry of Public Service in Luxembourg requested the European Institute of Public Administration (EIPA) to conduct a study entitled "Organisational Changes, Skills and the Role of Leadership required by *e*Government" with the aim of providing a basis for discussions during the Luxembourg Presidency of the European Union in the first half of 2005.

The study attempts to briefly describe the state of affairs in the European Union Member States in relation to organisational changes, skills and leadership; to identify learning points from selected good practice cases; and to suggest recommendations for future action with a focus on the skills and competencies required for *e*Government.

In addition, the study aims to address the following key issues:

1. Are radical changes in public administrations taking place and are they necessary?
2. What core new skills and competencies are required, and how old are new skills?
3. What is the relevance and impact of leadership?

A threefold methodology was chosen, combining aspects of a "top-down" and "bottom-up" approach: firstly, a survey was conducted within the EPAN *e*Government working group to identify what measures Member States propose to encourage organisational changes and leadership, how national *e*Government strategies and action plans include measures on skills, what programmes exist, and what could be done within the framework of EPAN. Secondly, to complement the findings in the survey, six cases were analysed in order to identify good practice in the field. Thirdly, desk research was also conducted, taking both previous and ongoing work into account.

The main findings of the study are as follows:

Regarding organisational changes, it appears that in most of the cases organisational changes are not radical but rather gradual in the sense that unless specific political problems or objectives are the driving force behind them, changes are quite smooth in nature. This depends, however, on the type of organisation; the preconditions, such as infrastructure; and/or on whether a defined process has been in place for many years. However, a successful outcome might lead to more 'radical' steps in a second or third phase. Continuity in the implementation of the strategies is a key requirement for *e*Government. An information and communication strategy (internal and external) is of utmost importance.

Regarding skills, there seems to be a need to identify, define and classify the different skills and competencies required by *e*Government. With the exception of ICT, new skills and competencies are hardly cutting edge – nonetheless, they appear to be of vital importance. At the management level, the most important factor appears to be the strategic planning competence. For most staff, ICT skills do not appear to be the main concern but rather planning and management (including self-management and organisation, and project management) as well as (inter)personal, social and communication skills.

In addition, external and internal consultants are an important source of expertise, but governments will have to figure out ways of providing and maintaining their own capacity within the public sector. It is the recruitment, training and retention of leadership and talent in the public sector – and not technology – that will determine the success of *e*Government initiatives. Thus, referring to the outcome of the survey, there seems to be a need to design tools for the identification and measurement of existing skills gaps and to try to establish a core content of training curricula.

Regarding leadership, the findings emphasise the need for leadership to be exercised at different levels and not just at the top level. Leaders need to ensure continuity and must make sure that structural decisions reflect the specific needs of the organisation within the framework of its long-term strategy, and that skills and human resources are developed appropriately.

The study concludes with a series of recommendations for future action within EPAN.

Saying, "my business is different," is the best excuse for not learning. What you want to do is to learn from everyone. Your business isn't so special that you can't learn from anyone you meet.

Phil Condit

Introduction

The working plan for the years 2004-05 of the EPAN (European Public Administration Network) *e*Government working group sets out a list of priorities, among them "Organisational Changes, Skills and the Role of Leadership required by *e*Government", which include:

- Organisational changes required to swiftly implement *e*Government services;
- Models through which organisational changes take place;
- Requirements of modernised service delivery processes regarding the sharing of data, business process redesign and human resources;
- Acquisition of the different skills (not only Information and Communication Technology (ICT) skills) which managers and clerical staff need in order to govern and manage change.

More specifically, the EPAN Mid-Term Programme 2004-05 aims at "identifying the acquisition of the different skills (not only technical skills) which are needed by managers and clerical staff to govern and manage change. By the end of 2005 the *e*Government skills required will be appraised and recommendations will be agreed by the Member States".

In response to the above, the Ministry for Public Service in Luxembourg requested the European Institute of Public Administration (EIPA) to draft a report on "Organisational Changes, Skills and the Role of Leadership required by *e*Government" to provide a basis for discussions in the *e*Government working group during the Luxembourg Presidency of the European Union in the first half of 2005.

The study consists of 5 sections:

Following a short introduction on the background of the study, the objectives and methodology are outlined in section one.

Section two describes the reference framework in which the study is located.

Section three outlines the results of the survey conducted among the EPAN *e*Government working group members.

In section four, selected case studies in the field are presented and analysed.

The final section draws conclusions from the previous sections and makes some suggestions for consideration in the group and/or future action.

The questionnaire, detailed results from the survey and the full case studies are included in the annexes.

1. Objectives and methodology of the study

1.1 Objectives

The present study deals with aspects of organisational changes, new skills and competencies, and the role of leadership required to achieve the benefits that effective use of ICT brings to public administration.

More specifically, the study attempts to:

- briefly describe the state of affairs in the European Union (EU) Member States;
- identify learning points from selected good practice cases with regard to organisational change, new skills and leadership requirements;
- suggest recommendations for future action with a focus on skills and competencies required for *e*Government.

1.2 Methodology

A threefold methodology was chosen, combining aspects of a "top-down" and "bottom-up" approach:

1. A survey (section 3) for the relevant contextual information within the EPAN *e*Government working group to identify:

   - what measures Member States propose to encourage organisational change and leadership;
   - how national *e*Government strategies and action plans include measures on skills;
   - what programmes exist;
   - what could be done within the framework of EPAN.

2. Selected case studies on good practice in the Member States (section 4): six cases were analysed (mainly from existing "good practice" sources, such as the *e*Europe Awards for *e*Government, the 3QC (Third Quality Conference) and others) with a balance in terms of the size of the Member States, geographical spread, different levels and types of administration and different policy sectors. The selection of case studies was validated by the *e*Government working group. Previous OECD work in the field served as a point of departure for further analysis of the skills required both for public sector managers and employees in the case analysis.

   In terms of actors and functions, we focused on different types of employees, their functions and the components of their tasks. A reference table was designed for analysis. We did not look in detail into profiles or curricula, nor into specific *e*Skills required by IT specialists, IT managers and/or information managers. This important topic on the skills and professionalisation of IT staff in the public sector will be taken up in the EPAN *e*Government working group during the UK Presidency in the second half of 2005.

3. In addition, desk research was conducted to support and complement the above. Previous work undertaken in the field, such as OECD publications, the 2003 EPAN study on Information and Communication Technology (ICT) and Human Resource Management (HRM), the 2004 EPAN study "Does *e*Government pay off", and ongoing work such as a

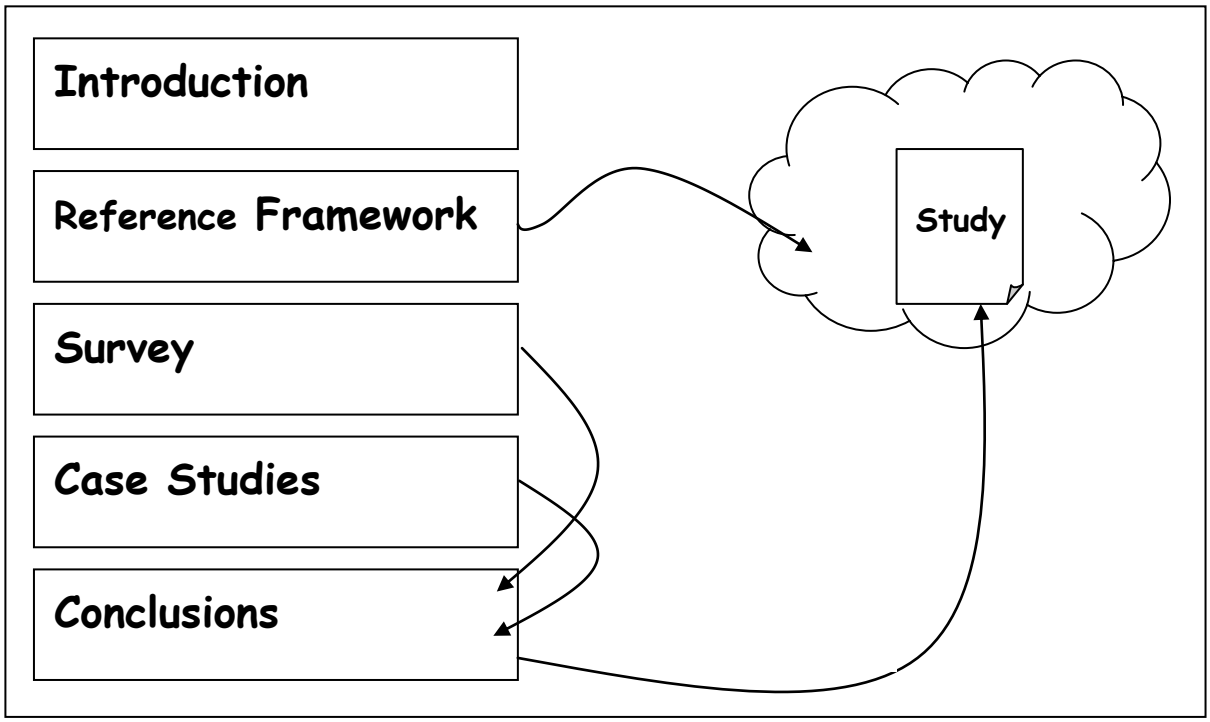
study currently conducted by the Fondazione Politecnico di Milano (which focuses on profiles and the identification of skills gaps) have been taken into account. Contacts have been established with the latter, and an exchange of views and results is planned. The purpose was to define the reference framework for the study presented in section 2 below.

1.3 Expected outcome

The expected outcome from the study is threefold, i.e. an attempt is made to:

- draw conclusions from the survey and analysis of the selected case studies that can support the exchange of experience and shared learning in the EPAN *e*Government working group;
- address some general questions arising from the complex theme to provide a broader view on the issues at stake;
- provide some conclusions and suggestions for consideration and/or future action within EPAN.

Graph 1 outlines the objective, structure and position of the study in the reference framework that will be further described in the following section:

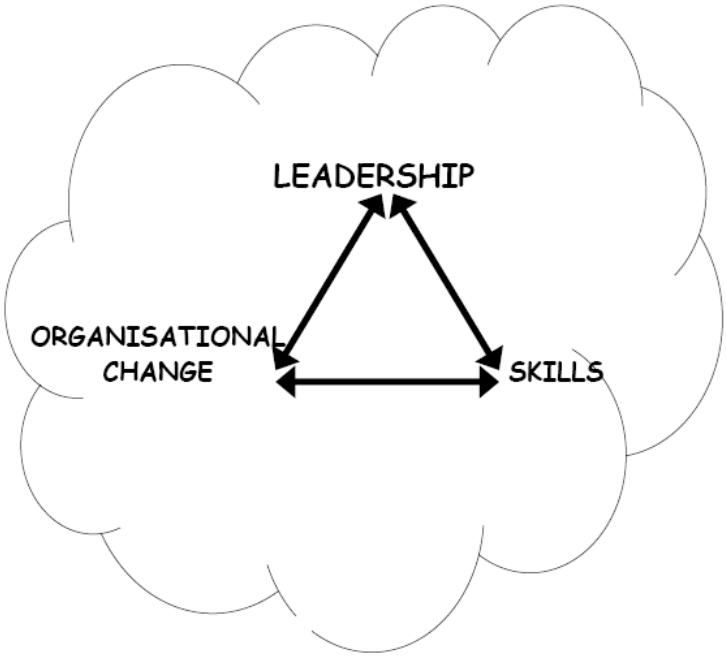


Graph 1: Reference framework of the study

2. Reference framework of the study

The theme of the study – organisational changes, skills and leadership required for *e*Government – has to be seen in the light of the wider picture of the *e*Government and modernisation process and the debate that has been ongoing for a number of years now.

The relationship and interdependencies between the three aspects within the reference framework are visualised in Graph 2:



Graph 2: Relationship and interdependence between the three aspects within the reference framework

Within the EU – to varying degrees – a certain "state of maturity" can be seen in terms of implementation and experience. In this sense, the "point of no return" has been reached as:

- ⇨ *e*Government projects have become a fact of life and there is no way to turn back time;
- ⇨ Governments are looking into return on investment, impact on and benefits for all stakeholders.

As a result, the question is no longer to be or not to be "*e*". It appears that the needs for action have changed compared to the initial phase of "the public services online mania". An emerging need seems to be the requirement for a new set of skills (not only *e*Skills) in the public service – both at the organisational and personal level – to cope with the structural challenges of modernisation and transformation against the background of socio-economic considerations. The ongoing Lisbon review process is presently further stimulating the debate.

It fact, at the European Ministerial *e*Government Conference 2003 in Como it was already stated that we have reached a "turning point", acknowledging that *e*Government is just a tool for better government which should be value-driven and not technology-driven (IPTS, 2004). The promised benefits of *e*Government do not take place simply by digitising information and providing it online. Governments are aware that benefits (see also the EPAN 2004 study) and

real value can be obtained through the use of ICT. At the same time the need for basic assessments of benefits and costs, risks and opportunities remains (OECD, 2004).

The emerging vision for *e*Government in the EU in a developing knowledge-based society and economy points at a shift in governance. However, up until now the link between *e*Government (or use of ICTs) and good or better governance has not necessarily been made. *e*Government is at the core of public management modernisation and reform, where technology is used as a strategic tool to modernise structures, processes, the regulatory framework, human resources and the culture of public administrations (IPTS, 2004). Governments will need to be more knowledge-based, user-centric, distributed and networked. Knowledge management strategies and practices appear to be high on the management agenda of most national governments across the OECD and involve organisational arrangements, personnel development, skills management, managerial changes and incentives for staff to share knowledge (OECD, 2003b). However, real results still remain to be seen.

In the light of the above, one may re-iterate – despite the rapid developments – *the four dimensions* of the *e*Government vision spelt out in the Como report in 2003 (Leitner et al, 2003), i.e. *e*Government is:

- ⇨ a key to good governance in the Information Society;
- ⇨ mission impossible without a vision;
- ⇨ not just about technology but a change of culture;
- ⇨ not just about service delivery but a way of life.

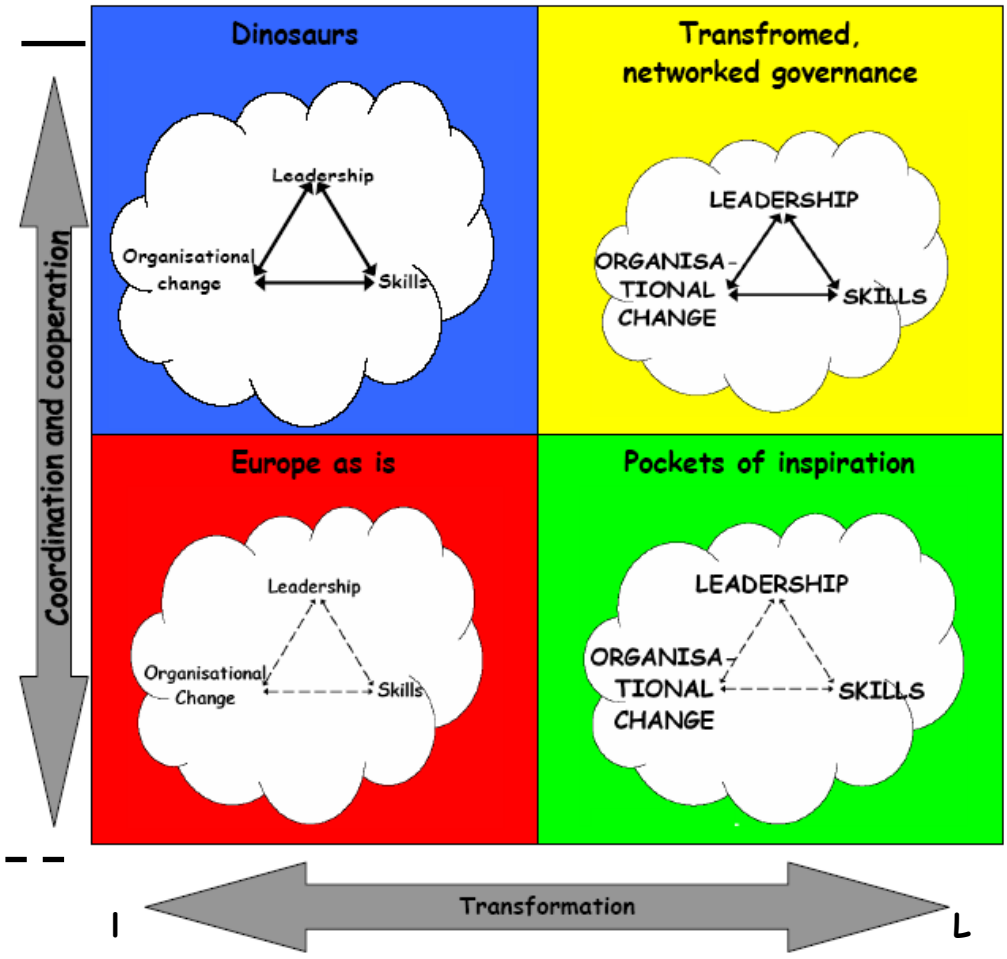
The following three aspects:

- organisational change,
- skills and
- leadership

are the focus of attention in this study. They are at the very heart of *e*Government implementation and the transformation of public services and, as such, are essential components in this complex process. In addition, they are the cornerstones of a successful strategy to implement the above vision.

In September 2004, a scenario analysis was undertaken in the *e*Government sub-group of the *e*Europe Advisory Group. The scenarios for *e*Europe developed are built on the combination of two dimensions: 1) the process of transformation and 2) the process of cooperation and coordination.

In Graph 3 below an attempt is made to locate the three aspects related to *e*Government and modernisation analysed in the study in the different scenarios, thereby indicating the flows and dependencies among them:



Graph 3: Location of the three aspects within the scenario analysis

2.1 Aspects related to organisational change in public administration

"Ironically, despite our continual struggles to drive resisting organizations to change, we are surrounded by a world of continual change. Little in nature seems to stay put. Everything is in motion, continually changing, forever adapting – everything, that is, that is alive." (Senge, 1999)

In the wake of the results of the Ministerial *e*Government Conference 2003 in Como, the European Commission defined *e*Government in its 2003 Communication as the use of ICT *combined with* organisational change and new skills in order to improve public services, democratic processes and public policies. Moreover, *e*Government also implies major socio-economic innovations and politico-administrative institutional changes based on new ICT applications and developments. As pointed out above, transforming culture is thus a *key dimension* of *e*Government.

The institutional setting influences the nature of innovation in government and it determines its pace and selectivity. It is well known that existing institutions of social and political life exert a strong influence on the behaviour and attitudes both of the general public and of the civil service. *The way we do things here* cannot be changed easily and merely through technical re-engineering (Leitner et. al., 2003). In the same vein, the European Commission states that reorganisation within the administrations may require process and procedure re-design, the training of personnel, the development of new skills and competencies, the

adaptation of local rules and legislation, and new management of employees (European Commission, 2003).

More specifically, the main challenges related to "structural transformation" for an efficient and effective approach to *e*Government are outlined in a recent paper by the Institute for Prospective Technological Studies (IPTS, 2004), namely the need to deal with:

- different administrative cultures and structures, powers and strategies,
- the legacy of organisational structures, processes, skills, mindsets, culture and resistance to change;
- the development of specific skills at both the organisational and personal level;
- trust, cooperation and collaboration; and
- the redesign of public-private partnerships, balancing public-private tasks and interests.

However, according to the OECD it is not clear that this cultural change is the result of deep organisational change. Knowledge-sharing seems to be seen to a lesser degree as an impediment to one's career, and staff share knowledge more spontaneously. The role of managers is evolving significantly as they have to oversee the work of more knowledgeable staff. Organisations have opened up to the private sector, to the academic world and to consultants and international organisations for their information supply (OECD, 2003b).

Naturally, public service ethics must be revitalised in this process of transformation. While government may learn a lot from business management, work organisation and personnel practices, its difference also needs to be recognised (Leitner et. al., 2003).

Cooperation is a great challenge since it involves a departure from deeply ingrained behavioural structures. Identification with the goals of the agency or body to which one belongs is often stronger in the public sector than elsewhere. Many obstacles have to be overcome, including many competing goals, a dense grid of regulations, the fragmentation of traditional public sector institutions and many historical legacies. Cooperation among stakeholders, including at European level, is a prerequisite in this process to achieve interoperability. This holds not only true for the pan-European level but also for national, regional and local administrative systems.

Our richness of diversity of cultures poses a major challenge to the unity that is required to make *e*Government work effectively and efficiently. The way we think, live and work together varies. Actors are embedded in different structures and have different policies, visions and attitudes. There is a need for a win-win approach enabling us to establish common goals and standards (e.g. common service platforms). During the last few years, encouraging signs of enhanced cooperation have been observed. Inter-organisational and inter-departmental cooperation, which is of vital importance for innovation alliances, has considerably increased.

Putting people first is a key precondition for success: the interests, expectations, fears and dangers which *e*Government solutions give rise to must be addressed proactively. *e*Government will only be successful if people in the public sector can be brought "on board".

Moreover, *e*Government must not be confined to information processing within the modernisation of administrations, but should be geared towards knowledge management and good governance. There is widespread concern among public employees that the increased

efficiency due to *e*Government will translate into job cuts. Such fears must be addressed and two intertwined lines of action are required:

- employees and their representative unions should be involved in cooperative change management;
- the basic and specialist skills needed for effective *e*Government must be identified and provided through vocational training for all public employees and managers (Leitner et. al., 2003).

*e*Government programmes must therefore be based on change management strategies and processes that focus on cultural issues and closely involve the stakeholders, in particular public employees, as full partners in the change process.

2.2 Skills and competencies

"The dimension that distinguishes learning from more traditional organizations is the mastery of certain basic disciplines […]. The five [disciplines] that Peter Senge identifies are said to be converging to innovate learning organizations. They are: systems thinking, personal mastery, mental models, building shared vision, team learning" (www.infed.org/thinkers/senge.htm).

According to the European Commission, organisational change and acquisition of new skills with a change of mindset are equally important (European Commission, 2003). The relevance of a skilled labour force was emphasised in the Kok report (European Commission, 2004) and, more specifically, in relation to *e*Government, in the CoBra Recommendations (*e*Europe Advisory Group, 2004) to the *e*Europe Advisory Group: "Successful transformation will only be possible with the full commitment and engagement of all stakeholders. In this context civil servants are key actors in the transformation of the administrations. Skills training of civil servants with respect to new ways of working and networked governance are essential".

The increasing importance of ICTs and the internet for public administration calls for complex skills to drive change in government. In terms of *e*Government, ICTs and the internet imply modernised service delivery processes regarding the sharing of data, business process redesign and human resources. This in turn requires organisational change, new top level leadership (*eLeaders*), with mid-level leadership (*eChampions*) supporting their work. Both clerical staff and managers need to develop a new and challenging set of skills. A new type of (general) manager is required.

Apart from basic technical skills, general managers need an understanding of information management and the information society. They must have traditional knowledge and public management skills, i.e. Human Resource Management, organisation, financial management skills etc.; skills in network management in different policy areas such as health, education and social work; basic IT literacy; as well as knowledge and skills in the management of information systems, communication networks and related aspects of information society policy (OECD, 2003). Managers need to be able to work with their organisation's information technology and information management experts to match processes with appropriate technical solutions (OECD, 2004).

Effective *e*Government implementation requires changes to skills and the skill acquisition process of staff. Basic ICT skills (such as use of a PC, mobile devices, standard programmes) are a precondition both for ordinary civil servants and managers. More advanced ICT skills

(e.g. software development, web design, database design, the use of specialised programmes, etc.) can also be required depending on the type of work to be performed.

In addition, however, modern working conditions often require further mixes of generalised and more advanced skills and competencies. In a fast-changing government work environment, with a wide variety of work forms and perhaps also contractual arrangements, there is an increasing need for individuals to take more responsibility for their own work and sometimes also for their own skills' development. This includes fostering abilities like self-organisation and self-management, inter-personal skills, dealing with unexpected rather than routine situations, greater initiative and self-reliance, etc.

Much work is increasingly being organised on a 'project' basis, i.e. individuals or teams are given a specific task or project, some resources, quality requirements and a deadline. Details as to how, where and when the work is carried out, as long as these requirements are met, are left to the workers themselves. Coping with the extra responsibility, and perhaps stress, this can cause needs to be acquired as a skill in its own right. Although many work processes remain routine in both traditional and *e*Government contexts, most government workers are being exposed to these new demands on their abilities. ICT can, in the best circumstances, take over routine functions leaving workers free to undertake more interesting and specialised tasks, for example as 'case workers' with direct citizen contact.

Decision makers in the EU have emphasised the importance of new skills for effective *e*Government implementation on various occasions. Member States have started to address skills in their *e*Government and/or modernisation strategies. It is crucial that decision makers and managers understand that investment in appropriate skills will ultimately pay off.

To date, a variety of training schemes (short-term) and educational programmes (postgraduate programmes) have been developed in the EU Member States, e.g. United Kingdom, Finland, Italy, Austria, Germany, Estonia to name but a few. A recent EPAN study has confirmed that approaches to the training of public employees vary in the EU, with responsibilities for training being quite scattered among the different levels of administration in the EU Member States (EPAN, 2003).

At present, a common understanding of a core training curriculum does not exist within the EU. According to the OECD (EPAN 2003) essential skills for *e*Government are the following:

Table 1: Essential skills for dealing with eGovernment processes

Skills	**Needed by**
Information Technology Basic IT literacy Specialist IT skills	All employees, **managers** and IT specialists
Information management Internal information management External information management Privacy protection Feedback mechanisms	**Managers** and Information Management specialists
Information Society Understand capabilities of ICT Ability to evaluate trends Foresee ICT's impact on organisational culture Ability to set ICT strategy	**Managers**

Management/Business Organisational change Risk management Accountability frameworks Financing arrangements Cooperation and collaboration Public-private partnerships	**Managers**

Source: OECD (in EPAN, 2003)

Various Member States are currently developing programmes to support the development of staff skills. It is interesting to note that according to a recent EPAN study (EPAN, 2003), subjects linked to leadership skills and the digitalisation of the public administration are the main common priorities for training in the public sector in the EU together with knowledge and skills related to EU matters.

It is therefore not surprising that a theme of this year's *e*Europe Awards for *e*Government (the final results will be presented at the Ministerial *e*Government Conference 2005 in Manchester in November) is "the right environment". This "category" focuses – among other issues – on skills and professional development in public administrations. Administrations are encouraged to make entries that demonstratively implement effective skills training, professional development, leadership, recruitment and/or knowledge transfer leading to a clear increase in internal capacity and capability to implement IT-enabled business transformation processes (www.e-europeawards.org).

2.3 The role of leadership

The above-mentioned transformation process cannot be accomplished by the public service without strong, committed and informed leadership at the political and managerial levels. Leadership and the commitment both of politicians and public sector managers are crucial in order to manage change. It has been acknowledged that *e*Government calls for strong leadership at different levels to provide a strategic vision for and the operational implementation of innovation and change processes in public administration.

Politicians and public sector managers need to be committed to investing in the future with a long-term view. All too often political leaders long for visible results, i.e. essentially service delivery, within their terms of office. However, such considerations of immediate political survival lead to fragmented if not backward processes (Leitner et. al., 2003).

At the management level, the adoption of *e*Government solutions has been hampered by business unit managers' lack of knowledge about how technology can be used as a tool to accomplish or improve government processes. Within the administrations, a new type of manager is required with a complex vision, integrating the re-engineering of work processes, administrative structure(s) and culture(s) with a citizen-centred approach, bearing in mind that ICTs and the internet are at the core of those new competencies. Managers must be able to lead (and not be led by) the organisation's IT department and outside partners and must be able to integrate the organisation's ICT strategy into its broader goals (OECD, 2003e).

A recent study on local *e*Government stresses the fact that strong leadership personalities can play a major role in overcoming innovation barriers in the process of change: "Real leadership means breaking through old habits, pushing conventional thinking aside, finding approaches wherever they are and whoever developed them, and using them to bring about change [in the local communities]." (Drüke, 2005).

As pointed out above, the practices of a society are embedded in the practice of institutions and evolve with them. This is why changes in institutions of business, government, etc. matter and why leadership – the energy that enables such change – is so important. However, "in the world of today's organisations, the idealisation of great leadership leads to an endless search for heroic figures who can come in to rescue the rest of us from recalcitrant, non-competitive institutions". One might ponder if ... "this very thinking [might] be a key reason such institutions prevail"; and finally, "might not the continual search for the hero-leader be a critical factor in itself, diverting our attention away from building institutions that, by their very nature, continually adapt and reinvent themselves, with leadership coming from many people in many places, not just from the top?" (Senge, 2002).

2.4 Some key issues

From the above reference framework, three key issues emerge:

1. Are radical changes in public administrations taking place and are they necessary?
2. What core new skills and competencies are required, and how old are new skills?
3. What is the relevance and impact of leadership?

The following sections will provide an analysis of the survey and case studies and attempt to give some answers to the above questions. Furthermore some suggestions for follow up action within EPAN will be made based on the conclusions.

3. Survey on the state of affairs in the Member States (analysis of the questionnaires)

The following section outlines the results of the survey conducted among the members of the EPAN *e*Government working group. Therefore this section is mainly based on the answers received from the members of the group, although for certain issues we have also looked into other sources of information such as available literature and recent studies in the field.

The responses received have been summarised in tables that are included in Annex 2. Responses will be made available for the group on CIRCA. The questionnaire is included in Annex 1.

3.1 Background

The Luxembourg Presidency sent out the aforementioned questionnaire to the members of the European Public Administration Network (the 25 Member States, and the candidate countries). Nineteen Member States answered the questionnaire (**Austria, Belgium, Cyprus,** the **Czech Republic, Denmark, Finland, France, Germany, Hungary, Ireland, Italy, Lithuania, Luxembourg, Malta, The Netherlands, Slovenia, Spain, Sweden** and the **United Kingdom**), as well as one candidate country (**Bulgaria**).

The survey also tries to identify issues of common interest in the EU for possible future development in the framework of the European Public Administration Network, and includes some recommendations for analysis and discussion within the *e*Government working group or together with other groups, that could be the basis for future action.

3.2 Institutional and strategic framework of organisational changes, new skills and the role of leadership required by eGovernment

3.2.1 Institutional framework

Question 1: Who is responsible at the central level for strategic aspects related to skills, organisational change and leadership development for *e*Government, and how is the coordination ensured between the different actors involved?

The institutional framework for *e*Government policies in general, and in particular the issues related to organisational changes, skills and the role of leadership vary among countries, depending on the institutional structure of the state (unitary, federal, semi-federal, centralised or decentralised), the organisation of the civil service system and the organisational structures for general training.

As a recent study in the EU has confirmed, the approaches to the training of public employees vary in the EU; in addition, responsibilities for training are quite scattered among the different levels of administration in the EU Member States (EPAN, 2003).

Table 2: Types of training systems in the EU Member States (ex EU-15)

EU Member States	Semi-decentralised	Decentralised	Centralised
Austria		X	
Belgium	X		
Denmark		X	
Finland		X	
France	X		
Germany		X	
Greece	X		
Ireland	X		
Italy	X		
Luxembourg			X
Portugal	X		
Spain		X	
Sweden		X	
The Netherlands		X	
United Kingdom	X		

Source: Hellenic National Center for Public Administration (2003)

An EIPA study states that in the new Member States, training policy is generally organised at a central level. It is either the responsibility of the Prime Minister's Office (**Poland, Malta, Hungary**), the State Chancellery (**Estonia**), the Ministry of the Interior (**Slovenia, Lithuania, Hungary,** the **Czech Republic**), the Ministry of Public Administration (**Romania, Bulgaria**), the Finance Ministry (**Cyprus**) or the Minister responsible for Government Reform (**Latvia**). (Bossaert et. al., 2003)

In some countries there is no central competence for the above-mentioned issues, for instance in **Belgium** (although there is a coordination forum at the federal level which includes all ICT managers). In some decentralised countries like **The Netherlands,** ministries, agencies, as well as local and regional government have a large degree of independence in this area (nevertheless, the Ministry of the Interior has started different programmes in the fields of recruitment and training). In **Sweden** "independently managed government agencies […] run their *e*Government development as an integrated part of their modernisation and organisational development". Each agency is responsible for the development of skills and leadership of their staff.

Despite the different institutional structures, in most countries responsibilities are at the central level, at least for the strategic aspects. These responsibilities are scattered among various ministries and bodies depending on the competency framework of each country: Prime Minister's Office, Ministry of the Interior, Ministry of Technologies, Ministry of Finance, Ministry of Public Administration, Ministry of Technology and National Institutes or Academies of Public Administration. In most cases, the responsibility for *e*Government is a shared competence.

In **Austria**, the Federal Chancellery is responsible for measures related to leadership and training in general, although each ministry is responsible for their own human resource management including training.

Cyprus has recently decided to set up a Permanent Committee for Information Society that will be chaired by the Ministry of Finance and will be responsible for the promotion of the implementation of the national strategy.

In the **Czech Republic**, the Ministry of Informatics has the main responsibility for *e*Government, but the Office of the Government (the Prime Minister's Office) is responsible for training of the central level officials.

In **Denmark**, the Digital Task Force based in the Ministry of Finance and with participation of Local Government Denmark and the Danish Regions (under the aegis of the Danish Board of *e*Government) is a cross-governmental unit with responsibilities in projects concerning skills, organisational change and leadership. Other bodies at the central level with competencies in these areas are the Agency for Government Management (also within the Ministry of Finance) which promotes skills development regarding *e*Government, and the Centre for the Development of Human Resources and Quality Management (SCKK).

In **France,** the National Plan for *e*Government defines the main actors (State, territorial entities and other organs) responsible for each of the major projects. As regards training, the Agency for the Development of *e*Government is the competent institution to develop the strategic plan, which is afterwards implemented by the different administrations.

In **Germany**, tasks related to IT strategy, IT policy and IT security are placed with the Office of the Chief Information Officer (CIO) within the Ministry of the Interior, which is also responsible for the *e*Government strategy "Deutschland Online", which aims at creating an integrated approach between the federal, state and local level. The Federal Ministry of the Interior deals with issues concerning the general modernisation process. And finally, the Federal Academy of Public Administration plays an important role in the skills development of federal civil servants and other employees.

In **Hungary**, the Electronic Government Centre is responsible for the elaboration of the *e*Government strategy, which is implemented mainly by the Ministry of Informatics and Communication and the Ministry of the Interior with the involvement of other ministries. As regards training, the competent institution is the Hungarian Institute of Public Administration.

In **Ireland**, the Department of Finance is responsible at a central level for strategic aspects related to skills, organisational change and leadership development for *e*Government. Coordination is maintained through the establishment of interest-specific committees and groups.

In **Italy**, the competence for strategic issues related to skills, organisational changes and leadership is shared between the Department for Innovation and Technologies and the Department for Public Administration. Two other bodies were recently created to support actions in this field: the Ministerial Committee for the Information Society and the National Centre for Information Technology in Public Administration (CNIPA).

In **Lithuania**, the Ministry of the Interior is responsible for elaborating and implementing civil service policy, including the control of *e*Government projects.

In **Luxembourg**, the Ministry of Civil Service and Administrative Reform has the central responsibility for skills, organisational changes and leadership development for *e*Government.

In **Malta**, the Central Information Management Unit in the Prime Minister's Office is responsible for Information Management in the Public Service, and the Ministry of IT for *e*Government initiatives.

In **Slovenia**, the newly established Ministry of Public Administration is responsible for the three areas covered by this survey.

The reply from **Spain** states that "At the strategic level, the responsible authority on *e*Government issues is the Directorate-General of Administrative Modernisation, Ministry of Public Administration, but the unit responsible at the operating level is the National Institute of Public Administration (INAP), an autonomous body attached to the Ministry of Public Administration. The INAP is responsible for recruiting and training public executives and employees, and it also promotes research and studies aimed at modernising the civil service"**.**

In the **United Kingdom**, the Chief Information Office Council, with participation from the wider public sector, creates and delivers the government-wide agenda to support the transformation of government and to build capability and capacity in IT-enabled business change.

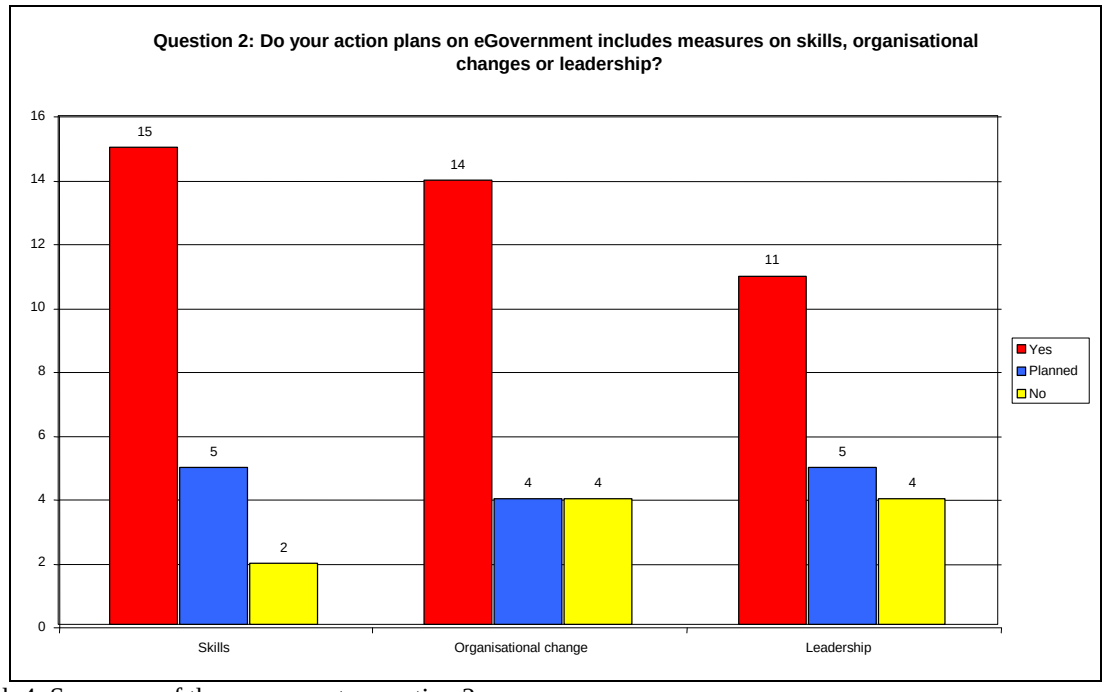
In **Bulgaria**, responsibility for strategic aspects lies with the Council for the Modernisation of State Administration. Other bodies with responsibilities for coordination of activities are the Coordination Centre for Information, Communication and Management Technologies within the Council of Ministers, and the United Nations Development Programme (UNDP).

Besides the central administrations, in most of the countries, it is the regions and/or local entities that have competencies for these issues, and in general, coordination mechanisms exist between the central, regional and local levels, through different bodies for example, different types of associations of municipalities and/or regions (**Austria, Denmark, Italy, Luxembourg**), or coordination committees (**Germany**).

3.2.2 Strategies

Question 2: Do your action plans on *e*Government include measures on skills, organisational changes or leadership?

Graph 4 summarises the responses to the above question:



Graph 4: Summary of the responses to question 2

As regards the strategic framework, the question addressed was whether action plans on *e*Government include measures on organisational changes, skills and the role of leadership. In most of the cases, *e*Government action plans include measures on these three issues, although in some cases they are included in other plans or strategies (for example, modernisation strategies or training plans). Some of the countries have indicated that (further) measures are planned, for example **Austria**, **Belgium**, **France**, **Germany** and **Slovenia**.

Two Member States, **Finland** and **Luxembourg**, have stated that they do not have any concrete measures on these issues so far. Nevertheless, in Luxembourg, a working group has been set up in the Ministry of Civil Service and Reform which will also look at these subjects.

Austria is currently implementing an initiative with a strong impact on processes and on organisational structures which includes measures on the development of skills and leadership (see also case studies, section 4).

In some cases, the *e*Government strategies and the different aspects related to their implementation are part of a general modernisation initiative. This is the case for example in **Cyprus**, as well as in **Germany** where organisational aspects related to the improvement of business and human resources development are an integral part of the programme "Modern State – Modern Administration".

In **The Netherlands**, the national *e*Government strategy is also part of a more integrated framework of the national public sector modernisation programme.

The **Danish *e*Government Strategy** (2004-06) sets up specific and measurable goals in accordance with established signposts, with a special emphasis on the importance of leadership, the need for commitment on the part of senior managers and other public sector managers to work with *e*Government and to explain in their organisations why *e*Government is important. Other goals in relation to organisational changes have also been set.

In relation to the skills required by *e*Government, some of the answers received only mention the ICT skills and training actions with a very technological content (**Belgium**, the **Czech Republic**, **Italy**, **Malta**, and **Spain**). In **Belgium**, for example, training for *e*Government has been planned focusing on ICT skills. The **Czech Republic** does not have any specific measures on organisational changes and leadership, and regarding skills the main goal of the government at this moment is to widely extend elementary computer literacy.

On the other hand, some countries have a broader and more interdisciplinary approach, such as **Cyprus**.

In **Germany,** the Federal Government's *e*Government initiative is accompanied and supported by advanced training measures provided by the Federal Academy of Public Administration. These include training for all target groups, not only IT staff, with a focus on keeping the staff informed and open to changes that go along with new organisational structures and work processes.

Hungary has developed various comprehensive programmes such as *e*Culture development, *e*Regulation and *e*Skills. These programmes include aspects related to the change of attitude and behaviour towards a more consumer-focused operation, strengthening cooperation between government institutions in *e*Government programmes and actions, and in ICT training.

In addition to training, **Ireland** has introduced different measures such as the use of internal promotion through competitive processes based on required competencies and open recruitment from the private sector to meet identified skills deficits.

The initiatives currently underway in the **United Kingdom** are summarised in Box 2. A revision of recruitment processes and retention strategies for IT professionals is also planned as part of a structured career framework.

United Kingdom

Across the United Kingdom all levels of government are undertaking *e*Government skills and leadership initiatives. The private sector, working through the *e*Skills Council, developed a widely-used skills framework known as Skills Framework for the Information Age (SFIA), which is likely to form the basis of the government IT career framework. The next step to supporting the growth of *e*Government in the UK is to add a unified structure to this framework to ensure a clear career path for IT professionals within the government.
Currently, one important cross-government initiative the *e*Government Unit enables this progress. The *e*Government Unit (*e*GU) is working to develop the role of the 'Head of the IT Profession' in government to provide leadership for the government IT community and to increase its successful delivery of technological change to support the business transformation of government. *e*GU promotes the IT Profession as a formal career path within the civil service and leads the professional development of the government IT community. Furthermore, the *e*GU Transactional Services Change Agent Team (TxCA) is involved in developing *e*Capability in public sector departments by developing guidelines and support plans to aid *e*Service development, gathering and disseminating best practice examples, providing expert assistance and hosting workshops.

Box 1: Case description UK

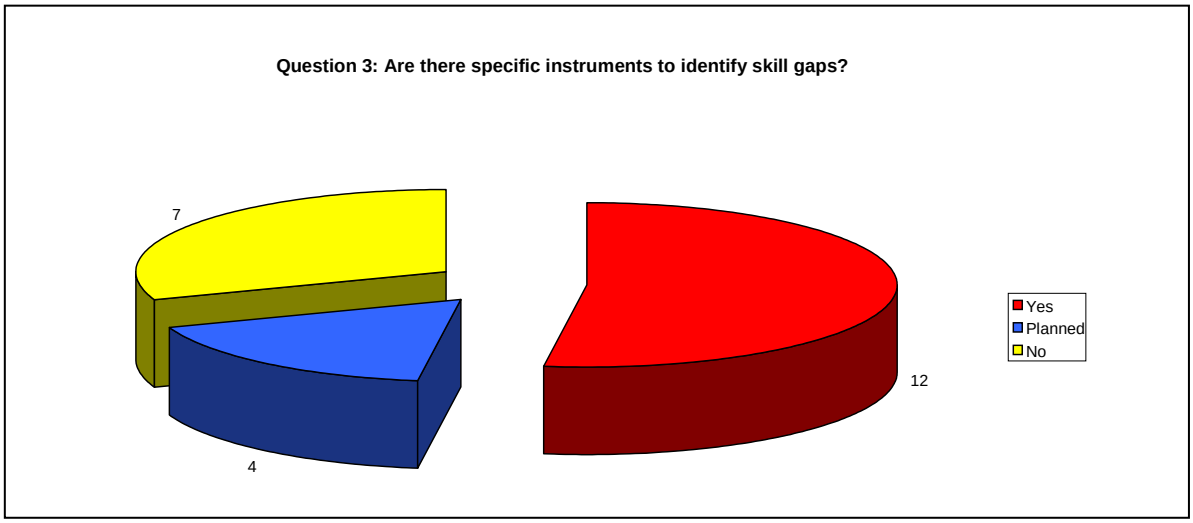
In **Sweden** the National Council for Quality and Development (KKR) supports and stimulates central agencies "through education, development programmes, seminars, reports, conferences, and/or development projects, in the areas of systematic quality work, long-term competence maintenance and administrative knowledge".

3.3 Instruments to identify skills gaps and relevant programmes

3.3.1 Instruments

Question 3: Are there specific instruments to identify skill gaps?

Graph 5 summarises the responses to the above question:



Graph 5: Summary of answers to Question 3

The majority of the countries use or are planning to use specific instruments in order to identify skill gaps in the field of *e*Government (**Belgium**, **Cyprus**, the **Czech Republic**, **Denmark**, **Germany**, **Ireland**, **Italy**, **Lithuania**, **Spain**, **Sweden**, the **United Kingdom** and **Bulgaria**). Nevertheless, 6 Member States have stated that they do not have such specific instruments (**Austria**, **France**, **Hungary**, **Luxembourg**, **Malta** and **The Netherlands**). For summarised replies, see Annex 2.

Besides the more traditional tools to identify needs, such as interviews with employees and managers at different levels, workshops and surveys, some other instruments can be mentioned as interesting and innovative examples:

- the use of performance management or performance appraisal systems (**Cyprus**, **Ireland**, **Lithuania**);
- workshops with various hierarchical levels (**Cyprus**);
- the use of internet-based interactive systems (**Germany**, **Italy**);
- self-assessment tools (**Italy**), including the promotion of the use of the Common Assessment Framework (**Sweden, Austria**).

Italy

The **Department of Public Administration** agrees on the importance of developing and improving the strategic and managerial skills of top-level and middle managers working in Public Administration. In particular, the department has developed a special programme called **Cantieri** that promotes innovation in regional and local

government through an *institutional empowerment process*. This programme makes the sharing of information and knowledge between local administrations possible and aids their collaboration. The **network** is useful for every administration that wants higher quality and innovation. **Cantieri** indirectly enables benchmarking so every administration knows how it compares with others.
Cantieri uses a **self-assessment tool**: ***Integrated Evaluation of Changing*** to identify skills gaps. Every administration can measure its organisational conditions and evaluate its capacity to manage change in several areas such as decision making, social responsibility, customer satisfaction and leadership. Every local or regional government can complete an online questionnaire in order to compare themselves using both national data and data from administrations at equivalent levels.

Box 2: Case description Italy

- In **Denmark**, two new tools have recently been launched: "the competence barometer" and the web-based "competence game".
- In **The Netherlands**, there are no specific instruments to identify skills gaps in relation to *e*Government. At the central level a self-assessment tool has been developed for advice on the innovation strategy, and it measures innovation pressure and power rather than skills.

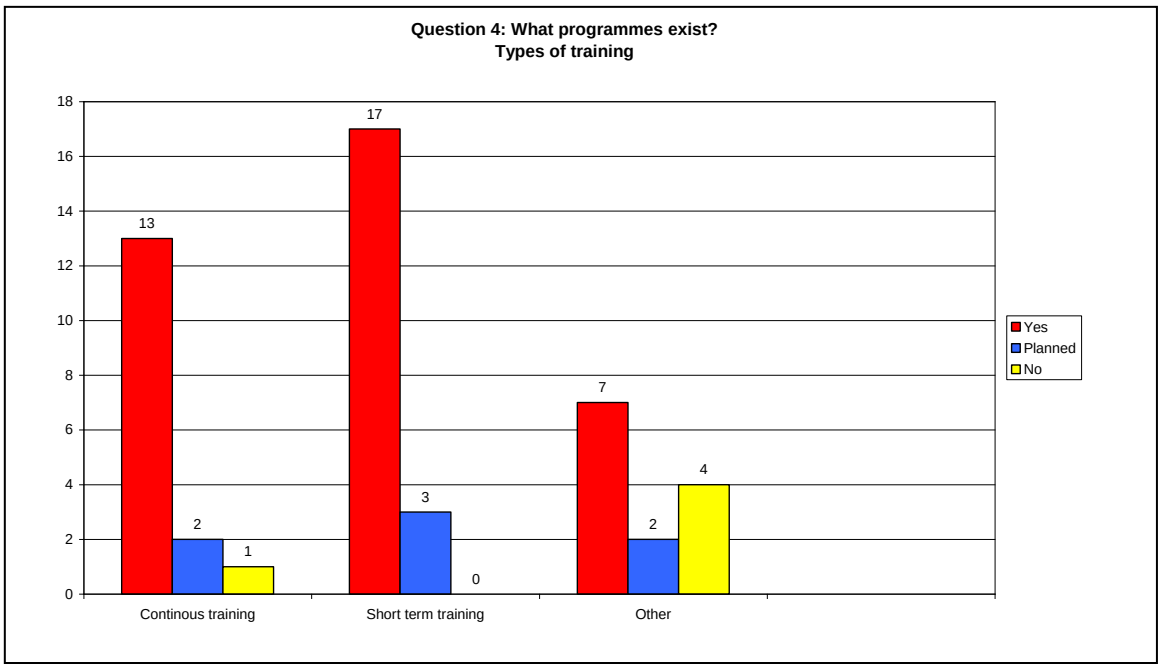
With respect to measures developed or planned to overcome existing skills gaps, most countries mention training programmes. Only a few make reference to other measures, in particular recruitment.

3.3.2 Programmes

Question 4: What programmes exist? This question includes three sub-questions on types of training, types of target group and methodologies.

Most of the countries include *e*Government issues in their programmes, both in the framework of continuous training or as short-term training actions.

Graph 6 summarises the responses to the above question:



Graph 6: Summary of responses to question 4, types of training

In general, the responses received do not always give sufficient detail as to the content of these actions to know whether they refer to IT training or include other skills and competencies. For summarised replies see Annex 2.

Some examples of programmes that are currently being developed or planned are detailed in the following boxes.

The Netherlands

The *e*Government strategy developed by the Public Sector Innovation and Information Policy department of the Ministry of the Interior focuses on the development and implementation of the building blocks of information infrastructure. ICTU is implementing this and managing a range of *e*Government programmes aimed at various target groups including the municipalities and provinces. Two integral Dutch programmes aimed at innovation and skills, InAxis and IMAC, are worth mentioning in particular.

InAxis

InAxis's central goal is to encourage innovation in the public sector in order to improve service delivery processes. On the one hand, InAxis provides financial support for a number of experiments. These are closely monitored and analysed and the results are circulated and published, helping other organisations learn about and from these experiments. On the other hand, InAxis research addresses important themes in innovation, such as the relationship between management and leadership, and conditions for innovation.

IMAC

Public servants are being asked to achieve more with less. Effective cooperation within and between governmental organisations is therefore necessary. The creation of horizontal linkages between intermediate functions such as information managers, account managers, business analysts, information architects and policy advisors will play a crucial role in increasing the effectiveness of government in these areas. These functions, which connect the organisation with information and communication technologies (ICT), will be increasingly important for central government. This new reality, and the fact that no university was offering this practice-oriented curriculum, led to the founding of a Government Academy for Information Management (IMAC). IMAC is a unique collaboration between government organisations. The Academy's first task was to develop and strengthen connections within the central government. To do so, an "ICT and Government" programme was developed. The programme consists of one basic module and four thematic modules that are clustered around the information management cycle: innovation, policy, operationalisation and evaluation. Furthermore, IMAC offers custom-made training programmes for different target groups. In 2005 a custom-made programme for Deputy Secretaries General of the Dutch ministries started and several other programmes are currently being developed.

Box 3: Case description The Netherlands

France

ADELE 112 *e*Government Training Plan

Description: The Agency for the Development of *e*Government will design a generic *e*Government training plan with the aim of it being implemented in ministries in particular. This plan is currently being drawn up.

Implementation: 2004 - 2007

Box 4: Case description France

The United Kingdom

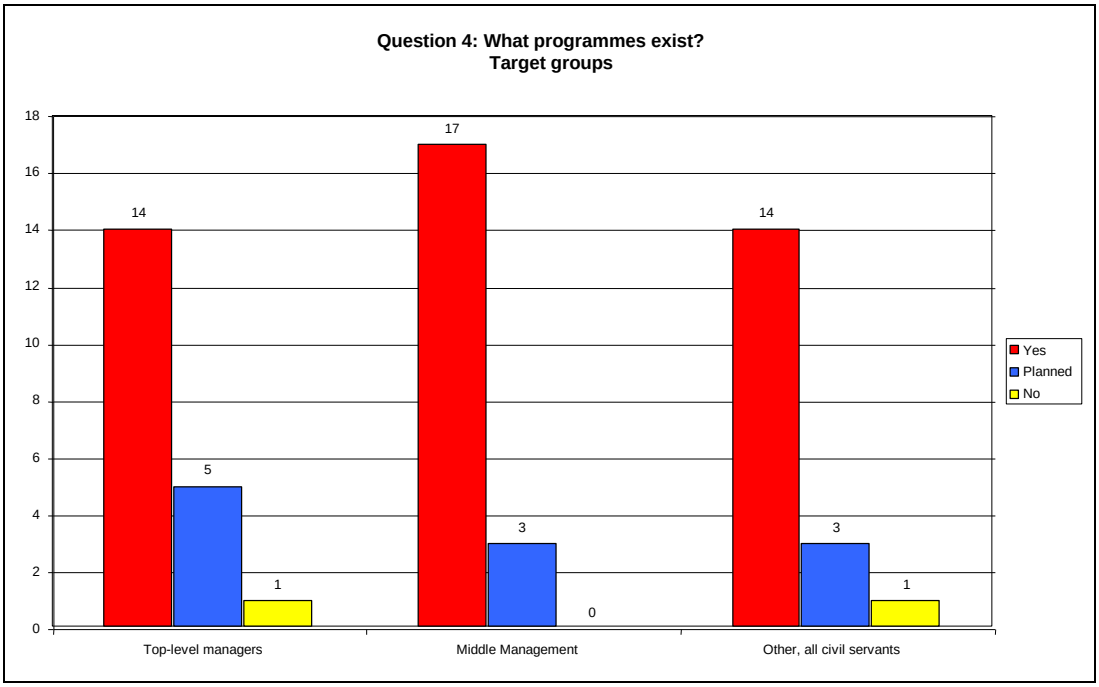
The Office of the Deputy Prime Minister (ODPM), which is responsible for local and regional government, is developing, as part of the "Capacity-Building Programme" a "National Core Competency Framework" (CCF) for key *e*Government functions. The initiative is intended to accelerate local government's capacity to deliver effective *e*Government. The CFF should facilitate the practical growth in *e*Government capacity and mitigate against the risks of a lack of leadership capacity or a failure to engage business managers with the *e*Agenda. Recently, the CCF prototype framework was rolled out for local governments to test. The framework requires five elements (*e*Champion, Head of Service, Head of ICT, Corporate Customer Service role, and Corporate Programme Management) for *e*Government to work effectively. The Core Competency Framework will reference related knowledge and skills so that authorities are able to integrate them into their performance management, staff appraisal, and learning and development processes. Local authorities can also appraise their own capacity-building needs through CCF diagnostic tools.

Another element of the "Capacity-Building Programme" is the work of the ODPM to develop programme, project and change management skills in local government. The ODPM is working with the Office of Government Commerce (OGC) to develop guidelines in these three areas to help bring staff up to a basic skill level. The guidelines were launched on 31 January this year for early implementers, and a pilot programme has begun.

Box 5: Case description the United Kingdom

In **Austria** an *e*Government training curriculum has been launched by the E-Coorporation board, a strategic board headed by the Executive Secretary for E-Government. (see Annex 3).

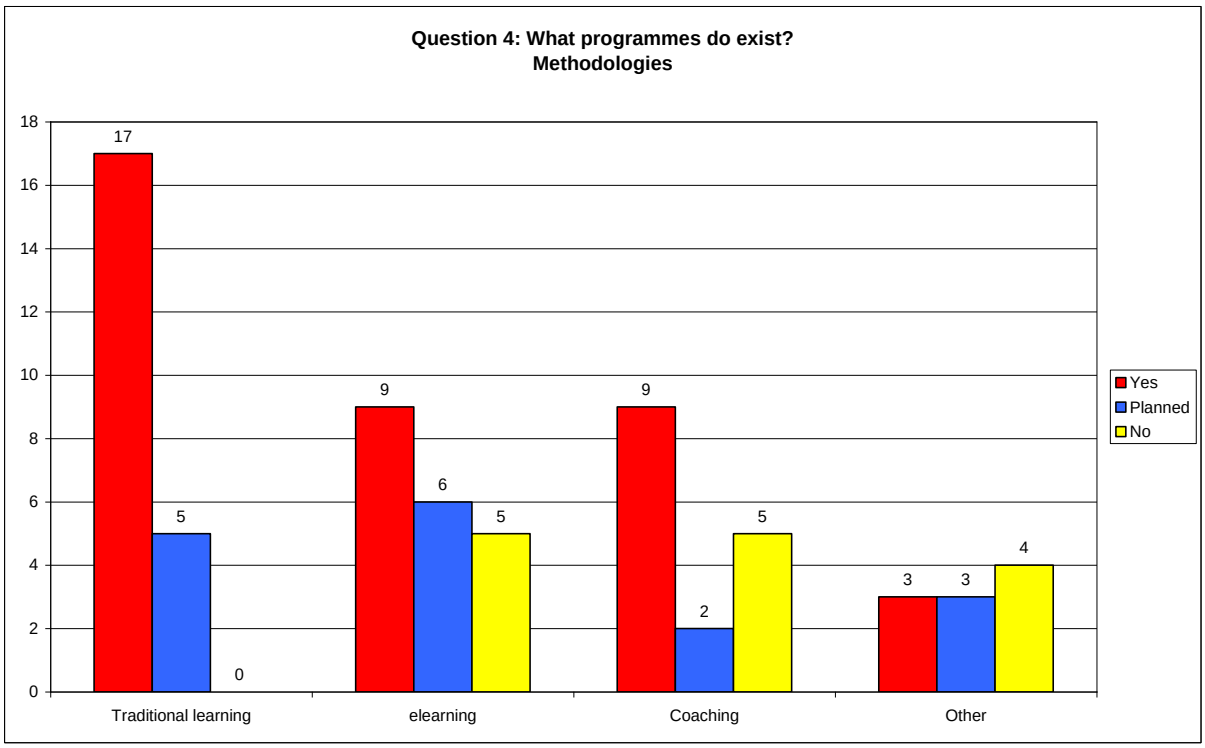
According to the answers received, most countries have indicated different programmes for different target groups: top-level managers, middle managers and the operational level. In many instances special programmes are designed for the specific needs of middle and top-level managers:



Graph 7: Summary of responses to question 4, target groups

The most common methodologies used for training are still the more traditional ones, like seminars, lectures, workshops, etc. Nevertheless the use of other methodologies, such as *e*Learning and blended learning is increasing (**Austria**, **Germany**).

Graph 8 summarises the responses to the above question:



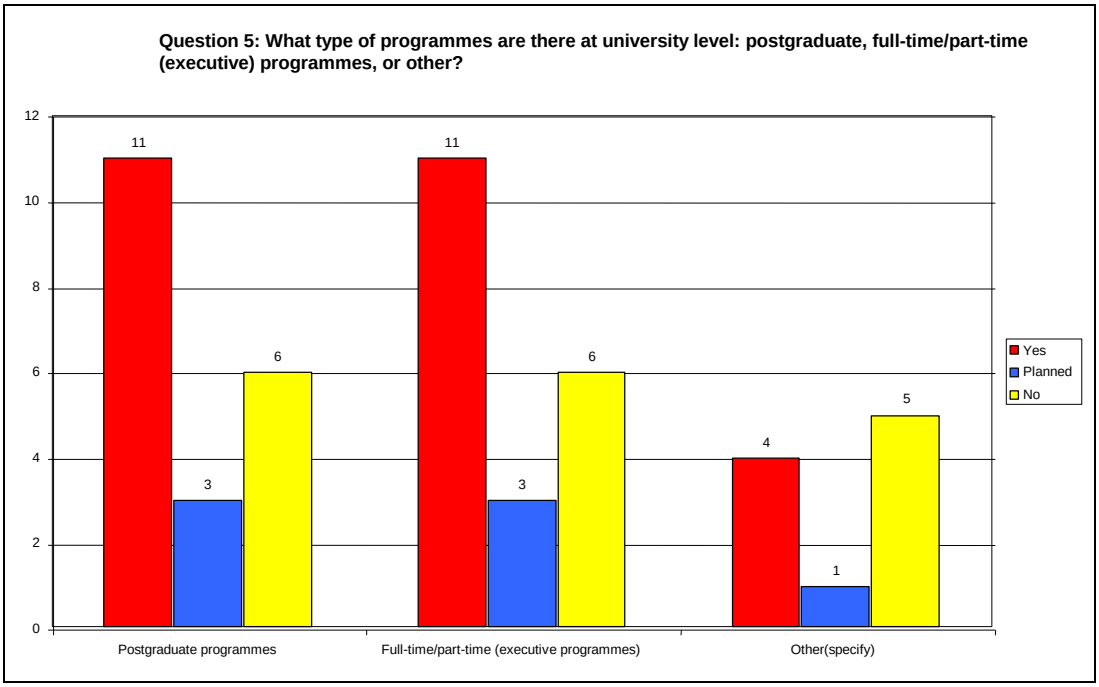
Graph 8: Summary of the response to question 4, methodologies

The methodologies used vary depending on the target groups of the actions. Other methods, like individual coaching, are also being used in some countries for specific groups, mainly for top managers.

3.4 University level

Question 5: What type of programmes are there at university level: postgraduate, full-time/part-time (executive) programmes, or other?

Graph 9 summarises the responses to the above question:



Graph 9: Summary of responses to question 5

At university level, we can see that most countries have in place or have planned post-graduate programmes and full-time/part-time programmes (executive programmes), while quite a few of the respondents indicated that such programmes did not exist.

According to the information provided by the Member States, only a few Member States have full-time programmes dealing explicitly with *e*Government (e.g. **Germany**).

In many Member States, the university programmes both in the field of public administration (especially master's programmes) and in the field of IT include special modules on *e*Government.

For summarised replies, including a more detailed list of programmes, see Annex 2.

3.5 Suggestions for action in the framework of the European Public Administration Network

Question 6: "What can be done in the framework of the European Public Administration Network in this field?"

Regarding this question, most countries stress the importance of the exchange of experiences and best practices as well as of knowledge transfer (**Austria**, **Bulgaria**, **Cyprus**, **Denmark**, **Finland**, **Germany**, **Lithuania**, **Luxembourg,** the **United Kingdom**).
As regards the required skills, the **United Kingdom** proposes that the EPAN *e*Government working group:

- shares experiences in developing a career structure for IT professionals within government;
- shares experiences and best practices in enhancing the skills of non-IT professionals;
- discusses the use of and requirements for frameworks within government;
- works with the bodies responsible for developing skills frameworks intended for the wider IT community (national societies for IT professionals and the Council of European Professional Informatics Societies); and
- considers how suppliers of IT services to government might be encouraged to adopt the same or comparable skills frameworks.

Italy proposes an exchange on evaluations carried out on the effectiveness of *e*Government skills.

Luxembourg recommends comparing the existing/planned career/training for ICT professionals in the public sector, as well as defining *e*Government-specific skills and related careers (together with the Human Resource Management working group).

The importance of cooperation at EU level has also been highlighted (**Austria**), in particular the political, strategic and operational aspects (e.g. specialised competence hubs and credits for courses from different Member States).

Other suggestions were:

- to launch joint initiatives (**Austria**);
- to develop a common European curriculum on *e*Government (**Austria**);
- to define common programmes for different levels and target groups, including a definition of minimum requirements for each programme (**Slovenia**);
- to exchange experience on some of the national projects at European level in relation to induction training and continuous training (**France**);
- to organise internships for students of Information and Telecommunications Technologies in European institutions and countries (**Spain**);
- to conduct research on existing academies (e.g. the Dutch IMAC) and programmes offered (**The Netherlands**);
- to investigate and evaluate the development and application of *e*Learning in the field of administrative education for *e*Government (**Sweden**);
- to conduct research on existing *e*Learning modules and to evaluate to what extent they are open to public servants in other countries (**The Netherlands**);

- to explore how innovation in the public sector is being given shape (**The Netherlands**).

Ireland has proposed that this matter be considered in association with the National Institutes of Public Administration.

Bulgaria has proposed a number of actions, among them 1) to explore joint programmes between Member States and accession countries to analyse the required knowledge and skills at different levels and within different groups for the efficient development of *e*Government and 2) to examine the possibility of implementing the advanced methodologies and standards of SCORM (Sharable Courseware Object Reference Model) also known as the "Learning Content Management System".

3.6 Conclusions from the survey

One of the main conclusions that can be drawn from the completed questionnaires, is that most countries attach great importance to the different issues related to the skills and competencies needed for the success of *e*Government, and almost all of them have proposed different actions in this field.

It is also clear from the responses that the respondents from EPAN do not have a common understanding of:

- ⇨ the typology of these competencies and skills (technical skills, public management, information management and other skills); or
- ⇨ which target groups should be addressed.

While some countries have a broader approach, others focus mainly on ICT and on technological aspects. Despite the growing awareness and the various institutional declarations made in different forums that *e*Government is a cross-cutting issue, in fact, when looking at the approach to the strategies and their implementation, we can see that there is a high degree of emphasis on the technological aspects.

Aspects related to leadership have also been addressed by a certain number of countries under the different sections of the questionnaire, and some of them have highlighted the importance of leadership for the delivery of *e*Government.

Finally, it is interesting to note that not much attention has been paid to aspects related to organisational changes in relation to *e*Government. The reason for this may be that organisational changes normally come along with broader modernisation strategies, *e*Government being one tool, among others, for the development and implementation of these strategies.

4. Analysis of good practice cases

4.1 Rationale of and methodology for analysis

In addition to the analysis of the questionnaires in section 3 above, six in-depth case studies have been prepared. These are designed to examine and shed light on the practical, on-the-ground challenges and opportunities confronting the public sector in terms of the organisational change, leadership and skills issues raised by *e*Government.

The case studies selected represent a balance in terms of the size of Member State, geographical spread, different levels and types of administration and different policy sectors. Each case has been prepared with detailed primary and secondary research, including some site visits, interviews with the key actors involved, documentation reviews, and analyses of websites and online services:

Case no.	Name	Short name	Country	Level and type
1	Electronic Record Management System	ELAK	Austria	National
2	X-Road Project	X-Road	Estonia	National
3	Heusdense Manier van Werken	Heusden	The Netherlands	Local
4	Knowledge Management in the Region of Valencia	Knowledge Management	Spain	Regional
5	Virtual Customs Office	Virtual Customs	Sweden	National
6	Enrolment in Higher Education: Universities and Colleges Admissions Service (UCAS)	UCAS	The United Kingdom	National, agency

Table 2: The cases studied

Each of the six case studies illustrates different aspects and issues surrounding organisational changes, leadership and skills, and each has resulted in a different set of conclusions and lessons. All real life examples, of course, reflect quite unique contexts and circumstances, not least specific cultures, legal systems, institutional arrangements and the status of *e*Government. However, there are also some general and shared experiences and conclusions that are worthy of attention and of further study and analysis, particularly by those who are yet to implement *e*Government and who need some guidance as well as understanding of the collective experiences of others in order not to reinvent the wheel or make the same avoidable mistakes. These general points and issues are presented in sub-section 4.3 below entitled 'Main findings'.

Each case study has been prepared according to a standard template designed to bring out full details of the context and background of the case, why it took place, its objectives and resources, how it was implemented, the results obtained, and last but not least, the overall conclusions and learning points. This approach enables a clear understanding of what happened, why and what can be learnt from it, and facilitates direct comparison between cases on specific points and issues.

The approach adopted is designed to clearly bring out the need to focus on change, skills and leadership issues to precisely document the results, and to draw out the lessons learnt, thereby assisting in the synthesis of 'good practice'. Such an overall understanding of 'good practice', and its potential transferability to other contexts, will be valuable for:

- practitioners (public sector service providers);
- policy makers (both public sector service decision makers and policy makers at higher levels);
- researchers (by pinpointing further fruitful lines of research).

An additional feature, designed to enable further comparison and understanding, is that each case provides a summary in a standard reference scheme showing the positioning of the case in terms of internal public sector functions and components, viz.:

1. functions:

    - policy and planning: political and top-management civil servant level;
    - implementation: heads of unit and CIO level;
    - operational: ordinary civil servant level.

2. components:

    - strategies: development of plans and strategies;
    - technological: technological changes;
    - organisational: changes in the organisation;
    - administrative: activities of ordinary civil servants.

This reference framework is also used to summarise the main learning points and conclusions for each case in turn, and this facilitates drawing both general and specific lessons when the case-specific frameworks are combined in the overall analysis.

4.2 Case summaries

4.2.1 ELAK – Der elektronische Akt (Electronic Record Management System)

ELAK im Bund
www.elakimbund.at

This case gives an overview of the Austrian project, "ELAK" (elektronischer Akt, or electronic record system) and describes its implementation in the Austrian Ministry of Education, Science and Culture (BM:BWK).

ELAK is the electronic record management system of the Federal Government of Austria. By 2004 it had been implemented in eleven federal ministries, which includes 7,500 "Zentralstellen" (i.e. employees in central administrations) connected to the system. Discussions started in the late 1990s and were closely linked with the re-structuring of the national IT strategy, which was defined in 2001. The main objective of this strategy is to enable citizens to interact electronically with public authorities and to foster inter- and intra-ministerial communication by electronic means.

The project assignment was defined by the Federal Chancellery. The overall strategy was defined by the national ICT coordination committee in coordination with the Federal Chancellor and the Vice Chancellor. In June 2001, the Council of Ministers assigned overall responsibility for coordinating the project to the Federal Chancellery. Each ministry is responsible for the implementation of ELAK. Implementation plans and accompanying measures were developed individually. Hence, each ministry was able to adjust ELAK according to its needs. The system was fully implemented at federal level in September 2004.

The overall aim of ELAK was to enable the ministries to cooperate more efficiently, to create a basis for intra- and inter-ministerial workflows, to facilitate the change in ministerial structures and to create a basis for 'one-stop-government' and the implementation of *e*Government processes.

The specific aims of the ELAK project encompass the following targets:

- replacing paper-based originals with electronic files;
- allowing independence of time and location for access to electronic files;
- making quick and efficient research possible;
- automating the traceability and documentation of files;
- requiring the security of files;
- providing civil servants with one-stop-access to files;
- maintaining cost efficiency.

A consortium provided the technological basis for ELAK. The umbrella organisation AG ELAK held overall responsibility. AG ELAK consisted of the Bundesrechenzentrum GmbH (BRZ, the central federal IT provider) and Bundesrechenzentrum IT-Solution GmbH (BITS). They subcontracted to the private companies IBM and Fabasoft Austria.

Two historical factors have made ELAK's success possible in Austria. These include the fact that every ministry has used an electronic information system to trace files for a number of years (the so-called "Kanzleiinformationssystem" (KIS)), and the existence of a filing system that has been established, harmonised and traditionally used in the Austrian administration over many years.

The BM:BWK chose a project-management-oriented approach. An intra-ministerial task force (hence people from different backgrounds) has been responsible for the implementation of ELAK and accompanying measures, such as the development of an *e*Learning system. In all, approximately 900 civil servants from all administrative levels have been trained in the BM:BWK on the use of ELAK.

Learning points and conclusions

Organisational change needs the involvement of all employees

Although the implementation of ELAK was mandatory (based on a Council of Ministers' Decision), ministries were encouraged to re-think and re-engineer existing processes on a voluntary basis. The BM:BWK's re-designing of processes proves the dependence on employee involvement.

Since ELAK does all the forwarding and filing of records automatically, clerks are no longer involved in record processing. As a result, new roles have been created, like that of the so-called 'team assistant', who supports the specialist departments by carrying out mass mailings, producing brochures, etc. The team assistants were formerly part of the old

"zentrale Kanzleistellen", responsible for the flow of information and files between different civil servants, units and ministries, and have been re-trained for their new tasks as team assistants. Furthermore, experience in the BM:BWK has also shown that attitudes towards the status or importance of files in the process itself has changed.

New skills and continuous learning is needed

Although ELAK reflects work processes that are already known and have been used for many years by civil servants, new skills are needed. It seems that basic IT skill acquisition is not the main challenge, but staff have to acquire social and 'soft skills'. Due to changes in work processes and the work environment, civil servants should be trained, for example, in self-management, self-organisation, communication and media use. In the BM:BWK, all civil servants from various levels were trained in using ELAK. One hundred and seventy civil servants were trained as so-called "key users" for future support of other civil servants. The project team also developed a teaching module on *e*Government and ELAK using a blended learning approach. This module is being used in the "Grundausbildung", the basic training, for newly recruited civil servants. Again, each ministry is responsible for this process in their 'Grundausbildung'.

Leaders have to follow a long-term strategy

Political and administrative support at all levels is crucial when it comes to implementing such a project. Politicians' concern and attention should be part of a long-term strategy and not a temporary trend. In addition, political leaders should give support to all levels of administration. However, ministers may choose whether or not they will use ELAK themselves. Administrative leaders have to be part of the system and committed to communicating the purpose and outcome of the project. In addition, they have to support employees who are implementing projects. One of the overall effects of the implementation of ELAK might be the trigging of a re-design of processes, at least on a voluntary basis, as is the case in the BM:BWK. Furthermore, the implementation of ELAK and its training modules might have spurred the development of a federal *e*Government curriculum involving all levels of administration, currently being developed by a working group set up by the E-Cooperation Board, a strategic board of members from all levels of Government.

4.2.2 X-Road Project

http://x-tee.riik.ee/

The case analysed is the X-Road project developed by the Government of Estonia. The X-Road system was developed under the responsibility of the State Information Systems Department of the Ministry of Economic Affairs and Communications.

The X-Road system consists of a platform from which *e*Government services provided by various ministries and agencies can be delivered in a single and unified manner via the internet.

Technically speaking, the X-Road system could be defined as a data exchange layer between the service user and the information systems providing services via the internet.

This data exchange layer is composed of different software modules performing different types of functions, such as providing unified access to databases, user-identification, means of

payment, legal validation of transactions, etc., all of which are necessary for the delivery of *e*Government services.

The X-Road system is based on two strategic principles: the first is that *e*Government services must be provided by the ministries and agencies with the responsibility and administrative capacities to do so; the second is that it must be feasible i.e. access to these services needs to be provided in a single and unified way, under the responsibility of a centralised unit.

Based on the experience of developing the X-Road system it is possible to outline some of the lessons learned as well as a number of conclusions.

Learning points from the case

A first lesson learned is the crucial importance of continuity of public action related to the development and implementation of *e*Government.

A second lesson learned is associated with the possibility of introducing common platforms similar to the X-Road system while maintaining the previous structure of the individual public administrations.

A third lesson learned is the importance of creating a positive climate of confidence and enthusiasm within the public administrations, both at political and at technical levels, which is necessary in order to guarantee the success of solutions such as the X-Road system.

Conclusions concerning organisational changes, leadership and skills

It is necessary to ensure the continuity of *e*Government plans and actions in order to guarantee their success.

It is necessary to carry out continuous awareness-raising actions aimed at creating a political climate that is favourable to the introduction of *e*Government solutions.

It is possible to implement efficient *e*Government solutions for the delivery of services introducing profound changes in public administration.

The development of common and centralised platforms to provide unified tools enabling *e*Government service delivery is a convenient solution from a technical, functional and economic point of view.

Training activities must be developed in a continuous and systematic way at all levels of public administration.

4.2.3 Heusdense Manier van Werken

gemeente Heusden

www.heusden.nl

Heusden, a municipality with 44,000 inhabitants located in the south of The Netherlands, was the first municipality in The Netherlands to introduce a flexible IT-supported working environment through the project, Heusdense Manier van Werken, or 'Heusden Way of Working'. The municipality consists of three centres – Drunen, Vlijmen and Heusden – each

of which has its own town hall housing about 300 municipal workers altogether. In 1999 the council of Heusden decided that building a new town hall to house these employees would be too expensive. It commissioned the local authority to find a solution after setting up the parameters that citizens should be able to receive all services and information in all three town halls, while spending as little money as possible and without hiring new staff.

The local authority's solution was the development of the Heusdense Manier van Werken, an integrated project setting up a flexible and paperless working environment with the aim of improving client awareness and client satisfaction. The project began in 1999 and is still an ongoing process. The implementation phase however was completed by 2002. Heusdense Manier van Werken is based on the assumption that employees are mature people. Its main aim is to organise work so that civil servants' tasks align with citizens' personal needs. They sought to do this by organising the workflow around required knowledge and making efficiency the priority.

A flexible working environment was set up in which employees no longer have a specific workspace, but choose the type of workspace within the town hall according to the task they have to accomplish. In order to enable the employees to work as flexibly as possible and to totally digitise work, server-based computing was introduced. Furthermore, every employee was equipped with a laptop and Wireless Local Area Network access.

After finalising the implementation phase in 2002, the 2003 follow-up phase focused on a more radical approach involving the reorganisation of processes surrounding client groups, abolishing certain services, and reviewing the legal provisions and processes which might have become obsolete. The first results of this follow-up will be put into practice in September 2005. This initiative is partly motivated by the central government's initiative for burden reduction in public administration. The municipality of Heusden used the Overheidsloket 2000 programme to implement these changes.

Learning Points and Conclusions

Organisational change

In general, the municipality underwent a paradigm shift in the treatment of citizens. Heusden employees now work under the assumption that "the civil servant has to move and not the citizen". This implies a change in the role of civil servants, as the task and the citizen, not the process, are at the centre of their work. The flexible work environment required a certain degree of adaptation and learning.

When designing organisational changes one has to take the age of the employees into account and give them the feeling that their skills are essential. Whereas young people might be more comfortable using Information and Communication Technologies (ICT) than older people, older employees' experience and 'soft skills' are crucial for the success of the organisation.

During the implementation of the project, minor downsizing took place, mainly by not assigning retirement vacancies.

New skills and re-skilling are needed

New skills are needed for success in such an environment. Employees have to gain social and 'soft skills,' such as communication skills, project, time and self management skills and support in adjusting oneself to new tasks. It seems that ICT skills are not the main challenge in a project like Heusdense Manier van Werken. However, ICT expertise must exist within the

organisation. As seen in this case, a very small but highly specialised ICT unit provides the IT support needed.

Furthermore, continuous training and learning is important for developing and maintaining the requisite skills, and training curricula should take into account the age and experience of employees. In addition, skills should be incorporated into the performance measurements as new indicators of the strengths and weaknesses of civil servants.

Age is not an indicator of possible resistance

Resistance to change is not a matter of age, but of involving employees in the change process. The more employees are involved in the project, the more they support it. In addition, employees must feel their skills are needed in the organisation. Older employees might have some problems with new processes and technologies, but they could also have complementary skills.

Leaders must be committed to communicating the vision, objectives and results

In order to succeed in implementing such a project, strong political and administrative leadership is crucial at all levels of the organisation. Leaders must be able to communicate the main vision and results to civil servants and citizens, but they should avoid raising expectations they cannot meet: "communicate results and not wishes". Moreover, organisational changes alter requirements for leaders. Leaders must acquire new approaches to human resources, team building and project management.

Heusden as a forerunner

Heusden was the first municipality to introduce a flexible and paperless working environment. Various other municipalities have been exploring this system since it was implemented in Heusden. Some of them, like the Municipality of Maastricht, are going to implement a similar model. Other municipalities on the contrary, have decided that this model is not appropriate for their needs.

4.2.4 Region of Valencia

http://www.avantic.es

The case consists of an analysis of the experience of the decision for and the development, implementation and usage of a Knowledge Management System (KMS) within the Regional Secretariat of Telecommunications and Information Society (SATSI) and its extension to other units of the Regional Government of Valencia.

One of SATSI's responsibilities is the development and implementation of the *e*Government strategy in the regional public administration.

The KMS studied here is considered a horizontal action of the Strategic Plan for the *e*Government and Information Society AVANTIC 2004-2010.

The KMS was created in response to an awareness of the difficulties and inefficiencies in the management of the information and knowledge on the development of complex projects in the regional public administration.

The main and initial objective of the KMS analysed here was to improve the management and sharing of the information generated within SATSI in the development of *e*Government projects. In the three-year period since the KMS was implemented, it has supported more than a dozen new applications in the regional public administration.

Based on the experience of developing, implementing and disseminating the KMS, it is possible to outline some of the lessons learned as well as a number of conclusions.

Learning points

Between civil servants at the operational level, the introduction of the KMS contributes to the creation of a climate favourable to changing the means of participation in new complex projects and to overcoming natural barriers to information and knowledge sharing.

In order for *e*Government to develop, it is necessary for civil servants to learn how to tackle and implement shared projects.

At the policy and planning levels, the success of the KMS programme could be taken as a convincing example of how to adopt and encourage the use of innovative methodologies as a part of the process of broadening the use of eGovernment.

The place and the context in which the KMS was launched, in this case SATSI, has been a key element of the success of the KMS programme.

Conclusions

The coherence and sustainability of all *e*Government strategy projects are necessary to ensure their success and transferability.

One of the lessons: go beyond the case analysis, include specific courses on *e*Government models and strategies in the training programmes for persons at the policy and planning levels.

A systematic training programme based on the advantages of sharing information and introducing new ways of dealing with complex projects should be offered to civil servants at the implementation level. This contributes to gaining the approval of civil servants at the operational level, making them more favourable to sharing information and knowledge with the use of tools such as the KMS analysed here.

4.2.5 Virtual Customs Office

Tullverket

http://www.tullverket.se

The Customs Office is a public authority within the jurisdiction of the Ministry of Finance. The Customs Office has two major tasks to accomplish:

- **checking the national borders** in order to prevent crimes such as smuggling and;
- **efficient trade** – the Customs Office strives to be an efficient link in international trade with Sweden.

The Virtual Customs Office project is mainly concerned with the latter. The Customs Office's aim is to be as efficient a link as possible in the import and export business. The Customs Office keeps track of international trade statistics, checks that import/export restrictions are followed and ensures that the correct taxes are paid.

The *e*Services at the Customs Office can be categorised into two different groups. The most advanced *e*Services are the application forms and customs declarations that can be filled in directly online. There are also information services which require interaction between the customer and the Customs Office such as information about importation restrictions that can be sent as a text message, or the virtual customs guides that customers address their questions to directly online. Finally, the Virtual Customs Office also consists of services without interaction between the customer and the Customs Office, such as information on the Customs Office's web page. Today about 90% of all customs declarations are made online and the remaining 10% are submitted by post.

Learning points and conclusions

The introduction of *e*Services brought with it some changes within the Customs Office, such as increased coordination between different departments within the Customs Office and increased digital links to other agencies.

The digitisation of the workflow also brought changes to the tasks of staff. These changes include the transfer of staff previously involved in tasks that have now been digitised, increased customer service, and new types of staff responsibilities, such as for special services or for certain customer groups.

The Customs Office has undergone quite extensive organisational change; however this was not entirely due to the introduction of *e*Services, but also to changes in a law regulating how the Customs Office's tasks could be transferred between the regional offices. The change simplified the handling of the Customs Office's functions. *e*Services became part of this simplification but were not the triggering factor.

The implementation of *e*Services went quite smoothly. The success factors (which facilitated the implementation) were communication between the staff and the IT project management. The project management points out that the key to implementing changes without creating uneasiness within the organisation is to involve all affected parts of the organisation and to facilitate new ways of working. Another success factor was the full support the IT project gained from top management.

4.2.6 UCAS

ucas.com

www.ucas.com

The United Kingdom has had a central admissions and clearing system for entry to higher education (HE) since the 1960s. It was established in its present form in 1993 as a result of the merger of the former university and polytechnic HE sectors. Today, all applications to study

full time for a bachelor's degree (BA or BSc), HND or DipHE at any university (other than the Open University) in Great Britain and Northern Ireland must be made through UCAS. This case focuses on admissions to undergraduate and sub-degree programmes, which is where the bulk of UCAS' work lies.

UCAS provides a number of services for this market. It acts as the intermediary between nearly half a million applicants for university places and over 330 HE institutions. After the publication of the 'A' Level examination results (the entry examinations for HE) in mid-August, UCAS arranges for offers of places to be confirmed or withdrawn, and runs a 'clearing system' designed to match unfilled places with unplaced candidates before the university terms begin in mid/late September. UCAS also produces many data sets and analytical services designed to enable individual HE institutions to make decisions about the shape of their provision and to forge effective marketing and recruitment strategies, as well as to enable effective resource planning to be undertaken for the HE sector as a whole. The increasing richness and flexibility of these statistical and analytical services is an important product of the digitalisation of the admissions process.

There has been some degree of vertical integration in place between the back offices of UCAS and the HE institutions since the 1960s. This case study describes the process by which UCAS is now increasing the intensity of digitisation of back-office processes associated with university admissions, and has now almost completely digitised the front-office arrangements which serve nearly half a million applicants and thousands of schools and colleges. Digitisation is now nearing completion, and includes facilities for online payment. No other services are bundled into the process, but the electronic transfer of examination results directly from some ten examination boards to UCAS means that there is a degree of horizontal integration.

Learning points and conclusions

The case clearly illustrates many good practices concerning organisational change, human resource skills and management, including:

- There is a need to focus on internal and external integration of work processes. At the same time, equal focus has to be placed on change management and on human resource development.
- A long-term organisational learning strategy is required for the exploitation and management of knowledge within the organisation. There should be strategic management which takes into account the expectations, benefits and skills of the stakeholders.
- It is necessary to sell the need for and process of change internally first of all, and to work with staff to achieve it. Do not underestimate resistance to change but actively prepare to meet it.
- A dedicated training function for both in-house and customer training is necessary with a focus on re-training existing staff rather than employing new personnel.
- A strategy for on-going staff re-skilling and flexibilisation in new roles should be put in place.
- In relation to technology, there is a need to maintain critical ICT systems and skills in-house as part of a strategic move towards 100% digital systems, which involves a dedicated and expanded ICT specialist unit and staff, but under general strategic leadership.
- As digitisation removes routine work from staff, there will be a change from clerical to knowledge workers who not only need basic ICT skills but also many flexible and enhanced interpersonal and communication skills.

The case was chosen because it represents a good example of the development of a successful eGovernment application in a service playing a significant part in the life of an increasing number of young people in the United Kingdom and abroad. It is relatively complex, and illustrates many of the political, technical, organisational and human resource dynamics involved in digitising an important public sector agency.

4.3 Main findings

As pointed out above, each of the six detailed case studies examined in this report showcases a unique set of circumstances, needs and framework conditions. It is important to bear these in mind when attempting to understand a particular case. For the most part, however, these specificities will not be highlighted here, as focus is instead placed on general and shared practices and experiences. The very reason that they are shared means that these common experiences are likely to re-appear in other contexts and to comprise important reproducible factors which need to be taken into account in any consideration of organisational change, skills and leadership when *e*Government is introduced into the public sector.

This section thus consists, for the most part, of a synthesis of good practices. It is important to note that such a synthesis is not a prescriptive solution, nor a panacea, but it does highlight a valuable set of issues that are worthy of attention and study by all practitioners of *e*Government. It must also be stressed that although this good practice synthesis aims to provide a significant summary of important factors and issues, the fact that it is based on only six case studies means it does not claim to be exhaustive or comprehensive. It rather offers a partial, though important, guide for practitioners, as well as presenting areas worthy of further research.

The synthesis of good practices which follows is divided into three main parts. Firstly, there is an examination of the general lessons surrounding organisational change. Secondly, the spotlight is turned onto skills and human resource issues. Thirdly, the role of leadership in *e*Government is highlighted. Annex 3 contains a summary table in which the main lessons and good practices are examined for each cell in the reference framework. This basically presents the same material as in the first three parts, but instead organises it according to the internal functions and components of the public sector.

4.3.1 Organisational changes

Continuity and a strategic approach

The main theme emerging in relation to organisational change is the benefit of a long-term strategic approach once the need for change has been agreed on. It is important that managers and decision makers at different levels can buy into such a strategy, so that it can, in turn, be introduced, recommended and sold more easily to ordinary staff. For example, the ELAK case has been undertaken as part of an overall federal IT strategy, providing the possibility to expand the system to local and regional levels of the Austrian public administration.

In the X-Road case, it is stressed that such a long-term strategy provides a bedrock of continuity so that the development and implementation of *e*Government can take place within the context of some certainty and stability, even while significant changes are occurring. An important aspect here is the continuous endorsement of it by successive governments in Estonia, so that, in effect, the *e*Government change strategy is taken out of the realm of party and short-term politics. In the Knowledge Management case study (Valencia), the project also showed the importance of the coherence and sustainability that an integrated *e*Government

strategy can supply. Isolated projects which fall outside the scope of the main *e*Government strategy are generally not advisable, even if they have intrinsic value, and could constitute a waste of effort and a diversion of resources from more integrated and coordinated impacts.

Similarly, in the Virtual Customs and the Heusden case, the need was shown both for a clear vision – stating what the objective of the changes is, and for a clear target – specifying what activities are to take place. In the UCAS case, digitisation of the agency and its services has also been undertaken as a long-term, strategic response to intrinsic business needs, not as a tactical, externally-imposed response to *e*Government targets. In this case, the driver for change has come internally from the agency itself. Thus, the changes that have taken place and the issues which have been identified for the future are rooted in challenges and issues which are well understood and clearly owned by the management of the agency, rather than being perceived as a distraction from the core business.

Integrating front and back offices

Another important factor is the need for closer integration of front and back offices. Integration now of course takes place electronically, but this must also be reflected in organisational structures and workflows which, even if they do not change in form, must become more streamlined, efficient and flexible. In the ELAK case, the main purpose of the electronic record management system in the back office was to abolish paper-based filing and introduce a common basis for intra- and inter-ministerial information, communication and coordination. In the X-Road case, the need was also shown for strong coordination between units in charge of service delivery in the front office and those in charge of providing common platforms for access to services in the back offices. Here, the development of common and centralised platforms to provide unified tools to permit *e*Government service delivery has been shown to be very successful from technical, functional and economic points of view.

An examination of the Virtual Customs case study shows that the introduction of a common web page meant that coordination between the different departments of the Customs Office necessarily increased. An efficient electronic service must have a functioning organisation behind the web page, i.e. a back-office structure which facilitates a flexible network of people who together can develop the service and ensure that it functions well. In the UCAS case, the reorganisation of the student enrolment system has focused on the integration of the agency's back-office workflows directly with front-office electronic services, as well as with the back-office and front-office systems of a large number of other agencies in a successful but complex inter-layered network.

Structural decisions must reflect the specific need and long-term strategy

The final common practice is the recognition that structural changes must reflect specific needs and long-term strategies, rather than short-term expediency. Structural changes by nature require a long-term commitment and time plan; they may not be necessary, or may take place slowly or incrementally. Thus, in the ELAK case existing structures have been allowed to continue as the electronic record management system has been developed to reflect existing workflows and processes in an electronic format. Nevertheless, it does also encourage the rethinking, re-engineering and simplification of existing processes in order to increase overall efficiency. It is also important to note that, in this case, the re-engineering process is voluntary.
Similarly, in the X-Road case, existing structures have continued, showing that it is possible to implement efficient *e*Government solutions without introducing major and difficult structural changes in the public administration. This has been done through good coordination

of responsibilities between the units in charge of service delivery and those in charge of providing common platforms for access to services.

Further, in the Virtual Customs case, although the existing structures have largely been allowed to continue, it has been recognised that they must be sufficiently flexible and adaptable to enable the development of new networks of staff and units that cut across existing structures, even if the latter persist. These groups, or networks, often cut across old hierarchical decision-making structures, creating new patterns of cooperation. Different electronic services need different networks, sometimes temporarily and some of which overlap. This does not imply that an organisation has to be totally reorganised when *e*Services are introduced. Rather, it emphasises the need for increased cooperation, coordination and flexibility.

4.3.2 Skills and human resources

Staff and skill changes

The introduction of *e*Government has different impacts on staff, their skills and the skill acquisition process. To some extent these are dependent upon the particular functions and circumstances involved, but in most cases there are also general and recurring issues and questions which need to be faced. Two such questions are: which new skills, and when they are needed? For example, in the ELAK case study, it was found that no new skills were initially required, apart from those to specifically use the application, but that wider changes were progressively required as digitisation took over. The common assumption was that the electronic record management system would adapt to the agency rather than the other way around.

In the Heusden case it was found that the need for basic IT skills did not change dramatically. Although the work flow is 100 percent digitalised, it seems that the main changes in skills are related to social and communication skills. Similarly, in the Virtual Customs case, the addition of *e*Services to the Customs Agency did not imply that all of the staff suddenly needed IT training. However, it did imply much more flexible structures and attitudes enabling individuals and units to form new networks to find a new way of working. In this case, too, digitisation led to a clear reduction in the numbers of overall staff.

In the UCAS case digitisation also led to completely new ways of working, requiring fewer staff, particularly fewer of those who had previously been responsible for keying-in data from paper forms. However, UCAS also has a policy of retraining existing staff to the new types of job needed, given that they are already familiar with the agency's business, a preference that accounts in large part for its re-skilling strategy instead of hiring new staff, although the latter may sometimes be necessary. This policy also builds staff trust and loyalty based on relative employment longevity and job security, and is also an important component of the agency's organisational learning strategy, i.e. the long-term management and exploitation of knowledge within the agency. Any necessary staff losses have been achieved by letting staff go voluntarily through early retirement or to another job (in the latter case, perhaps after some re-skilling).

ICT skills and competencies

Most of the cases found that the number of staff requiring basic ICT skills (such as use of a PC, mobile devices and standard programmes) increases even if only to use the new applications. However, only few staff need more advanced ICT skills (e.g. software development, web design, web-content authoring, database design, the use of specialised programmes, etc.), as well as data handling, data mining and analysis skills. These typically need to be provided by dedicated specialist staff, albeit under general strategic leadership.

For example, the UCAS case has developed its own IT systems and maintains them in-house, rather than contracting them out to one of the major information service suppliers. This ensures control and that the systems are fully tailored to the agency's highly specific needs. A similar approach was adopted in the Heusden case. In situations where more standard IT systems are used, however, as in the Virtual Customs cases, these tend to be outsourced either elsewhere to specialist units in the public sector or to private sector suppliers.

New types and mixes of skills

Apart from IT skills, the introduction of *e*Government invariably leads to new types of non-technology skills, particular 'softer' personal, communication and organisational skills. Thus, in the ELAK case, the initiative to rethink and re-engineer existing processes has fostered the development of project management, communication and team-leadership skills. In addition, the new way of handling the files seems to foster much more informal communication and networking between ordinary civil servants, a phenomenon also found in the Virtual Customs and UCAS cases.

In the Heusden case, setting up a flexible work environment and implementing new procedures for interacting with customers required staff to acquire a range of social and soft skills, including communication, self-management, and the ability to adapt to new tasks, roles and situations. This shows that ICT itself is not the driving force, but really only an enabler for other types of changes dependent on a given situation and context. ICT provides the basis for sharing knowledge, working wherever and whenever is sensible, and providing new high quality services for the citizen. This means that leaders and staff must be much more proactive, clear and decisive about what precisely they want to do and which outcomes are wanted. It is important that the overall desired outcome is the driving force and not the technology.

In the Knowledge Management case (Valencia), specific focus was placed on training top managers in *e*Government models and strategies, whereas at the middle management level training focused on information and knowledge management systems and skills. The latter concentrated on the advantages of sharing information and introducing new ways of working to deal with complex projects, and will in the future become part of a general training programme for multi-departmental project management, also seen as necessary to guarantee positive attitudes to *e*Government amongst civil servants.

In the UCAS case study, the digitisation process, as well as changing working conditions, has led to the need for further mixes of generalised and more advanced skills and competencies. In a fast-changing government work environment, with a wide variety of work forms as well as contractual arrangements, there is an increasing need for all staff to take more responsibility for their own work and sometimes also for their own skills development. This includes fostering abilities like self-organisation and self-management, inter-personal and communication skills, dealing with unexpected rather than routine situations, greater initiative and self-reliance, etc. Indeed ICT can, in the best of circumstances, transform routine clerical

work into knowledge work by taking over and automating routine functions and leaving workers free to undertake more interesting and specialised tasks, for example as 'case workers' with direct citizen or customer contact.

New ways of working

These new skills and skill mixes, together with changes to work processes and, in some cases, to organisational arrangements, typically lead to a need to work in new and often unfamiliar ways. In the ELAK case study, the significant changes in the work environment meant that the way of working also changed. Civil servants became more responsible for their work and skills, including self-management and self-organisation, and had to change their working habits and attitudes towards the new electronic medium. The flexible work environment required a certain degree of adaptation and learning.

In the Heusden case it was realised that staff often arrange their job around their private lives, for example by exploiting ICT to access their work files wherever they are, and working flexible hours in order to better balance their private lives with their work. In general, the municipality underwent a paradigm shift in the treatment of citizens. Heusden employees now work under the assumption that "the civil servant has to move and not the citizen". This implies a change in the role of the civil servants, as the task and the citizen – and not the process – are at the centre of their work.

In the Knowledge Management case (Valencia), the changes brought about by a single and uniform approach to *e*Services, or through the introduction of knowledge management systems within the public sector, also led to new degrees of individual 'independence' amongst civil servants. In turn, this meant there was a need for staff to both take on a greater amount of self-management and to cooperate with colleagues and managers in new, more direct and flexible ways.

Similarly, in the Virtual Customs and UCAS cases, new forms of interpersonal and inter-unit communication (much of it ICT-based) have been the result. This has led to the need for new types of flexibility and the creation of new networks (sometimes only temporarily to meet short-term needs) which do not always operate within formal structures but can cut across and override them without disrupting the organisation. This, of course, also has important management and leadership implications.

Training and learning

Training and retraining have been used by all the cases to assist the *e*Government skills transformation process. However, the cases also show that it is important to see skills not just in a formal sense i.e. delivered by training courses, but also as medium to longer-term learning processes, for example, through on-the-job personal and career development.

In the ELAK case, for example, new training concepts and training schemes have been developed. Introductory training courses were offered on how to use the new electronic record management system application. This case also illustrates that training and learning must be a continuous process, depending on the resources available. In addition to technical training, internal trainers and coaches who know the organisational processes of the individual ministry have been designated.

The Heusden case found that the type and amount of training required also depended on the age of staff. Younger staff may be more familiar with ICT, but they tend to lack other skills, whereas older employees have much more work and life experience and can therefore

contribute more directly to the success of the organisation. Starting in 2006, individual staff skills performance will become part of their annual appraisal.

In the Knowledge Management case (Valencia), training and learning are also treated as a continuous process at all levels of the public administration. The UCAS case has the same approach and has also set up a dedicated training function as an important component of *e*Government transformation. This has been seen as necessary given the comprehensiveness and complexity of the changes required to staff skills and work functions over a long period. All types of training are offered with two functions. Firstly, internal training using in-house training modules, and secondly, the external training provided by schools and universities, i.e. by the agency's cooperation partners and customers.

All the cases illustrate that government organisations, just like private companies, must increasingly provide dedicated as well as continuous learning for individual employees in order to match the rapid changes taking place in the new public management environment.

Organisational learning and knowledge management

In addition to individual training and learning, another important dimension is the organisational learning process, often directly related to knowledge management and human resource (HR) development strategies. In the Knowledge Management case study, knowledge sharing is seen as an essential part of human and organisational resource development. The introduction of a knowledge management system is contributing to the creation of a changed and more favourable climate and culture, both between civil servants and with middle and top management. This has changed how all staff participate in new and, complex projects, and helps to overcome the traditional barriers to sharing information and knowledge beyond the immediate close circle of friends and colleagues.

In the UCAS case study, the individual skill enhancement process is also seen as part of a broader 'organisational learning' strategy, i.e. the management and exploitation of knowledge within the organisation. *e*Government will only succeed if governments are able to systematically preserve and manage the collective and interchangeable know-how of their workforce, thereby reducing the threat posed by departing employees as well as ensuring that the productive potential of the organisation is fully maintained and exploited.

4.3.3 The role of leadership

Leadership in eGovernment

Leadership and management are key prerequisites to successful *e*Government. Taking the right decisions at the right time and implementing them in appropriate ways has an impact on public sector modernisation in general, and the implementation of *e*Government as part of this. Leadership is also needed to ensure that there is a continuous and strategic approach to *e*Government, that structural decisions reflect the specific needs of the agency and its long-term strategy, and that skills and human resources are developed appropriately. Leadership needs to be exercised at different levels and in different contexts. There are at least three types of leadership.

Political leadership

Firstly, there is political leadership, which is the sine qua non for the overall project implementation. An *e*Government project, which by its nature is often complex and costly, is unlikely to be successful without the acceptance by, and the support of, the politicians in

charge. For example, in the ELAK case, political leadership is forthcoming through the decision of the Council of Ministers to roll out ELAK for all central administrations. Also, as was shown in the X-Road case above, it is important for such leadership to be expressed through long-term commitment and for such a case to be taken out of the party political arena in order to ensure this. In the Heusden case, support from political leaders was also very important, and the desired overall outcome was the driving force, rather than a temporary trend reacting to technology. In the Virtual Customs and UCAS cases, strong political leadership is shown, not through by central government, which has no competence in these cases, but by the top management of the agencies concerned and by the wider political and institutional systems of which they are part.

Strategic leadership

The second type of leadership revealed by most of the cases is that exercised by top management within the agency concerned in directing change and *e*Government strategies. This is best illustrated in the UCAS case study, where a number of such strategic features are apparent, though most of the other cases also illustrate various aspects of the same approach. For example, there is the need for a long-term focus on continuous skill and human resource development. The UCAS case shows the importance that managers and leaders, who are responsible for the strategic and tactical decisions necessary to successfully implement the *e*Government development process, need to place on ensuring that they themselves are constantly updating and adapting their own skills, particularly that they have a thorough understanding of internal organisational conditions, external institutional conditions and market circumstances. However, just as important are the changing skills of ordinary civil servants, as well as the skills required by specialist staff, such as IT specialists, information managers, marketing experts, etc., as we saw above.

Further, in an external context, leadership needs to be exercised through excellent knowledge both of the market and its strategic development, and of the agency's customers and partners. For example, this can involve the proactive management of external demand and customer expectations. The UCAS case exemplifies the importance of leadership attention to both the robustness and the acceptance by customers of the systems employed and the services provided. Thus, UCAS has actively sought to manage the propensity of its customers to use online services by restricting the distribution of other sources of information about university courses, while at the same time enriching the information available online.

In this context, the UCAS case also illustrates that while *e*Government may show overall benefits, the detailed distribution of financial costs and business benefits may not be symmetrical. Thus, the significant costs of investment in back-office integration between UCAS and the universities falls mainly on the universities, while many of the cost savings accrue in the short term largely to UCAS. UCAS' leadership must carefully manage this issue, and has successfully done so by promoting the greatly enhanced possibilities for the universities provided by the capture and analysis of data through the application of information and knowledge management systems.

Administrative leadership

Thirdly, there is administrative leadership, i.e. at the top day-to-day administrative level. For example, in the ELAK case it is important for the project team members to be supported by the administrative leaders, and for the administrative leaders themselves to be part of the project and represent this project to the outside. It is interesting to note that the final decisions on process re-engineering are taken by the administrative leaders; this safeguards the civil

servants actually implementing the project by providing authority and back-up for the changes taking place.

The Virtual Customs case has the full support of top management, so when the IT project met with difficulties, such as scepticism from staff, it could find direct support from key decision makers who strongly believed in its importance, and thereby gave the project a clear mandate for making changes. This was very important in this specific case, since the IT project by itself did not have a mandate to change things on its own. This support was institutionalised by the leader of the Virtual Customs Office also being the head of the Department for Strategic Development and a member of the Management Board. This link between the project and top management simplified direct communication, and thus increased the responsiveness of the organisation and the positive impact of the changes made.

In the UCAS case, top management has also shown long-term commitment and consistency, as the student enrolment agency has been moving decisively towards full use of electronic systems for about ten years. Thus, there is already much experience and leadership investment and momentum. Experience from the X-Road, Knowledge Management and Heusden cases is similar.

Positively leading change and anticipating resistance

Giving a decisive and positive lead to change, whilst anticipating and meeting resistance, is an important leadership factor. For example, the Heusden case avoided resistance by involving all employees in the project and raising awareness of its positive effects. This was done by giving staff the feeling that they are important and that their acquired knowledge and skills are important for the organisation. In this case it was also found that one of the main initial problems was resistance based on the fear of losing one's job. However the amount of resistance does not correlate with the age of the employees. Older employees may be as enthusiastic about a new project as younger employees. Also, in Heusden it was shown to be important not to raise expectations too much at the beginning as this might lead to discontent amongst staff as well as discontent and lack of support from citizens.

In the Knowledge Management case, a key element in the success of the project was the careful selection of the unit where it was launched. This was the department in charge of developing and introducing the *e*Government strategy in the Regional Government of Valencia itself. The positioning of the project as a horizontal measure of the overall *e*Government strategy is a fundamental reason for its success.

In the UCAS case, a conscious leadership approach was not to underestimate resistance to change, both internally from staff and externally from customers and partners, but to actively anticipate and prepare for it. Most important were the efforts made to positively sell the need for and process of change internally first of all, and then work with staff to achieve it. This is not necessarily difficult if done in the right way, but does require changing the way of thinking and the culture; for example something relatively trivial thing of such as getting staff to think of an 'application' rather than an 'application form'.

Creating shared visions and culture

Another lesson is the importance of creating a positive climate of confidence and enthusiasm inside the public agency, both at political and technical levels. For example, in the X-Road case, the leadership carried out continuous awareness-raising actions aimed at creating a political climate favourable to the introduction of *e*Government solutions. The success of the Heusden case rests to a great extent on the ability of leadership to communicate a clear vision,

to draw a clear picture of the outcomes wanted and on them having the social and communication skills to work well with their employees.

In the Knowledge Management case (Valencia), the leadership embarked on a strategy designed to gradually but continuously change attitudes at all levels of the public administration as a forerunner to the process of modernisation. This strategy of change needs to be undertaken in a systematic and coherent way and as a part of the overall *e*Government strategy. The approach adopted in the Knowledge Management case was also to start where attitudes are already favourable, i.e. with civil servants placed at the implementation level (the equivalent of a Head of Unit). Here, the case showed that favourable attitudes pre-existed, making it very easy to introduce the knowledge management tool with only minor levels of training and support. In this way, the project gained an important foothold.

Both the Knowledge Management and the Virtual Customs cases show the importance of putting the goals of the project before administrative structures, so that even if the latter remain in place, they nevertheless do not act as a barrier or brake on progress. In the Virtual Customs case, the project vision gives staff a good picture of what the overall change is about, and clear targets help to indicate which activities are considered important. Once the vision and target are set, it is important to stick to them and carry through the changes required. A clear vision and target also help to simplify communication about the changes. Similarly, in the UCAS case, all agency staff are consistently encouraged to become involved in understanding and working towards the longer-term vision and strategy of the agency as a provider of high quality electronic enrolment services for students and value-adding information resources to its partners in the higher education sector.

Communication and clear strategies

A final leadership issue shared by most of the case studies is the importance of clear and open lines of both internal and external communication. This was particularly emphasised in the Heusden case and, for example, in the Knowledge Management case, where the system is designed primarily for such a purpose, as well as to marshal and exploit the information resources existing in the public sector in order to improve both internal efficiency and the quality of external services.

Indeed, in the Virtual Customs case study, overall success has largely been attributed to the early involvement of, and communication with, all levels of the Customs Office's staff. It is important to communicate with and include the entire organisation when major changes are to be made. An organisation which feels involved in the change, and not simply a subject of that change, is more likely to function well during the implementation of changes.

The Virtual Customs and the Heusden case illustrate two types of problems arising when changes are about to be implemented and how leadership can overcome them. Firstly, there was concern among staff about what would happen to their roles and work tasks. The leadership thus communicated the changes very early on. As soon as planning started, the staff that were to be affected were informed of this, and where possible also involved in the planning and development of the new tasks and services. To involve staff in the actual development of the *e*Services ensures that they become a part of the development process. The leadership also found it important to inform staff about alternatives.

Secondly, the new tasks and decision-making processes do not necessarily fit into old structures. Here, it was important to communicate the new ways of working to middle management. If management is involved in the changes themselves, the possibility that they will be open to new ways of thinking and working, even when new tasks cut across old

hierarchies, increases substantially. Similarly, in the UCAS case, as pointed out above, efforts were made to positively sell the need for and process of change internally first of all, and then work with staff to achieve it.

A summary of the main lessons of the good practice cases can be found in Annex 3.

5. Conclusions

This section draws conclusions from the survey in section 3 and the case study analysis in section 4 within the reference framework outlined in section 2. Furthermore an attempt is made to address the key issues set out in section 2. Finally some suggestions for consideration within EPAN are made and potential follow-up actions are proposed.

5.1 Conclusions from the survey and the case studies

5.1.1 Conclusions from the survey

As pointed out earlier in section 3, the survey focused on skills required for successful *e*Government implementation. Therefore the conclusions in this sub-section mainly concern aspects related to skills.

From the responses received the following can be concluded:

- Most Member States are considering skills either in their *e*Government, modernisation strategies or Human Resource Management (HRM) strategies This is an indication of the importance of skills and competencies in terms of organisation and people. The responsibility for organisational changes, skills and leadership are quite scattered in the Member States. Therefore this part of the survey is rather difficult to evaluate.
- There seems to be no common understanding of what the skills and competencies required are. Often respondents (only) referred to skills as (basic) ICT skills.
- There are different, mostly traditional instruments, used to identify skills gaps. Some innovative initiatives were mentioned. Many Member States are planning to use (specific) instruments in the future.
- Most Member States include *e*Government-related subjects and skills in existing programmes. A number of more traditional training programmes include IT and leadership skills. There are only a few specific training programmes on *e*Government, but some Member States indicated that they are in the planning stage (see Annex 2).
- There are some *e*Government postgraduate programmes, the majority of the Member States indicated that *e*Government-related aspects are integrated into various existing programmes.
- In terms of training methodologies, the members of the group mostly indicated the use of traditional ones. However, there are quite a few initiatives making use of *e*Learning, or blended learning approaches, as well as others such as coaching and mentoring by peers. This area might be one where exchanges of experience could be worthwhile, in particular with a view to the use of *e*Learning and blended learning approaches.

There seems to be a general interest among the group in sharing good practice and knowledge and experience in this area. Suggestions of specific topics/action from individual group members are listed in section 3.

Based on the findings of the survey, there appears to be a need to:

- identify, define and classify the different skills and competencies required by *e*Government;
- assess the skills required for the different functions at all levels, identifying the different target groups;
- design tools for the identification and measurement of existing skills gaps;
- try to establish the core content of training curricula;
- identify ways and instruments to overcome the existing skills gaps (not only though training activities), and evaluate their advantages and disadvantages;
- exchange information and interesting practices in innovative training methodologies, such as *e*Learning, blended learning and/or coaching.

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5.1.2 Conclusion from case studies

We are aware that the sample of cases analysed is relatively small and as such the conclusions drawn from the cases cannot be considered as representative. However, clearly some common trends and elements emerge from all cases, and learning points have been identified that could be of value for the "peers" in EPAN. In this context, it might be useful to encourage further analysis of projects to reach a more representative sample. In this respect, one could, for example, make use of the cases submitted to the *e*Europe Awards for *e*Government – 2005 under the specific theme "the right environment", which as stated earlier includes skills issues, once the cases are available.

Table 4 summarises the learning points from the six case studies following the reference scheme developed for this study explained in section 4. For each function in public administration (policy and planning, implementation and operational) different learning points and conclusions have been summarised according to the respective components (strategic, technological, organisational and administrative).

TABLE 4: LEARNING POINTS AND CONCLUSIONS: SUMMARY

FUNCTIONS COMPONENTS	**Policy & planning** (political and top management civil servant level)	**Implementation** (heads of unit and CIO level)	**Operational** (ordinary civil servant level)
Strategic (related to development of plans and strategies)	▪ Adopt a long-term strategy and ensure the continuity of strategies, plans and actions for *e*Government to guarantee success ▪ Carry out continuous awareness actions to create a political climate in favour of the introduction of *e*Government solutions ▪ Formalise and widely diffuse *e*Government strategies ▪ Ensure an *e*Government curriculum is planned ▪ Create training programmes covering *e*Government models and strategies ▪ Secure political and administrative leadership ▪ Ensure the full support of top management throughout to give the project a clear and unambiguous mandate ▪ Focus on internal and external integration of work processes ▪ Ensure equal focus on change management and human resource development ▪ Ensure that the project leader is represented in top management ▪ Ensure that the project and all changes are focused on customer needs ▪ Ensure the strategic management of the expectations, benefits and skills of customers and stakeholders	▪ Recognise that fewer staff may be needed overall ▪ Focus on re-training existing staff as far as possible, only employing new staff where necessary ▪ Facilitate new ways of working	
Technological Related to technological changes)	▪ Recognise that technology is just an enabler for the changes needed ▪ Depending on the user population, make a strategic move towards 100% digital systems ▪ Create a strong link between top management and the IT unit ▪ Maintain critical ICT systems and skills in-house where these are specific to the agency concerned	▪ Use technology as an enabler for the new flexible and paperless work environment ▪ Recognise that existing systems might ease the implementation of *e*Government solutions ▪ Ensure the development of common platforms to provide unified tools to permit *e*Government service delivery ▪ Make available a dedicated ICT specialist unit and staff but under general strategic leadership	▪ Recognise that most staff do need good basic ICT skills, but that these do not change dramatically ▪ Recognise that all staff do not necessarily need new ICT training ▪ Recognise that more advanced ICT skills may not be needed

FUNCTIONS COMPONENTS	**Policy & planning** (political and top management civil servant level)	**Implementation** (heads of unit and CIO level)	**Operational** (ordinary civil servant level)
Organisational (related to changes in the organisation)	• Ensure and communicate both a clear vision, stating what the objective of the changes is, and a clear target specifying what activities are to take place ▪ Establish a long-term organisational learning strategy for the exploitation and management of knowledge within the organisation ▪ If possible, "communicate results and not just wishes"	▪ Involve all staff and stakeholders in the change process ▪ Recognise that re-skilling of staff for new tasks and roles might be needed ▪ Recognise it is possible to implement efficient *e*Government solutions to deliver services without introducing major and difficult changes in the structure of the public administration ▪ Focus on both coordination and cooperation between different departments ▪ Recognise the need to build networks of staff that together can develop the *e*Services and ensure not only that they function well, but also that they do not necessarily follow old hierarchies or structures ▪ Ensure the early involvement of, and communication with, staff ▪ Ensure the inclusion of, and communication with, the entire organisation when changes are made ▪ Establish a dedicated training function for both in-house and customer training ▪ Establish an on-going staff re-skilling and flexibilisation strategy for staff in new roles ▪ Do not underestimate resistance to change but actively prepare to meet it ▪ Sell the need for and process of change internally first, and work with staff to achieve it	▪ Enable staff to coordinate their work and private life more smoothly ▪ Recognise that age is not necessarily an indicator of resistance
Administrative (activities of ordinary civil servants)		▪ Establish training programmes on Information and knowledge management	▪ Recognise that new skills are needed (communication, self- and time management, etc.) ▪ Recognise that continuous learning is needed ▪ Use key users as internal coaches and in a helpdesk function ▪ Ensure that training activities are developed in a continuous and systematic way at all levels of the public administration ▪ Develop skills for sharing information and knowledge and create a favourable environment ▪ Support the change from clerical to knowledge workers, as digitisation removes routine work, and ensure they are equipped not only with basic ICT skills but also with many flexible and enhanced interpersonal and communication skills

5.2 Key issues

Based on the findings of the survey and the case studies, supported by desk research, in section 3 and 4, an attempt is now made to address the issues raised in the reference framework of the study outlined in section 2.

The three issues were:

1. Are radical changes in public administrations taking place and are they necessary?
2. What core new skills and competencies are required, and how old are new skills?
3. What is the relevance/impact of leadership?

The following paragraphs will address these questions and include some learning points arising from the case study analysis and the survey.

Issue 1: Are radical changes in public administrations taking place and are they necessary?

It appears from the case study analysis that in the majority of the cases organisational changes are not radical but rather *gradual* in the sense that unless specific political problems or objectives are the driving force behind them, changes are quite smooth in nature. This depends, however, on the type of organisation and the preconditions, such as infrastructure, and/or on whether a defined process had been in place for many years. However, a successful outcome might lead to more 'radical' steps in a second or third phase.

Continuity in the implementation of the strategies is a key requirement for *e*Government. An information and communication strategy (internal and external) is of utmost importance.

Moreover, the following lessons can be drawn:

- Design and communication of a clear vision, objectives and strategy is of utmost importance.
- Continuity beyond political terms of office is crucial in the implementation.
- *e*Government programmes must be based on change management strategies and processes that focus on cultural issues and closely involve the stakeholders, in particular public employees, as full partners of the change process.
- Infrastructure must be in place and function properly.
- *e*Government will only be successful if people in the public sector can be brought 'on board'. As civil servants must see benefits as well, involvement from the very beginning is indispensable.
- Employees and their representative unions should be involved in the change management process.
- Enthusiasm of employees is a driving force.
- Resistance to change has to be addressed from the outset: it is not a question of age and is hardest to overcome at management level.
- Fears must be addressed: there is concern among public employees that the increased efficiency due to *e*Government will translate into job cuts.
- There are medium-term savings and benefits for administrations in terms of resources.
- Changes are often induced by efficiency considerations.

Issue 2: What core new skills and competencies are required, and how old are new skills?

With the exception of ICT, new skills and competencies are hardly cutting edge – nonetheless they appear to be of vital importance, at least according to the findings of the case study analysis.

At the management level, the most important factor appears to be the strategic planning competence. For most staff, ICT skills do not appear to be the main concern but rather planning and management (including self-management and organisation and project management) as well as (inter)personal, social and communication skills. In addition, external and internal consultants are an important vehicle for bringing expertise, but governments will have to figure out ways to provide and maintain their own capacity within the public sector.

It is the recruitment, training and retention of leadership and talent in the public sector – and not technology – that will determine the success of *e*Government initiatives.

The following skills and competencies were detected:

- innovation capacities;
- project management skills;
- leadership skills;
- contractual management;
- technology management and process management;
- basic and advanced ICT skills;
- information and knowledge management;
- communication, negotiation and interpersonal skills;
- web editing, web design, web-content management and writing skills;
- flexible working methods;
- networking capabilities;
- human resource management skills.

Moreover, the following lessons can be learned:

- Strategic planning and management are crucial.
- Innovative organisations should have a strategy on skills and competencies.
- Skills should be integrated into HRM strategies, i.e. in career systems and appraisal systems. Effective training and methodologies should form part of the strategy.
- The main challenge seems to be the paradigm shift to a new way of working, which requires a set of social and communication skills (including management skills).
- At the organisational level, changes in roles and profiles are hardly radical. At the personal level, perceptions might be different.
- Some tasks disappear but others emerge: re-skilling of staff works.
- It is important to detect and identify skills needs early enough.
- There appears to be a need to identify skills frameworks for IT specialists and IT managers.
- Age is not a barrier but, if managed properly, can constitute an added value
- A continuous effort and learning process is needed for both the organisation and staff.
- The development of systematic training approaches and curricula should be encouraged.
- Recruitment and career strategies need to be revised

Issue 3: What is the relevance/impact of leadership?

Much has been said about leadership in various contexts and there is no need to repeat here what has been said before. The practices of a society are embedded in the practices of institutions and evolve with them. This is why changes in how institutions of business, education, government and social services operate matter – and why leadership, the energy that enables such change, is so important (Senge 2002).

As also confirmed by the case studies, leadership needs to be exercised at different levels and in different contexts. Leaders need to ensure continuity. They must make sure that structural decisions reflect the specific needs of the organisation within the framework of its long-term strategy, and that skills and human resources are developed appropriately.

However, one has to be careful in focusing exclusively on top-level management.

Moreover, the following lessons can be learned:

- Strong leadership is crucial at all levels: political, strategic and administrative
- A shared vision and culture is required
- Leaders have to design long-term strategies and ensure continuity
- The management style change has to be adapted to a flexible working environment
- Leaders have to update their knowledge and skills continuously
- Communication strategies are vital: communicate results not wishes, do not raise too high expectations of citizens and civil servants

5.3 Suggestions and proposals

5.3.1 Suggestions for cooperation

Due to the interdisciplinary nature of *e*Government, more cooperation with other working groups of EPAN would be desirable, in particular with the Human Resource Management working group, to benefit from the competence of the members. As suggested by some countries, collaboration with the National Institutes of Public Administration should also be established, in particular when it comes to issues related to skills. Working sessions could be organised with the participation (on a voluntary basis) of members from the different working groups. As a preliminary step to initiate collaboration with other EPAN working groups, we would suggest presenting the results of this survey at the Human Resources Management working group.

The role of leadership in the processes of modernisation and *e*Government in the public administration could also be further explored in collaboration with the Human Resources Management working group.

Good practice exchange and knowledge transfer related to organisational change and change management could be explored jointly with the Innovative Public Service group.

5.3.2 Proposal for a workshop

Based on the above conclusions, a workshop is proposed to look further into the skills requirements for successful *e*Government implementation:

Objective
The workshop would provide an opportunity to continue the work undertaken in the study and, more specifically to:

- validate and explore further the findings of the study, in particular, with regard to good practice exchange and knowledge transfer;
- exchange experience and good practice on instruments for identification of skills gaps;
- explore input/potential cooperation with initiatives such as the skills framework initiative suggested by the United Kingdom;
- exchange experience on profiles and identify common core curricula;
- look into the role and types of training and educational programmes;

- identify the potential role of new training methodologies.

Target group
It is suggested to invite members of the Human Resource Management working group and the Directors of / Network of Schools and Institutes of Public Administration to this workshop as well as some representatives from academia involved in educational programmes, in particular at postgraduate level, and the OECD (approximately 20 participants).

Methodology
An innovative and interactive approach is suggested to make best use of the knowledge and experience of the participants.

The outcome of the workshop will be summarised in a working paper which will be made available to the groups involved.

Date and venue:
The workshop could be hosted by EIPA with the support of the Luxembourg Presidency of the EU.

Suggested date: 24 June 2005 (alternatively 1 July 2005)

6. References

Books, Reports and Articles

Alabau, A., *The European Union and its eGovernment Policy*, Ed. Fundación Vodafone, Madrid, 2004.

Bossaert, D. and Demke, C., *Civil Services in the Accession States: New Trends and the Impact of the Integration Process*, EIPA, Maastricht, 2003.

Centeno, C. et al., *eGovernment in the EU in the next decade: the vision and key challenges*, European Commission, Directorate-General Joint Research Centre/Institute for Prospective Technological Studies, Seville, 2004.

Commonwealth Centre for Electronic Governance, *International Tracking Survey Report No 6: Change Management and e-Governance and international privacy issues and the relationship to e-Government*, Commonwealth Secretariat, London, 2002.

Criado, J. Ignacio, *Construyendo la e-Administración Local: Las Tecnologías de la Información y la Comunicación e Internet en los Ayuntamientos de la Comunidad de Madrid*, Instituto Complutense de Ciencia de la Administración, Madrid, 2004.

Directors-General responsible for Public Administration in Greece, Italy, Ireland and The Netherlands, *Mid-Term Programme 2004-2005 for Co-operation in Public Administrations in the EU*, approved in Rome, December 2003.

Drüke, H. (Ed.), *Local Electronic Government: A comparative study*, Routledge, London/New York, 2005.

*e*Government Subgroup of the *e*Europe Advisory Group, *eGovernment Beyond 2005 – Modern and Innovative Public Administrations in the 2010 horizon – "CoBrA Recommendations" to the eEurope Advisory Group*, 3rd *e*Europe *e*Government Subgroup Meeting, Amsterdam, 27 – 28 September 2004.

European Public Administration Network (2003) by KPMG Business Advisory Services, et al., *Current and Future Use of New Technology in Human Resources Management in European Public Administrations*, prepared for the 41st Meeting of the European Directors-General responsible for Public Administration, Rome, 2 – 3 December 2003.

European Public Administration Network (2004), by Capgemini and TNO, *Does E-Government pay off?*, presented at the EPAN *e*Government Working Group and at the 3rd Quality Conference for Public Administrations in the European Union, September 2004.

European Commission (2003), *Communication on the Role of eGovernment for Europe's Future*, COM (2003) 567 of 26 September 2003.

European Commission (2005), *Proposal for a Decision of the European Parliament and of the Council establishing a Competitiveness and Innovation Framework Programme (2007 – 2013)*, COM (2005) 121 Final of 6 April 2005.

Harvard Policy Group on Network-Enabled Services and Government, John F. Kennedy School of Government, *Eight Imperatives for Leaders in a Networked World*: *Guidelines for the 2000 Election and beyond*, Cambridge, Harvard University, 2000.

High-Level Group chaired by Wim Kok, *Facing the Challenge: The Lisbon strategy for growth and employment*, Report from the High-Level Group chaired by Wim Kok, European Communities, 2004.

Leitner, C. (Ed.), *eGovernment in Europe: The State of Affairs*, presented at the *e*Government Conference held in Como, Italy on 7 – 8 July 2003, EIPA, Maastricht, 2003.

Millard, J., et al., *Reorganisation of Government Back Offices for Better Electronic Services – European Good Practices (Back-office reorganisation)*, Report to the European Commission from the Danish Technological Institute and the Institut für Informationsmanagement GmbH at the University of Bremen, Aarhus/Bremen, January 2004.

New Local Government Network and the Improvement and Development Agency, *e-Government and Organizational Transformation: Lessons from Liverpool and Hertfordshire*, London, New Local Government Network, 2002.

OECD (2001) *Government of the Future: PUMA Policy Brief No. 9*, June 2001.

OECD (2003a) *Knowledge management in government: An idea whose time has come*, Leading Government Symposium 3 – 4 February 2003, OECD, Paris, 2003.

OECD (2003b) *Conclusions from the results of the survey of knowledge management practices from Ministries/Departments/Agencies of central government in OECD member countries*, Draft report for discussion Human Resource Management Working Party, OECD, Paris, 2003.

OECD (2003c) *eGovernment Imperative*, OECD, Paris, 2003.

OECD (2003d) *The learning government: Introduction and draft results of the survey of knowledge management practices in Ministries /Departments /Agencies of Central Government*, 27th Session of the Public Management Committee, 3 − 4 April 2003, Paris, March 2003.

OECD (2003e) *Checklist for eGovernment Leaders*, Policy Brief, September 2003.

OECD (2004) *Strategic Implementation of E-Government in OECD Countries: major challenges*, 12th NISPAcee Annual Conference, 13 – 15 May 2004.

Reding, V., *i2010: The European Commission's new programme to boost competitiveness in the ICT Sector*, speech at Microsoft's Government Leaders Forum, Prague, 31 January 2005.

Senge, P.M., *The Leadership of Profound Change*, SPC INK No. 1, 2000, Knoxville, SPC Press, 2002.

Senge, P.M., *Leadership in living organizations*, Leading Beyond the Walls, Indianapolis, Jossey-Bass Inc., 1999.

Settles, A., *What Skills Are Needed In An E-World: E-Government Skills and Training Programs For The Public Sector*, Session 3: E-Government skills of the OECD E-Government Project Seminar on Reform of Public Administrations, 23 – 24 September 2002.

United Nations, Department of Economic and Social Affairs, *World Public Sector Report: E-Government at the Crossroads*, New York, United Nations, 2003.

Zuurmond, A., et al., *Scenario session Report: eGovernment beyond 2005*, for the Ministry of Interior and Kingdom Relations, The Netherlands, Zenc, 2004.

Websites

*e*Europe Awards Programme, http://www.e-europeawards.org

ELAK im Bund, http://www.elakimbund.at

Gemeente Heusden, http://www.heusden.nl

Help On-line, http://www.help.av.at

Infed, http://www.infed.org/thinkers/senge.htm

Region of Valencia, http://www.avantic.es

The Economist, http://www.economist.com

The Observer, http://observer.guardian.co.uk

Tullverket, http://www.tullverket.se

Universities & Colleges Admissions Service, http://www.ucas.com

X-Roads, http://x-tee.riik.ee

Annex 1 : Questionnaire

Présidence luxembourgeoise
du Conseil de l'Union européenne

EPAN – eGovernment working group

10th of January 2005

PREPARATORY SURVEY

Organisational Changes, Skills and the role of Leadership required by eGovernment

Country	

Ministry or agency	
Office	
Web site	

Contact Person	
Name	
Address	
Telephone	
Fax	
Email	

Please fill out and send back
before the **4th of February 2005**
to the "European Institute of Public Administration"
(see address page 3)

Introduction to the questionnaire

In its 2003 Communication the European Commission re-defined e-government as "… the use of ICT combined with organisational change, new skills in order to improve public services and democratic processes and public policies" (The role of eGovernment for Europe's Future, COM(2003) 567 final, adopted on 26 September 2003).

However, eGovernment is more than that: It implies major socio-economic innovations and politico-administrative institutional changes based on new IST applications and developments. Transforming culture is thus a key dimension of eGovernment. It has been acknowledged that eGovernment calls for strong leadership at different levels to provide a strategic vision for and operational implementation of innovation and change processes in public administration.

The increasing importance of ICTs and the Internet for public administration calls for complex skills to drive change in government. In terms of e-Government, ICTs and the Internet imply modernized service delivery processes regarding the sharing of data, business process redesign and human resources which in turn require organizational change, new top level leadership (eLeaders), with mid-level leadership (eChampions) supporting their work. Clerical staff as well as managers require a new and challenging set of skills.

The Mid Term Programme 2004-2005 for Cooperation in Public Administrations in the EU aims at "identifying the acquisition of the different skills (not only technical skills) which are needed by managers (and clerical staff) to govern and manage change. By the end of 2005 the eGovernment skills required will be appraised and recommendations will be agreed by the Member States" (EPAN Mid Term Programme 2003).

In response to these challenges, the Ministry for Public Service and Administrative Reform in Luxembourg has requested the European Institute of Public Administration (EIPA) to draft a report on "Organisational Changes, Skills and the Role of Leadership required by eGovernment" to provide a basis for discussion during the EU Presidency of Luxembourg in the first half of 2005. It will also provide some input for the recommendations to be agreed by the end of 2005.

The report will include a description of the context in the EU Member States, as well as an analysis of some case studies of good practices with regard to organisational changes, skills and leadership requirements.

In case of any problem with this questionnaire, please feel free to contact

European Institute of Public Administration
Attn. Christine LEITNER
O.L. Vrouweplein 22
P.O. Box 1229
NL - 6201 BE Maastricht
Tel.: ++31 43 329 62 22
Fax : ++31 43 329 62 96
Email: n.karssen@eipa-nl.com
with copy to
c.leitner@eipa-nl.com

in order to avoid any misunderstandings or problems and to help in the delivering of a good and useful report.

QUESTIONNAIRE

1. **Who is responsible at the central level for strategic aspects related to skills, organisational change and leadership development for eGovernment, and how is the coordination between the different actors involved?**

   Are there other entities at the regional and local level responsible for those aspects?

2. **Do your action plans on eGovernment include measures on :**

	Yes	*Planned*	*No*
Skills			
Organisational changes			
Leadership			

   If *yes* or *planned*, please specify what kind of measures :

3. **Are there specific instruments to identify skill gaps?**

Yes	*Planned*	*No*

   If *yes* or *planned*, please specify what kind of instruments are used and what actions have you taken or have been planned to meet the needs identified (for example, coaching, training, recruitment, etc)?

4. What programmes do exist?

Type of training	*Yes*	*Planned*	*No*
Continuous training			
Short-term training			
Other (specify)			

Target groups	*Yes*	*Planned*	*No*
Top-level managers			
Middle management			
Other (specify)			

Methodologies	*Yes*	*Planned*	*No*
Traditional training (*)			
*e*learning			
Coaching			
Other (specify)			

(*) Traditional training : seminars, workshops, etc.

If *yes* or *planned*, please, give details.

5. At the University level, are there :

	Yes / Number of Universities	*Planned*	*No*
Post-graduate programmes			
Full-time / part-time (executive programmes)			
Other (specify)			

If *yes* or *planned*, please indicate which these programmes are, and if possible the number of universities that have them :

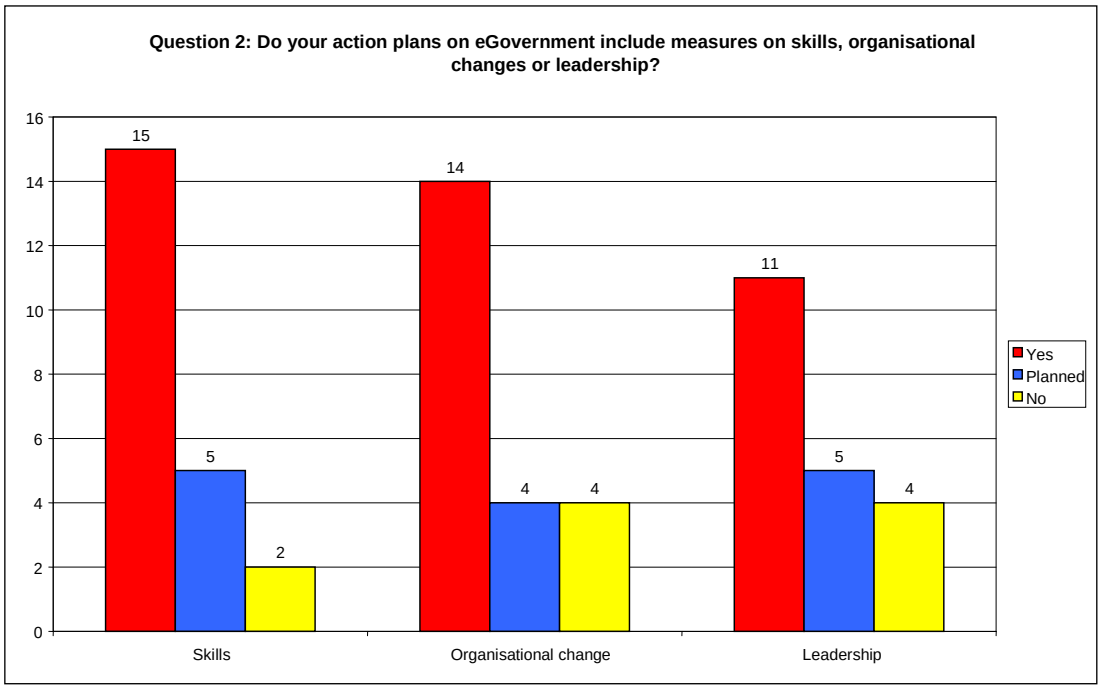
6. What can be done in the framework of the European Public Administration Network in this field?

(end of the document)

Annex 2: Statistical data on survey

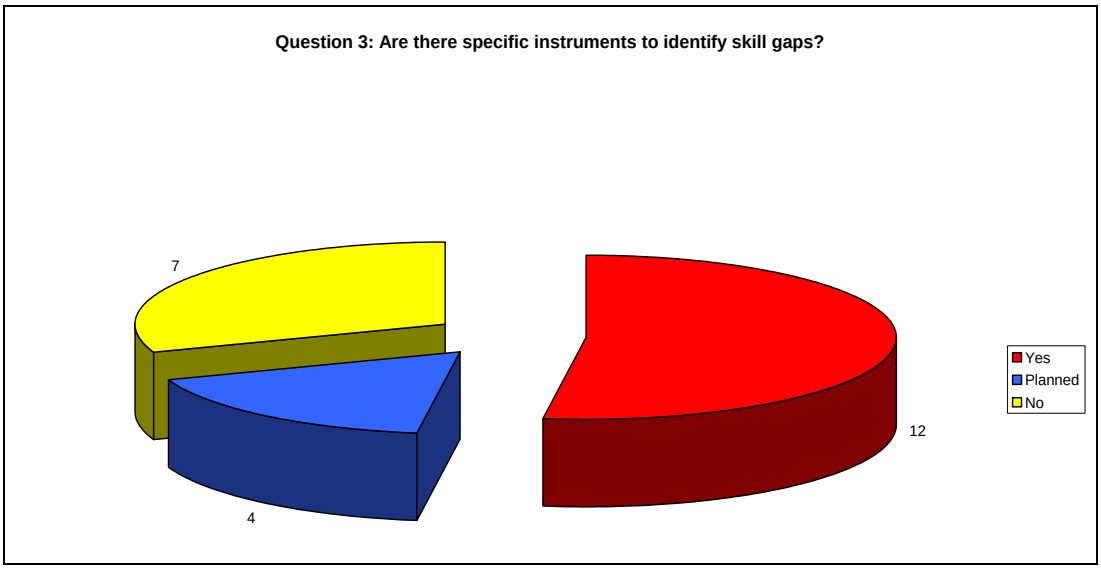
Question 2: Do your action plans on eGovernment include measures on skills, organisational changes or leadership?

	Yes	*Planned*	*No*
Skills	Cyprus, Czech Republic, Denmark, France, Germany, Hungary, Ireland, Italy, Lithuania, Malta, Netherlands, Spain, Sweden, United Kingdom, *Bulgaria*	Austria, Belgium, France, Germany, Slovenia	Finland, Luxembourg
Organisational changes	Austria, Cyprus, Denmark, France, Germany, Hungary, Ireland, Italy, Lithuania, Netherlands, Spain, Sweden, United Kingdom, *Bulgaria*	Belgium, France, Germany, Slovenia	Czech Republic, Finland, Luxembourg, Malta
Leadership	Cyprus, Denmark, France, Hungary, Ireland, Italy, Lithuania, Malta, Netherlands, Sweden, United Kingdom	Austria, Belgium, France, Slovenia, *Bulgaria*	Czech Republic, Finland, Luxembourg, Spain



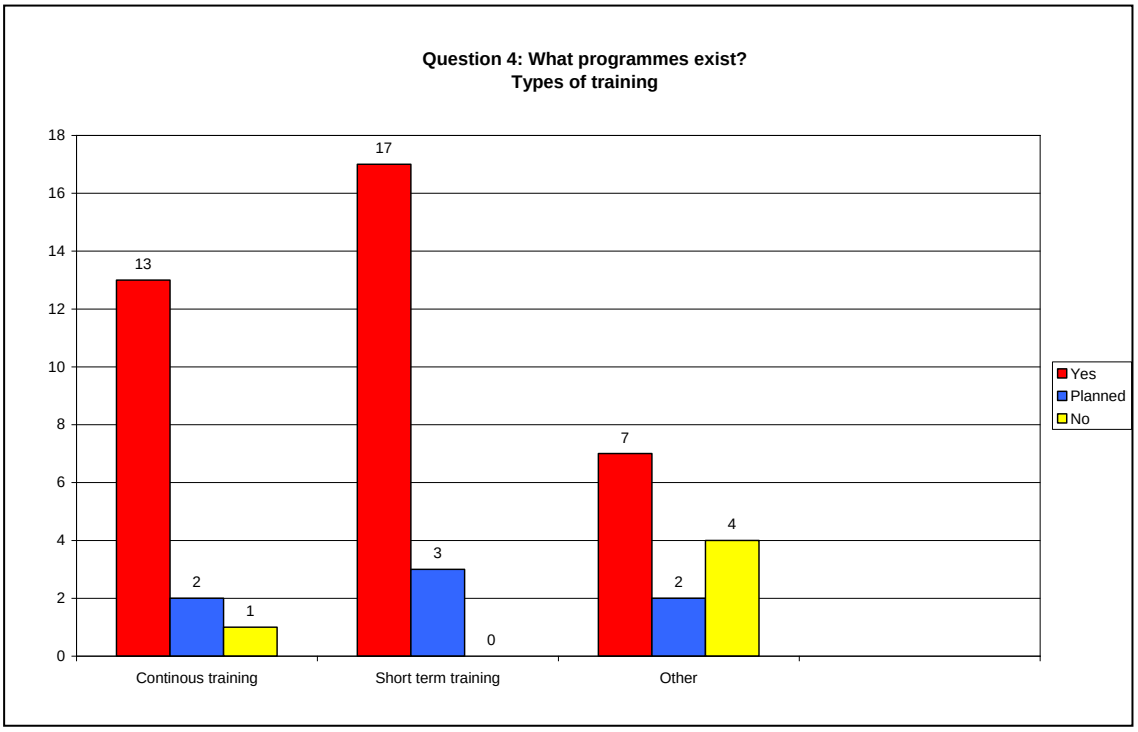
Question 3: Are there specific instruments to identify skill gaps?

Yes	*Planned*	*No*
Belgium, Cyprus, Czech Republic, Denmark, Germany, Ireland, Italy, Lithuania, Spain, Sweden, United Kingdom, *Bulgaria*	Denmark, Germany, Italy, Slovenia	Austria, Finland France, Hungary, Luxembourg, Malta, Netherlands

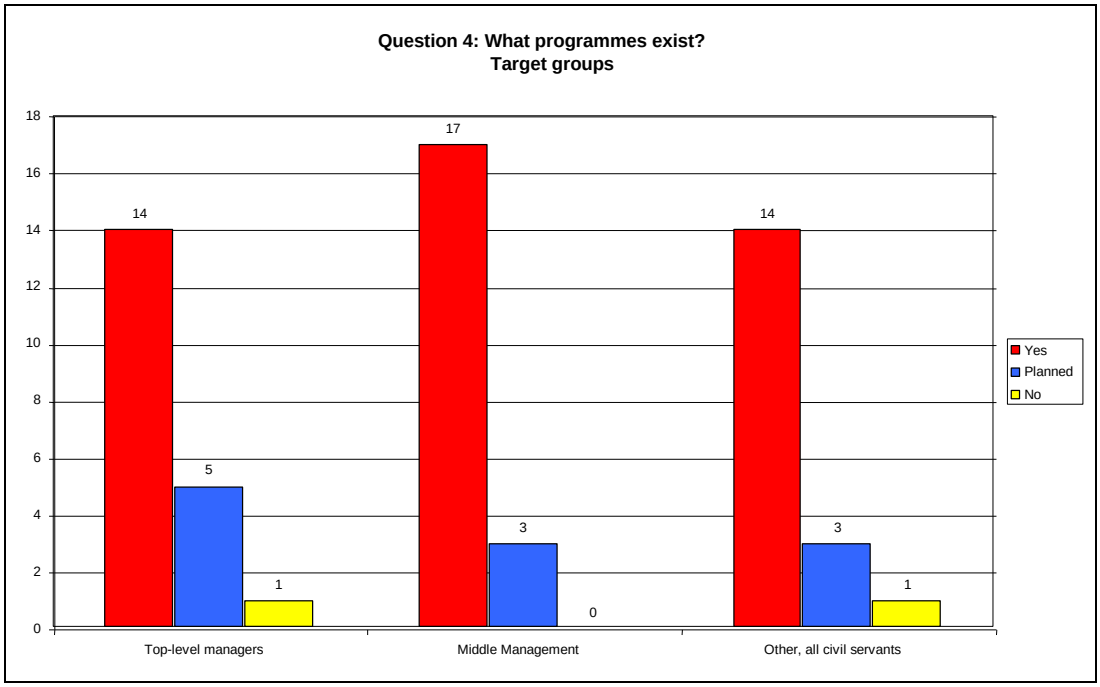


Question 4: What programmes exist? This question includes three sub-questions on the types of training, types of target group and methodologies.

Type of training	*Yes*	*Planned*	*No*
Continuous training	Austria, Czech Republic, Denmark, France, Ireland, Italy, Lithuania, Luxembourg, Malta, Spain, Sweden, United Kingdom, *Bulgaria*	Hungary, Slovenia	Finland
Short-term training	Austria, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Ireland, Italy, Lithuania, Luxembourg, Malta, Netherlands, Spain, Sweden, United Kingdom, *Bulgaria*	Germany, Italy, Slovenia	
Other (specify)	Austria, Czech Republic, Germany, Ireland, Netherlands, Spain, United Kingdom	France, Germany	Finland, Malta, Slovenia, *Bulgaria*

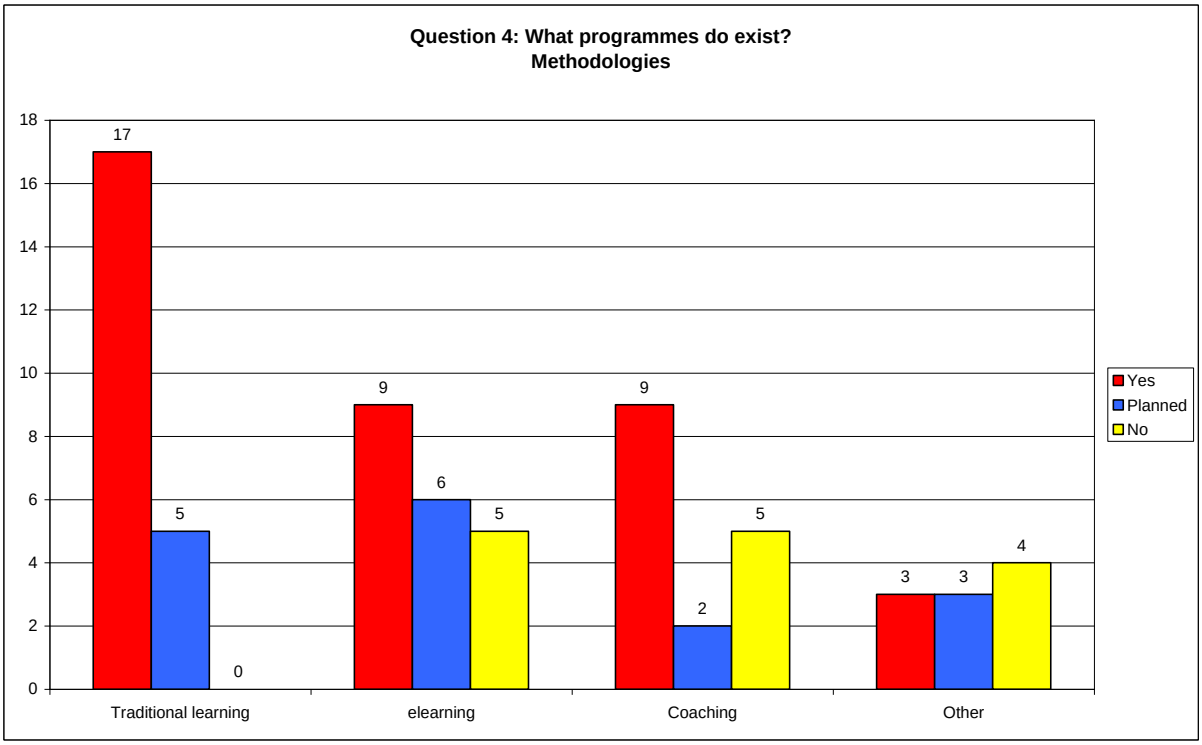


Target groups	*Yes*	*Planned*	*No*
Top-level managers	Austria, Cyprus, Czech Republic, Denmark, Germany, Ireland, Italy, Lithuania, Luxembourg, Malta, Netherlands, Spain, Sweden, *Bulgaria*	France, Germany, Hungary, Italy, Slovenia	Finland
Middle management	Austria, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Ireland, Italy, Lithuania, Luxembourg, Malta, Netherlands, Spain, Sweden, United Kingdom, *Bulgaria*	France, Germany, Slovenia	
Other (specify)	Austria, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Ireland, Luxembourg, Malta, Netherlands, Spain, United Kingdom, *Bulgaria*	Belgium, France, Germany	Slovenia



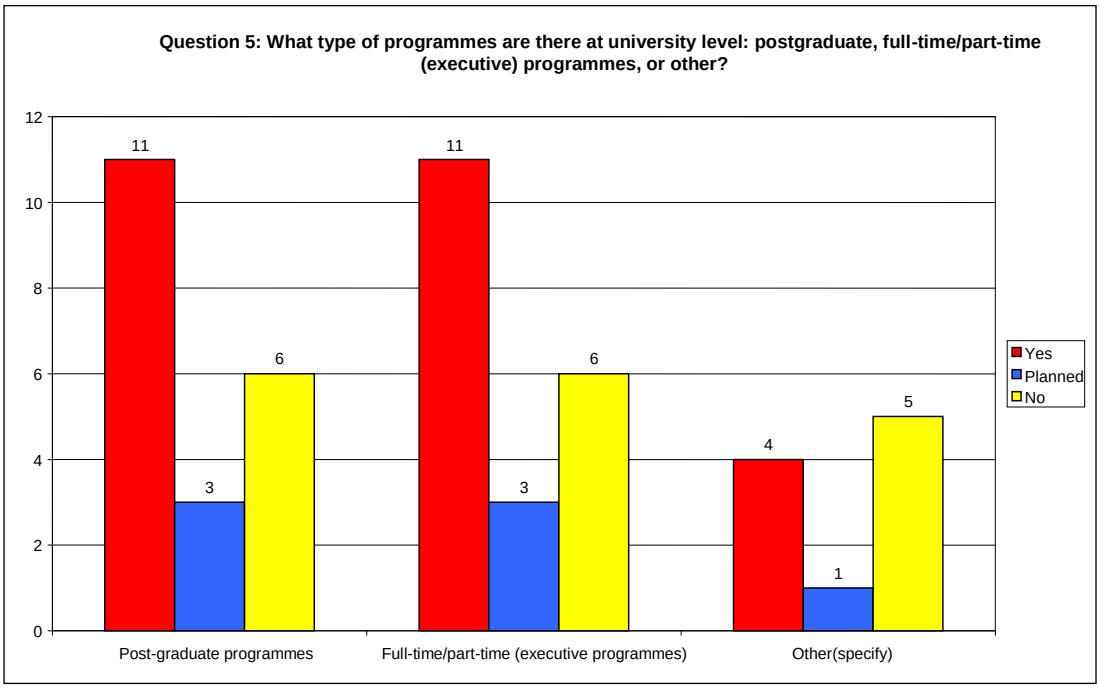
Methodologies	*Yes*	*Planned*	*No*
Traditional training (*)	Austria, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Ireland, Italy, Lithuania, Luxembourg, Malta, Netherlands, Spain, Sweden, United Kingdom, *Bulgaria*	Austria, Germany, Hungary, Italy, Slovenia	
*e*learning	Austria, Czech Republic, France, Germany, Italy, Lithuania, Netherlands, Spain, United Kingdom	Austria, France, Germany, Hungary, Ireland, Slovenia	Denmark, Finland, Luxembourg, Malta, *Bulgaria*
Coaching	Cyprus, Czech Republic, Lithuania, Ireland, Italy, Netherlands, Sweden, United Kingdom, *Bulgaria*	Austria, France	Denmark, Finland, Luxembourg, Malta, Slovenia
Other (specify)	Denmark, Germany, United Kingdom	Austria, France, Germany	Finland, Malta, Slovenia, *Bulgaria*,

(*) Traditional training: seminars, workshops, etc



Question 5: What type of programmes are there at university level: postgraduate, full-time/part-time (executive) programmes, or other?

	Yes (Number of Universities)	*Planned*	*No*
Post-graduate programmes	Belgium, Czech Republic, Denmark (4-5), Finland (1), France, Germany, Italy, Lithuania (449 master degrees and 78 special vocational studies programmes), Malta, Spain, United Kingdom	France, Italy, Slovenia	Austria, Cyprus, Hungary, Luxembourg, Netherlands, *Bulgaria*
Full-time / part-time (executive programmes)	Austria (1), Belgium, Czech Republic, Denmark (4-5), France, Germany, Italy, Lithuania, Malta, Sweden (15), United Kingdom	France, Italy, Slovenia	Cyprus, Finland, Hungary, Luxembourg, Netherlands, *Bulgaria*
Other (specify)	Denmark (2-3), France, Hungary, *Bulgaria (6)*	France	Austria, Finland, Luxembourg, Malta, Netherlands



Annex 3: Case studies

1. **Austria:**
    a. **Case Study : ELAK - Der elektronische Akt (electronic record management system)**
    b. **An example for an eGovernment Curriculum**
2. **Estonia: X-Road Project**
3. **The Netherlands: Heusdense Manier van Werken (Heusden way of working)**
4. **Spain: Region of Valencia**
5. **Sweden : Virtual Customs Office**
6. **United Kingdom : UCAS**
7. **Summary**

1./a. Austria : ELAK – Der elektronische Akt (electronic record management system)

ELAK im Bund
www.elakimbund.at

1.- Executive Summary

This case gives an overview of the Austrian project, "ELAK" (elektronischer Akt, or electronic record system) and describes its implementation in the Austrian Ministry of Education, Science and Culture (BM:BWK).

ELAK is the electronic record management system of the Federal Government of Austria. By 2004 it had been implemented in all federal ministries, which includes 7,500 "Zentralstellen" (i.e. employees in central administrations) connected to the system. Discussions started in the late 1990s and were closely linked with the re-structuring of the national IT strategy, which was defined in 2001. The main objective of this strategy is to enable citizens to interact electronically with public authorities and to foster inter- and intra-ministerial communication by electronic means.

The project assignment was defined by the Federal Chancellery. The overall strategy was defined by the national ICT coordination committee in coordination with the Federal Chancellor and the Vice Chancellor. In June 2001, the Council of Ministers assigned overall responsibility for coordinating the project to the Federal Chancellery. Each ministry is responsible for the implementation of ELAK. Implementation plans and accompanying measures were developed individually. Hence, each ministry was able to adjust ELAK according to its needs. The system was fully implemented at federal level in September 2004.

The overall aim of ELAK was to enable the ministries to cooperate more efficiently, to create a basis for intra- and inter-ministerial workflows, to facilitate the change in ministerial structures and to create a basis for 'one-stop-government' and the implementation of *e*Government processes. The strategic objectives were:

a) Producing a one product strategy.
b) Aiding platform independence,
c) Taking existing ELAK solutions into account.
d) Centralising management at an external electronic data processing centre.
e) Incorporating digital signatures
f) Creating common project management and unified roll out plans.
g) Making communication, information and consultation between the different ministries electronic.

The specific aims of the ELAK project encompass the following targets:

a) Replacing paper based originals with electronic files.
b) Allowing independence of time and location for access to electronic files.
c) Making quick and efficient research possible.
d) Automating the traceability and documentation of files.
e) Requiring the security of files.
f) Providing civil servants one-stop-access to files.
g) Maintaining cost efficiency.

A consortium provided the technological basis for ELAK. The umbrella organisation AG ELAK held overall responsibility. AG ELAK consisted of the Bundesrechenzentrum GmbH (BRZ, the central federal IT provider) and Bundesrechenzentrum IT-Solution GmbH (BITS). They subcontracted to the private companies IBM and Fabasoft Austria.

Two historical factors have made ELAK's success possible in Austria. These include the fact that every ministry has used an electronic information system to trace files for a number of years (the so-called "Kanzleiinformationssystem" (KIS)), and the existence of a filing system that has been established, harmonised and traditionally used in the Austrian administration over many years.

The BM:BWK chose a project-management-oriented approach. An intra-ministerial task force (hence people from different backgrounds) has been responsible for the implementation of ELAK and accompanying measures, such as the development of an *e*Learning system. In all, approximately 900 civil servants from all administrative levels have been trained in the BM:BWK on the use of ELAK.

Learning points and conclusions

Organisational change needs the involvement of all employees

Although the implementation of ELAK was mandatory (based on a Council of Ministers' Decision), ministries were encouraged to re-think and re-engineer existing processes on a voluntary basis. The BM:BWK's re-designing of processes proves the dependence on employee involvement.

Since ELAK does all the forwarding and filing of records automatically, clerks are no longer involved in record processing. As a result, new roles have been created, like that of the so-called 'team assistant', who supports the specialist departments by carrying out mass mailings, producing brochures, etc. The team assistants were formerly part of the old "zentrale Kanzleistellen", responsible for the flow of information and files between different civil servants, units and ministries, and have been re-skilled for their new tasks as team assistants. Furthermore, experience in the BM:BWK has also shown that attitudes towards the status or importance of files in the process itself has changed.

New skills and continuous learning is needed

Although ELAK reflects work processes that are already known and have been used for many years by civil servants, new skills are needed. It seems that basic IT skill acquisition is not the main challenge, but staff have to acquire social and 'soft skills'. Due to changes in work processes and the work environment, civil servants should be trained, for example, in self-management, self-organisation, communication and media use. In the BM:BWK, all civil servants from various levels were trained in using ELAK. One hundred and seventy civil servants were trained as so-called "key users" for future support of other civil servants. The

project team also developed a teaching module on eGovernment and ELAK using a blended learning approach. This module is being used in the "Grundausbildung", the basic training, for newly recruited civil servants. Again, each ministry is responsible for this process in their 'Grundausbildung'.

Leaders have to follow a long-term strategy

Political and administrative support at all levels is crucial when it comes to implementing such a project. Politicians' concern and attention should be part of a long-term strategy and not a temporary trend. In addition, political leaders should give support to all levels of administration. However, ministers may choose whether or not they will use ELAK themselves. Administrative leaders have to be part of the system and committed to communicating the purpose and outcome of the project. In addition, they have to support employees who are implementing projects. One of the overall effects of the implementation of ELAK might be the trigging of a re-design of processes, at least on a voluntary basis, as is the case in the BM:BWK. Furthermore, the implementation of ELAK and its training modules might have spurred the development of a federal eGovernment curriculum involving all levels of administration, currently being developed by a working group put in place through the E-Cooperation Board, a strategic board of members from all levels of Government.

2.- Background

This case gives an overview of the Austrian project, "ELAK" (elektronischer Akt, or electronic record system) and describes the implementation in the Austrian ministry for Education, Science and Culture (BM:BWK)[1]. The ELAK is the electronic record management system of the Federal Government of Austria. By 2004 it had been implemented in all federal ministries, which includes 7,500 "Zentralstellen" now connected to the system. Discussions started in the late 1990s and were closely linked with the re-structuring of the national IT-strategy that was defined in 2001. The main objectives of this strategy are to enable citizens to interact electronically with public authorities and to foster the inter- and intra-ministerial communication by electronic means.

[1] As each ministry is responsible for the implementation of the ELAK individually, the BM:BWK has been chosen as an example. The BM:BWK was one of the later ministries implementing the ELAK, but is one of the forerunners in teaching methods.

Table 1. POSITION OF THE CASE IN THE REFERENCE SCHEME

FUNCTIONS COMPONENTS	**Policy & planning** (political and top management civil servant level)	**Implementation** (heads of unit and CIO level)	**Operational** (regular civil servant level)
Strategic (related to activities to develop plans and strategies)	**ELAK**		
Technological (related to technological changes)		**ELAK**	
Organisational (related to organisational changes)		**ELAK**	
Administrative (related to the usual way of doing things in public administration)			**ELAK**

3.- Specific objectives

The original time frame planned for all ministries to have introduced the ELAK by the end of 2003. By the end of 2004, the system was fully rolled out in all Austrian ministries.

The strategic objectives include the following:

- All federal authorities should use the same product ("one-product-strategy").
- Web technologies and standardised formats should be used in order to achieve platform independence.
- Digital signatures should be incorporated.
- Existing ELAK solutions should be taken into account.
- Management should be centralized at an external electronic data processing centre.
- There should be common project management and a unified roll out plan.
- Communication, information and consultation between the different ministries should be on an electronic basis.

The roll out of the project at the regional and local levels is possible although not planned at the moment.

The specific aims of the ELAK project encompass the following targets:

- Replacing paper based originals with electronic files.
- Allowing independence of time and location for access to electronic files.
- Making quick and efficient research possible.
- Automating the traceability and documentation of files.
- Requiring the security of files.
- Providing civil servants one-stop-access to files.
- Maintaining cost efficiency.

4.- Resources

Human Resources

7500 Zentralstellen, i.e. employees in central administrations, are attached with the implementation of the ELAK.

IT Resources

The tender for implementing the ELAK system was awarded to a consortium of four partners. The overall responsibility was given to the umbrella organization "ARGE ELAK", which has the following members: Bundesrechenzentrum GmbH (BRZ) (the federal IT provider) and Bundesrechenzentrum IT-Solution GmbH (BITS) (a privatised sister company of BRZ and IT provider to cities, communities, businesses and industry). They subcontracted with the private companies IBM Austria and Fabasoft AT Software GmbH & Co KG. The software used is based on Fabasoft's eGovernment Suite. The BRZ provides a centralized help desk, with IBM providing the didactical conceptualization and the training during the roll out. Because "nachfolgende Stellen" are usually not part of the information, communication and consultation process, according to the general rules of procedure, the Intercom Visual Desktop interface to the ELAK was implemented.

Two historical factors have made the ELAK's success possible in Austria. These include the fact that every ministry has used an electronic information system to trace files for a number of years (the so-called "Kanzleiinformationssystem (KIS)"), and the existence of a filing system that has been established, harmonised and traditionally used in Austrian administration over many years. These two factors have contributed significantly to the fast implementation of a digitalized document management and archiving system. Furthermore, implementation of the ELAK required sufficient ICT infrastructure. In the BM:BWK, no new ICT was purchased for the implementation of the project.

5.- Implementation

As an example, the following section will depict the implementation of the ELAK in the Federal Ministry for Education, Science and Culture (BM:BWK). As the ELAK is adapted to the individual needs of a ministry, no harmonized implementation plan or accompanying measures exist. Each ministry sets up these plans and measures individually. In the BM:BWK a project-management oriented approach was chosen. An intra-ministerial task force (including people from different backgrounds) has been responsible for the implementation of the ELAK and accompanying measures, like the development of an eLearning system.

Raising awareness, training and skills required

In the BM:BWK the initial phase of project implementation including extensive awareness building accompanied various other measures. First, various Director- General and Head of Unit Meetings (Sektionsleitersitzungen and Abteilungsleitersitzungen) were used to raise basic awareness within the ministry. Unit meetings followed these meetings on the same topics. In a further step, the ministry's intranet was used to spread information on the implementation of the application in everyday processes. In addition, the intranet was expanded to include a discussion forum on the topic. Accompanying the roll out of the ELAK system the project team developed a training scheme that took the role of the individual learner in public administration into account.

With a total of 900 civil servants to be trained, priority was given to the so-called "Leitbenutzer" (key-user). Key-users received seven days of training in one consecutive block. Training was based on a "train-the-trainer" approach. The idea behind this was that the key-users would act as an internal helpdesk and an intermediary between the centralized helpdesk at the "Bundesrechenzentrum" (the federal IT provider) and the individual user. Moreover, they were and are part of the training program for the rest of the clerical staff.

Around 730 civil servants received training according to their functions. So-called "Sachbearbeiter" received a two and a half day introduction in the usage of the ELAK applications. Members of the minister's cabinet (Ministerbüromitarbeiter) and high level officials (Sektionsleiter) received an obligatory half day training and were not obliged to attend further trainings modules.

New employees do not receive any special introductory session in the use of the ELAK, as they are supposed to receive general eGovernment training during their "Grundausbildung".

Although it was stated that besides technical knowledge of how to use the application, no new skills were needed, there is no doubt that the 170 "Leitnutzer" (key-users) should have improved their skills in various areas. These include not only how to use the application but also improved communication skills. Looking at the project management team within the BM:BWK one realize that the learning process for the individual employee has been substantial. Notably, project management skills and communication skills have been developed and passed on through training programmes.

Changes to work tasks, roles and responsibilities of staff

As mentioned above, key-users were introduced within the new system of the ELAK. These key-users have the task to be both an internal help desk and provide the staff with information from the federal provider (BRZ). Key-users have replaced the "Zentrale Kanzleien" in providing information retrieval, access to information and the technical system support.

As the "zentrale Kanzleistellen" has been abolished, other tasks have been scaled back, as with the internal messenger services, or adjusted, as with the internal postal service, and a new position was created. The so-called "team-assistant" supports the specialist departments with mass mailings, brochures, etc. For this new task, former "zentrale Kanzleistellen" employees have been re-skilled.

Organisational change

The status of files in government processes has also undergone changes. On the one hand the number of files has decreased. On the other hand individual files have lost a great deal of sovereignty in civil servants' problem solving. As a consequence, the information stored in files is more concise. Duplicates are avoided, and the traceability of individual files and of the actions taken has improved. This has also resulted in a reduction of the "power" of the individual civil servants vis-à-vis colleagues and citizens.

The motto of the implementation was that "the ELAK adapts to the individual ministry" and that it is "just a copy of the paper based work flow." These messages were communicated in order to avoid resistance to change. However, civil servants were encouraged to rethink existing routines and processes and change these during or after implementing the ELAK. As a result, process re-engineering activities took place on a voluntarily basis.

In the BM:BWK the decision to re-engineer processes was made by the Directorate- General. After an internal evaluation, approximately 12 processes have been re-engineered. The University of Linz and the IKT board supported this. However, the basic rules on how to handle certain processes were laid down in the Austrian "Kanzleiordnung/Büroordnung" and the "Allgemeinen Verfahrensgesetz (AVG)" and have not and cannot be totally re-engineered.

The overall strategy for changing processes was based on two pillars. First, civil servants were encouraged to be actively involved in the change process. Second, civil servants should experience a certain degree of benefit in changing the routine processes. The re-engineering process required no new skills, because the process changes were accompanied by coaching conducted by the University of Linz.

Marketing activities

In order to raise awareness and to establish "ELAK branding", a marketing team was established, consisting of representatives from the AG ELAK and customers. This team established a marketing platform to document the ELAK project and as a communication tool for all the organisations and media involved. In addition, they developed the name and brand; basic folder, poster and Internet layout; and provided content. For presentations within the individual ministries, the marketing team provided materials; however, presentations were given by representatives from the individual ministries.

Leadership

Leadership within the ELAK project encompasses both political leadership and administrative leadership. As already pointed out, every federal administration must use the ELAK system. Nevertheless, there are exemptions as individual ministers can decide whether or not they use the ELAK personally. During the introduction period, Directors-General were given the choice to opt out. However, it was decided that all administrative staff had to use the ELAK, because administrative leadership was deemed essential for the successful implementation of the system.

6.- Results

Economic results

The economic results of the implementation of the ELAK mainly included cost reduction based on logistical changes and quicker handling of individual files. It is estimated that files are now handled 15 to 20 percent faster than before.

Resistance to change

Although there is the feeling of being more efficient, approximately 10 percent of employees are reluctant to use the new system. This estimate is also confirmed by the findings of the Austrian Federal Chancellery. Though it should be noted that approximately 70 percent are content, or very content, with the introduction of the ELAK system.

Teaching modules have been developed

The Federal Ministry for Education, Science and Culture has developed an eGovernment module as part of the civil servant's "Grundausbildung". This module consists of twelve teaching units, the content of which is multidimensional and relates to the function of the individual learner. The multidimensional approach encompasses legal aspects of eGovernment, the ELAK application and the use of other electronic information sources such as the Server of the European Union. The teaching method is based on a blended learning approach, involving classroom learning combined with web-based or computer-based methods.

7. - Learning points and conclusions

Organisational change needs the involvement of all employees

Although the implementation of the ELAK was mandatory (based on a Council of Ministers' Decision), ministries were encouraged to rethink and re-engineer existing processes on a voluntary basis. The BM:BWK's redesigning of processes proved successful because of the involvement of the employees.

Because the ELAK does all forwarding and filing of records automatically, clerks are not involved in the processing of records anymore. As a result, new roles have been created, like the so-called 'team-assistant', who must support the specialist departments, with mass mailings, brochures, etc. The team-assistants were formerly part of the old "zentrale Kanzleistellen", responsible for the flow of information and files between different civil servants and units, and have been re-skilled for their new tasks as team-assistants. Furthermore, the experiences in the BM:BWK also show, that attitudes towards the status or importance of files in the process itself have changed. On the one hand, the number of files has decreased. On the other hand, individual files have lost a great deal of their sovereignty as civil servants try to solve problems during the process.

New skills and continuous learning is needed

Although the ELAK reflects the work processes already known and used for many years by civil servants, new skills are needed. It seems that basic IT skills are not the main challenges, but that staff has to acquire social and 'soft skills'. Due to changes in work processes and work environment, civil servants should be trained in, for example, self-management, self-

organisation, communication and media use. In the BM:BWK, all civil servants from various levels were trained in using the ELAK. One hundred and seventy civil servants were trained as so-called "key-users" for future support of other civil servants. The project team also developed a teaching module on eGovernment and the ELAK using a blended learning approach. This module is being used in the, "Grundausbildung", the basic training for newly recruited civil servants. Again, each ministry is responsible for this process in their 'Grundausbildung'.

Leaders have to follow a long-term strategy

Political and administrative support at all levels is crucial for implementing such a project. Politician's concern and attention should be a long-term strategy and not a temporary trend. In addition, political leaders should give support to all levels of governmental administration. However, the fact that ministers may choose whether or not they use the ELAK themselves could lead to a lack of political leadership. Administrative leaders have to be a part of the system and committed to communicating the purpose and outcome of the project. In addition, they have to support employees implementing projects. In the same light, the outcome of the decision requiring the Directors General to use the ELAK remains to be seen. They must use the ELAK as an example for "normal" civil servants, but this decision also has an administrative effect: as the Directors General are obliged to use the ELAK they will deal more with the project.

One of the overall effects of the implementation of the ELAK might be that the re-designing of processes, at least on a voluntary basis, has started, as is the case in the BM:BWK. In addition, the implementation of the ELAK and its training modules might have kicked off the development of a federal eGovernment curriculum involving all levels of administration, currently developed by the federal CIO office.

Table 2. POSITION OF THE CASE IN THE REFERENCE SCHEME

FUNCTIONS COMPONENTS	**Policy & planning** (political and top management civil servants level)	**Implementation** (heads of unit and CIO level)	**Operational** (regular civil servant level)
Strategic (related to activities including plans and strategies)	A long term strategy is needed Awareness is to be raised Political and administrative leadership is needed eGovernment curriculum as spin-off planned		
Technological (related to technological changes)		Existing systems might ease the implementation of eGovernment solutions	Only basic ICT skills are needed
Organisational (related to changes in the organisation)		Involve all stakeholders in the change process Re-skilling of staff for new tasks might be needed	

Administrative (related with the ordinary way of doing things in public administration)			Continuous learning is needed Key-users act as internal coaches and helpdesk

8 - Methodological notes

This case study has been prepared by Christine Leitner and Matthias Kreuzeder in March and April 2005.

It is based on an interview with Dr. Thomas Menzel, Federal Ministry for Education, Science and Culture (March 2005).

9 - References

www.elakimbund.at

Organisationshandbuch ELAK

1./b. Austria: An example for an eGovernment Curriculum

Communication measures and Curriculum for E-Government

Maria Wimmer
ICT Staff Unit, Federal Chancellery of Austria, Wagramerstr. 4, 1220 Wien
maria.wimmer@cio.gv.at

Recently, Austria has reached the second position in the EU benchmarking. This is mainly due to a concerted E-Government strategy and coordinated developments among the involved parties. However, success is not only a matter of implementing a system.
Since end of 2004, the E-Cooperation Board, one of Austria's strategic boards, has decided to initiate three core activities to raise awareness and to train public administration staff in E-Government:

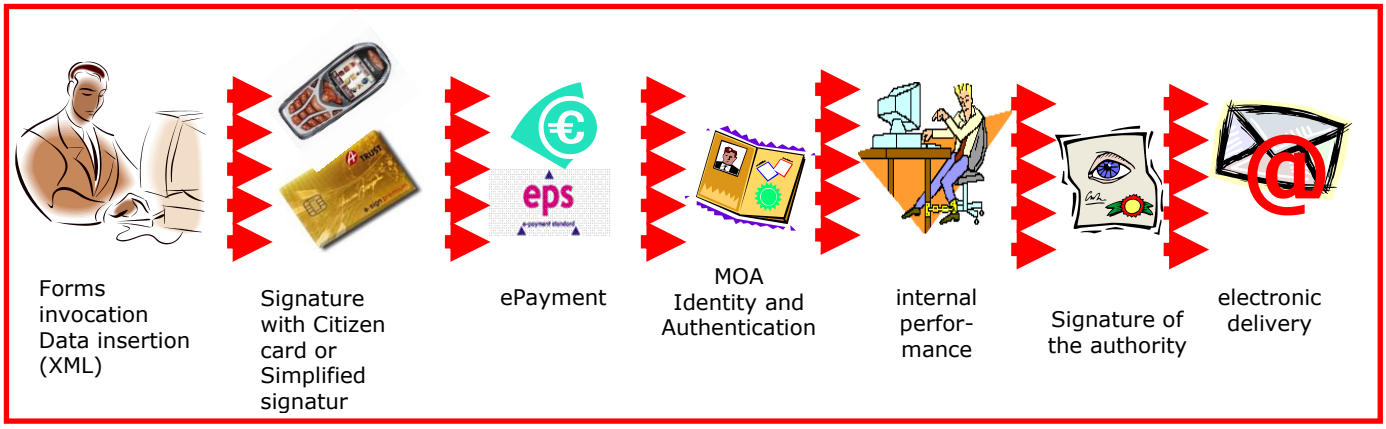
- Communication measures
- E-Government guideline for municipalities and mayors
- Curriculum E-Government for public administration staff.

The main aim of this initiatives is to promote E-Government internally as well as to the external customers in order to reach a higher usage and take-up of the electronic offers.

The *communication measures* cover activities to communicate the facilities and advantages of E-Government internal stakeholders on one hand and to citizens (G2C), businesses (G2B) and not-for-profit organisations (G2NGO) on the other hand. The activities cover the development of logos (corporate identity means for E-Government), curriculum, public relationship activities and information campaigns. Further on, the specific needs of a certain level of government and their contacts to their customers are taken into consideration.
One of the recent results is to communicate a message about E-Government that covers the following aspects in one sentence:

- Independence of time and location,
- Efficiency,
- Simplicity,
- Citizen-focused,
- Cost-effective,
- being fast,
- Flexibility
- Service-oriented,
- Information,
- simple „system",
- Transparency,
- modern / forward-looking (future-oriented),
- Innovation.

The *Guideline for Municipalities* describes in a simple way the main building blocks of E-Government in Austria – as said in German: from A like „Antragstellung" (Invocation of a Service) till Z like „Zustellung" (Service delivery). The Guideline describes the functionality, organisational measures and the conditional setup of the E-Government building blocks as depicted in the following figure:



The guideline is mainly developed to provide help and general information for the strategic-political decision makers at local level of governments.

The third measure in this cluster is the development of *Curriculum for E-Government* for public administration employees of any kind. The objective is on one hand to build up a concerted understanding of E-Government and its benefits within the own staff members, because employees that are competent and well-informed are a major medium to communicate E-Government in its goals and benefits within and beyond the public authorities themselves. On the other hand, specific professions of employees such as E-Government project managers or developers are in need to get focussed training in the implementation and integration of certain building blocks of the E-Government components that have been developed in specific working groups. Examples of such needs of training are the integration of the MOA modules for the digital signature or the corporate design of online forms according to the Austrian forms styleguide.
The E-Govenment curriculum is conceptualised in several dimensions:

- Structure of the content according to profession, level of government and individual level of skills
- Measures for quality assurance
- potential business cases
- Basic infrastructure needed and measures to take to get started.

Overall, the communications and training activities should contribute to create awareness about the options and offers of E-Government in Austria within public administration and towards the external customers. Consequently, take-up and benefits shall rise. Above all, these measures shall contribute to the overall objective: ***E-Government is the daily business in the public sector*!**

2. Estonia : X-Road Project

http://x-tee.riik.ee/

1.- Executive Summary

The case analysed is the X-Road project developed by the Government of Estonia. The X-Road system was developed under the responsibility of the State Information Systems Department of the Ministry of Economic Affairs and Communications.

The X-Road system consists of a platform from which eGovernment services provided by various ministries and agencies can be delivered in a single and unified manner via the internet.

Technically speaking, the X-Road system could be defined as a data exchange layer between the service user and the information systems providing services via the internet.

This data exchange layer is composed of different software modules performing different types of functions, such as providing unified access to databases, user-identification, means of payment, legal validation of transactions, etc., all of which are necessary for the delivery of eGovernment services.

The X-Road system is based on two strategic principles: the first is that eGovernment services must be provided by the ministries and agencies with the responsibility and administrative capacities to do so; the second is that it must be feasible i.e. access to these services needs to be provided in a single and unified way, under the responsibility of a centralised unit.

Based on the experience of developing the X-Road system it is possible to outline some of the lessons learned as well as a number of conclusions.

Learning points and conclusions

A first lesson learned is the crucial importance of continuity of public action related to the development and implementation of eGovernment.

A second lesson learned is associated with the possibility of introducing common platforms similar to the X-Road system while maintaining the previous structure of the individual public administrations.

A third lesson learned is the importance of creating a positive climate of confidence and enthusiasm within the public administrations, both at political and at technical levels, which is necessary in order to guarantee the success of solutions such as the X-Road system.

It is necessary to ensure the continuity of eGovernment plans and actions in order to guarantee their success.

It is necessary to carry out continuous awareness-raising actions aimed at creating a political climate that is favourable to the introduction of eGovernment solutions.

It is possible to implement efficient eGovernment solutions for the delivery of services introducing profound changes in public administration.

The development of common and centralised platforms to provide unified tools enabling eGovernment service delivery is a convenient solution from a technical, functional and economic point of view.

Training activities must be developed in a continuous and systematic way at all levels of public administration.

2.- Background

Information on the public administration concerned

The public administration concerned in this case is the government of the Republic of Estonia.

The Estonian government cabinet is composed of the Prime Minister's office and thirteen ministries. Specific functions are carried out by a set of approximately 25 public agencies.

Regional administration is organised around 15 "counties". The population of the country in 2004 was approximately 1,400,000.

Information on the department or agency responsible for the case

The **Ministry of Economic Affairs and Communications** is responsible for coordinating the State information systems as well as for implementing economic policy in the field of informatics. The ministry is in charge of planning and coordinating the implementation of Estonian IT Policy.

An **Information Technology Council** was set up to advise the government on issues related to Information Technology. The IT Council is composed of members of the public administration and relevant external persons.

Within the Ministry of Economic Affairs and Communications, the specific tasks related to Information Technology Policy are dealt with by the **State Information Systems Department – RISO**[2].

The State Information Systems Department is a structural unit within the Ministry of Economic Affairs and Communications. The department is composed of 8 persons. The tasks of the department include the coordination of State IT-policy actions and development plans in the field of State administrative information systems, in particular:

- Planning and managing the State IT budgets.
- Preparing IT legislation.
- Coordination of IT projects, IT audits, standardisation, and IT procurement procedures.
- Managing international cooperation in the field of State information systems.

[2] RISO http://www.riso.ee/en/

Technical activities of the Ministry of Economic Affairs and Communications are developed by its **Estonian Informatics Centre – RIA**[3]. The Estonian Informatics Centre was set up by the Estonian government to solve the main IT problems common to several State organisations and to arrange the work of the State's information systems. The Estonian Informatics Centre has a staff of 40 and implements and coordinates State information policy and public sector IT development. Its main competences are the following:

- Project management, including the preparation of IT projects for public institutions, organisation of IT audits in national information systems.
- Monitoring the IT situation, collecting and analysing data on the development of State information systems.
- Development of State registers.
- Development of computer networks and arranging of data communication in public administration.
- Laying down the legal provisions for informatics.
- IT public procurement activities (according to applications presented by the public institutions).
- IT promotion and publishing activities.

Additionally, it should be stressed that each ministry or agency usually has its own Information Technology Manager. Coordination between these managers is carried out in the **Working Group of IT Managers**.

Information about the unit in charge of the development of the case

From a strategic point of view, the State Information Systems Department – RISO is responsible for the development of the case analysed.

The Estonian Informatics Centre – RIA is responsible for the technical aspects of the case.

From a functional point of view, the decision of adopting and using the X-Road application is the responsibility of each of the ministries in charge of providing eGovernment services i.e. the holders of public databases.

Brief description of the Strategic eGovernment Plan of the public administration

The government of the Republic of Estonia started its initiatives on IT development early in 1992, at the beginning of its independence, with the creation of the State Information Systems Department – RISO.

Based on its previous experience, in May 1998, the Parliament approved the document **The Principles of Estonian Information Policy**, a basis for making public policy decisions concerning the development of the information society, as well as **The Information Policy Action Plan,** to guide its implementation.

[3] Estonian Informatics Centre http://www.ria.ee/

More recently the document **Estonian IT Policy: Towards a more service-centred and citizen-friendly State. Principles of the Estonian Information Policy 2004-2006**[4] was published. This document summarises the objectives for the abovementioned period.

The basic strategic approach for the development of eGovernment was based on the assumption that the responsibilities for developing and providing services should remain with the ministries and agencies in charge of them. The role of the State Information Systems Department – RISO, was to propose common procedures and to develop common platforms and processes to facilitate the delivery of such services via a common access point, such as the citizens Internet portal. The X-Road system analysed here is one of these common platforms.

Brief description of the "place" of the case on the eGovernment strategy

The Data Exchange Layer of Information Systems – X-Road, constitutes an important and crucial part of the information policy strategy because of its character as an enabler of the development of eServices set in the framework of transparent access to databases for citizens, and entrepreneurs, in accordance with their respective rights of access.

A detailed explanation of the development of the X-Road project can be found in the Annual Reports on IT in Public Administration[5], published by RISO and available electronically since 1996.

Table 1. POSITION OF THE CASE IN THE REFERENCE SCHEME

FUNCTIONS COMPONENTS	**Policy & planning** (political and top management civil servant level)	**Implementation** (heads of unit and CIO level)	**Operational** (regular civil servant level)
Strategic (related to activities to develop plans and strategies)	**X-Road**		
Technological (related to technological changes)		**X-Road**	
Organisational (related to organisational changes)		**X-Road**	

[4] Principles of the Estonian Information Policy 2004-2006 http://www.riso.ee/en/Information_Policy_04.pdf

[5] RISO. IT in Public Administration http://www.riso.ee/en/

Administrative (related to the usual way of doing things in public administration)			**X-Road**

Brief description of the case

The X-Road system consists of a platform which enables the provision of eGovernment services by different ministries and agencies in a single and unified way via the Internet.

It is based on two strategic principles of the Estonian administration: the first being that eGovernment services must be provided by the ministries and agencies with the responsibility for them and the administrative capacity to do so; the second being that it seems logical, from many points of view, for access to these services to be provided in a single and unified way, under the responsibility of a centralised unit.

Technically speaking, the X-Road system could be defined as a data exchange layer between the service-user and information systems providing services via the Internet.

This data exchange layer is composed of different software modules performing different types of functions, such as unified access to databases, user-identification, payment, legal validation of transactions etc., all of which are functions necessary for the delivery of eGovernment services. These functions are evolving and expanding in line with the developments and requirements of eGovernment service delivery.

The first approach and objective was to provide unified access to different public administration databases. The existence of different types of databases in the public administration, based on different technologies and managed under the responsibility of different ministries and agencies, made the development and the use of eGovernment applications via the Internet under the criterion of a single citizens portal approach even more challenging.

The X-Road system attempted to solve this problem by developing an intermediate layer between users and databases, similar to a common interface, in order to simplify its utilisation.

This initial function evolved with time, experience and in line with requirements, and was extended to other functions considered necessary for proper, secure and guaranteed service delivery via the Internet.

Under the X-Road system, access to services and databases must have all the guarantees of secured utilisation. To use databases, all users must pass an authentication and authorisation phase before they can access the system.

Citizens and companies can access the system via the "citizens portal". User-identification is guaranteed by the means of personal ID cards or the Internet banking authentication service of Estonian banks.

Civil servants can also access the system via the information system of their department or agency. As an additional option, a secure portal, called MISP, has been developed.

The interconnection of a specific database to the X-Road system is carried out on a voluntary basis, consequently, the databases connected to X-Road system continue to be controlled by those ministries, agencies and organisations responsible for their contents and management.

Why was the case started

The case analysed corresponds to the efforts of Estonian government to modernise the structure of its databases in line with attempts to implement eGovernment.

A previous and crucial step in this process was the Parliament's adoption, in 1997, of the Databases Act[6] that regulates the procedures for possessing, use and disposal of State and local government databases.

During 2000, the first step of a programme for the modernisation of national databases was taken in order to ensure secure Internet access, and a pilot project was developed.

Based on the results of this first step, a programme was defined with the objective of transforming national databases into common, public service-rendering resources, by 2003.

The development of this programme started in 2001 and the name "X-Road" was adopted. Technically speaking, the project consisted of the development of a Data Exchange Layer of Information Systems in order to give citizens, civil servants and entrepreneurs unified access to various databases.

The architecture and main functions of the system were designed in 2001; the X-Road Centre, responsible for the functioning of X-Road system, was created within the Estonian Informatics Centre in December 2001. In 2002 the X-Road project continued to develop and also started functioning.

During 2003 the system continued to develop and improve until finally, in December 2003, the government approved the **Regulation on the Implementation of the Data Exchange Layer of Information Systems.**

What problems or issues in general terms prompted the case

It is well known that the diversity of the types databases available in a public administration make the development of eGovernment services more challenging and implementation more complex.

Most Estonian databases and registers have been developed using different technical solutions: Oracle, Informix, Sybase, Progress etc. and also use different query languages in systems implemented on different operating systems, mainly: MS Windows, Linux and Solaris.

The initial reason for the development of the X-Road project was to unify access to different public administration databases and to develop a common platform and business process in order to simplify the development of eGovernment services.

[6] Database Act http://www.esis.ee/legislation/databases.pdf

Which framework conditions govern the case

The case is governed by three main framework conditions:

Firstly, the principle that the provision of eGovernment services must remain decentralised and stay under the responsibility of ministries and agencies.

Secondly, the belief in the convenience of having a unified means of access to eGovernment services, i.e. through the X-Road system.

Thirdly, the principle that the use of the X-Road system is voluntary and subject to the approval of the ministries and agencies in charge of service delivery.

Longer-term societal objectives

To offer citizens and companies secure access to public services through a unique access point[7], 24 hours a day, 7 days a week.

3.- Specific objectives

The overall goal of the changes described by the case in relation to eGovernment services

As commented before, the specific objective for the development of the X-Road system has been to develop a common platform to standardise and rationalise access to services and the use of public databases in an eGovernment context, optimising efforts and rationalising solutions.

Objectives in relation to desired organisational changes within government and the agencies involved

From the point of view of organisational changes, the main objective was to provide ministries and agencies with a unified solution to the common problem of providing access to services while avoiding the unnecessary duplication of efforts and resources on behalf of each department and agency providing eGovernment services.

That decision represented an important organisational change consisting of splitting the responsibilities of developing and providing eGovernment services and the responsibility of enabling user access to them, in this case via the Internet.

From an organisational point of view, this decision implied a strategic decision to centralise the development and management of the means of access to eGovernment services and databases, considering it as a "common business process" and offering it to the different ministries and agencies of the Estonian government.

Objectives in relation to desired leadership changes

Regarding leadership, this approach reinforces the authority of the State Information Systems Department – RISO, as the central unit in charge of conducting the eGovernment process, and providing centralised and common platforms.

[7] Citizens portal one http://www.eesti.ee

At the same time this approach keeps and maintains the leadership of departments and agencies in the definition and provision of eGovernment services.

Objectives in relation to desired changes in skills

Regarding the skills of civil servants in charge of developing eGovernment services, the objective was to contribute to creating a climate of collaboration between them as well as with the central units in charge of developing of common platforms to access these services.

An important part of the role of RISO consists, on the one hand, in presenting the interest of this approach to politicians and the top-level management of ministries and agencies, and on the other, in convincing the chief information officers and technical staff of the different ministries and agencies of the convenience of using the X-Road system.

RISO was also in charge of providing the appropriate training to the technical staff of ministries and agencies in order to enable the correct interconnection of the systems under its responsibility with the X-Road system.

4.- Resources

ICT

The development and implementation of the project were subject to public tender. The technical resources for the project's development were provided by the company awarded the contract for its development.

At present, the X-Road system is running on the premises of the Estonian Informatics Centre.

Human resources including skills and competencies

The human resources and technical competencies to develop the X-Road system have been provided by the companies in charge of its development, under a contract with the public administration.

Organisational resources, i.e. which government agencies are involved and what are their resources

From a strategic point of view, the X-Road system was developed under the responsibility of the State Information Systems Department.

From a functional perspective, the unit in charge of furthering the development and managing the system is the Estonian Informatics Centre.

Financial aspects (costs, revenue, charges, investments, etc.)

The budget for the development of the X-Road project for the period 2001-2003 was in the order of 27 million Estonian crowns[8] (1,725,000 euros).

[8] 1 euro is equivalent to 15.65 Estonian crowns (rate on 23 April 2005)

Which private and/or civic sector organisations were involved and what were their resources, including suppliers

The initial pilot project was implemented with the participation of the following companies and institutions:

- Softshard Ltd.
- IT Media Ltd.
- Tallinn Technical University.
- Citizens and Migration Board.

The rest of the project, based on a public tender procedure, was developed by: Cell Network AS.

With the collaboration, among others, of the following companies:

- Cybernetica AS.
- Reaalsüsteemid AS.
- Datel AS.
- Andmevara AS.

5.- Implementation

Description of the implementation process

As has been detailed above, the process of technical development of the project could be summarised as follows:

- In 1999, the main ideas were formulated. The groundwork for the main activities was carried out and the financial issues that needed to be addressed in order to develop the project were dealt with.
- A pilot project was launched in 2000.
- In 2001, the project organisation was defined and public procurement was conducted.
- In 2002, the X-Road environment was opened.
- In 2003 new functionalities were added to the system.

Skill changes required by eGovernment

The State Information Systems Department and the Informatics Centre have had sufficient professional, technical and organisational skills to plan, define and manage the X-Road project.

With a view to updating and training the IT managers of different ministries and agencies, information days are organised on a regular basis.

The training of IT managers on the use of the X-Road system is organised in an informal way with training sessions specifically implemented for this purpose.

Some courses for the Permanent Secretaries of the different ministries have also been organised so as to inform them about the interest and advantages of using the X-Road system.

Some presentations of the X-Road system have been organised for the IT Advisory Council.

Finally, it should be stressed that the basic concepts of the eGovernment system have been included in the regular training courses for civil servants in order to train them in and inform them about the advantages and functionalities of the solutions implemented in public administration.

Leadership changes required by eGovernment

The development and implementation of the project reaffirmed the leadership of the State Information Systems Department as a strategic unit in charge of the definition, planning and implementation of eGovernment.

Organisational changes relevant to new skills and leadership changes required by eGovernment

No substantial organisational changes were foreseen as a consequence of the implementation of the X-Road system. The purpose was to combine the previous organisation of public administration with the most effective way to deliver eGovernment services.

6.- Results

Summary of results

In 2004, the statistical results of the use of the X-Road system were as follows[9]:

- Number of databases that joined the X-Road system as service providers: 34.
- Number of agencies that joined X-Road as users: 350.
- Number of security servers in the X-Road network (subscription contracts): 76.
- Number of MISP servers in the X-Road networks (subscription contracts): 41.
- Number of services of all X-Road providers: 500.
- Number of queries made via X-Road in 2004: over 7.75 million.
- Daily record of queries in 2004: 118,000 per day.

In relation to leadership changes and challenges

The success of the implementation and use of the X-Road system is based on the professional approach of the State Information Systems Department and the tireless awareness-raising campaign carried out by its staff in favour of the adoption of the system by other government organisations.

[9] IT In Public Administration in Estonia Year Book 2004 http://www.riso.ee/en/it2004en/

In this process the leadership provided by the State Information Systems Department has been clear and could be considered a key factor in the success of the X-Road project.

In relation to organisational changes and challenges where directly relevant to skills and leadership aspects

As mentioned above, any organisational changes have resulted as a consequence of the implementation of the X-Road system. Nevertheless, the main challenge has been the acceptance by the different ministries and agencies of the role played by the State Information Systems Department as a provider of eGovernment solutions that are valid from a technical, functional and economic point of view.

7.- Learning points and conclusions

The analysis of the X-Road system has made it possible to highlight some of the key elements necessary to understand the success of eGovernment implementation in Estonia.

As has been presented in this document, both the continued and well-implemented work of the State Information Systems Department for over ten years as well as the permanent support of that work by previous governments have been crucial factors in this success.

The case of the development of the X-Road system is a good example of the conscientious and technically performing results of the aspects mentioned in previous paragraphs.

Lessons learned

From the analysis of the case we could summarise the following lessons learned:

a) A first lesson learned is the crucial importance of the continuity of public actions related to the development and implementation of eGovernment. It is important to stress the continuous and permanent work carried out by the State Information Systems Department for over ten years in planning and promoting the development of eGovernment. It is also important to state explicitly the significance of the continuous endorsement of successive governments of the professional work carried out by the State Information Systems Department. Continuity is a key issue in the success of the eGovernment approach of Estonia.
b) A second lesson learned is related to the possibility of introducing common platforms, such as the X-Road system, that maintain the previous structure of the public administration. It has been possible to keep the responsibility for service delivery in the hands of ministries and agencies that have such competencies and are able to provide common solutions to common problems, such as secure access to services, from a centralised unit, like the State Information Systems Department.
c) A third lesson learned is the importance of creating a positive climate of confidence and enthusiasm within public administration, both at political and at technical levels, in order to guarantee the success of solutions such as the X-Road system.

Conclusions concerning skills and organisational changes

Taking into account all the above comments we could set out the following conclusions:

a) It is necessary to ensure the continuity of plans and actions with regard to eGovernment in order to guarantee its success.
b) It is necessary to carry out continuous awareness-raising activities aimed at creating a political climate that favours the introduction of eGovernment solutions.
c) It is possible to implement efficient eGovernment solutions to service delivery without introducing major and difficult changes to the structure of public administration. The precondition is to ensure that there is good coordination between units in charge of service delivery and those in charge of providing common platforms for access to services.
d) The development of common and centralised platforms to provide unified tools to enable eGovernment service delivery is an appropriate solution from a technical, functional and economic point of view.
e) Training activities must be developed in a continuous and systematic way at all levels of the public administration.

Table 2. POSITION OF THE CASE IN THE REFERENCE SCHEME

FUNCTIONS COMPONENTS	**Policy & planning** (political and top management civil servant level)	**Implementation** (heads of unit and CIO level)	**Operational** (regular civil servant level)
Strategic (related to activities to develop plans and strategies)	It is necessary to ensure the continuity of eGovernment plans and actions to guarantee its success. It is necessary to carry out continuous awareness-raising activities aimed at creating a political climate that favours the introduction of *e*Government solutions.		
Technological (related to technological changes)		The development of common platforms to provide unified tools to enable eGovernment service delivery is an appropriate solution from a technical, functional and economic point of view.	
Organisational (related to organisational changes)		It is possible to implement efficient eGovernment solutions to service delivery without introducing major and difficult changes to the structure of the public administration. The precondition is to ensure good coordination between units in charge of service delivery and those in charge	

		of providing common platforms for access to services.	
Administrative (related to the usual way of doing things in public administration)			Training activities must be developed in a continuous and systematic way at all levels of the public administration.

8.- Methodological notes

The case was analysed and written in April 2005 by Antonio Alabau, based on the documents available on the Internet.

A personal interview with Mr Arvo Ott, Director of the State Information Systems Department – RISO, took place on 27 April 2005.

Some complementary information was provided, via Internet, by Mr Andro Kull, member of RISO.

3. The Netherlands : Heusdense Manier van Werken

www.heusden.nl

1.- Executive summary

Heusden, a municipality with 44,000 inhabitants located in the south of The Netherlands, was the first municipality in The Netherlands to introduce a flexible IT-supported working environment through the project, Heusdense Manier van Werken, or 'Heusden Way of Working'. The municipality consists of three centres – Drunen, Vlijmen and Heusden – each of which has its own town hall housing about 300 municipal workers altogether. In 1999 the council of Heusden decided that building a new town hall to house these employees would be too expensive. It commissioned the local authority to find a solution after setting up the parameters that citizens should be able to receive all services and information in all three town halls, while spending as little money as possible and without hiring new staff.

The local authority's solution was the development of the Heusdense Manier van Werken, an integrated project setting up a flexible and paperless working environment with the aim of improving client awareness and client satisfaction. The project began in 1999 and is still an ongoing process. The implementation phase however was completed by 2002. Heusdense Manier van Werken is based on the assumption that employees are mature people. Its main aim is to organise work so that civil servants' tasks align with citizens' personal needs. They sought to do this by organising the workflow around required knowledge and making efficiency the priority.

The implementation goals of this project are:

1) The citizen should be in the centre and seen as a customer.
2) Integrated work flows should be established.
3) Employees should be able to work flexibly.
4) Project should achieve an ideal knowledge sharing environment.
5) Workflow and documents should be 100% digitised.
6) The employees should be process oriented.
7) Professionalisation of organisation should be strengthened.
8) A corporate identity should be established.

A flexible working environment was set up in which employees no longer have a specific workspace, but choose the type of workspace within the town hall according to the task they have to accomplish. In order to enable the employees to work as flexibly as possible and to totally digitise work, server-based computing was introduced. Furthermore, every employee was equipped with a laptop and Wireless Local Area Network access.

After finalising the implementation phase in 2002, the 2003 follow-up phase focused on a more radical approach involving the reorganisation of processes surrounding client groups, abolishing certain services, and reviewing the legal provisions and processes which might have become obsolete. The first results of this follow-up will be put into practice in September 2005. This initiative is partly motivated by the central government's initiative for burden reduction in public administration. The municipality of Heusden used the Overheidsloket 2000 programme to implement these changes.

Learning points and conclusions

Organisational change

In general, the municipality underwent a paradigm shift in the treatment of citizens. Heusden employees now work under the assumption that "the civil servant has to move and not the citizen". This implies a change in the role of civil servants, as the task and the citizen, not the process, are at the centre of their work. The flexible work environment required a certain degree of adaptation and learning.

When designing organisational changes one has to take the age of the employees into account and give them the feeling that their skills are essential. Whereas young people might be more comfortable using Information and Communication Technologies (ICT) than older people, older employees' experience and 'soft skills' are crucial for the success of the organisation.

During the implementation of the project, minor downsizing took place, mainly by not assigning retirement vacancies.

New skills and re-skilling are needed

New skills are needed for success in such an environment. Employees have to gain social and 'soft skills,' such as communication skills, project, time and self management skills and support in adjusting oneself to new tasks. It seems that ICT skills are not the main challenge in a project like Heusdense Manier van Werken. However, ICT expertise must exist within the organisation. As seen in this case, a very small but highly specialised ICT unit provides the IT support needed.

Furthermore, continuous training and learning is important for developing and maintaining the requisite skills, and training curricula should take into account the age and experience of employees. In addition, skills should be incorporated into the performance measurements as new indicators of the strengths and weaknesses of civil servants.

Age is not an indicator of possible resistance

Resistance to change is not a matter of age, but of involving employees in the change process. The more employees are involved in the project, the more they support it. In addition, employees must feel their skills are needed in the organisation. Older employees might have some problems with new processes and technologies, but they could also have complementary skills.

Leaders must be committed to communicating the vision, objectives and results

In order to succeed in implementing such a project, strong political and administrative leadership is crucial at all levels of the organisation. Leaders must be able to communicate the main vision and results to civil servants and citizens, but they should avoid raising expectations they cannot meet: "communicate results and not wishes". Moreover, organisational changes alter requirements for leaders. Leaders must acquire new approaches to human resources, team building and project management.

Heusden as a forerunner

Heusden was the first municipality to introduce a flexible and paperless working environment. Various other municipalities have been exploring this system since it was implemented in Heusden. Some of them, like the Municipality of Maastricht, are going to implement a similar model. Other municipalities on the contrary, have decided that this model is not appropriate for their needs.

2.- Background

Heusden, Netherlands is a municipality with 44,000 inhabitants. It is located near ‘s-Hertogenbosch and Waalwijk. The municipality consists of three centres: Drunen, Vlijmen and Heusden, each of which has a town hall. In 1999, the council of Heusden decided that building a new, conventional town hall for all three centres would be too expensive. It commissioned the local authority to find a solution after setting up the parameters that citizens should be able to receive all services and information in all three town halls, while spending as little money as possible and hiring no new staff.

Heusdense Manier van Werken
The local authority’s solution was the development of the Heusdense Manier van Werken (the Heusden Way of Working), an integrated project setting up a flexible and paperless working environment. The Heusdense Manier van Werken is based on the following assumptions and goals:

a) Employees are mature people.
b) The aim to organise work so that civil servants’ tasks align with citizens’ personal needs.
c) The aim to organise the workflow around required knowledge.
d) Efficiency is the priority.

The final outcome of this discussion was the establishment of a flexible working environment. Employees no longer have a specific working space but use work-space according to the task they must fulfil. To foster this concept, every civil servant has been equipped with a notebook and WIFI access to a server based computing network. In addition to this, the three existing town halls were adjusted to the needs of a flexible working environment. By implementing these changes Gemeente Heusden succeeded in establishing an environment in which knowledge is shared amongst all employees.

The implementation of the project, Heusdense Manier van Werken, was completed in 2003. As a means of continuing this program, processes are being adjusted and the workflow between front office and back-office will be reorganised in the hope of organising processes around client groups. In addition, the municipality is realizing a more radical view of changing and/or abolishing outmoded procedures. The aim is to abolish 10 – 15 percent of all legal provisions, either because they are not needed any more or because the way of processing them is too complicated. This initiative is partially motivated by the Dutch central government’s initiative for burden reduction in public administration. Gemeente Heusden used the programme Overheitslooket 2000 for implementing these changes.

Table 1. POSITION OF THE CASE IN THE REFERENCE SCHEME

FUNCTIONS COMPONENTS	**Policy & planning** (political and top management civil servant level)	**Implementation** (heads of unit and CIO level)	**Operational** (regular civil servant level)
Strategic (related to activities to develop plans and strategies)	**HEUSDEN**		
Technological (related to technological changes)		**HEUSDEN**	
Organisational (related to organisational changes)		**HEUSDEN**	
Administrative (related to the usual way of doing things in public administration)			**HEUSDEN**

3.- Specific goals

The overall objectives of this project were threefold:

1) The citizen should be central and seen as a customer.
2) Integrated workflows should be established.
3) Employees should be able to work flexibly.

These objectives were complemented by the following set of sub-objectives:

a) An ideal knowledge sharing environment should be achieved.
b) Workflow and documents should be 100% digitised.
c) The employees should be process oriented.
d) Professionalisation of the organisation should be maximised.
e) A corporate identity should be established.

4.- Resources

Human Resources

All staff in the Gemeente Heusden have been affected by the implementation of the Heusden Manier van Werken project. About 300 people (280 full-time equivalent employees) are presently working within the Heusden municipality and are using the newly introduced system. All employees were involved in project development and implementation and 20% of

the working time of each employee was allocated for the tasks related to project development and implementation.

Presently the IT department consists of five people responsible for maintenance and first and second level support.

Financial resources

The council of the Gemeente Heusden decided that the money formally dedicated for the new town hall could be used for the project (16 million Euro). At the end, the costs for implementing the project were 12,2 million Euro, 10 million for construction costs and 2,2 million for ICT. The maintenance costs have been 400,000 Euro. The overall costs of the project have been less than the original costs for building a new conventional town hall.

ICT
The software required for this project was developed by the Gemeente Heusden in collaboration with partners from the private sector. Because Heusden has been a forerunner in this field most of the software created was original.

Model of the Environment

The set-up of the working environment of the project Heusdense Manier van Werken is based on the model and experiences of Interpolis, an international insurance company, based in the Netherlands.

5.- Implementation

Skill changes required by new way of working

All staff in the municipality of Heusden had to acquire new skills due to the new working environment, the new concept for interacting with the citizens, the new way of knowledge sharing and the use of ICT.

Therefore the employees received training in the following areas:

1) How to communicate and interact with citizens – Due to the new form of communication with the citizen, civil servants had to be trained according to new needs.

2) How to handle the application - As new technology was implemented, staff had to learn how to handle computer applications. However, the training of staff in these IT skills was a minor part in the overall training curricula, because there are no new IT skills needed.

3) How to work within a learning organisation – Because of the implementation of the new working environment and new working techniques the municipality of Heusden is a learning organisation. With the flexible work environment, staff had to acquire new skills, such as knowledge sharing and how and for which tasks to use the various work-spaces.

Changes to work tasks, roles and responsibilities of staff

The new working environment enables the staff to work very flexibly and according to the task they must fulfil. Each staff member can use various work surroundings (places to work individually, lounges, meeting rooms, etc.) and has flexible working hours. Nevertheless, knowledge must constantly be available, so employees have to make sure that for every possible task at least one person is available. Now, staff takes care of tasks and not of services. It is the civil servants' responsibility that the citizen receives the correct information or product wanted.

In general, the municipality underwent a paradigm shift in the treatment of citizens. Heusden employees now work under the assumption that, "The civil servant has to move and not the citizen". This implies a change of the role of the civil servant, as the task and the citizen are in the centre of his work and not the process. The new working environment and the flexible working approach have not only been realized in the back-office, but also in the front office. Civil servants have to interact in a different and more interactive way with their customers.

Some new roles have developed due to changes in work processes. "Application managers" are responsible for the backup and provision of general knowledge on specific applications. For each application at least two persons are responsible. These "application managers" have to guarantee that knowledge on the use of applications is always present within the organisation.

Management change

Since the flexible working concept implies that employees have neither a fixed work place nor regular working hours, management has to change approaches to human resources, team building and project and time management. Moreover, it has become important to have management support at different levels during the change process. If the management is not convinced of a project's benefits, it is impossible to change an organization. Therefore management, as well as all other staff, were involved in the change process from the outset.

Barriers and motivation

One problem that arose during the implementation was employees fear of loosing their jobs. In reaction, a kind of job guarantee was given. No employee would loose his or her job due to the implementation of the project. However, there has been a certain degree of staff reduction due to not filling retirement vacancies.

In order to raise awareness and motivate employees to change their way of working, various training activities were offered. For example, a "work flow game" was invented, where civil servants simulated workflows according to the old and new procedures. Within these trainings, civil servants learned more about efficiency gains and the new workflow. In addition, these events were an eye opener for the staff as they gained a new way of looking at their work and their interaction with the citizens.

Another barrier was found in the middle management's resistance to change was very high, efforts to convince these middle managers was much higher than other levels of the organization.

One problem, which arose during the first year, was that the project team raised expectations of the civil servants and the citizens too high. In the first year technical and organisational

problems did occur causing stakeholders to become frustrated. As a result leaders had to increase of efforts to motivate the employees again.

Organisational change

One of the most important changes during the implementation phase was the introduction of a flexible work environment. In order to achieve this goal various other tools had to be implemented. If a flexible work environment and a "one-stop-philosophy" is established one also needs means for sharing knowledge. As a result, a 100 percent digitisation was the goal they reached. This digitisation was made possible by equipping every employee with a laptop and a WLAN access to a server. In addition, every civil servant was trained to share knowledge and how to interact with colleagues and clients electronically.

The adjustment of legal provisions referring to the workflow and internal organisation is also important. The main challenge has been to translate legal provisions into a process. For example, defining a process and time limits for the provision of certain permits.

6.- Results

Tasks are more transparent

The implementation of knowledge shared and ICT based working led to tasks and procedures becoming more transparent. As a consequence, processes are currently revised and reviewed. Processes and services that are obsolete may be abolished. As a result less staff will be needed in future.

People are organising work and private life more smoothly

As a result of the project, people's work is more flexible. Employees organise their time better and can arrange their private lives and job more smoothly. However, as pointed out above, there was a learning process and this flexibility did not happen immediately.

Front office and back office interaction changed

While implementing the new system it became clear that it also changes the interaction of front office and back office workers. As a follow up new ways of interaction have been explored. In September, they will start with a new system of interaction, where the front office tells the back office what to do. For example, the front office will set back office deadlines for granting permits, etc., which are also communicated to the customer.

7.- Learning points and conclusions

Age is not an indicator for possible resistance

One of the main problems faced during the implementation phase was the resistance to the project due to the fear of job losses. However, the amount of resistance did not correlate with the age of employees. Older employees may have been as enthusiastic about the new project as younger employees.

In order to avoid resistance to projects municipalities need to involve all employees in the project and raise their awareness for the positive effects of the output. In addition, you have to

give the employees the feeling that they are important and that their acquired knowledge and skills are important for the organisation. The organisation has to make full use of staff members potential, while taking into consideration their specific skills and competences.

However in training and work situations one should consider the different needs of different age groups. Younger people might be more comfortable with ICT, but lack other skills, whereas older employees are more experienced and can equally facilitate the success of the organisation. Starting with 2006, skills performance will also be part of the annual appraisal.

Another unexpected positive outcome was that employees are better arranging their jobs around their private lives. Employees are using the possibility to access files remotely and are working within more flexible hours.

Required IT skills do not change dramatically

Heusden Manier van Werken is a profound example that the required basic IT skills do not change dramatically when implementing an innovative organisational structure. Although the work flow is 100 percent digitalised, it seems that the main changes in skills are related to social and 'soft skills'.

New skills are needed

Setting up a flexible work environment and implementing new procedures for interacting with customers implies that employees have certain social and 'soft skills'.
Communication, self-management, ability to adjust oneself to new tasks, roles and situations are seem to be one of the basic skills employees need in such a setting.

Heusden Manier van Werken is a good example of the fact that "e" may not be the driving force. Technology is only an enabler for the changes needed in a given situation. It provides the basis for sharing knowledge, and working wherever and whenever in order to provide a new quality of services for citizens.

This case also shows that a clear picture of the desired outcome is necessary. In addition, a change needs support from political leaders. Politicians should be concerned with the long term strategy. It is important that the overall outcome is the driving force and not a temporary trend.

This case shows that the transparancy which is created by working in an e-environment also creates opportunities for Human Resource Management

Result orientation

The integral approach of the Heusden Manier van Werken makes it possible to implement a result oriented system of staff evaluation. Annually clear goals and targets are set for all staff and are also annually evaluated. While discussing these goals and targets, staff are stimulated to define the skills they have to develop or improve to make it possible. All the staff have to define at least one goal or target which has to do with improving clientawareness and/or clientsatisfaction.

Leaders have to communicate the vision

For the successful outcome of a project it seems to be important that leaders communicate the vision, draw a clear picture of the outcome wanted and have the necessary social and soft skills to integrate employees.

Do not raise impossible expectations

This case shows that it is very important that expectations remain clear and attainable in the beginning. Failing to meet high expectations might lead to discontent amongst the staff and to discontent and lack of support by the citizens.

Heusdense Manier van Werken as a forerunner

Heusden was the first municipality to introduce a flexible and paperless working environment. It may be seen as a good practice case. Various municipalities have been exploring this system in the past years. Some of them, like the municipality Maastricht, are going to implement a similar model. Other municipalities, on the contrary, have decided that this model is not appropriate for their needs. In order to provide information on the project and to ease the exchange of good practices, Heusden has established a guided tour for interested municipalities.

Table 2. POSITION OF THE CASE IN THE REFERENCE SCHEME

FUNCTIONS COMPONENTS	**Policy & planning** (political and top management civil servant level)	**Implementation** (heads of Units and CIO level)	**Operational** (regular civil servant level)
Strategic (related with activities of development of plans and strategies)	Ensure the continuity of the strategy Ensure political and administrative leadership to support the project		
Technological (related with technological changes)	Technology is just an enabler for the changes needed	Technology was an enabler for the new flexible and paperless work environment	Required basic IT skills do not change dramatically
Organisational (related with changes on the organisation)	Communicate a clear vision "Communicate results and not wishes"	Involvement of staff is crucial Some staff has to be re-skilled for newly created tasks and roles	Staff coordinates job and private life more smoothly Age is not a indicator for resistance
Administrative (related with the ordinary way to do things on public administration)			New skills are needed (communication, self-management, time-management, …)

8.- Methodological notes

This case study has been prepared by Christine Leitner and Matthias Kreuzeder in March and April 2005.

It is based on the following interviews:

- Interview with R.J. van Eyck, Gemeente Maastricht (former project leader Gemeente Heusden)
- Interview with R. Mons, Gemeente Heusden

Reference:

www.heusden.nl

4. Spain : Region of Valencia

http://www.avantic.es

1.- Executive Summary

The case consists of an analysis of the experience of the decision for and the development, implementation and usage of a Knowledge Management System (KMS) within the Regional Secretariat of Telecommunications and Information Society (SATSI) and its extension to other units of the Regional Government of Valencia.

One of SATSI's responsibilities is the development and implementation of the eGovernment strategy in the regional public administration.

The KMS studied here is considered a horizontal action of the Strategic Plan for the eGovernment and Information Society AVANTIC 2004-2010.

The KMS was created in response to an awareness of the difficulties and inefficiencies in the management of the information and knowledge on the development of complex projects in the regional public administration.

The main and initial objective of the KMS analysed here was to improve the management and sharing of the information generated within SATSI in the development of eGovernment projects. In the three-year period since the KMS was implemented, it has supported more than a dozen Virtual Communities in the regional public administration.

Based on the experience of developing, implementing and disseminating the KMS, it is possible to outline some of the lessons learned as well as a number of conclusions.

Learning points and conclusions

Between civil servants at the operational level, the introduction of the KMS contributes to the creation of a climate favourable to changing the means of participation in new complex projects and to overcoming natural barriers to information and knowledge sharing.

In order for eGovernment to develop, it is necessary for civil servants to learn how to tackle and implement shared projects.

At the policy and planning levels, the success of the KMS programme could be taken as a convincing example of how to adopt and encourage the use of innovative methodologies as a part of the process of broadening the use of eGovernment.

The place and the context in which the KMS was launched, in this case SATSI, has been a key element of the success of the KMS programme.

The coherence and sustainability of all eGovernment strategy projects are necessary to ensure their success and transferability.

One of the lessons: go beyond the case analysis, include specific courses on eGovernment models and strategies in the training programmes for persons at the policy and planning levels.

A systematic training programme based on the advantages of sharing information and introducing new ways of dealing with complex projects should be offered to civil servants at the implementation level. This contributes to gaining the approval of civil servants at the operational level, making them more favourable to sharing information and knowledge with the use of tools such as the KMS analysed here.

2.- Background

Information on the public administration concerned

The public administration concerned in this case is the Regional Government of Valencia, in Spain.

The public administration in Spain consists of the State, 19 autonomous regions and the municipalities.

The autonomous regions in Spain have a broad range of administrative competencies as a result of the devolution process initiated in 1978. Education, health, the environment and the management of public administration are exclusively regional competencies, while most other administrative competencies are shared, in varying degrees, with the State.

The regional public administrations are fully independent from the State public administration where it concerns planning and strategy. Regional government is completely responsible for all aspects of the eGovernment regional strategy.

The number of civil servants in the regional administration amounts to approximately 101,000; 18,000 work in the general administrative system, 36,000 in the education system and 45,000 in the health system.

Information on the department or agency responsible for the case

This case was developed by the Regional Secretariat of Telecommunications and Information Society – SATSI. SATSI has a status equivalent to that of a sub-ministry within the Regional Ministry of Infrastructures.

Within SATSI[10] there is the Directorate-General of Telecommunications, which is responsible for the following areas:

- Development and coordination of information technologies.
- Tele-administration and customer services for citizens (eGovernment).
- Corporate telecommunications services.
- Telecommunications infrastructure.

[10] Decreto 182/2004, de 1 de octubre, del Consell de la Generalitat Valenciana por el que se aprueba el Reglamento Orgánico y Funcional de la Conselleria de Infraestructuras y Transporte. DOGV 4857, de 6 de Octubre de 2004. http://www.cop.gva.es/espa/general/organizacion/reglamento/orga_dec182_04.htm

The number of civil servants working for SATSI amounts to approximately 200.

Sati's responsibilities include developing and implementing the eGovernment strategy within the regional administration.

Information on the unit in charge of the development of the case

The case was developed and directly implemented by SATSI.

Brief description of the strategic eGovernment plan of the public administration

The Regional Government of Valencia, under the responsibility of SATSI, has a long tradition of and considerable experience in developing and implementing strategic plans for the modernisation of public administration. The first strategic plan was **PEMAV**, covering the period 1996-1999; the second was **MODERNIZA**[11], covering the period 1999-2004; and the third strategic plan, covering the period 2004-2010, is **AVANTIC**[12].

AVANTIC is divided into two operational programmes: PEVTA, for regional strategy on telecommunications, and PETIC, for regional strategy for the technological and knowledge-based society. PETIC includes the strategic line i-Administrations which carry out all activities related to the development of eGovernment in the regional public administration. AVANTIC also has a series of horizontal actions.

Brief description of the "place" of the case in the eGovernment strategy

The case studied here is part of the horizontal action of AVANTIC entitled Knowledge Management. Its purpose is to develop, implement and use a knowledge management system in the regional public administration.

3.- Case description

Position the case content in one or more of the following cells

[11] MODERNIZA. Strategic Plan website http://www.moderniza.com/frames.asp

[12] AVANTIC. Strategic Plan website http://www.avantic.es

Table 1. POSITION OF THE CASE IN THE REFERENCE SCHEME			
FUNCTIONS COMPONENTS	**Policy & planning** (political and top management civil servant level)	**Implementation** (heads of unit and CIO level)	**Operational** (regular civil servant level)
Strategic (related to the development of plans and strategies)	Knowledge Management Systems in the Region of Valencia		
Technological (related to technological changes)			
Organisational (related to organisational changes)			
Administrative (related to the usual way of doing things in public administration)		Knowledge Management Systems in the Region of Valencia	

Brief description of the case

The case consists of an analysis of the experience of the decision for and the development, implementation and usage of a knowledge management system within SATSI and its extension to other units of the Regional Government of Valencia.

The system developed has enabled the implementation of functional knowledge maps dealing with several subjects of interest. The same system has been used as a working tool by virtual communities of interest within SATSI.

A functional knowledge map consists of a set of structured information and knowledge prepared by a knowledge manager and used by a broad number of users.

A virtual community of interest is a formal group created around a project or activity that generates and uses a significant amount of new documents and knowledge. The tool analysed

here aims to enable the sharing of such knowledge in an interactive and participative way between all the virtual community members.

The type of information and knowledge shared in the virtual communities of interest will depend on the specific functions of the people participating in them. The treatment of such information will be subject to the specific rules of information management of each application; consequently, access to and treatment of such information must be specified for each virtual community.

Why was the case started?

After the broad experience of the management of the first strategic plan **PEMAV** (1996-1999), which included over 60 projects, and as a part of the second strategic plan **MODERNIZA (**1999-2004), SATSI took the decision to create a specific Plan Management Office with the sole objective of managing, from all points of view, the 107 projects comprised therein.

In order to take advantage of the huge quantity of technical, legal and administrative information and knowledge managed and generated in those 107 projects, the Plan Management Office took the decision to use a specific tool for such a purpose. After a conscientious study of the options, the decision to implement a knowledge management system was adopted in 2000.

What problems or issues in general terms prompted the case?

The impetus for the development and implementation of the knowledge management system was the acknowledgement of the difficulties and inefficiencies in information and knowledge management within SATSI and a conviction in the need to improve the sharing and management of information and knowledge in order to increase the efficiency and effectiveness of activities conducted and thereby improve results.

Which framework conditions govern the case?

The conditions for the case developed by SATSI are described above. The main elements of the case are: firstly the existence of adequate administrative competencies in SATSI to ensure success, secondly the existence of previous experience in managing projects for which such a knowledge management tool was necessary, thirdly the wish of SATSI to increase and improve both the efficiency and effectiveness of its future activities by extending its experience to other departments of the regional public administration.

Longer-term societal objectives

The sustainability of the experience is assured because the usage of the tool has become habitual among SATSI personnel and because it was adopted as a major project management tool for horizontal action in the third strategic plan AVANTIC (2004-2010).

Basic facts and statistics about the case context should be included if useful

The initial experience of developing a knowledge management system – KMS, lasted four years, and four knowledge maps have so far been developed; more than a dozen different communities of interest are using the KMS for different purposes.

4.- Specific objectives

The overall goal of the changes described by the case in relation to eGovernment services

The main and initial objective of the KMS analysed was the improvement of the management and sharing of information generated within SATSI on the execution of eGovernment projects as well as on the development of the information society in the region of Valencia.

Objectives in relation to desired organisational changes within government, and the agencies involved

A second initial objective was to overcome organisational barriers to the sharing of information and knowledge between units and services within SATSI. Traditionally, a service had sole responsibility for a set of projects, which were only managed by the personnel of that service.

Where it concerns projects in which civil servants from different services or even departments take part, the absence of a tradition of joint action constitutes an obstacle to the sharing of information and knowledge.

Objectives in relation to desired leadership changes

A third objective was to define a clear leadership for the management of different communities of KMS-users. It was necessary for such a leadership to be accepted by the future knowledge managers and also by the knowledge users.

Objectives in relation to desired skills' changes

A fourth objective was to instil in civil servants a culture of information and knowledge sharing, not only with persons who are close or well-known to them, but also with unknown persons. A complementary part of this objective was also to develop a culture of using knowledge and information contained in a KMS.

Any other important and relevant objectives

A final objective was to extend the culture of information and knowledge sharing throughout the regional public administration of the region of Valencia as a part of the strategy of developing eGovernment in order to increase the efficiency and effectiveness of public administrative actions.

5.- Resources

ICT

The knowledge management applications were initially developed using a commercial product[13] for information management, but they were later developed using an open source[14] product. In both cases a customisation process was necessary which involved the development of specific applications.

The implementation is carried out using the SATSI computing infrastructure; no specific equipment is necessary.

Information and knowledge resources, knowledge management, etc.

Given the specific characteristics of the case as a knowledge management system, special effort has been made in collecting, classifying and structuring the pre-existing information in order to initially "load" the systems. The effort required has varied according to the virtual community or knowledge map concerned.

Human resources including skills and competencies

The initial development was considered a specific project[15] of the second strategic plan, MODERNIZA.

Once the KMS had been developed, each application needed a minimum set of resources to adapt the applications developed to its specific characteristics, to generate all the initial information and, of course, to manage the systems and to ensure their continuity.

The development of the KMS is based on the corporate network of the Regional Government of Valencia, which provides every civil servant with a PC.

Organisational resources

No specific organisational resources were needed for the development of the KMS, other than the ordinary project resources. Specific organisational resources have been necessary for the different implementations of the KMS depending on its specific application.

Financial (costs, revenue, charges, investments, etc.)

The initial budget for the development of the KMS project amounted to 110,000 euros.

Each new KMS application has a marginal cost absorbed directly by the unit that decides on its implementation.

Which private and/or civic sector organisations were involved and what were their resources including suppliers

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[13] Sharepoint of Microsoft http://www.microsoft.com/sharepoint/

[14] Plone of Plone Fundation http://plone.org/

[15] Proyecto Gestion del Conocimiento, included in the Strategic Plan MODERNIZA

The initial development of the KMS project was made with the participation of a software company, following a public invitation to tender.

The development of subsequent KMS applications has been carried out by personnel of SATSI and relevant departments.

Equipment, buildings, other technologies, etc., where relevant

As mentioned above, neither specific equipment nor buildings have been necessary for the development or implementation of the KMS.

Any user resources involved

The main types of resources used in the different KMS applications were information and knowledge; therefore a specific and concrete effort was made in each of the KMS implementations to collect, structure and incorporate a minimum base of information necessary within each application.

6.- Implementation

Having presented a general overview of the background and specific objectives of the case, a more detailed explanation of the implementation process and the broadening of the initial experience to other areas of activity of the regional public administration is now due.

As mentioned above, using a system that enables information and knowledge sharing appeared to be a crucial step in the process of implementing eGovernment strategies, and in general, in the introduction in the information society to the regional public administration.

From a technical point of view, the KMS development process did not present a major problem other than that of deciding which software package to use and providing the resources needed to achieve the desired results.

However, once the system had been implemented, and even though the desired objective seemed clear, it was necessary to deal with new situations that arose:

- The first was related to the skills and attitude of the target users of such a new tool.
- The second was related to the impact on and contribution to the traditional way in which civil servants operate.
- The third was related to the transfer of the KMS to other units and departments as a crucial part of the process of disseminating best practices within the regional administration.

Regarding the skills and attitude of the target KMS users, it must be stressed that the new tool, as a software application, is not particularly complex and civil servants have enough knowledge and experience to use it without major problems after a short introductory session.

But a problem appeared as a result of the lack of a tradition of information and knowledge sharing as a tool in the carrying out of regular activities, so it was necessary to familiarise users with the tool and convince them of its advantages. The method chosen was to create a first virtual community of interest called **@gora** for sharing information of personal interest

on subjects such as literature, cinema, music, sport, cooking, travel, hotels, etc. The procedure produced the expected results of familiarising civil servants with the KMS and contributed broadly to encouraging them to use it as a professional tool for information and knowledge sharing.

Regarding the KMS's impact on and contribution to the traditional way in which civil servants carry out their eGovernment activities and, more generally, the introduction of the information society into the regional public administration, it must be stressed that the KMS was conceived as a fundamental tool with which to change the culture of civil servants facing this new process.

Many eGovernment procedures, as well as other information society applications, are clearly inter-unit and inter-departmental tasks, and as such their execution requires inter-unit and inter-departmental collaboration, obliging civil servants to adopt a new way of working. In order to support this approach, SATSI decided to implement a system that makes it possible to second persons from their administrative units to carry out this type of projects.

To increase the flexibility of SATSI, people from at least two different administrative units participated systematically in each project. As such there was a clear need for methods of information sharing other than those traditionally employed in each unit. To achieve this objective, the use of the KMS as a tool to share information and knowledge between all people assigned to a project has proved a very good and efficient solution. The KMS has directly contributed to changing the administrative culture necessary for the development of eGovernment.

Finally, SATSI systematically transferred the KMS to other units and departments of the regional administration. After 3 years of KMS experience, four broad Knowledge Maps were implemented for the following applications:

- KMS for SATSI. The knowledge-sharing tool between the personnel attached to SATSI.
- KMS for Institutional Communication. The knowledge-sharing tool for the strategic cabinet of SATSI.
- KMS for Press Information. The knowledge-sharing tool for press releases.
- KMS for On-line Training. The knowledge-sharing tool for entering and using the virtual campus of the Valencia Institute of Public Administration, the official civil service training college. This application enables all civil servants in the public administration to enter and follow the on-line courses, and has proved an enormous success.

At the same time, the KMS is used, among other things, as a knowledge-sharing tool for the following communities of interest:

- KMS for CODESI. The knowledge-sharing tool for the Committee of Chief Information Officers of the Departments and Agencies of the Regional Administration.
- KMS for the Telecommunications Operators' Forum. The knowledge-sharing tool for the members of the Telecommunications Operators' Forum, an advisory committee of SATSI.
- KMS for the EQUAL Network. The knowledge-sharing tool for the participants of the Region of Valencia in the projects of the EQUAL initiative of the European Union.

- KMS for the Data Protection Agency. The knowledge-sharing tool for the members of the Data Protection Agency of the Region of Valencia.
- KMS for IVAJ. The knowledge-sharing tool for the Valencia Institute for Youth.
- KMS for the IVVSA. The knowledge-sharing system for the Valencia Institute for Housing.

The process of disseminating best practices continues systematically on a voluntary basis. Where a particular agency or department shows an interest, SATSI provide it with all that is necessary for implementing and developing the system as well as for training the future KMS manager.

As a part of the KMS project, SATSI has produced structured material for a 15-hour course for future KMS managers. During 2003 and 2004, the course was held 6 times with an average of 15 participants in each course.

Based on previous explanations, the implementation aspects of the case could be summarised as followed:

Skills changes required by eGovernment

Regarding the KMS users, new skills are necessary: a change of attitude to and practice in information sharing, and the ability to use the new knowledge management system as a normal tool in the performance of their duties. For this purpose, a clear vision of the head of SATSI was necessary to provide users with all the help necessary in order to bring about the necessary change of attitude.

In the case of SATSI, the procedure used to develop these new skills consisted, firstly, in developing a KMS for free use by public servants in their personal areas of interest and, secondly, in using the KMS for a well-known and heavily-used product such as the on-line training system. No additional specific training has been necessary to train the civil servants in the use of the new tool other than a basic introductory seminar.

Leadership changes required by eGovernment,

Regarding the heads of units and departments, a positive and open attitude is also necessary for the adoption and introduction of these new tools. Until now the procedure used by the SATSI to spread the implementation of the tool to other departments and agencies has been based on the heads of those departments and agencies giving presentations and on providing them with all the necessary support to implement the new tool in their respective areas of responsibility. Once again, the main skill necessary at that level is attitude towards it and the belief that it is a key element in improving the efficiency of public administration.

This case could be taken as a model of the new leadership necessary to take the process of modernising public administration forward. Belief in the necessity and effectiveness of an eGovernment tool is a key element in its introduction. In this particular case, it is clear that such a KMS tool cannot be introduced without the strong support of the unit, department or agency heads, not because of the amount of human and economic resources needed for its implementation but mainly because of the need to change the way in which activities are carried out and, at the same time, because of the need to transmit a positive message to civil servants about the advantages of using this new tool.

Organisational changes relevant to new skills and leadership changes required by eGovernment

The main organisational changes necessary to implement eGovernment, in the back office as much as in the front office, result from decisions regarding the core activities of each of the departments and agencies of public administration.

Nevertheless, even though the KMS may constitute in itself a reason for some organisational changes, given the character of horizontal action of the eGovernment strategy of the Region of Valencia, it seems clear that its main contribution is that of an enabler of the organisational changes necessary to introduce eGovernment.

In many units the introduction of a KMS could soon contribute to the creation of a favourable climate for progress in eGovernment.

7.- Results

Given that three years have passed since the first development of the KMS, in which time it has been implemented in more than a dozen areas of public administration, the results should be presented.

As previously indicated, an important case objective was to instil in civil servants a culture of working together, of sharing and using information and knowledge as a necessary way of dealing with new and complex activities within public administration, particularly those necessary to implement the eGovernment strategy.

As mentioned above, the main barrier to achieving these objectives was not the lack of training on the use of such new tools or even the shortage of qualified personnel within public administration for that purpose; the main difficulties encountered were related to the perception of information and knowledge not as a common good but as personal property.

Another objective was to create a culture favourable to collaboration between staff of different administrative units on complex and inter-departmental projects. In this case the use of a KMS was considered a way of instilling the new culture necessary to develop eGovernment.

In this framework, different KMS applications implemented so far have also produced different types of results, as summarised below.

Firstly, regarding the development of a culture of using a new KMS tool, it must be stressed that the most successful implementation consisted in using the KMS for the on-line training systems. At the end of 2004, one year after it had become fully operational, the number of registrations for access exceeded 15,100. It must be remembered that these registrations were made with a view to getting information about training courses and following on-line courses offered by the Valencia Institute of Public Administration – IVAP. 15,100 public servants are now familiar with the KMS and many of them have experience of its advantages as a tool for improving the delivery of the on-line curriculum. At the same time, @gora, the above-mentioned KMS application, was a huge success with SATSI personnel.

Secondly, regarding the goal to foster a culture of working together, the diverse implementations of the KMS for different types of activities have resulted in a widening of

the culture of sharing information and knowledge. In this regard, it must be stressed that the main results have come from the first application of the KMS within SATSI. Step by step, the system has become the usual way of sharing information for the approx. 200 SATSI civil servants in their different areas of activity. The other new communities of interest are much more thematic and for concrete and specific use, and as such have between 15 and 40 members.

Thirdly, one of the most promising applications of the tool for developing eGovernment is the use of the KMS for CODESI. CODESI, as the Coordination Committee of Chief Information Officers of the Departments and Agencies of the Regional Government, constitutes a key element in the implementation of the eGovernment Strategy of the regional public administration. The use of the KMS as a working tool by the committee prevents its rejection by the key actors in this strategy.

In relation to leadership changes and challenges

Regarding the objective of developing a leadership for the management of each of the KMS applications used by different communities of interest, the strategy followed was to base the management authority for each new KMS on the natural leaders of each group of interest that was going to use the knowledge management tool. Here it should be recalled that the development of each new KMS application was based on the demand and the commitment of its main actors. In this regard no specific problem of unsuccessful implementation due to a lack of leadership of the KMS management has yet been detected.

Training the future KMS managers has been done on a case-by-case basis. After some demonstration and working sessions, each future KMS manager received specific support in planning and customising the KMS to his/her specific applications, and permanent support is available from SATSI personnel.

Even if a necessary condition for the widening of the use of such a new tool is its acceptance on the part of the intermediate administrative level, such as project or working group leaders, this in itself is not sufficient unless the top management of each department and agency of the regional administration, mainly at Director-General level, accepts and enforces the introduction of these new tools. Here there is still a long way to go.

In relation to organisational changes and challenges where directly relevant to skills and leadership aspects

No relevant or major changes in the organisation of the few departments and agencies in which the KMS has been implemented have taken place as a result of its introduction, neither that was the objective.

Significant progress has been noted within SATSI in organising the work of multi-unit projects and even in brand-new activities like the Telecommunications Operators' Forum established in 2004, for which the KMS has been the central working tool from the beginning.

8.- Learning points and conclusions

The process of developing an eGovernment strategy in a public administration is not unique and demands a set of coherent steps that make it possible to advance in the desired way.

It seems clear that one of the main necessities when introducing eGovernment is a gradual and continuous change of attitude to the modernisation process at all levels of public administration. This strategy of change must be implemented in a systematic and coherent way as a part of the main eGovernment strategy. These changes of attitude are necessary at the three levels proposed for this analysis: policy and planning level, implementation level and operational level.

The introduction of the knowledge management system constitutes part of the strategy followed by the Regional Secretariat for Telecommunications and Information Society – SATSI as a horizontal measure of its strategies MODERNIZA (1999-2004) and AVANTIC (2004-2010). The main objective of the KMS project is to contribute to creating a new working culture within public administration, where goals have precedence over existing administrative structures.

The impact of the KMS is at the administrative level among the four defined in the table above.

In the following paragraphs we will summarise the lessons learned as well as the conclusions drawn from the analysis of this case.

Lessons learned

The experience of developing, implementing and disseminating the KMS has made it possible to draw a clear set of lessons, namely:

a) Between civil servants at the operational level, the introduction of a KMS contributes to the creation of a favourable climate for changing the way of participating in new complex projects, overcoming natural barriers to the sharing of information and knowledge beyond close circles of friends and collaborators. No special technical training courses for the use of the KMS tool has been necessary for personnel.
b) Civil servants working at the implementation level, i.e. the level equivalent to heads of unit in different departments and agencies in public administration, need to have an attitude that favours carrying out joint projects. The experience with the KMS has shown that where such an attitude already exists, it is very easy to introduce a KMS tool with only a minor degree of training and support.
c) At the policy and planning level of the public administration, equivalent to the Director-General and Agency Director levels, the success of the KMS programme could be taken as a convincing example of the advantages of adopting and encouraging the use of an innovative methodology as a part of the process of eGovernment implementation and modernisation of public administration. Experience has shown that to successfully reach this policy and planning level it is crucial to enlist the support of civil servants at the above-mentioned implementation level.
d) The place where the KMS programme was launched, in this case SATSI as the department in charge of developing and introducing the eGovernment strategy in the regional government, has been a key element in its success. The coherence of the KMS programme as a horizontal measure of the AVANTIC strategy is a guarantee of

success. SATSI has the means to develop the KMS not only for its own use but also for its dissemination throughout the entire regional public administration, because that is its main duty and is what ensures its sustainability.

Conclusions about skills and organisational changes

Based on the previous analysis, and in accordance with the lessons learned, we must stress the following conclusions regarding the need for new skills and organisational changes detected during the analysis of this case. These are highlighted on Table 2.

a) The coherence and sustainability of an eGovernment project is usually ensured when it is included in an **eGovernment strategy** at national, regional or municipal level. Isolated projects outside the main eGovernment strategy are not at all advisable despite their merits and could be a waste of effort – at worst even counter-productive.
b) One of the conclusions from the case analysis: include specific courses about **eGovernment Models and Strategies** in the **training programmes** for persons at the policy and planning level in order to avoid incoherence and wasted efforts.
c) A systematic **training programme** consisting of courses about **information and knowledge management** and about the advantage of sharing information and introducing new ways of dealing with complex projects is necessary for civil servants at the implementation level so as to massively broaden the use of this kind of tool within public administration. These training activities must be part of a more general multi-departmental project management training programme which is necessary to ensure that civil servants at implementation level have a positive attitude to eGovernment.
d) Where civil servants at the operational level have had previous experience of using tools such as the KMS analysed here, this will contribute to **creating a favourable climate** for sharing information and knowledge.

Table 2. SUMMARY OF CONCLUSIONS REGARDING SKILLS AND ORGANISATIONAL CHANGES DERIVED FROM THE CASE

FUNCTIONS COMPONENTS	**Policy & planning** (political and top management level)	**Implementation** (heads of unit and CIO level)	**Operational** (regular civil servant level)
Strategic (related to the development of plans and strategies)	Formalisation and dissemination of eGovernment strategies Training programmes on eGovernment models and strategies		
Technological (related to technological changes)			
Organisational (related to changes within			

the organisation)			
Administrative (related to the usual way of doing things in public administration)		Training programmes on information and knowledge management	Development of skills of sharing information and knowledge and creating a favourable climate

9.- Methodological notes

The case analysis was carried out by Antonio Alabau in February and March 2005.

The methodology consisted of:

a) A first interview with the Director-General of Telecommunications of SATSI, in charge of planning and implementing the eGovernment strategic plan.
b) Collecting and reading the available information.
c) A second interview with the Area Head in charge of the KMS projects, with the project head and the project manager.
d) Writing the first draft of the case study.
e) The submission of the first draft of the case to the working group in charge of the study.
f) Writing the final version of the case study.

These activities were carried out during February and March 2005.

Reference:

www.avantic.es

5. Sweden : Virtual Customs Office

http://www.tullverket.se

1.- Executive summary

The Customs Office is a public authority within the jurisdiction of the Ministry of Finance. The Customs Office has two major tasks to accomplish:

- **checking the national borders** in order to prevent crimes such as smuggling and;
- **efficient trade** – the Customs Office strives to be an efficient link in international trade with Sweden.

The Virtual Customs Office project is mainly concerned with the latter. The Customs Office's aim is to be as efficient a link as possible in the import and export business. The Customs Office keeps track of international trade statistics, checks that import/export restrictions are followed and ensures that the correct taxes are paid.

The eServices at the Customs Office can be categorised into two different groups. The most advanced eServices are the application forms and customs declarations that can be filled in directly online. There are also information services which require interaction between the customer and the Customs Office such as information about importation restrictions that can be sent as a text message, or the virtual customs guides that customers address their questions to directly online. Finally, the Virtual Customs Office also consists of services without interaction between the customer and the Customs Office, such as information on the Customs Office's web page. Today about 90% of all customs declarations are made online and the remaining 10% are submitted by post.

Learning points and conclusions

The introduction of eServices brought with it some changes within the Customs Office, such as increased coordination between different departments within the Customs Office and increased digital links to other agencies.

The digitisation of the workflow brought changes to the tasks of staff. These changes include the transfer of staff previously involved in tasks that have now been digitised, increased customer service, and new types of staff responsibilities, such as for special services or for certain customer groups.

The Customs Office has undergone quite extensive organisational change; however this was not entirely due to the introduction of eServices, but also to changes in a law regulating how the Customs Office's tasks could be transferred between the regional offices. The change simplified the handling of the Customs Office's functions. eServices became part of this simplification but were not the triggering factor.

The implementation of eServices went quite smoothly. The success factors (which facilitated the implementation) were communication between the staff and the IT project management. The project management points out that the key to implementing changes without creating

uneasiness within the organisation is to involve all affected parts of the organisation and to facilitate new ways of working. Another success factor was the full support the IT project gained from top management.

2.- Background

The customs office

The Customs Office is a public authority within the jurisdiction of the ministry of finance. The Customs Office has two major tasks to accomplish:

- **Checking the national borders** in order to prevent crimes such as smuggling.
- **Efficient trade** - the Customs Office strives to be an efficient link in the international trade concerning the Swedish boarders.

The project the Virtual Customs Office is mainly concerned with the latter. The Customs Office's aim is to be an as efficient link as possible in the import and export business. The Customs Office keeps track of the international trade statistics, checks that the restrictions of what is allowed to be imported/exported are followed and ensures that the correct taxes are paid.

The eService – the virtual customs office

The eServices at the Customs Office can be categorised in two different groups. The most advanced eServices are the application forms and customs declarations that can be filled in directly on line. There are also information services which require interaction between the customer and the Customs Office such as information about import ration restrictions that can be sent as a text message or the virtual customs guides that customers can ask questions to directly on line. Finally, the Virtual Customs Office also consists of services without interaction between the customer and the Customs Office, such as information on the Customs Office's web page.[16]

The eService project – known as the virtual Customs Office – started as a response to different kinds of changes.

- First of all, the Customs Office felt an increasing demand from their customers, i.e. firms doing customs declarations, to introduce eServices.
- Second, the Customs Office felt the pressure from the Government, which had declared that eServices were highly important for the government agencies to introduce.
- Third, the Customs Office introduced tax declarations by EDI in 1998-1999 which brought with it an electronic system for data handling. That triggered the idea of the Virtual Customs Office – a complete eBased customs office.
- Last but not least, the new technology made it possible to introduce eServices that were easily used by the customers.

The initiative for the e-project was taken by the strategic development department of the Customs Office. The aim of the Virtual Customs Office is that all the Customs Office's services should be accessible on line. Today, nearly all services are eServices. The exception

[16] A list of the main eServices at the Virtual Customs Office can be found in Appendix A.

is some services for infrequent customers; for example forms that can be downloaded but not submitted. However, the Customs Office is developing a system for enabling the submission of the forms.

Today about 90 % of all customs declarations are made on line and the remaining 10% cent are submitted by post.

The long term and societal objectives

When the eServices were designed, no long term societal objectives were conceived as the absolute focus of the project. However, a more efficient and digitised Custom Office is bound to have positive effects on some societal aspects.

- **Environment:** eServices in general have positive effects on the environment since eServices do not require paper applications. Further, before the customs declaration could be made on line, all freight traffic had to go to the local customs office to declare its customs. With virtual customs declarations the freight traffic can go directly to the destination without going through the customs office. This will reduce greenhouse gas emissions.
- **Openness and transparency:** the virtual custom office enables people to access the diary of the agency directly on line, which simplifies the procedure of access. eService applications can be followed as they are being processed which increases the transparency. The VCO has also brought the Customs Offices closer to its customers. Since the needs of the customer are the focus when implementing new services, focus groups and customer dialogue have been introduced, giving the customers increased possibilities to influence the Customs Office.
- **Consequences for the Internal Market:** The Virtual Customs Office has also simplified the submission of the customs declarations; the Virtual Customs Office might have a positive effect on the free movement of goods since it makes it more convenient to make the customs declarations.

The eGovernment strategy

The Swedish government has developed a 24/7-agency strategy. The government states in this strategy that the public administration is about to be changed and that IT is both a precondition and a key part of that change. The challenge is to give every citizen and corporation the advantages of 24/7 eGovernment. Some key points to enable this are:

- *Accessibility* irrespective of office hours and location.
- High *quality* services.
- *Openness* to users' opinions and ideas on how to improve public administration.
- Simple and *fair rules*.
- *Optimal benefits to users* through collaboration and continuous assessment and development of activities.

Since the Customs Office is public authority it should consider these points when developing its services, which also has been done. The Virtual Customs Office was created in order to offer the customers high quality, user friendly and accessible services. The benefits derived by users are always put first and users can be a part of the development of new eServices.

The case study covers the following cells in the reference scheme:

Table 1. POSITION OF THE CASE IN THE REFERENCE SCHEME: Virtual Customs Office, Sweden			
FUNCTIONS **COMPONENTS**	**Policy & planning** (political and top management civil servant level)	**Implementation** (heads of unit and CIO level)	**Operational** (regular civil servant level)
Strategic (related to activities to develop plans and strategies)	**VCO**		
Technological (related to technological changes)	**VCO**	**VCO**	**VCO**
Organisational (related to organisational changes)	**VCO**	**VCO**	
Administrative (related to the usual way of doing things in public administration)			**VCO**

3.- Specific objectives

The overall objective – modern high quality services

The overall objective of the Virtual Customs Office is to ensure that the Customs Office offers high quality services that correspond to the demands of the users. The Customs Office means that eServices are a part of how business is undertaken today. Therefore, it is important that the government agencies are a part of these developments in order to deliver efficient services.

Therefore, the aim is to make all services of the Customs Office available on line and thereby make it possible for the users to get all the required information and carry out services without dealing with any paper work or needing to physically contact civil servants at the Customs Office.

Higher efficiency

As a consequence of the introduction of electronic services and data handling the Customs Office also saw a potential for increasing its efficiency.

The Customs Office is represented at thirteen different offices around Sweden. As a consequence, expertise had to be spread all over the country. There were laws regulating the flow of matters between different regional bodies within the same public agency. When these laws were altered and eServices were introduced, the Customs Office became one unit.

This opened up the possibility to create competence centres at one geographical place, instead of having civil servant occupied with the same kind of tasks dispersed over the entire country. Today this implies that it is possible to send the task to the competence, instead of sending the staff (competence) to the task.

The VCO also opened up the possibility to use staff more efficiently. Earlier, many staff had to be occupied with keying in data to the data system. Now, the customers themselves key in the data, which results in staff using their time for more advanced tasks, as well as the fact that the Customs Office itself saves time. Thus efficiency has increased.

Continuous learning

One aim that has come up as a consequence of digitisation is the introduction of continuous learning and increased IT knowledge among the staff involved in the development and updating of the home page. Since it is important that the home page is modern and up-to-date, high IT competence is important.

Objectives in relation to the eGovernment strategy

As described in the government's eGovernment strategy, the key point of the 24/7 agency is to ensure *a)* accessibility, *b)* high quality services, *c)* openness to users' opinions and ideas on how to improve public administration, *d)* simple and fair rules, and *e)* optimal benefits to users.

The starting point of the VCO was the desire to meet the requirements of high quality services and accessibility. Thus, the Virtual Customs Office was created in order to offer customers high quality, user friendly and accessible services. The benefits accruing to users are always put first and users can be a part of the development of new eServices. This corresponds well to the objectives in the government's strategy for creating the optimal 24/7-agency.

4.- Resources

Human Resources

All staff at the Customs Office's department for efficient trade are affected by the VCO since all computer systems are interlinked. There are about 100-150 persons working more directly with the virtual customs office. These persons are however not employed only to run the web page. The persons working with the web page are those that were responsible for the dissemination of information before the Virtual Customs Office was introduced, as well as persons in charge of special services. There are 5-10 persons at the IT department responsible for technological developments and maintenance.

Financial Resources

A cost benefit analysis was made before the project was started. The head of the department of strategic development points out that there are no strict scientific ways of calculating the costs and benefits. The important thing is that you chose a way of monitoring the costs and follow them during project implementation. Smaller cost benefit analyses have also been made for single parts of the project. The most important question was to establish for whom the eService is a benefit and to put customer concerns first.

The Customs Office found it most important that the eServices would benefit the customers. Therefore, the Customs Office has sometimes established services with a very low benefit for the Customs Office itself, as long as there are high benefits for customers. For example, at present there is a project being launched that will enable companies without an account at the customs office to pay the fees for imports directly on line with their credit card. This will not benefit the Customs Office economically since the number of companies doing international trade without having an account is very small. However, since this service will benefit the specific firms concerned very much, the service will be introduced.

The VCO was not very expensive to set up, the costs were included in the running expenses of the IT budget. In general, eServices make the organization more cost efficient since there is no need for typing in data since this is done by the firms (the customers) themselves and thus transferred automatically into the data system.

5.- Implementation

Skill changes required by eGovernment

All staff responsible for updating or responsible for a special service on the web page, have received training. The initiative was taken by the project group responsible for developing the virtual customs office.

The major courses have been:

- **How to write for web pages** – which requires a different tone than bureaucratic style. Information department staff received training on how to write for the web. This course was run by a consultancy company specialising in this field.
- **Publishing technology**. The persons responsible for a special service (50-60 persons) did not have sufficient knowledge about publishing techniques and have therefore undergone extensive training. This course was run by the company that delivered the publishing tool. Later on, more training on this was carried out in the regime of the Customs Office itself.
- **Accessibility** i.e. how to make the web page as accessible and easy to manoeuvre as possible. Both the above mentioned groups took part of this kind of training.

The introduction of eServices also led to skill changes in a more indirect way. The eServices made some work tasks unnecessary, such as keying-in data and other paper handling applications, creating a surplus of staff carrying out these tasks. These staff were offered training to make to undertake other work tasks.

Changes to work tasks, roles and responsibilities of staff

The Virtual Customs Office has enabled the Customs Office to save time since the IT customs declarations makes all human intervention in to the system unnecessary. As a consequence, some staff have been assigned to new work tasks or work tasks that required more qualifications. There have also been some redundancies due to more efficient work routines, especially among staff in the regional offices previously occupied with paper-based applications.

For example, some staff are now employed within customer support – the new call centre that has been established in order to give customers help by telephone. These staff consist of newly hired persons, but also of employees formerly concerned with keying in data and other tasks that have been largely eliminated as a consequence of the VCO. This group has obtained training about the VCO since it is important that they are very familiar with all its functions.

Some new work roles have also arisen as a consequence of digitisation, particularly tasks offering "special services". Staff undertaking these roles have as their main responsibility to ensure that all VSO services function smoothly. Such staff also took part in the development of the services and are in charge of future developments. Apart from these staff, there are also staff with responsibility for the target customer group (i.e. companies) of the service. That is, they are in charge of ensuring that the target group of the service is satisfied.

The Virtual Customs Office is a new channel for information that has to be updated. It must also be remembered that the need for up-to-date data is ´much higher for web pages than for paper booklets. This means that there is more information work to be undertaken by the information department.

Cooperation with public agencies and the private sector

The eServices have not led to any big changes in the relationship between the Customs Office and other agencies. However, the Customs Office has introduced some new eServices in cooperation with other agencies, which means that the agencies are electronically interlinked.

For example, the Customs Office has, together with the Swedish Board of Agriculture and the County Administrations, created an eService for applications of the agricultural product subsidies of the EU. All these three institutions are involved in the application process. The eService has simplified the procedure and interlinked the agencies; the customer types in the application at the VCO and the application is dealt with entirely electronically, without human intervention, and the customer receives an electronic reply.

The VCO has established a closer link to the private sector, i.e. the customers of the Customs Office. The business of the Customs Office is now much more customer-oriented than it used to be. Focus groups, tests by the customers of new services, chat sites with the Customs Office and customer ombudsman are all newly created contact surfaces between the customers and the Customs Office.

Increased coordination within the customs office

An efficient e-service can not only exist on the web page, but there must also be a functioning organization behind the web page – a well functioning back office structure. The IT project management point out that the decision making processes had to be somewhat altered. eServices require a network of different kinds of staff that together can develop the service

and ensure that it functions smoothly. These groups, or networks, do not always follow the old hierarchical decision-making structures. On the contrary, these networks often cut across old structures thus creating new patterns of cooperation.

The Virtual Customs Office means that the web page must always be uppermost in mind among most of the Customs Office's staff. All changes and all new services have to be put on the web page. This means that coordination between different departments of the Customs Office has increased. As soon as a project is planned in one part of the Customs Office, the responsible persons for the web page have to be informed in case the project will have effects on the eServices or the information put on the web page.

Management change

Since the web page always has to be kept in mind at every change at the Customs Office, this also implies that management has to bear in mind that for every project there must also be sufficient resources to keeping the eServices and the information on the web page up-to-date.

It is important to have the support of management in order to be able to develop new eServices. If management does not agree with the objectives and strategies it is next to impossible to change an organisation. Therefore, it is important to involve the management when making the plans. This does not change the roles and tasks of the management but it is important to see to that the management understands and supports the changes the eServices bring with them.

Barriers and motivation for cooperation and change

One early problem that arose was that departments not initially involved in web page planning had some difficulties in understanding the importance of the web page, and thus tended to plan without taking the web page into consideration. However, this was much of a running-in-period problem that faded out quite quickly thereafter.

The eService project management points out the importance having the full support of top management of the Customs Office. As soon as management had declared that the web page was essential for the future of the customs office and could not be ignored, the problems were more or less solved.

Further, once the rewards became clear and visible (such as for example Guldlänken – the golden link – an award to the best eServices in the public sector), and a lot of attention for its high quality and innovative eServices was generated, staff attitudes towards the web page turned overwhelmingly positive and greatly boosted staff confidence in the changes taking place.

Organisational changes

The largest and maybe most important change during the implementation phase was the change of the law regulating the flow of tasks between the different regional offices. This resulted in the Customs Office working as one integrated agency and meant that the organisation and the work flows could be organized more efficiently. This meant that the Customs Office could create 'competence centres' serving the whole country, instead of having a dispersed organization.

The change of the organisational structure together with the digitisation of the work made it possible to make workflows much more efficient. A task can be sent very easily to where the competence is given that the latter is now not scattered over the country.

Very few staff are now occupied with the routine keying in of paper applications into the data system, and many who did this work previously now have other, more highly qualified and skilled jobs within the Customs Office.

6.- Results

Continuous learning

Since it is important that the home page is modern and up-to-date, high IT competence is required among staff directly involved in the formation and development of the web page. This implies that continuous learning concerning IT is crucial.

All staff responsible for an e-service have been trained in how to make services easily accessible and how to use the publishing tool. This is about 50-60 people. All staff responsible for updating the web page and for the dissemination of information have undergone training courses in how to use the publishing tool and web-based writing skills. This is about 100-150 people.

The main courses have been:

- **How to write for web pages** – which requires a different tone than bureaucratic style. Information department staff received training on how to write for the web. This course was run by a consultancy company specialising in this field.
- **Publishing technology**. The persons responsible for a special service did not have sufficient knowledge about publishing techniques and have therefore undergone extensive training. This course was run by the company that delivered the publishing tool. Later on, more training on this was carried out in the regime of the Customs Office itself. When the tool was purchased, a training course for a certain number of staff was included in the price. New publishing tools will be developed and employed in the future, and therefore new training courses will be needed. The staff involved in the formation and updating of the web page will receive continuous training in order to be up-to-date with the technology.
- **Accessibility** i.e. how to make the web page as accessible and easy to manoeuvre as possible. Both the above mentioned groups took part of this kind of training.

It is hard to see qualitative changes apart from the fact that staff are now better at using the publishing tool and have greater web language writing skills. This means that the training courses were successful, but it is hard to say that this has changed the entire working situation.

Tasks, roles and responsibilities

The tasks, roles and responsibilities of the staff have been changed in some cases as a consequence of the introduction of the Virtual Customs Office.

The online customs declarations made by the customers themselves (the companies) make typing the information into the data system by staff unnecessary, and this has made it possible

to change the tasks of some of the staff at the department of trade. The staff that have changed to different work tasks as a result, are however often still involved in the same processes as before. Others have changed works tasks completely. For example, some of these staff has started working at the call centre for customer advice. The Customs Office has been reorganised due to other changes, such as the consolidation of the regional offices into one more coherent unit. Thus, the digitisation of the services has gone hand in hand with these other changes, so that it is difficult to disentangle the precise effects of IT from other organisational and legal changes.

The staff responsible for updating the information on the web page and those responsible for an e-service now have a heavier work load, since they also have to consider the web page to a larger extent than before. These amount to about 100-150 people. There are 5-10 people in the IT department working with on technical development, and these also have somewhat more to do since the number of eServices has expanded with a stronger emphasis put on having modern eServices.

There are two new types of roles that have been established as a consequence of the introduction of the VCO. These are, on the one hand, staff responsible for a specific service (tjänsteägare), and, on the other, staff responsible for the target group of a specific service (målgruppsägare). These staff are, respectively, in charge of covering the developments needed for the eService, and for all the contact both within and out of the Customs Office. These staff number about 50-60 people, most of whom were recruited from within the Customs Office.

Leadership challenges

In general there are two types of problems arising when changes are about to be implemented:

a) There is concern among staff about what will happen with their roles and works tasks
b) The new tasks or decision-making models do not fit into old structures.

In the first case, the IT project management points out that it was important to communicate the changes very early on. As soon as the planning started, the staff that were to be affected were informed, and when possible also involved in the planning and development of the new tasks/services. The project management also found it important to inform the staff about the alternatives; if one work task is no longer needed due to rationalisation, there are usually other tasks coming up which the staff in many cases can do.

In the second case, it was important to communicate the new ways of working with management. A new service requires new ways of working and new decision-making structures. If management is involved in the changes themselves, the possibility that they will be open to new ways of thinking and working – even when new tasks cut across old hierarchies – increases substantially. Therefore, the IT project management tried to involve the organisation as much as possible.

Minor problems also arose when the project was started. Sometimes new ideas were met with scepticism from the staff that were to be involved. The Virtual Customs Office project had the full support of the top management of the Customs Office. In cases where ideas were met with scepticism, the top management provided information about the absolute importance of the project, emphasising that the transformation into becoming a 24/7 agency was an inevitable part of the future that could not be ignored. Once the top management had declared its support for the project, both in general and the single parts of it, scepticism diminished rather quickly.

When the project first was introduced there was a problem with finding staff that were interested in being responsible for an eService. Some of the staff that were responsible for the tasks that became a part of the Virtual Customs Office were far from enthusiastic about being responsible for that task on the web page as well, since this implied extra work for them. This was also solved by the top management that declared the importance of these tasks.

Result in relation to the objectives

The overall objective of the Virtual Customs Office is to ensure that the Customs Office offers high quality services that correspond to the demands of the users. The aim is to make all services of the customs office available on line. This has more or less been achieved. All services are online today with the exception of forms that can be downloaded but not submitted on line. However, a system for putting this into practice is now under development.

Time and cost savings

Objectives that came up during implementation – efficiency and continuous learning – were never specified in quantifiable terms. Thus it is hard to evaluate if these have been reached or not. It is, however, possible to state that efficiency has increased. eServices have simplified and speeded up the process of handling, for example, customs declarations. The staff previously involved in the routine typing in of data to the data system are now occupied with other more qualified and skilled work, and are thus used more efficiently, which increases both time and cost efficiency.

A general cost benefit analysis was made at an early stage in planning the project and smaller cost benefit analyses have been made for single parts of the project. However, project management point out that it is hard to measure these things exactly. Therefore, the project management do not want to give an exact figure, but state that the eServices save money.

One of the most important variables in the calculations is the value an e-service creates for the customers. Therefore, one can find examples of eServices that are being introduced even though the benefit for the Customs Office itself is small. For example, the Customs Office is currently involved in a project making it possible to pay customs declaration online. This is a service that is beneficial for firms importing or exporting small amounts of goods. Since the number of such firms is small, this project will not be economically advantageous for the Customs Office itself, but it will have a large benefit for the firms involved.

Main success factors

Some important factors for success, as described by the staff interviewed, are

- **Visions and targets.** The project management and the department of strategic development point out the importance of having a clear vision. The vision is important in order to get a good picture of what the overall change is about. A clear target is important for pointing out which activities that are important. Once the vision and target are set it is important to stick to them and carry through the changes required. A clear vision and target also simplifies communication about the changes with the organization (staff, management, etc.)
- **Support from management**. When the IT project met with difficulties or uncertainties they could always seek the support from the management. For example, when ideas from the IT project were met with scepticism from staff, the project received support from top management which pointed out the importance of the IT

project, and thereby gave the project a clear mandate for making changes. This is important since an IT project in itself does not have a mandate to change things on its own.

- **Communicating the changes.** It is important to include the entire organisation when large changes are made. Above all, it is important that the staff affected by the changes are informed about what is about to happen and what impact the changes will have for them. An involved organization is a prerequisite for successful implementation.
- **Customer orientation.** Services targeted at customers must take the customers' needs into account. Since the customers are at the centre of activities, they must be put in absolute focus when developing new services.

Evaluation and monitoring

The project has, to date, not been evaluated or monitored in any special way, but it will be so in the near future. This evaluation will deal with:

- How the staff at the Customs Office have experienced the project
- How the customers find the eServices

The customers will probably be divided into different focus groups in order to obtain a better picture of how different kinds of firms have responded to the eServices.

7. Learning points and conclusions

eGovernment increases the need for coordination

The Virtual Customs Office means that the web page always has to be kept in mind by most of the Customs Office's staff. All changes and all new services have to be put on the web page. This means that coordination between the different departments of the Customs Office has increased.

An efficient eService has to have a functioning organization behind the web page – a well functioning back office structure. eServices require a network of people that together can develop the service and ensure that it functions well. These groups, or networks, do not always follow the old hierarchical decision-making structures. It is important to see behind the already existing structures – creating new networks of the competence needed – instead of trying to make the new tasks fit an old model.

Networks often cut across old structures, creating new patterns of cooperation. Different services need different networks, sometimes partly overlapping. This does not imply that an organization has to be totally reorganized when eServices are introduced. Rather, it emphasises the need for increased cooperation and coordination.

The required IT skills do not change dramatically

Introduction of eServices at the Customs Office did not imply that all of the staff suddenly needed IT training. The introduction of eServices often mean that need for fewer staff. Online customs declarations, for example, do not need any human intervention as long as all the forms are correctly filled in. Thus, most eServices do not lead to any dramatic changes when it comes to IT skills. Rather, it implies that some tasks "disappear", i.e. they are completely digitised. These tend to be the routine clerical tasks.

Communication and involvement of the organisation

Some of the points made by project management about success factors (in section 6 above) are worth examining again. The common denominator in several of these points is communication. The project management itself believes that the early involvement of, and communication with, the Customs Office's staff – at various levels – was the key to successful implementation.

It is important to include the entire organisation when large changes are to be made. Above all, it is important that the staff affected by the changes are informed about what is about to happen and what impact the changes will have on them. To involve staff in the actual development of the eServices will further help to make the staff a part of the development process. An organisation feeling as involved in the change, and not simply as a subject of the change, is more likely to function well during the implementation of changes. In this process, a clear vision stating what the overall change is about, and a clear target pointing out activities which are about to take place, facilitates communication about the changes.

Support from management

The IT project at the Customs Office had the full support of top management. When the IT project met difficulties, such as scepticism from staff, it could find support from the top management. The top management strongly believed in the importance of the IT project, and thereby gave the project a clear mandate for making changes. This was very important in this specific case, since the IT project in itself did not have a mandate to change things on its own.

There was a strong link between the IT project and top management. The head of the department for strategic development is a member of the Management Board and also has a central role in the implementation of the Virtual Customs Office. This link between the project and top management turned out to be fruitful, since it simplified communication between top management and the project. Further, since the project needed the mandate of management in order to make changes, good communication was crucial to implement the changes.

A summary of learning points and conclusions is given in the reference scheme below.

Table 2. SUMMARY OF LEARNING POINTS AND CONCLUSIONS: Virtual Customs Office, Sweden

FUNCTIONS COMPONENTS	**Policy & planning** (political and top management civil servant level)	**Implementation** (heads of units and CIO level)	**Operational** (regular civil servant level)
Strategic (related to activities to develop plans and strategies)	The full support of top management is needed throughout, giving the project a clear and unambiguous mandate. Focus on internal and external integration of work processes. Equal focus on management of change	Fewer staff needed overall Focus on re-training both existing staff and employing new Facilitating new ways of working	

	and human resource development The leader of the project is leader of strategic development and a member of the Management Board The project and all changes must all be focused on the needs of the customer		
Technological (related to technological changes)	Strategic move towards 100% digital systems Strong link between top management and the IT unit	Dedicated expanded ICT specialist unit and staff but under general strategic leadership	All staff do not necessarily need ICT training Some staff do need good basic ICT skills, including web page design and content authoring
Organisational (related to organisational changes)	Need both a clear vision, stating what the objective of the changes is, and a clear target specifying what activities are to take place	Focus on both coordination and cooperation between different departments Need to build networks of staff that together can develop the eServices and ensure they function well, but recognise that these do not necessarily follow old hierarchies or structures Need early involvement of, and communication with, staff Must include and communicate with the entire organisation when changes are made	
Administrative (related to the usual way of doing things in public administration)			As digitisation removes routine work, change from clerical to knowledge workers with basic ICT skills but also with many flexible and enhanced human, and communication skills

8.- Methodological notes

Anders Hellberg, The Swedish Customs Office, project manager for ICT development 2005-03-23 telephone interview.

Lars Karlsson, The Swedish Customs Office, Head of department of Strategic Development 2005-04-19

The Customs Office underwent organisational changes due to other changes than the introduction of eServices. For example, changes in the law regulating how tasks can be transferred between different regional offices of the same agency affecting the work processes of the Customs Office. The eServices became a part of this change, thereby making the transfer of tasks even easier. However, the e-service was not the triggering factor. This makes it complicated to establish what effects the introduction of eServices have had, and what effects the legal changes have had. In the case study, focus has been put on changes clearly connected to the introduction of the eServices.

Reference:

www.tullverket.se The home page of the Swedish Customs Office

Towards the 24/7 agency; Swedish Government Offices

Appendix A

The main content of the Virtual Customs Office (VCO)

eService	Description	Language	Type
Applications and forms			
Forms	Forms that can be down loaded	Swedish	Online, download
Application for bringing pets to Sweden	Danish citizens may use this to inform about bringing a pet to Sweden	Swedish	Online
Application for export subsidiaries	Through personal log in data, you may apply for export subsidiaries	Swedish	Online
Declaration of weapons	Nordic citizens may use this application for bringing weapons to Sweden	Swedish	Online
Web Forms	Application forms for customer with personal log in – clearance and other permits	Swedish	Online
CVO and Customs Guide			
Chat	Chat with the virtual customs guide to get information/help	Swedish	Online
CVO Guide	Electronic guide that guides you round the webpage	Swedish/English	Online
Sandra	A virtual guide to the VCO	Swedish/English	Online
The Customer Ombudsman	Contact for complaints,viewpoints or praise	Swedish/English	e-mail, telephone, text message
Tullsvar - The Customs Answers	Help with any customs related questions	Swedish/English	Fax, e-mail, telephone
Information about the Customs Office			
eDiary	Access to all incoming and outgoing matters/ mail of the Customs Office	Swedish	Online
Map	See all the Swedish Customs Office locations on a map	Swedish	Online
List of Customers	List of all customers with	Swedish	Online

	import/export permits		
International outlooks	Information about how the customs office make international outlooks in order to follow the international developments	Swedish	Online
General Information from the Customs Office			
eSubscription	Subscription service where you automatically get information through text messages or e-mail	Swedish	Mobile phone text message or e-mail
CustomsNews	Information about the latest customs related news	Swedish	e-mail
eBooklets	Booklets about various customs matters	Swedish	Download/ order online
asy Swedish and dictionary	Information written in an easy way for people with reading disabilities and a dictionary with customs related words	Swedish	Online
Text message information	Send a text message to the customs office and they send you a list of all text message services they supply	Swedish	Text message
Web TV	Web TV about the Customs Office	Swedish/English	Online
Import ration guide			
eImport Ration Guide	Information about import rations for alcohol and tobacco	Swedish	Online
Text Message Ration Guide	Send a text message to the customs office and they send you the answer of how much alcohol and tobacco you are allowed to bring	Swedish	Text message

	from the country you are in		
Laws			
Internet trade	Information about laws regulating internet trade	Swedish	Online
Laws	All laws regulating customs related matters	Swedish	Online
Education			
eCourses	Education about the VCO on the internet	Swedish	Online
Calculations and VAT			
Calculator	Make calculations about what imported goods cost	Swedish	Online
VAT and eTrade	Information about VAT for imported goods	Swedish/English	Online
Exchange rates	Information about current exchange rates	Swedish	Online
Other information			
StairSec	Information about logistics security and how the Customs Office works with a model for certified logistics security	Swedish/English	Online, download
Customs declarations on the Internet			
Customs declarations	Import/export declarations on line	Swedish/English	Online
SME eServices	All eServices SMEs need for exports/imports	Swedish	Online
Taric search	A search engine that helps you classify your import/export goods	Swedish/English	Online
The Service Staircase	Information about the on line customs declarations system – how to use it, requirements etc.	Swedish/English	Online, down load

Staircase News	Information letter about the latest news concerning the service staircase	Swedish	e-mail
Other services			
Personal pages	Customers can register and create and log in to personal pages	Swedish	online

6. United Kingdom: UCAS

www.ucas.com

1.- Executive Summary

The United Kingdom has had a central admissions and clearing system for entry to higher education (HE) since the 1960s. It was established in its present form in 1993 as a result of the merger of the former university and polytechnic HE sectors. Today, all applications to study full time for a bachelor's degree (BA or BSc), HND or DipHE at any university (other than the Open University) in Great Britain and Northern Ireland must be made through UCAS. This case focuses on admissions to undergraduate and sub-degree programmes, which is where the bulk of UCAS' work lies.

UCAS provides a number of services for this market. It acts as the intermediary between nearly half a million applicants for university places and over 330 HE institutions. After the publication of the 'A' Level examination results (the entry examinations for HE) in mid-August, UCAS arranges for offers of places to be confirmed or withdrawn, and runs a 'clearing system' designed to match unfilled places with unplaced candidates before the university terms begin in mid/late September. UCAS also produces many data sets and analytical services designed to enable individual HE institutions to make decisions about the shape of their provision and to forge effective marketing and recruitment strategies, as well as to enable effective resource planning to be undertaken for the HE sector as a whole. The increasing richness and flexibility of these statistical and analytical services is an important product of the digitalisation of the admissions process.

There has been some degree of vertical integration in place between the back offices of UCAS and the HE institutions since the 1960s. This case study describes the process by which UCAS is now increasing the intensity of digitisation of back-office processes associated with university admissions, and has now almost completely digitised the front-office arrangements which serve nearly half a million applicants and thousands of schools and colleges. Digitisation is now nearing completion, and includes facilities for online payment. No other services are bundled into the process, but the electronic transfer of examination results directly from some ten examination boards to UCAS means that there is a degree of horizontal integration.

Learning points and conclusions

The case clearly illustrates many good practices concerning organisational change, human resource skills and management, including:

- There is a need to focus on internal and external integration of work processes. At the same time, equal focus has to be placed on change management and on human resource development.
- A long-term organisational learning strategy is required for the exploitation and management of knowledge within the organisation. There should be strategic management and which takes into account the expectations, benefits and skills of customers and stakeholders.

- It is necessary to sell the need for and process of change internally first of all, and to work with staff to achieve it. Do not underestimate resistance to change but actively prepare to meet it.
- A dedicated training function for both in-house and customer training is necessary with a focus on re-training existing staff rather than employing new personnel.
- A strategy for on-going staff re-skilling and flexibilisation in new roles should be put in place.
- In relation to technology, there is a need to maintain critical ICT systems and skills in-house as part of a strategic move towards 100% digital systems, which involves a dedicated and expanded ICT specialist unit and staff, but under general strategic leadership.
- As digitisation removes routine work from staff, there will be a change from clerical to knowledge workers who not only need basic ICT skills but also many flexible and enhanced interpersonal and communication skills.

The case was chosen because it represents a good example of the development of a successful eGovernment application in a service playing a significant part in the life of an increasing number of young people in the United Kingdom and abroad. It is relatively complex, and illustrates many of the political, technical, organisational and human resource dynamics involved in digitising an important public sector agency.

2.- Background

The United Kingdom has had a central admissions and clearing system for entry to higher education (HE) since the 1960s. It was established in its present form in 1993 as a result of the merger of the former University and Polytechnic HE sectors. Today, all applications to study full time for a bachelor's degree (BA or BSc), HND or DipHE at any university (other than the Open University) in Great Britain and Northern Ireland must be made through UCAS. In addition, UCAS deals with admissions to higher education programmes offered by most colleges of higher education and some colleges of further education, and it also adminsters the Nursing and Midwifery Admissions Service (NMAS) and the Graduate Teacher Training Registry (GTTR). UCAS has also developed a new admissions system for applicants to practice based courses at 7 music conservatoires in the UK. The new system which began to recive applications in May 2005 is known as the Conservatoires UK Admissions Service (CUKAS). This case focuses primarily on admissions to undergraduate and sub degree programmes, which is where the bulk of UCAS' work lies although there are a number of postgraduate courses that are recruited through CUKAS and the GTTR service is aimed at graduates entering the teaching profession. There are also a number of postgraduate courses in social work which are recruited through the UCAS service.

For this market, UCAS provides a number of services. It acts as the intermediary between nearly half a million applicants for university places and over 330 HE institutions. Most applications are made in the autumn before candidates sit their advanced school leaving examinations; for UK students, these examinations are usually the Advanced (A) Level examinations run by the English, Welsh, Scottish and Northern Irish examination boards, though some schools and colleges enter pupils for the International Baccalauriate (IB). After the publication of the A Level examination results in mid-August, UCAS arranges for offers of places to be confirmed or withdrawn, and runs a 'clearing system' designed to match unfilled places with unplaced candidates before the university terms begins in mid/late September. In order to ensure that candidates make informed choices, it publishes a Directory and other information about courses aimed at potential applicants, their teachers, careers advisers and parents. It also captures a great deal of data from application forms, in order to

provide statistical information and analytical services for the HE sector. Many data sets and analytical services are designed to enable individual HE institutions to make decisions about the shape of their provision and to forge effective marketing and recruitment strategies, but they also enable effective resource planning to be undertaken for the HE sector as a whole. The increasing richness and flexibility of these statistical and analytical services is an important product of the digitalisation of the admissions process.

The institutional context of UCAS is that it is a company limited by guarantee, registered as a charity, and operating as a not-for-profit organisation which must cover its own costs. Its main sources of income are from applicants (normally the schools at which applicants are pupils), subscriptions from participating HE institutions and commercial activities, such as conferences and advertising. Its main legal relationship is with the applicant, i.e. the person wishing to apply for a place with a HE institution. However, it must also, of course, work very closely with the schools (both schools' administration and teachers) in which most applicants are pupils, about ten Examination Boards, and the over 300 institutes of HE offering courses to the applicants. There are also relationships to the Committee of Vice Chancellors and Principals (the national organisation of heads of universities in the UK), and the government, particularly the Department for Education and Skills (the responsible ministry).

Since the original introduction of a central university admissions service in the UK in the early 1960s, when less than 4% of the relevant age group attended university, the number of school leavers going on to university has risen steadily. In 2004, 486,028 people applied through UCAS for entry to Higher Education (HE), an increase of 2.2% on the previous year.

The strategic policy goal to which the digitisation of the UCAS case study contributes is to facilitate the UK government's policy to support longer term economic change based on a knowledge-based society. An important component of this goal is to move to a situation where approximately 50% of the age group should experience HE. To achieve this, the government is particularly anxious to remove significant differences between the numbers of qualified school leavers that participate in HE from the highest and lowest social classes. The globalisation of the economy, and especially the increasingly dominant position of the English language in international commerce, trade and culture, means that there has also been a sharp increase in international (non-EU) applications to study at British universities. In 2003, 12% of applications made through UCAS came from outside the EU, an increase of over 10% on the previous year. As a result of all these factors, the volume of business handled by UCAS has risen markedly and is likely to continue to do so in the future.

In facilitating the achievement of this strategic goal, account needs to be taken of the fact that the flow of UCAS' business is highly uneven, with a large number of applications coming in between October and January, and another period of intense activity following the commencement of Clearing in mid August. There are also peaks of information flows when universities update information about courses in the early Spring, and minor peaks when the winter A level results are issued in January. Further pressure would be put on UCAS' capacity to manage peaks of business if the government decides to require students to first apply to university after the publication of school leaving examination results instead of some six to nine months before they take their examinations. Such a change would enable a better and more efficient match between candidates' achievements and preferences, on the one hand, and the reputation of specific universities and their courses, on the other. However, it would oblige UCAS to handle a great deal of its annual business in a very short space of time. Managers believe that this would be impossible unless much more of the application process can take place online. UCAS is also faced with the real possibility that the government will

change the pattern of the school year, with more terms and more frequent, but shorter, holidays.

In the light of all these factors, UCAS wishes to enhance the quality, flexibility and timeliness of services it offers applicants and other stakeholders in the HE community. The digitisation of its operations and services is the main means employed to achieve this goal. Using traditional print methods, for example, there can be a gap of up to two years between a decision at a university to close an existing course or open a new one and the publication of a new edition of the UCAS Directory. Universities operate under more stringent financial regimes and in more competitive and volatile markets than ever before. They therefore need to be able to revise their course portfolio more easily, and need better, more up to date information to help them to make effective decisions. At the same time, the expansion of the British HE system has created a much greater range of universities offering courses to a much wider cross section of the age-group. These changes in the populations of both providers and consumers means that UCAS must offer more information, and give support and advice to applicants during the admissions process if they are to enjoy equal chances of making choices that maximise their life chances. For all these reasons, UCAS has become increasingly interested in exploiting ICTs to support the provision of its services, as well as in enhancing the value derived from the data captured during the university admissions process. Shifting to greater reliance on ICT, in turn, brings with it the need for organisational changes, new types of leadership and quite different staff skill resources and job functions.

The case study covers the following cells in the reference scheme:

Table 1. POSITION OF THE CASE IN THE REFERENCE SCHEME: UCAS, UK

FUNCTIONS COMPONENTS	**Policy & planning** (political and top management civil servant level)	**Implementation** (heads of Units and CIO level)	**Operational** (regular civil servant level)
Strategic (related to activities to develop plans and strategies)	**UCAS**	**UCAS**	
Technological (related to technological changes)	**UCAS**	**UCAS**	**UCAS**
Organisational (related to organisational changes)	**UCAS**	**UCAS**	

Administrative (related to the usual way of doing things in public administration)			**UCAS**

3.- Specific objectives

As will be described below, UCAS is undergoing a steady process of digitisation, which has increased in pace in the last few years. The objectives implicit in this digitisation process, and the relationship of these to skills, leadership and organisational change, are:

1) To reduce costs and increase efficiency and productivity. The reduction of costs is particularly related to the employment of large numbers of clerical staff prior to digitisation and the need to ensure that remaining staff adopt the skills and have the leadership and organisational setting to become more productive.
2) To increase the quality of service experienced by customers, as measured by the time taken to undertake various tasks, including processing application forms, responding to offers from universities and confirmations by applicants, and dealing with inquiries. The achievement of this objective is dependent on upgrading staff skills, appropriate leadership and an organisation geared to cooperation with other agencies
3) To increase the value derived by individual institutions and the sector as a whole from the data captured by UCAS from the admissions process. Again, this objective presupposes specific types of staff skills, leadership and organisational arrangements.

A further strategic aim of the leadership is to future proof the university admissions process against a major policy shift by the government, such as a decision to delay university applications until after the publication of the A Level results.

4.- Resources

ICT

UCAS has long made heavy use of mainframe computer power to store and process large quantities of personal data about university applicants. Indeed, its core back office business has been computerised for over forty years in a system called Marvin. It has also possessed the ability to exchange data with universities in the form of flat data files (using standard record layouts) since the 1980s. But, until recently, UCAS and its predecessor organisations received all applications through the medium of paper forms.

UCAS' first attempt at digitising the admissions process came in 1995 with the introduction of a CD ROM based system known as EAS, the Electronic Application Service. Like all UCAS' technological innovations, the design of EAS was based on market research and piloted before release. In the first year, EAS attracted 7,000 users; by 2003 take-up appeared to have levelled off at around 100,000 users. EAS requires schools or colleges to obtain special software from UCAS. This software contains an 'applicant suite' of pages, including the part of the application form completed by the student, and an 'administrative suite' that

permits staff to complete their parts of the form and submit them into the school's UCAS account.

From the 2002-3 entry, the forms have also been available on a web-based service known as Apply, which requires no special software and enables forms to be submitted online. UCAS has also developed a special version for the international market. This version is known as International Apply and permits overseas candidates to take full charge of the application process without any reference to their school. For the 2003 entry, 168,558 applicants (nearly 40% of the total) used either EAS or Apply, but this has grown rapidly so that today (April 2005) 77% of all UCAS' transactions are electronic. For the academic year 2006, which starts for UCAS in September, UCAS is marketing its services and preparing its customers for a virtual complete cessation of paper applications. In other words, it is aiming for 100% electronic transactions, and only allowing paper to be used in really exceptional circumstances.

In effect, UCAS is moving rapidly towards a single channel service, for a number of reasons. First, its market research suggests that the web service will rapidly increase in popularity and its main users (students) are almost uniquely endowed of any age and socio-economic group to both possess and wish to use ICT. Secondly, the CD ROM version has several drawbacks: it is expensive for UCAS to develop and maintain, it requires schools to install special software and, once issued each year, cannot be updated. In contrast, a web service can be accessed from any PC, the information on the web can be updated frequently and the software can be constantly improved. It also allows universities to update information about courses during the admissions season.
The electronic links with the Higher Education Institutions are made through three products offered by UCAS. The first is a web browser based service known as 'web.link'. This enables HEIs to access their UCAS application records from any web enabled PC and it has facilities for viewing applications, enquiry, decision making and accessing management information. HEIs can also opt to use one of two 'database to database' facilities which enable users to upload all of their application data to a local database. These services are known as 'odbc.link' which is aimed primarily at oracle database users and 'xml.link' which uses XML technology to move data to and from UCAS and HEI databases. The XML link is intended to be compliant with emerging interoperability standards such as 'UKLIP' and 'UKLEAP'.

Data handling and services

UCAS runs a high volume business, handling large quantities of personal data. Like most organisations in the higher education world, it tends to be a target for hackers and other incursions. It is also subject to a number of intense periods of activity, especially towards the January applications deadline and in the hours following the publication of the A level results. For example, in the summer of 2004, the UCAS website scored over 100,000 searches in the midnight hour immediately following the opening of Clearing. Despite these difficulties, UCAS is committed to maintaining continuity of service, 24 hours a day, seven days a week, a commitment expressed in its formal performance target of 99% systems availability. This objective has been successfully during the 2002, 2003 and 2004 entry cycles. UCAS seems therefore to have solved the technical problems associated with eGovernment, in that it can maintain systems which are scalable, flexible, resilient and secure.

It achieves this objective in a number of ways. First, the internal network infrastructure uses multiple web servers, application servers, databases and file servers, which are controlled automatically to increase and reduce capacity according to traffic levels. This architecture also ensures that back up is available should any element fail. The network also has spare server capacity, which can be brought into use to support different processes as they come under

pressure at different times of the year. In addition, UCAS is negotiating for an external recovery site which would host additional hardware. This site will be connected to UCAS via a separate ISP and will provide additional resilience and flexibility, especially during the period of particularly intense traffic in the early days of Clearing. Second, UCAS uses two different telecommunications networks simultaneously, allowing it to automatically increase and reduce bandwidth as needed to support changing levels of web-based traffic. For electronic data transfer with institutions and to support Hercules, it uses a third network, JANET, the private, government-funded network that supports the UK academic and research community. This is a long-established, robust network with a high level of reliability. Third, UCAS' systems are subject to constant load testing and year-round health monitoring, with regular simulations of the flows to be expected at peak periods.

Security

UCAS achieves a high level of security. It does this, in two main ways: first by multiplying its databases and file servers, and second by protecting the network with a series of firewalls. The only access to the network for traffic generated by the general public is through a single web port, which is controlled by special software that sifts messages for spam and viruses. Managers report that this has proved 100% successful so far in warding off serious incursions. Customer data sent via the web are subject to 128 bit encryption. Traffic with universities is not encrypted, but is sent via FTP within an area of the network secured behind firewalls.

Privacy, authentication and payments

UCAS does not make use of digital signatures or certificates. They have a very limited market in the UK and tend to deter customers from using electronic services. User access to the enquiry service is controlled by a PIN code in the form of the applicant's unique reference number, and password, and involves additional authentication checks in cases of lost passwords. For additional security, electronic correspondence will not be sent as email. Rather, an email will alert the applicant to the fact that correspondence has been placed in the enquiry service, to be accessed via PIN and password.

UCAS operates on the principle that its legal relationship is with the applicant, not their school, parent or adviser. In consequence, it refuses to divulge information about the progress of an application to a person other than the applicant, despite frequent requests to do so. On the other hand, it is willing to give copies of school references to applicants on request, on the grounds that it is required to do so under the access clause of the Data Protection Act (1998). Such requests are frequent, and because many school teachers believe that such references are confidential, UCAS publishes statements making it clear that they are not.

Applicants using Apply may pay fees online at the point of application by keying a valid credit or debit card number. This service is supported in the usual way, by a commercial bank.

Finance

UCAS is a company limited by guarantee and registered as a charity. It therefore operates as a not-for-profit organisation, but one that must cover its own costs. Its main sources of income are from applicants, subscriptions from participating HE institutions and commercial activities, such as conferences and advertising.

UCAS' analysis suggests that Apply, the web-based application channel, yields much better value for money than the CD ROM system, EAS. This is because the CD ROM, has high up front development and maintenance costs. The cost savings associated with this application

derive mainly from better data quality. However there are significant costs involved in the production and distribution of the CD ROM and once published and distributed the software is difficult to update.There are also significant problems that can arise when the CD ROM software is installed at schools and colleges particularly when installation is required on a network. In contrast, Apply can be continually updated and its introduction has already led to significant reduction in data capture costs, including staff. In addition, the increasing use of web technology is capable of leading to significant reductions in postal costs. UCAS currently spends about £1,8m a year in postal communications with applicants: it estimates that it can reduce this to about £0.5m.

Human and organisational resources

In the mainly paper-based period of UCAS, it employed about forty temporary clerks to cope with handling forms, keying in and checking data, opening post, etc., especially in the initial applications period from October to January. In the 2005 environment of 77% digital transactions, the Applications Services Department has reduced, not only its temporary staff to virtually zero, but also its permanent staff by 25, so that the total today of about 140. Total UCAS staff is now about 300 and comprises a number of departments, including an Applications Services Department, a Digital Services Department, an Analytical Services Unit, and a Training Unit. Whilst the Applications Services Department has decreased in size as described, some other departments have increased their staff due to the increasing requirements for technical support and other specialist staff in order to support the network infrastructure and web site, which are maintained in-house. These changes are discussed in more detail below.

All staff losses have been achieved by natural wastage and retraining, cross-training and multi-skilling, i.e. letting staff go voluntarily through early retirement or to another job (in the latter case, perhaps after some re-skilling to assist people find another job).

5.- Implementation

Moving from paper-based to electronic systems

Traditionally, applicants fill out a paper form containing basic personal details and their educational record and qualifications. The form also allows them to make a restricted selection of university courses. There is also space for a ‘personal statement’ which can be used by candidates to tell the selectors about themselves and explain their choice of course. Applicants then pass the form to their school or college, which appends a reference and a prediction of their A level results. The form is then sent to UCAS by post, often in a batch with other applications from the same school or college. The school may choose either to enclose payment for the fees (currently, £15 an application) or to have the applications charged to its UCAS account. In the latter case, fees are invoiced monthly. When received by UCAS, the information on the forms is then manually keyed-in to the database by clerical staff.

There are sound business reasons for digitising this admissions process. As well as the costs associated with reducing the number of paper forms to be opened and the amount of data to be input manually by clerical staff into UCAS’ computer systems, electronic forms can save huge amounts of labour involved in checking and correcting data. UCAS deals with a young population, that is unused to filling out complicated forms. A common error on paper forms, for example (present in about 7% of cases) is to enter the date of application rather than the date of birth, or candidates may enter the wrong course code or course title. The use of self-

validating forms with drop down menus prevents such mistakes. An important motive for digitalisation was, then, significantly to enhance the quality of data reaching UCAS and to reduce staff costs.

Data transfer between UCAS and HE institutions

When data are submitted on paper forms they has to be input manually into UCAS's computer systems. In the past the long sections containing the candidate's qualifications, personal statement and reference were not keyed in, for reasons of cost and time. However now that UCAS has reached an expected 85% to 90% rate of on-line applications any remaining paper applications will be outsourced to a specialist agency who will key all of the data contained in the forms. This means that UCAS, from September 2005, will hold all application data electronically. HEIs predominantly take some limited information from UCAS in the form of flat files. However the 'web.link', 'odbc.link' and 'xml.link' allow access to all of the data contained in applications including the significant textual areas. HEIs use the data provided by UCAS to build up their own databases, which may be accessed by terminals around the university and manipulated for management and statistical purposes. Currently, the application form is photocopied, reduced in size and mailed to the universities, so that admissions staff can also read the personal statement and reference. UCAS is planning in the future for the paper copy application forms to be eliminated which will produce considerable reduction in costs and resource usage at UCAS.

Web based information and the Applicant Enquiry Service

To help support candidates through the admissions procedure, UCAS runs a telephone helpline service. This is heavily used, with 3,500 to 4,000 calls a day during the admissions season. In trying to control pressure on the helpline, UCAS has made much more information available on the web, and has also instituted an online tracking and inquiry system, the Applicant Enquiry Service. The letter sent to applicants confirming the receipt of their application also issues them with a unique reference number and password that enables them to track the progress of their application online and to make replies to their offers on-line. From the 2004 entry, this also permits applicants to register to receive emails alerting them to correspondence deposited for them on the enquiry service website. From September 2006 the service will be further enhanced to allow applicants 'self service' facilities such as updating their address if they relocate.

Universities notify their decisions to UCAS electronically, but for legal reasons, UCAS will continue to send by post all correspondence involving the formation of the contract between the candidate and the university, including the acknowledgement of receipt of an application, the confirmation of offers held by the candidate and confirmation of the place the applicant chooses to accept. Other correspondence between UCAS and applicants is planned to take place increasingly via the enquiry service.

EBL – Examination Board Linkages

The offer of a place at a university is often conditional on the candidate achieving certain grades in his or her examinations. In order to validate examination results, UCAS runs major data matching exercises in which it cross matches applications data with results data received in the form of flat data files from all the major examinations boards in the UK. It also receives results from the boards that administer the major English-language school leaving examinations overseas and from the International Baccalauriate. In order to prepare well in advance for these exercises, which must be completed in a very short space of time, UCAS's staff match all the data about examination entries supplied in its application forms with the

entry data held by the examination boards. A successful match is achieved in about 95% of cases. The remaining 5% or so involve labour intensive work, as UCAS staff seek to reconcile as many discrepancies as possible well before the results data are transferred to UCAS. The work of resolving discrepancies - which may, for example, be caused by applicants using different versions of their name, changing their mind about the number of subjects in which they propose to be examined or simply listing their subjects inaccurately – may involve correspondence between UCAS and the Boards or phone calls to applicants' schools. Through such means, UCAS matched 98.4% of Scottish and English applicants with their A level results in 2001-2. The problems of reconciling discrepancies are exacerbated by the fact that different examination boards use different identifying numbers for the same examinees It would therefore significantly reduce the burden of this process if the Government were eventually to introduce a national qualifications database, so that UCAS was less dependent on data from the examinations board to validate applicants' claims about the examinations results.

Completing the digital chain

It can be seen that UCAS is on the way to achieving a high level of vertical integration between the services offered to applicants, its own back office processes and the admissions processes within HE institutions. There could remain, however, two problematic links in the electronic chain. First, 23% of transactions for university entrance at present still use a paper form. As mentioned above, however, UCAS is aiming for virtually 100% digital transactions in 2006. Although this goal is expected to be achieved more or less, if not some staff will have to continue to key in basic personal data contained in the form.

The second problematic link in the vertical chain is the one between UCAS and the HE institutions. As described above, with a few exceptions, hard data is transferred to universities electronically and deposited into their own databases. In the medium term, however, UCAS sees great advantage in establishing 'link.xml' as the main electronic link with institutions. This system would give universities remote, interactive access to UCAS' own database of applications data and allow them to upload data electronically. It would also allow them interactive access to UCAS' increasingly rich store of statistical data about the changing student population and the nature of student choices in the competitive global market for higher education.

Organisational changes

The process of digitisation has required organisational changes both within UCAS and with other agencies.

Within UCAS

Organisational changes within UCAS have been made to accommodate the smaller total number of staff and the changes in staff types and composition within the various departments. (See section 4 above under 'human and organisational resources'). These changes have been necessary to adapt to the increasing digitisation of UCAS' processes and transactions, the increasingly competitive HE market, and the dramatically increasing workload of UCAS as the number of applicants for HE rises. Also, as described below, the relationships with other agencies are changing significantly and this must is reflected to the internal organisation of UCAS.

Schools

UCAS believes that the rate of uptake of EAS and Apply is determined mainly by the willingness of schools and colleges to embrace the use of ICT. This willingness is still somewhat unevenly distributed. Some schools lack hardware and technician support, and not all teachers are experienced users of ICT. It is relatively unusual for applicants whose schools use paper forms to apply electronically, though this is now changing. UCAS tries to encourage schools and colleges to go online, through a number of means. First, it lays great emphasis on ensuring that the technology is both robust and easy to use. Second, it devotes considerable effort to liaison and educational work with schools. It not only undertakes regular mailings and publicity work, but its staff also run conferences on the admissions and HE systems. UCAS also sponsors a number of regional groups, bringing staff from schools and universities together to discuss issues of mutual concern. Finally, and especially from 2006 when the system will in principle not allow paper applications, schools which complain about this will be offered training by UCAS. All these opportunities are used to increase awareness of the benefits of electronic admissions systems.

HE institutions

As we have seen, UCAS also sees significant business benefits in encouraging HE institutions to adopt Hercules, as a way of cutting down postal costs and speeding up the admissions process. The problem is that the necessary technology costs about £450,000 per institution, and only one major university had adopted it fully by 2003. It is thought to be unlikely that this cost will be defrayed centrally by the Government. The problem is, of course, that the cost of investment will be borne by the institutions, while the business benefits will accrue mainly to UCAS.

Relations with the HE sector are handled mainly through a network of institutional correspondents, usually people from the universities' administrative staff. UCAS also maintains links with the Committee of Vice Chancellors and Principals, the national organisation of heads of universities in the UK. UCAS is using links such as these to persuade the sector that there are real benefits for institutions as well as for UCAS from digitisation. In particular, it emphasises the added value that would accrue to institutions from interactive access to UCAS' databases. For example, universities are now under pressure from the government to take more students from lower social classes. In practice this means that there are financial rewards for admitting students from relatively deprived geographical areas. UCAS can track applications and offers made by each university by postcode, so that university staff can make decisions accordingly. Access to this kind of dynamic information is made much easier with the use of electronic channels.

Links with other agencies

UCAS is currently working closely with the Student Loans Company (SLC) which is the UK agency responsible for the financial assessment of students for student grants and loans. UCAS is expecting to provide data sharing facilities suring 2006 entry which will pre-populate students on-line SLC registrations and applications. UCAS will also be providing various bulk data consignments to the SLC to enable them to populate many of the data fields on their central database. It is expected that this intiative will dramtically decrease time and costs for applicants, the SLC and local education authorities (LEAs) who act as the SLC's agents.

UCAS is also involved in exploratory talks with the Criminal Records Bureau (CRB) again with a view to data sharing. The proposal is that, for those students for which it is required, the student can opt to pre-populate their CRB application for disclosure of a criminal record. The CRB systems do not yet permit on-line application and this feature is not expected to be available until the 2007 or 2008 entry cycles.

Apart from obvious time and cost savings in terms of data capture and increased data accuracy, UCAS, together with other agencies, wishes to see a general improvement in the customer service levels provided to students and the linking of services in this way is expected to vastly improve the applicant experience.

Staff skill resources

There have been many consequences resulting from the digitisation process to staff skills, job types and resources. One of the main consequences has been the very significant change from mainly manual keying in of application forms to much more electronic file transfer and, today, increasingly the self input of data on the web by the application or his/her school. This reduces dramatically the number of clerical staff needed both to key in data as well as to check and correct data. Many of these staff were previously employed on a temporary basis, particularly during the peak periods of the admission cycle.

At the same time, there has been an increase in number and sophistication of ICT technical staff, both for developing the CD-ROM based service and now the web-based services. Technical staff are organised into two groups, those concerned with maintaining the infrastructure and those concerned with the constant development and testing of UCAS' systems.

There has also been an increase in the number of staff with statistical and planning skills for manipulating and interpreting the information contained in UCAS' databases, as well as of marketing staff to address the increasingly competitive environment in which HE operates in the UK. This also involves much more emphasis on outreach and 'education' of the other agencies UCAS has to deal with, as described above. to encourage them to go online and use the ICT systems developed by UCAS.

Also of importance is that significantly more staff time is now needed to handle individual inquires from applicants, and to support the latter on a more personal basis, thereby adopting an increasingly case worker type role. This is not just through the telephone helpline service, which has been operated for many years before the latest phases of digitisation, and which is also now attracting increasing traffic. But it is also, which is new, handling email correspondence with applicants as well as with the other agencies cooperating with UCAS. For example, initial support can often be required by applications when they first use the online tracking and inquiry system. In this context, increasing emphasis is placed on the personal communication skills of staff.

Each of the above changes requires both new skills in existing jobs as well as new job designations. UCAS has chosen to deal with this changing staffing base, as far as possible, by re-skilling existing staff, on the grounds that they know the nature of its business best and have the greatest loyalty and commitment to the work of UCAS. All staff losses have been achieved by natural wastage and retraining, cross-training and multi-skilling, i.e. letting staff go voluntarily through early retirement or to another job (in the latter case, perhaps after some re-skilling to assist people find another job).

Leadership

Leadership changes have been necessary to steer UCAS through the significant changes it is experiencing with digitisation and organisational changes. As described above, UCAS' leadership has to take proactive account of the changed environment (the need to move to 100% digital transactions) in which it operates, including ensuring that potential cost savings are made, particularly through reducing staff and making those that remain more specialised and productive, It also needs to ensure that UCAS adapts to the increasingly competitive HE market, and the dramatically increasing workload of UCAS as the number of applicants for HE rises. Also, as described above, relationships with other agencies are changing significantly and this must be reflected in leadership strategies and skills.

6.- Results

The sections above show that UCAS is well on the way to fully achieving its objectives described in section 3. Although full vertical integration on the basis of electronically-supported work flows is not yet complete, it is expected to be so by 2007 if not already in 2006.

Organisational changes

UCAS has established a high degree of horizontal integration with the various examinations boards, enabling the qualifications of over 98% of applicants' qualifications to be checked without their intervention at the time when the results are issued, and about 95% without any intervention by the applicant at all. It is probably the case that these numbers cannot be significantly increased without changes outside UCAS' control, such as the introduction of a national qualifications database.

In the last 7 years or so, and increasingly since the introduction of Apply, UCAS has shifted a significant and fast-growing proportion of its applications, information and inquiry business onto electronic channels, and particularly the web, without any apparent loss of business. Rather the reverse. The numbers using an electronic support to apply for university have grown from 7,000 in 1996, to over 100,000 in 2003 to almost 400,000 (77% of the total) today. Moreover, these numbers are likely to grow up to 100% in the next two years. The Applicant Enquiry Service is very well-used, with some 50,000 hits a day during peak times of the year.

UCAS has achieved significant back office integration with other agencies, linking data flows between hundreds of schools, over three hundred and thirty universities and around ten examinations boards, to provide a resilient and well-regarded service that, year on year, matches hundreds of thousands of applicants to places in the UK's increasingly diverse higher education sector. The available data show that, despite the intense pressure that is put on this service at particular periods of the year, it has proved resilient and secure, its network infrastructure has been scalable to the tasks involved, and that its technology-enabled services are acceptable to, and increasingly used, by stakeholders. UCAS stands, then, as a good working example of eGovernment.

UCAS basically provides one service – university admissions – but one involving data sharing between (about) 350 public sector agencies. The service is not yet fully automated, but is on a clear upward trajectory in this regard. Facilities for online payment are

incorporated. Published performance data indicate that UCAS' systems are robust and resilient, and internal testimony suggests that they are also secure.

There is plenty of evidence, too, that these changes have proved to be compatible with the maintenance and enhancement of the quality of service provided both to applicants and universities. Indeed, the quality of UCAS' customer service has been recognised by the award of a Charter Mark, the accolade bestowed on high quality, customer focused public services in the UK. UCAS' service is monitored annually against clear and ambitious throughput and business clearance targets. Data relating to the year of, 2001-2, shows, for example, that UCAS staff turned round offer letters and confirmation letters within a working day of receiving a decision from universities. They successfully processed all application forms by the mid January deadline, and they provided a full reply to letter, fax and email inquiries from applicants within five working days in 95% of cases. What cannot be known from high level numbers such as these, is how well or quickly the remaining, exceptional cases are dealt with.

To gain subjective assessments of service quality experienced by users, UCAS also conducts regular customer surveys amongst applicants, careers advisers in schools, staff in HE institutions and staff in independent careers services. The latest results are published on the web and indicate a generally high level of satisfaction with all aspects of UCAS' work. Among these data is the statement that 83% of applicants are satisfied with the admissions experience and 82% of university staff are pleased with UCAS' information technology. The lowest level of satisfaction among applicants relates to the value for money of the application fee.

Staff skill resources

In digitising and integrating its processes in these ways, UCAS has reduced and changed its workforce. It makes much less use of casual, low grade labour, and has shifted its skillbase from one that was largely composed of clerical workers to one that is predominantly composed of technical staff and knowledge workers.

Digitisation means many fewer clerical and temporary jobs. For example, the Applications Services Department has reduced in size by cutting about forty temporary clerks, used for handling forms and keying in data at peak periods (especially in the initial applications period from October to January), to only a few today. It has also reduced permanent staff by 25 to a total today of about 140. Savings in labour could be even greater, however, if UCAS could reduce the work involved in reconciling discrepancies with examinations board entries. But this is beyond the control of UCAS at the present time. Most of the remaining staff are now front-end customer services staff, but who also need basic technical skills (such as helping respondents fill in the application, solving simple connection problems, etc.).

On the other hand, UCAS' increased dependency on ICT has meant that its Digital Services Department has increased in size. These specialist technical ICT staff support the network infrastructure and web site, which are maintained in-house, and are organised into two groups. First, those concerned with maintaining the infrastructure and, second, those concerned with the constant development and testing of UCAS' systems. The dramatically increased reliance on ICT systems, and the significant rise of electronic transaction to about 77% of the total have, however, been achieved while suffering none of the computer project failures and service interruptions that have plagued many other eGovernment initiatives in British public services.

The Analytical Services Unit, concerned with maintaining, analysing and marketing UCAS' increasingly sophisticated databases, is also a growth area.

UCAS also has a Training Unit within its Applications Services Department with 5 staff providing all types of training and with two functions. First, internal training using in-house training modules, and second, the external training of schools and colleges. UCAS attempts to formalise training as much as possible, for example by recording most learning activities as a training event, although there will, of course, always be some informal and on-the-job training. UCAS has chosen to deal with this changing staffing base as far as possible by re-skilling existing staff, on the grounds that they know the nature of its business best. This builds staff trust and loyalty based on relative longevity and job security, and is also an important component of UCAS' organisational learning strategy, i.e. the long term management and exploitation of knowledge within the agency.

Leadership

As described above, this case study illustrates a high volume public service that has achieved a high degree of dependence on ICT without any major project management problems or infamous disruptions of service. In order to achieve this, leadership has focused on three critical areas. First, on a strategic understanding of changes in the HE sector, second on initiating necessary changes to relationships with many other agencies, and third on overseeing successful changes within the organisation and to its own staff resources. The leadership of UCAS has been very successful in all three areas.

For example, the leadership has successfully managed the changes in the size and skill composition of the different departments (as described above), whilst reducing overall staff numbers and making UCAS much more productive. The changes overseen have been both structural and cultural changes, including human resource changes such as persuading people to be flexible. Internally, the greatest leadership challenge has been change management and changing the culture.

Externally the ultimate challenge is now being faced. This is the current preparations for and marketing of the 2006 year of entry (which starts in September 2005) on the basis of no more paper applications, and thus 100% electronic transactions, only allowing exceptions in really extreme circumstances. This challenge is, however, made less daunting by the fact that, although the UCAS customer base tends only to use the service once, they are young potential students with generally very high ICT skills and good technical empathy. Recent analysis has also shown that most overseas applicants are happy with the complete switch to digital access.

There are, of course, some complaints from some schools and colleges which managers must deal with and strategically counter, but the leadership response has been to offer a training course. This is, therefore, a good example of training the customer to use your products, but is made easier by the de facto monopoly UCAS has. In the end, of course, the complainers have no real choice but to go digital themselves.

7.- Learning points and conclusions

UCAS is a successful case of the organisational change accompanying digitisation, coupled with significant changes to staff skill resources and leadership.

Organisational changes

The reorganisation of UCAS has focused on the integration of back office workflows with front office electronic services, including with the systems of a large number of other

agencies, and on changing the size and composition of human resources. This has been undertaken as a long-term, strategic response to intrinsic business needs, not as tactical, externally-imposed, eGovernment targets. Indeed, UCAS' initial forays into this process predate the publication of the British Government's first eGovernment targets by two or three years. The changes that have taken place, and the issues which have been identified for the future, are rooted in challenges and issues which are well understood and clearly owned by the management of UCAS, rather than being perceived as a distraction from the core business.

Staff skill resources

In contrast to many other public services, UCAS has developed its systems and maintains them in-house, rather than contracting them out to one of the major information services suppliers. However, UCAS' telecommunications services are outsourced, and it procures its hardware from external suppliers, but the computer network, databases and web site are managed by UCAS' own staff. UCAS has a strong preference for employing staff that are already familiar with the organisation's business, a preference that accounts in large part for its re-skilling strategy in preference for hiring new staff, although the latter may sometimes be necessary.

In general, this case study clearly illustrates the new types of skills needed by ordinary civil service staff as a result of digitisation, for example the change from clerical to knowledge workers becoming more specialist as routine work is digitised. Effective eGovernment implementation requires changes to the skills and the skill acquisition process of staff. Basic ICT skills (such as use of a PC, mobile devices, standard programmes) are a precondition for both ordinary civil servants and managers. There also tends to be an increase in the need for more advanced ICT skills (e.g. software development, web-design, database design, the use of specialised programmes, etc.), as well as for data handling, mining and analysis skills, which need to be provided by specialist dedicated staff but under general strategic leadership.

In addition, however, this case shows that the digitisation process, as well as changing working conditions, leads to the need for further mixes of generalised and more advanced skills and competencies. In a fast changing government work environment, with a wide variety of work forms as well as contractual arrangements, there is an increasing need for all staff to take more responsibility for their own work and sometimes also for their own skills development. This includes fostering abilities like self-organisation and self-management, inter-personal and communication skills, dealing with unexpected rather than routine situations, greater initiative and self reliance, etc. A dedicated training function is also, however, an important component of this transformation, given the comprehensiveness and complexity of the changes required to staff skills and work functions.

Although some work processes remain routine in the eGovernment context, most staff are being exposed to these new demands on their abilities. Indeed ICT can, in the best circumstances, take over routine functions leaving workers free to undertake more interesting and specialised tasks, for example as 'case workers' having direct citizen contact.

This means that government organisations, like private companies, must increasingly provide continuous learning for individual employees in order to match the fast changes taking place in the new public management environment. In addition, this individual skill enhancement must be seen as part of a broader 'organisational learning' strategy, i.e. the management and exploitation of knowledge within the organisation. Only if governments are able to systematically preserve and manage the collective and interchangeable know-how of their workforce, thereby reducing the threat posed by departing employees as well as ensuring that the productive potential of the organisation is fully maintained and exploited, will

eGovernment succeed. Thus, knowledge management within government is closely related to the continuous learning and flexibility of the workforce.

Leadership

In general, this case study illustrates the importance that managers and leaders, who are responsible for the strategic and tactical decisions necessary to successfully implement the eGovernment development process, need to place on ensuring both that they themselves are constantly updating and adapting their own skills, but just as important the skills of ordinary civil servants. In addition, greater focus needs to be placed on the skills required by specialist staff, such as IT specialists, information managers, marketing experts, etc.

The case also exemplifies the importance of leadership attention to both the robustness and the acceptance by customers of the systems employed. Indeed, these two issues may be closely related, since customers soon loose confidence in systems that are difficult to use or which prove unreliable. These issues are particularly important to UCAS, for reasons to do with the nature of its customer base. UCAS is a monopolistic provider of the university admissions process. Being young and with HE aspirations, many university applicants are likely to be ICT aware and literate, but it is known that many school teachers are not, and some schools still have inadequate ICT provision and technician support. It is also the case that the Clearing process, in particular, now takes place in the full glare of media attention, largely as a result of a series of administrative problems in the issuing of the A levels results and public concern about standards (Department for Education and Skills, 2002a).

For these reasons, a major systems breakdown could be politically costly, and the impact on the university admissions potentially huge. All these factors combine together to make it particularly important that the technology is resilient and scalable, loadings are constantly tested and that new innovations are thoroughly piloted and publicised. They also mean that the issue of if, when and how to withdraw a paper-based admissions service must be treated as a sensitive one for UCAS' leadership. That this is now happening, in the context of planning for the admissions year of 2006, demonstrates the successful leadership and strategic decisions taken by UCAS over the last few years. For example, UCAS has sought actively to manage the propensity of its customers to use online services, by restricting the distribution of other sources of information about university courses (namely, the UCAS Directory), while at the same time enriching the information available online. This illustrates how, with the judicious use of appropriate incentives, both negative and positive, the leadership can try to influence the market for eGovernment services, although, in this case, the power to do so derives largely from its monopolistic market position and the nature of its main customer base, i.e. students.

These changes illustrate an extremely important issue in eGovernment, i.e. the extent to which multi-channel systems (i.e. both paper-based and web-based data input, processing and tracking/enquiry systems) need to continue to run side-by-side. In UCAS' case, with its highly specific customer base, it is possible to move towards virtually 100% digitised systems and access. However, other public agencies offering digitised services may need to direct such services at a more mixed or less ICT literate group of users. In such cases the need to maintain multi-channel is likely to persist for much longer than is the case with UCAS.

All these factors go some way to explaining why the leadership of UCAS seems, thus far at least, to be successfully negotiating a leap that is proving difficult for many other UK public services, namely the one from heavy reliance on 1960/70s-generation back office mainframe computing fed by paper files (so-called legacy technology and systems), to back office processes that are re-organised so they are integrated with web-based front line services. Also

as described above, the leadership must manage this innovation in a context where its workflows need to be integrated with those of some 350 other organisations, namely the institutions of HE and the examinations boards. So how, and how successfully, are these relationships led and managed?

The first point to make is that the case exemplifies well an important issue that frequently impinges on attempts by management to integrate the workflows of different organisations. While integration may have significant benefits overall, the distribution of financial costs and business benefits may not be symmetrical. In this case, for example, the significant costs of investment in back-office integration between UCAS and the universities would fall on the universities, while many of the cost savings will accrue to UCAS. UCAS has no power either to force universities or to pay universities to adopt the necessary software. UCAS' strategy for dealing with this problem is to provide incentives for institutions to cooperate, by offering them access to much enhanced management and market intelligence – a case of carrots rather than sticks. This UCAS case study also provides a particularly good illustration of a general point about leadership decisions concerning investment in ICT-enabled back office integration, namely the opportunity afforded for the 'informatisation' of the service. This term refers to the greatly enhanced possibilities for capturing and analysing data through the application of knowledge management systems which can add value for certain customer groups, and which thus may have important business or policy benefits. Indeed, the description of this case shows clearly that the digitisation of university admissions is not only securing efficiencies and service enhancements but is also yielding added value in the form of access to much richer data and significant enhancements in facilities for interrogating and analysing them.

The second point to make about leadership and management in the UCAS case is the relative success of UCAS' shift to digitised services and the less successful ones attempted elsewhere in the UK. Prima facie, UCAS appears to be an example of a relatively complex integration process, with a large number of stakeholders. In practice, two factors mitigate its complexity, and make it easier to lead and manage. The first is that many of the key relationships have been in place for over forty years, during which time the university admissions process has changed little in its essentials. The institutions involved are intimately familiar with the UCAS process and understand its logic and conventions. Secondly, the process has a single dominant player – UCAS – which, within certain limits, is able to make the rules by which all other organisations in the 'supply chain' must also play the university admissions game.

More generally, the case study also identifies where these limits might lie and how they impact on leadership decisions about the process of digitisation and integration. As we have seen above, the process of integration has been constrained by four major factors:

- The traditional preference of university admissions actors for 'soft' as well as 'hard' data about applicants; this preference has tended to limit the proportion of data that UCAS can capture electronically, but by careful management of customer expectations this problem is now being solved.
- The cost for universities of investing in software that would enable full interactive electronic communication with UCAS. Again, careful management of expectations, and the development and demonstration of real benefits accruing to universities in going fully online through access to rich data resources for planning and analysis purposes, has reduced the impact of this constraint.
- The absence of common identifiers of candidates among university admissions and examinations bodies; this factor may be regarded as a subset of a more general problem for joined-up eGovernment arising from the absence of a national citizen database, and is outside the direct control of UCAS.

- Uncertainties about the impact of a wholly-electronic admissions service on university access policies and the international market for UK higher education.

Aspects of all these factors relate to issues that are beyond UCAS' remit and control, and show how the nature and extent of digitisation and organisational change may be influenced by external factors. Maintaining the trajectory of digitisation and integration rests in part, then, on the development by the leadership and management of strategies for anticipating, understanding and managing these dependencies, as well as ensuring that staff skill resources respond rapidly and effectively to the challenges unfolding. The case of UCAS provides good illustration of all these points.

According to the leadership of UCAS itself, the main reasons for its highly successful digitisation process are summarised as follows:

- UCAS has been moving decisively towards full use of electronic systems for 9 years, so there is already a lot of experience.
- A critical focus on continuous human resource development and leadership.
- Excellent knowledge of the market well and its strategic development.
- On the whole good, long term relationships with other stakeholders.
- Do not under-estimated the resistance to change, both internally and externally, but actively anticipate and prepare for it.
- UCAS' customer base is mainly young people.
- Most important of all: sell the need for and process of change internally first, and work with staff to achieve it. This is not difficult if done in the right way, but does require changing the way of thinking and the culture, for example even a relatively trivial thing of getting staff to think of an 'application' rather than an 'application form'.

A summary of learning points and conclusions is given in the reference scheme below.

FUNCTIONS COMPONENTS	**Policy & planning** (political and top management civil servant level)	**Implementation** (heads of Units and CIO level)	**Operational** (regular civil servant level)
Strategic (related to activities to develop plans and strategies)	Focus on internal and external integration of work processes Equal focus on management of change and human resource development Strategic management of expectations, benefits and skills of customers and stakeholders	Fewer staff needed overall Focus on re-training existing staff rather than employing new	
Technological (related to technological changes)	Maintain critical ICT systems and skills in-house Strategic move towards 100% digital systems	Dedicated and expanded ICT specialist unit and staff but under general strategic leadership	New knowledge workers also need good basic ICT skills
Organisational (related to organisational changes)	Long term organisational learning strategy for the exploitation and management of knowledge within the organisation	Dedicated training function for both in-house and customer training	

		On-going staff re-skilling and flexibilisation strategy in new roles Do not underestimate resistance to change but actively prepare to meet it Sell the need for and process of change internally first, and work with staff to achieve it	
Administrative (related to the usual way of doing things in public administration)			As digitisation removes routine work, change from clerical to knowledge workers with basic ICT skills but also with many flexible and enhanced human, and communication skills

8.- Methodological notes

This case study has been prepared by Jeremy Millard (Danish Technological Institute) in March and April 2005.

Much of the material is based on an initial case study for the European Commission (DG INFSO) prepared by Christine Bellamy of The Nottingham Trent University, The Department of Economics and Politics, and published as follows:
Millard, J., Iversen, J.S., Kubicek, H., Westholm, H., Cimander, R. (2004) Reorganisation of government back-offices for better electronic public services – European good practices (back-office reorganisation), prepared for the European Commission eGovernment Unit, Brussels, January 2004. Available from: http://europa.eu.int/egovernment and http://www.beepgovernment.org

This material has been updated and extended by desk research and interviews with Paul McClure of UCAS.

Reference:

Department for Education and Skills (2002), Inquiry into A Level Standards. (Final Report of the Tomlinson Inquiry).

Department for Education and Skills (2002a), Outcomes of the Review of A Level Grading. (The First Report of the Tomlinson Inquiry).

The performance indicator and customer survey data cited in this report are published on the UCAS website, at www.ucas.ac.uk.

Information about the JANET network may be found at www.ja.net.

7. Summary : Overview of learning points and conclusions

This final summary presents the main lessons and good practices for each cell in the reference framework used in each case study. This basically highlights the same material as examined above within each of the three themes of organisational change, skills and leadership, but instead organises it according to the internal functions and components of the public sector itself.

FUNCTIONS COMPONENTS	**Policy & planning** (political and top management civil servant level)	**Implementation** (heads of units and CIO level)	**Operational** (ordinary civil servant level)
Strategic (development of plans and strategies)	ELAK: ▪ Adopt a long term strategy ▪ Raise awareness ▪ Secure political and administrative leadership ▪ Ensure an eGovernment curriculum is planned X-Road case: ▪ Ensure the continuity of plans and actions for eGovernment to guarantee its success ▪ Carry out continuous awareness actions to create a political climate in favour of the introduction of eGovernment solutions Heusden: ▪ Ensure the continuity of the strategy ▪ Ensure political and administrative leadership to support the project Knowledge Management case: ▪ Formalise and widely diffuse eGovernment strategies ▪ Create training programmes covering eGovernment Models and Strategies Virtual Customs case: ▪ Ensure the full support of top management throughout to give the project a clear and unambiguous mandate ▪ Focus on internal and external integration of work processes ▪ Ensure equal focus on management of change and human resource development ▪ Ensure that the project leader is represented in top management ▪ Ensure that the project and all changes are focused on the needs of the customer UCAS case: ▪ Focus on internal and external integration of work processes ▪ Ensure equal focus on the management of change and human resource development ▪ Ensure the strategic management of the expectations, benefits and skills of customers and stakeholders	Virtual Customs case: ▪ Recognise that fewer staff may be needed overall ▪ Focus on re-training existing staff as far as possible, only employing new where necessary ▪ Facilitate new ways of working UCAS case ▪ Recognise that fewer staff may be needed overall ▪ Focus on re-training existing staff as far as possible, only employing new where necessary	

FUNCTIONS COMPONENTS	**Policy & planning** (political and top management civil servant level)	**Implementation** (heads of units and CIO level)	**Operational** (ordinary civil servant level)
Technological (technological changes)	Heusden: ▪ Recognise that technology is just an enabler for the changes needed Virtual Customs case: ▪ Make a strategic move towards 100% digital systems ▪ Create a strong link between top management and the IT unit UCAS case ▪ Maintain critical ICT systems and skills in-house ▪ Make a strategic move towards 100% digital systems	ELAK: ▪ Recognise that existing systems might ease the implementation of eGovernment solutions X-Road case: ▪ Ensure the development of common platforms to provide unified tools to permit eGovernment service delivery Heusden: ▪ Use technology as an enabler for the new flexible and paperless work environment Virtual Customs case: ▪ Make available a dedicated ICT specialist unit and staff but under general strategic leadership UCAS case ▪ Make available a dedicated ICT specialist unit and staff but under general strategic leadership	ELAK: ▪ Recognise that more advanced ICT skills, other the basic, may not be needed Heusden: ▪ Recognise that the basic IT skills needed do not change dramatically Virtual Customs case: ▪ Recognise that all staff do not necessarily need new ICT training ▪ Recognise that most staff do need good basic ICT skills UCAS case ▪ Recognise that new knowledge workers also need good basic ICT skills

FUNCTIONS COMPONENTS	**Policy & planning** (political and top management civil servant level)	**Implementation** (heads of units and CIO level)	**Operational** (ordinary civil servant level)
Organisational (changes in the organisation)	Heusden: ▪ Communicate a clear vision ▪ "Communicate results and not wishes" Virtual Customs case: ▪ Ensure both a clear vision, stating what the objective of the changes is, and a clear target specifying what activities are to take place UCAS case ▪ Establish a long term organisational learning strategy for the exploitation and management of knowledge within the organisation	ELAK: ▪ Involve all stakeholders in the change process ▪ Recognise that re-skilling of staff for new tasks might be needed X-Road case: ▪ Recognise it is possible to implement efficient eGovernment solutions to deliver services without introducing strong and difficult changes in the structure of the public administration. Heusden: ▪ Involvement of staff is crucial ▪ Recognise that some staff may have to be re-skilled for newly created tasks and roles Virtual Customs case: ▪ Focus on both coordination and cooperation between different departments ▪ Recognise the need to build networks of staff that together can develop the eServices and ensure they function well, but also that these do not necessarily follow old hierarchies or structures ▪ Ensure the early involvement of, and communication with, staff ▪ Ensure the inclusion of, and communication with, the entire organisation when changes are made UCAS case ▪ Establish a dedicated training function for both in-house and customer training ▪ Establish an on-going staff re-skilling and flexibilisation strategy in new roles ▪ Do not underestimate resistance to change but actively prepare to meet it ▪ Sell the need for and process of change internally first, and work with staff to achieve it	Heusden: ▪ Enable staff to coordinate their work and private life more smoothly ▪ Recognise that age is not necessarily a indicator of resistance

FUNCTIONS COMPONENTS	**Policy & planning** (political and top management civil servant level)	**Implementation** (heads of units and CIO level)	**Operational** (ordinary civil servant level)
Administrative (activities of ordinary civil servants)		Knowledge Management case: ▪ Establish training programmes on Information and knowledge management	ELAK: ▪ Recognise that continuous learning is needed ▪ Use key users as internal coaches and helpdesk X-Road case: ▪ Ensure that training activities are developed in a continuous and systematic way at all levels of the public administration Heusden: ▪ Recognise that new skills are needed (communication, self-management, time-management, etc.) Knowledge Management case: ▪ Develop skills for sharing information and knowledge and create a favourable ambience Virtual Customs case: ▪ Support the change from clerical to knowledge workers, as digitisation removes routine work, and ensure they are equipped with basic ICT skills but also with many flexible and enhanced human, and communication skills UCAS case ▪ Support the change from clerical to knowledge workers, as digitisation removes routine work, and ensure they are equipped with basic ICT skills but also with many flexible and enhanced human, and communication skills

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