SIXTH FRAMEWORK PROGRAMME

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2.6.5.1. International cooperation for e-Government and eParticipation
Target countries: Western Balkan

Contract for:

COORDINATION ACTION

We-Go
Enhancing Western Balkan eGovernment Expertise

Work Package 3- e-Government Academies Deliverable D.3.2.1. Courses and Curricula

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1. Introduction

We-Go Academies represent training and knowledge transfer concept that may be applied in various online and offline settings. As such they comprise of:

- Structured layout of knowledge localized to satisfy the needs of each of the participating WB countries (**Curricula**);
- Training and knowledge content (**Courses, Lecture Notes, and Case Studies**).

This deliverable describes and delivers both the structure and the content of the prepared / planned e-Government trainings. They are used in the following We-Go activities:

- Trainings and knowledge transfers carried out by We-Go project participants.
- Trainings to be carried out by the selected training institutions (National Training Centres of Excellence – NTCEs) in WB countries.
- Online e-learning courses available through We-Go Knowledge Net.

The foundation and the good practices are coming from well established e-Government Academies in Austria (Federal Chancellery, Danube University Krems).

The Courses and the Curricula:

- **First**, support and complement the objectives set in WP 1[1]+2
- **Second**, establish a solid basis for e-Government trainings and educational programmes to cover the multidimensional and multidisciplinary field of e-Government as outlined in the handbook.

The approach is two-fold:

1. Stakeholder and target group oriented, concentrating on the different professional levels of the training participants.
2. Modular oriented: focus on key strategic topics of e-Government. The WB countries choose the topics that are of relevance for their training of public administration employees.

The overall objectives are:

- Increase e-Gov awareness within the public administration (and general public) in WBC
- Support the introduction of EU Good e-Government solutions to WBC.
- Enhance the managerial effect of e-Government solutions.
- Improve the organization of institutional workflows.
- Promote e-Government knowledge transfer and transfer of good practices.
- Provide educational artefacts through We-Go Knowledge Net (Project result of WP4).

[1] Cooperation and implementation of training activities between WP1 and WP3 in the area of interoperability.

This document provides detailed We-Go e-Government curricula for the trainings of civil servants. Chapter 2 shows major topics, the strategy and the framework needed for implementation of e-Government by target groups.

Chapter 3 provides detailed descriptions of courses organized in four modules:

1. Introduction to e-Government
2. e-Government Management
3. e-Government Technology
4. e-Government Legal Overview

Chapter 4 gives an overview of all lecture notes and cases that come from all involved countries, partners and stakeholders.

Chapter 5 presents the Course Evaluation Template to be used as Quality Management and Monitoring tool in all We-Go training events.

Chapter 6 presents the prepared lecture notes and cases.

2. Description of Curricula by Target Group

As already mentioned above the We-Go Academies are following two approaches. The first one is stakeholder and target group oriented and is going to address the following 5 target audiences; additionally you will find an outline for the organization as well as the content perspective:

1. Politician / similar Stakeholders: Above all for members of the government and the federal administration the careful selection of trainers is crucial: They should be highly ranked experts in the field of e-Government with relations to the target group. As with other target groups' practical examples are the didactic method of choice. Enhancing e-Government knowledge, describing the value added and creating awareness is crucial to get their committed support.

2. Management: The instructors will be recruited from the managers' environment, so they possess an in-house mentality and will help to increase the participants' motivation.

3. Civil servants: Potential trainers will come from the implementation of the e-Government projects, applications and services solutions. Content depends on national strategy and completed projects. In this case, the practical aspects of e-Government are presented and emphasised. Later on, the instruction of this target group can be continued and optimised.

4. Project managers: The instructors will be recruited from the managers' environment. The first part offers an introduction into public management, e-Government and the connections with each other. In second part, a comprehensive introduction into process management and change management is presented, by means of various practical examples.

5. Engineers: The instructors will be recruited from the technical environment. Content: e-Government architecture, process management, change management, Good practice examples, under special consideration of WP1+WP2

This work package will deliver training for the first three target groups. This will be realised through awareness raising events such as conferences, workshops, study tours, etc. Train the trainer events will be conducted where selected trainers will be trained in educating the particular target audiences in their country. The training of e-Government project managers and developers will be done by the local WBC partners and stakeholders.

The following table shows the major topics by target group, further details will be described in depth within the following chapters and curricula:

Target groups	*Raising e-Government Awareness*	*Enabling Execution of e-Government Action Plans*	*Content & Organisation*	*Duration (Days)*
Politicians (at all public levels) and similar stakeholders	X	X	1	½
Management (considering selected applications)	X	X	2	1-2
Civil servants (implementing selected application domains)	X	X	3	1-2
Project managers (public sector) - local free/fee guidelines		X	4	12
Developers (private and public sector) – local free / fee guidelines		X	5	12

Table 1: Major topics by target audience and planned duration

The outline will cover all major topics by target group:

- **Strategy**
  e-Government Interoperability and e-Government Framework (WP1 related)
  Policy Making, International References & Benchmarks

- **Legal Framework**
  e-Government Good practices – selected applications (WP2 related), and related legal aspects e.g. EU / national Signature Directive, EU eBusiness Directive, National Signature Acts, Data Protection

- **Organisational Framework**
  Specifics related to WP1, WP2 and WP3
  Principles of Public Management, Reinventing Public Services

- **Technical Framework**
  e-Government architecture and enabling e-Government Services (related to WP1 and WP2) e-Government System Architecture, Enabling e-Government Services

- **Management Skills**
  Process-, change and social Management in context with selected good practices, stakeholder views and issues. According to the specified target group focus and the appropriate curricula and a nucleus of presentations, lecture notes, and course material has been prepared. The final localised versions will be done by the local partners, by the trained trainers and the authorities, and will be included into the "We-Go" Knowledge Net defined in WP4.

We aim to establish collaboration with other initiatives and organizations engaged in the field of e-Government training. We-Go successfully contacted Ms. Silvia Archmann, European Institute for Public Administration (EIPA) Unit 2 - Public Management and Comparative Public Administration. There is a clear willingness and interest in future cooperation between EIPA and We-Go. WP3 received the e-Skills Study: "Organisational Changes, Skills and the Role of Leadership required by e-Government" from June 2005 free of charge. Events in Croatia were already scheduled, but further cooperation and receiving of further EIPA material is constrained by making available resources to EIPA.

We have also successfully established cooperation with the NETIS project - The Network for Teaching Information Society – NETIS http://www.netisproject.eu/ Leonardo da Vinci programme.

The NETIS project aims to create teaching materials (e.g. course book, text book, professional curriculum, CD) and special teaching methods and methodologies for the topic of information society (IS). The project functions as a pilot project and will be tested in higher education institutions with the help of an e-learning system. We-Go can use the material offered on the homepage of the NETIS project and can in a later stage incorporate the participants into the e-learning tool NETIS provides.

We-Go also successfully established cooperation with another Leonardo project, a pilot project on electronic learning material for Civil Servants on E-Government: TRIAS Telematica - http://www.triastelematica.org/. This project aims at development of modular electronic learning material for civil servants, using the expertise of a consortium of leading companies in the field of e-Government. DUK has already submitted a follow-up project for We-Go with the Trias Telematica consortium.

Curricula:

As in the We-Go Handbook already mentioned the aim of this concept is to help the staff to familiarise themselves with the main aspects of e-Government. Only competent and informed staff members are able to get across the objectives of e-Government and its benefits within the administration as well as outwards to the citizen.

On the other hand special professional categories like e-Government project managers and developers need very specific information for the implementation and linking of specific e-Government components. Therefore the curricula of this training concept have a multidimensional design:

- Structured according to the line of work, administration level and individual educational level,
- Quality management measures,
- Possible business cases,
- Basic infrastructure requirements and a catalogue of measures.

The curricula are adapted for the following target groups:

- Politicians
- Management
- Employees
- e-Government project managers
- e-Government engineers

Within the following chapters the detailed curricula for all target groups are described in more depth:

2.1 Politicians

In this target group we aim for politicians and top level management from national, provincial, local level who have to introduce and implement e-Government measures in their area of responsibility.

2.1.1 Curricula objectives for Politicians

The objectives can be summarised in three phases.

- Phase 1: information
- Phase 2: emotional branding
- Phase 3. identification

The next higher phase can only be reached if you have accomplished the previous phase. To emotionalise you have to inform first, to identify with e-Government you have to overcome the emotional branding.

Providing compact and targeted information, supporting emotional branding and identification with e-Government will enable this target group to communicate much better the advantages towards their administrative communities. They should inspire their employees with their knowledge about e-Government and this will be a strong motivation for them to deal with this subject successfully.

2.1.2 Eligibility criteria

Experience and knowledge about the functioning of the administration is of course a precondition for this target group.

2.1.3 Composition of the curricula

Overview

The overview will contain three main phases that have been already mentioned:

- Phase 1: Information
- Phase 2: Emotional branding
- Phase 3. Identification

Description of phases

Phase 1 Information

The aim of this phase is to get across basic knowledge (basic idea) and understanding of e-Government. Furthermore this phase should give the participants an overview of the coherences. The advantages for all involved (citizens, businesses, politicians, administration) will be discussed in this phase as well as providing answers to questions like economic efficiency, cost-savings and service quality. The topic “Information” will finally include the necessary framework and prerequisites to be established (especially legal framework like an e-Government act, delivery of official documents act …).

Phase 2 Emotional branding

The coherences that were put across in phase 1 have to be illustrated through a logical line of arguments. It will be positively illustrated what happens if e-Government is implemented. A good economic precondition of a region will be achieved as well as positive press releases, laud from the citizens and businesses and the relevant authority will be seen as modern and progressive.

Phase 3 Identification

The aim of this phase is to establish confidence in e-Government. Achieving full identification will be significantly supported when the workplace of the target audience and the participants are fully electronically equipped (e.g. electronic file system, outlook, Internet,)

Integrated example

Demonstrating and exercising with good practices as integrated examples which are closely related with the workplace environment of the participant will help a lot to get high identification and further support.

Duration: approximately half-day training

- Aim: creation of awareness
- Contents
  - Social changes
  - Technological trends
  - Basic principles of e-Government (modern administration)
  - Potentials of e-administration
  - Case studies (local, national & international)
  - Concrete examples of immediate use to politicians
- These trainings will mainly be carried out through conferences, workshops and study visits to Austria. For the local level the Estonian partner eGA will support awareness activities through synergies with their training activities in the eGovernance Academy in Tallinn.

2.2 Management

With this target group we aim for senior management on all administrative levels. The training should provide the necessary knowledge to plan, to operate and to implement e-Government projects, as well as projects that are linked to e-Government and within the responsibility of the relevant executive. By building a comprehensive and coherent e-Government understanding this target group will be enabled to realistically estimate and evaluate project concepts and planning and to define and to describe the value add provided by the solutions and services for their institutions. Additionally they also will be put into the position to assure sustainability by the use of e-Government.

2.2.1 Curricula Objectives for Management

The target group should get a general overview of the current e-Government landscape, organizational and legal wise as well as a general idea of the technical aspects. Knowledge about and trainings in New Public Management (NPM) is taken for granted.

For management it is essential to get testimonials from well-known colleagues that are setting an example and being linked to well-established good practices. Basically the advantages for the participant for taking part in training have to be conveyed first.

eGovernment trainings should be incorporated into already existing training programmes. It is important to communicate that e-Government projects are not just ICT-projects but much more often organizational and personnel development processes.

The completion of the trainings programmes will motivate executives to convince their staff in using and living e-Government. They will be enabled to exploit the potentials of e-Government. This skilled management is also carrying outwards a new picture of e-Government.

2.2.2 Eligibility criteria

Basic computer experience is expected for accessing the training. Good knowledge about the line of work and concrete daily used e-Government applications are helpful.

2.2.3 Composition of curricula

Duration: up to one day

Overview

The objectives are: knowledge of basic principles & potentials in connection with administrative modernisation. The overview will include:

- Fundamental terms of e-Government
- Factors for success of e-Government projects
- Electronic identity concept at a glance
- Online procedures

As well as practical applications:
- Case studies from public administration & economy
- Brief examples from their own field

Description of the modules

Introduction
This module is dealing with the following questions:
What is e-Government and how does the current e-Government landscape look like? What is the strategy? It also contains basics in NPM and e-Government is introduced and an overall overview of the e-Government vision is communicated. Another important issue is the organisational framework: what in detail are the responsibilities of each executive.

Legal framework
The basic legal principles will be explained hereunder, e.g. internal regulations like internet- and mail-policies together with external guidelines like the Web Accessibility Initiative (WAI) to enable the access to e-services for handicapped people are addressed.

eGovernment Live
With the help of good practices examples the trainings will explain positive/negative experiences and conformity/incoherency will be explained and discussed too.

2.2.4 Assessment modalities

Self tests for evaluation and assessment of the acquired know how. For this purpose e-Learning methodologies can be used. For the “e-Government certificate” the tests have to be standardised (comparable with the ECDL).

2.3 Employees

This target group comprises all employees from all levels of the administration. These persons are not directly involved in the implementation of e-Government but nevertheless they need some basic knowledge about e-Government because their department is using or will use some e-Government applications in the near future. Typically this target group has no managerial, project or coordination responsibility in e-Government.

2.3.1 Curricula Objectives for employees

The curriculum for this target group contains the basic knowledge about e-Government, its environment and benefits for different target groups. After the training the participants should be able to communicate the advantages and requirements of e-Government. The training will also help them to recognise the advantages for their line of work like for example that the technology will take over some of their cumbersome routine and daily work.

2.3.2 Eligibility Criteria

No preconditions are expected for accessing the training, but good knowledge about the line of work and the public administration are helpful.

2.3.3 Composition of curricula

Duration: one day

The curriculum includes the basic knowledge (basic idea) and understanding of e-Government: what is e-Government; what are the requirements and advantages for different target groups; status quo in e-Government; e-Government infrastructure; e-Government framework and what is it good for (internal regulations like internet- and mail-policies as well as external guidelines e.g. WAI)? Specified illustrated practical examples for this target group will be made available.

Description of modules

Fundamentals
What is e-Government; what are the requirements and advantages for different target groups; status quo in e-Government; e-Government infrastructure; national and international e-Government framework and what is it good for (internal regulations like internet- and mail-policies as well as external guidelines e.g. WAI)?

Infrastructure
Principles and the basic elements of e-Government infrastructures are presented.

Organisational know how
Introduction into business processes and the transformation into new structures; the setting that has to be taken into account and controlled. Introduction/refreshment of project management

Teaching method
Lectures with case studies, group work and practical exercises. For this purpose e-Learning can be used.

2.3.4 Assessment modalities

Self test (eventually multiple choice) for evaluation and assessment of the acquired e-Government know how will be made available.

Aims
- Ability to respond to elementary questions
- Realising e-Government advantages for their office procedures

- Contents
  - Fundamental terms of e-Government
  - Electronic identity concept at a glance
  - Online procedures (with a case study)
- Practice Tutorial
  - Introduction to www.HELP.gv.at & www.RIS.bka.gv.at as examples
  - Activating the electronic identity
  - Signing e-mails by activated electronic identity
  - Signing online-applications by activated electronic identity

This target group will mainly be trained by the local trainers that where selected by the local partners and stakeholders and that went through the We-Go train the trainer event.

2.4 Project Managers

Target group of this curriculum are management from all administrative levels that are responsible for planning and implementing of e-Government projects. The difference between project managers and e-Government project managers is that the latter in general are leading management that have the responsibility for the overall implementation of e-Government applications and services. They have to take into account the cultural, socio-political, legal, process-oriented, organisational, usability, know-how and technical perspective. According to this the specific about this target group is that they have to focus on the integral implementation of e-Government.

2.4.1 Curricula Objectives for Project Managers

As consequence of the trainings the target group will posses the technical as well as managerial and social competences to operate e-Government projects in their organisational unit. Focus is given to managerial and social competences. e-Government project managers should be in a position to implement their projects successfully together with their staff. One of the key success factors is to identify barriers in an early stage and remove them.

To avoid duplication of development efforts the trainings objectives are to provide the participants the required know how about available and needed resources for the implementation of e-Government solutions and services. For an efficient use of resources project managers have to be aware of already existing solutions for a problem they are facing or where a new development has been already initiated. Through the trainings the participants will also recognize the advantages of e-Government for their scope of duties and line of work. For the technical trainings the curriculum for e-Government engineers will be used.

2.4.2 Eligibility criteria

No formal preconditions are expected for accessing the training, but good knowledge of their as well as the neighbour divisions scope of duties are important. Knowledge of the public administration and basic know how and practical experience in project management is necessary. The participant should also be a knowledgeable user of electronic communication and internet.

2.4.3 Composition of curricula

Overview

The training for e-Government project managers is divided into a technical and an organizational part. Through the initial delivery of basic principles about e-Government and the technical aspects behind, the subsequent topics will be focused on the future requirements of e-Government including organisational research aspects.

Description of modules

Introduction of e-Government

This module is dealing with the following questions:
What is e-Government and how does the current e-Government landscape look like? What is the strategy? It also contains basics in NPM and e-Government good practice examples will be introduced; overview of the e-Government vision will be communicated and discussed.

Legal framework
The basic legal principles are explained hereunder, e.g. internal regulations like internet- and mail-policies as well as external guidelines like the Web Accessibility Initiative (WAI) to enable the access to e-services for handicapped people will be addressed too.

e-Government solutions
Comprehensive description of all building blocks in the e-Government strategy that is important for the implementation of online procedures (international examples).

Business process reengineering
Business process and structuring of such processes on the basis of current workflow; further methods and tools for implementing business process modelling in practice.

Project management
Convey methods and tools for the entire duration of a project: definition of a problem; measures to be taken; time management and human resource planning; rollout. Objectives and target groups, strategic importance and the use have to be explained and practically trained to ensure the awareness and use of the tool. Note: this module is no substitution for project management training.

Change management
Introduction of management concepts to initiate the organisational change management (identify reasons for barriers, refusal and resistance both of individuals as well as groups. Through examples and exercises, approaches and methods will be trained to include employees into the change as well as active measures to reduce resistance. After the training e-Government project managers should be in a position to raise the intrinsic motivation for change of the affected employees and civil servants.

Duration: 9-12 days

Aims

- Fundamental technical knowledge, linked with management competence and social skills
- Ability to operate E-Government projects in their respective organisation

Contents

- 6 days: e-Government
- 6 days: public-, project-, process- & change-management

This target group will mainly be trained by the local trainers that where selected by the local partners and stakeholders and that went through the We-Go train the trainer event.

e-Government Project Manager Curricula

Duration	Overview	Content	Course number
2 days	• Introduction to E-Government • Concept of eID • Concept of e-delivery	• E-Government Overview • E-Government Strategy • e ID-Card Concept • Online e-Government processes • Good Practice & factors for success • e-Government Strategy	**O1**
2 days	• Important Registers & Data Bases • specific applications / WFM / digital archives / SOAP	• Importance of mutual semantic understanding of services and processes • Electronic File system (Workflow- & File management systems) • Register & directory service • Digital archiving • IT-Policies	**O2**
1 day	• Principles of Website-Design, WAI, Styleguide	• customer oriented web sites: what are customer expectations • accessible web content • services and forms	**O3**
1 day	• e-Law overview and good practice examples from Austria and Estonia	• Law and Internet • relevant aspects of law • IT Policies	**L1**
2 days	• New Public Management	• New Public Management in comparison to other reform approaches • The NPM-Model: • Self-evaluation of the stage of development in terms of NPM in the participant's organisations • Report about an ICG-study (in cooperation with the University of Graz), carried out through a representative survey among large area municipalities (aided by the before-mentioned questionnaire) – presentation and discussion • The Eight Levers of Successful Cooperation between Political and Administrative Actors	**M1**

1 day	• Change Management	• Introduction and connection to the participants´ experiences as a starting point • Basic concepts of change management • organisational models • logics of change • Design of a change-architecture • phases • processes • structures • Planning methods for change processes • Handling resistance and dynamics in change processes	**M2**
1 day	• Project Management	• Introduction: project management – basic principles and terms • Initial situation and project objectives • The phase model of project management • Definition phase: project assignment and project organisation (+ work in groups) • Planning phase: Tools of project planning (project structure plan, analysis of the project environment, risk analysis etc.) (+ work in groups) • Execution phase: emphasis on project controlling, including the tools of project controlling • Closure phase • Project documentation and communication • project hand book • design of the project communication	**M3**
2 days	• Process Management	Visioning: Developing an project and process vision • stakeholder analysis, including environment analysis • information gathering and analysis • process map / topic map: overview over processes and determination of relevant processes • inclusion of peripheral conditions • topic maps as a tool for participative process (re-)design • modelling of organisational structure	**M4**

		• yellow pages: collection and analysis of staff knowledge • definition of an introduction method for redefined process • feed back mechanisms: consolidation of results • development of a model for life-cycle improvement	

2.5 IT Engineers

IT developers and employees who are assigned to the implementation and realisation of e-Government applications. This curriculum is addressing high qualified software engineers and assistant project managers with software engineering duties.

2.5.1 Curricula Objectives for e-Government Engineers

The participant will be enabled to design and to develop e-Government solutions and services based on well defined and published technical standards and policies. Besides the existing modules and concepts the participants will get an overview about the legal background to be considered. The developers will be enabled to incorporate the multidimensional aspects into the application and services development of e-Government.

This target group will also be in a position to better communicate the advantages of e-Government towards administrative customers and administrative employees that have to use their software and services.

2.5.2 Eligibility criteria

As this curricula is directed to employees that are responsible for software engineering and project management in the field of IT, knowledge about project management and software development are taken for granted. Concerning the expertise in software development the focus is given to the development of web-based applications and therefore to all necessary tools, techniques and terms. Further know how about databases and computing methods is regarded as prerequisite.

2.5.3 Composition of curricula

Duration: 9-12 days

The curriculum includes basic e-Government features and an overview of e-Government strategy and concrete results.

Description of the modules

Introduction to e-Government
Information about general guidelines and policies for the development of e-Government applications.

Process management
Crash course in process management and its application when introducing fully online procedures.

e-Government system architecture[2]

[2] Link to WP1: Interoperability; Use of material prepared in WP1: recommendations for achieving compliance with EIF and roadmap for applying these recommendations on service level. WP1 will in close cooperation with

With the help of system architecture model for e-Government applications the required system components and their coherences will be discussed. Besides the software architecture,

integrated procedural workflow, different communication channels and the One Stop Government concept will be explained.

Basic services
In this module the participants will learn about already available basic services for the implementation of e-Government applications.

Form server and applications
The form server is an important front end to the customer. This module is explaining the form style guides and besides that the main tasks of a form server and the applied technology behind it. In particular usability and WAI guidelines are of importance. Furthermore this module will have a focus on special applications like electronic file systems and central registries.

Interfaces and protocols
One of the main advantages of e-Government will be provided through the established interoperability of systems, applications and services which require horizontal and vertical integration organization- and process-wise. The technical interoperability cares about the interfaces and protocols being recommended. Here the main protocols (e.g. SOAP) and interfaces that are based on that (e.g. XML- specification,) explained.

Aim
- Getting a thorough understanding about the fundamental technical knowledge concerning e-Government standards, norms and policies, linked with management experiences for eGovernance.

This target group will mainly be trained by the local trainers that where selected by the local partners and stakeholders and that went through the We-Go train the trainer event.

e-Government Engineers Curricula

Duration	**Overview**	**Content**	**Course number**
2 days	• Introduction to E-Government • Concept of eID • Concept of e-delivery	• E-Government Overview • E-Government Strategy • e ID-Card Concept • Online e-Government processes • Good Practice & factors for success • e-Government Strategy	**O1**
2 day	• Communication Architecture and Interoperability	• Identification • E-forms • Public registers and directories	**T1**

WP3 plan and implement 2 workshops (see WP1) for managers and professional experts – 80 student days per country.

		• Work flow systems • E-delivery • collaborative E-government • relevant aspects of law • Basic understanding for non-E-Government specific interoperability technologies. XML, XSD (XML scheme), SOAP, XML-RPC (remote procedure calls using a xml syntax) Corba, Unicode • semantic interoperability	
2 days	• Security Systems, PKI, Digital Signatures, eID • Single Sign On	• Security concerns in public communication • Public Key Infrastructures • Digital Signatures, eID • Centralised Single Sign on and rights management • Application Integration • Centralised User Administration using Digital ID's	**T2**
2 days	• Important Registers & Data Bases • specific applications / WFM / digital archives / SOAP	• Importance of mutual semantic understanding of services and processes • Electronic File system (Workflow- & File management systems) • Register & directory service • Digital archiving • IT-Policies	**O2**
1 day	• Principles of Website-Design, WAI, Styleguide	• customer oriented web sites: what are customer expectations • accessible web content • services and forms	**O3**
2 days	• ITIL process management As ITIL is an international standard for process management We-Go training activities will resort on ITIL material.	• service support • service delivery • planning to implement service management • security management • ICT infrastructure management • business perspective • application management • small scale implementation • organisational structures supporting • domain-crossing applications • Enterprise Application Integration & Message Monitoring • Data Mining & OLAP possibilities:	**T3**

		successful multi-channel management	
1 day	• e-Law overview and good practice examples from Austria and Estonia	• Law and Internet • relevant aspects of law • IT Policies	**L1**

3. Detailed Descriptions of Courses

3.1. Introduction to e-Government

Course O1: e-Government Introduction

General Course Information

Teaching unit	8 á 45 Min	**Duration**	1 day	**Course number**	**O1**

Target group

Target group for this course are all employees from all level of the public administration. The participants should have basic PC knowledge.

Course Description

The participants will get basic know how of e-Government (visions, content, personal advantages of using e-Government) and the basic know how of eID, e-delivery and an overview of e-delivery from a citizen as well as an administrative perspective. They will know how to get information needed and can therefore answer all basic questions. The participants can use their knowledge at their work place as well as private.

Course goals and objectives

Students should gain a comprehensive overview over:

1. classification of the fundamental terms of e-Government
2. understanding of the e-Government model
3. overview of different concepts of signature
4. overview of different eID concepts
5. understanding of online procedures
6. E-Government IT-tools
7. Motivation to use e-Government
8. requirements
9. legal basis
10. ability to find and analyse information

Issues particular to the course

Course number O1 / L1: Introduction of e-government

1. Introduction
   - e-Government Definition
   - Benefits of e-Government
   - Fundamental Principles
   - Framework Conditions
   - Vision
   - Objectives
   - Principles

2. Central and Local e-Government
    Central Government
    Local Government

3. e-Government Development Planning
    ICT Strategy of Municipality
    Action Plan for Implementation of ICT
    E-services for citizens and businesses
    e-Government Funding
    Possible solutions

4. Legal framework for ICT regulation: General comments

5. ICT Policy making
    Defining Public Policy
    Multi-stakeholder partnerships for ICT policy
    The policy making process
    ICT policy issues

6. EXAMPLE: Estonian Information Policy
    e-Estonia : some Introductory Facts
    Objectives of the Information Society Strategy 2013
    Developments in IT legislation, standardization and data security in Estonia
    Estonian ICT legislation acts

7. EXAMPLE: Austrian IT Policies & eGov-Act
    The e-Government Act
    Austrian IT Policies

8. The digital divide
    CASE EXAMPLE: Look@ the World Project, Estonia
    CASE EXAMPLE: Public Internet Access Points, Estonia

Methods

The basics are presented in a lecture that includes the possibility for discussions. The content is explained with the help of good practice examples from We-Go partners (Austria/Estonia/Slovenia) and small case studies. Practical group work will round out the programme.

Exercises

Good practice examples
Case studies (We-Go partners and epractice.eu)

Instruction materials

- Lecture Note O1 Lecture Notes Introduction to e-Government

- Presentation (slides)
- Case studies (We-Go partners and epractice.eu)

1. We-Go Cases:
Look@ the World Project, Estonia
Public Internet Access Points, Estonia
Electronic law making process in Austria - e-Law; (Austria)
National Strategy for Information Society Development in Macedonia (FYRoM)

2. The epractice.eu portal (http://www.epractice.eu/cases) has a number of cases (e.g.: Macedonia: Acronym of the case: SWEB, Web address of the case: www.sweb-project.org; Croatia: Acronym of the case: MojaUprava; Web address of the case: http://www.mojauprava.hr,) that are linked to this topic and can be introduced and discussed in the training events.

- EIPA study: "Organisational Changes, Skills and the Role of Leadership required by e-Government", Luxembourg, June 2005
- "We-Go e-Government ABC"

Course O2: e-Government Registries, Data Bases and WFM

General Course Information

Teaching unit	8 á 45 Min	**Duration**	2 days	**Course number**	**O2**

Target group

Target group for this course are all employees from all level of the public administration. The participants should have basic PC knowledge.

Course Description

The participants will get an overview and the basic know how of registries, data bases and work flow management systems that can be seen as the basic element of many e-Government applications, good practice examples of electronic workflow and file management systems form We-Go partner countries (Austria/Estonia/Slovenia) and digital archiving.

Course goals and objectives

Students should gain a comprehensive overview over back office IT systems their interdependencies.

- Introduction
  - Interaction of specific applications
  - Thinking in processes: application design and workflow support
  - Document management as integral parts of workflow systems
- Electronic File system (Workflow- & File management systems)
  - Definition and overview
  - Application architecture & applications
  - Specific applications vs. Electronic File system
- Register & directory service
  - Definition & overview directory services and registers
  - Organizational, technical & legal concepts
  - Good Practice Examples: e-Government register
- Digital archiving
  - Digital archiving of administrative information
  - Goals & problems of digital archiving
  - Operating a digital archive

Particular Course Topics

- Electronic File system:
  - Application architecture in the back office
  - Standardised open interfaces
  - Overview over architectural components
  - Functionality and consideration of using a form server
  - Functionality of a specific application

- Functionality of a Data Management Systems (DMS)
- Functionality of a electronic filing system (good practice example: Austrian ELAK - Elektronischer Akt, Estonian Digital document management system GoPro in Tartu City Government and Slovenian: SPIS)

- Communication across administrative boundaries
  - Administration 2 Administration (A2A)
  - Historical development
  - Level of integration
  - Interface definition & implementation
- Registries:
  - registers as the fundamentals for PKI and communication architecture
  - Functionality of registries
  - Central vs. local data storage
  - Central data maintenance
  - Competent clients & access profiles
- User Administration
  - Application based user administration
  - Local user administration
  - Access to services and register
- Digital archiving
  - Process of archiving
  - Formats of memory and storage
  - Signatures
  -

Methods

The basics are presented in a lecture that includes the possibility for discussions. The content will be explained with the help of small case studies. Practical group work will round out the programme.

Exercises

Good practice examples
Case studies (We-Go partners and epractice.eu)

Instruction materials

- Presentation (slides)
- Case studies (We-Go partners and epractice.eu)
1. We-Go Cases:
National Strategy for Information Society Development in Macedonia (FYRoM)
Human resource Management Information System in BiH
Slovenian State Portal for Business Entities e-VEM
e-Government Portal in Slovenia
2. The epractice.eu portal (http://www.epractice.eu/cases) has a number of cases (e.g.: Acronym of the case: EUCARIS Web address of the case: www.eucaris.net (Netherlands, Pan European)) that can be introduced and discussed in the training events.
- "We-Go e-Government ABC"

Course O3: e-Government Websites, e-Services, ICT Policies

General Course Information

Teaching unit	8 á 45 Min	**Duration**	1 day	**Course Number**	**O3**

Target group

Target group for this course are Politicians, public sector management and all employees from all level of the public administration. Trainers and coaches with public administration clients. Staff members who are responsible for the internet presence of their organisation. The participants should have basic PC knowledge.

Course Description

The course will teach the student all key elements and principles of customer oriented governmental web sites as well as all necessary basics of successfully designed public internet web sites, especially focusing web accessibility guidelines. Furthermore e-Services and ICT Policy Making will be discussed.

At present, web sites and internet are the main possibilities for interactive e-Government. However, in order to raise the use of e-government services, forms that are made available on web sites have to offer a couple of attributes which make the form accessible, appealing and easy to use.

Course goals and objectives

The students acquire basic knowledge and gather an overview covering the topics:

- customer oriented web sites: what are customer expectations
  - key usability elements of successful internet sites
  - key elements on web sites
  - design elements of user friendly web sites
  - quality assurance
- accessible web content
  - identifying obstacles for restricted individuals
  - guidelines
  - tools and frameworks for barrier-free internet sites
- services and forms
  - Forms today
  - Creation of forms
  - Applications for e-forms
  - Technical prerequisites
  - E-forms and workflow systems

Particular Course Topics

- customer oriented web sites:
  - customization: Internet sites thrive with up-to-date content (events, etc.)
  - push of information: Newsletters and other triggered news
  - inclusion of content of other governmental organisational units: country, state, town, municipality
  - easy and intuitively designed forms invite the user to take the online way
- accessible web content
  - raising awareness
  - different manifestations of barriers for individuals having distinct restrictions
  - use und application of accessibility toolbars
  - W3C guidelines or domestic guidelines?
  - Content oriented and structural conception of internet sites
  - Content management systems (CMS)
  - Open Source Software
- services and forms
  - Forms as an instrument for standardized acquisition for data, as a written form or e-form
  - Who is the designer? coordinator vs. Knowledge worker
  - Its not necessary to have programming skills or knowledge of (x)html
  - Conformance to style guides
  - WAI-A…
- E-Services
  - Electronic services of the public administration
  - Example for an Online Process
  - Principles for Online Procedures
  - Principles for Internal Administrative Procedures and Methods
- Defining Public Policy
  - Members of the Public Policy Community
- Multi-stakeholder partnerships for ICT policy
  - Definition of multi-stakeholder partnership
  - Goals of a multi-stakeholder partnership
  - Benefits of multi-stakeholder partnerships
- THE POLICY-MAKING PROCESS
  - Step 1: Problem definition/Agenda setting
  - Step 2: Constructing the policy alternatives/Policy formulation
  - Step 3: Choice of solution/Selection of preferred policy option
  - Step 4: Policy design
  - Step 5: Policy implementation and monitoring
  - Step 6: Evaluation
- ICT policy
  - ICT policy principles
  - What does ICT policy cover?
  - Policy dimensions

ICT policy and policy in other sectors

Methods

The basics will be addressed through lectures with interleaving discussion. A lot of different solutions for serving e-forms exist. As such the lecture will both incorporate comparative elements (what do all the form solutions offer) as well as key topics of the areas:

- work flow systems
- web site design principles
- organisational redesign (as a workflow enabler)

The awareness for the subject will get levered using common practice examples, targeted towards the needs of the audience. Applied team work complements the theoretical basics.

Applied exercises in a PC Lab can accompany the theoretical foundations. Real life situations will be mapped against the offered governmental services, e.g. answering citizen's questions, e.g. "What do I need in order to get my passport?"

Lecture: 5 units
Practice: 3 units

Exercises

Critical comparison of e-form solutions taking the thought basic principles into consideration
Good practice examples

Instruction materials

- Good practice examples
- Slideshow, Presentation
- Case studies (We-Go partners and epractice.eu)

1. We-Go Cases:
National Strategy for Information Society Development in Macedonia (FYRoM)
Slovenian State Portal for Business Entities e-VEM
e-Government Portal in Slovenia

2. The epractice.eu portal (http://www.epractice.eu/cases) has a number of cases (e.g.: Acronym of the case: EAGORA Web address of the case: www.e-agoravandoeuvre.com (Pan European); Acronym of the case: IPM Web address of the case: www.ec.europa.eu/yourvoice/ipm (European Institution)) that can be introduced and discussed in the training events.

- EIPA study: "Organisational Changes, Skills and the Role of Leadership required by e-Government", Luxembourg, June 2005
- "We-Go e-Government ABC"

3.2. e-Government Management

Course M1: New Public Management

Course M2: Change Management

Course M3: Project Management

General Course Information

Teaching unit	28 á 45 min	**Duration**	4 days	**Course number**	**M1** **M2** **M3**

Target group

- Politicians, public sector management and employees in the administration on all level, academia and private sector (NGO,…) in Western Balkan countries
- Trainers and coaches with public administration clients in Western Balkan countries

Course Description

NPM

- An Introduction to Public Management
  - Necessity of the State
  - Public Administration
  - Public Management
  - Points of Discussions and Further Questions
- Reform
  - Concept and Definitions
  - Reasons
  - Objectives
  - Points of Discussions and Further Questions
- New Public Management as a Reform Framework
  - Concept and Definitions
  - International NPM experiences
  - Underlying theories
  - Main Orientations and Instruments
  - Success Factors
  - Future Developments
  - Points of Discussions and Further Questions

- New Public Management in Austria
  - Austria at a glance

- Reform History at the Federal Level
- Reforms in Detail
- Points of Discussions and Further Questions

Change Management

1. Introduction and connection to the participants´ experiences as a starting point
2. Basic concepts of change management
   a. organisational models
   b. pattern and logic of change management

3. Design of architecture for change management
   c. phases
   d. processes
   e. structures

4. Planning methods for change processes
5. Handling resistance and dynamics in change management processes

Project Management in change processes

6. Introduction: project management – basic principles and terms (ITIL standards)

7. Initial situation and project objectives

8. The phase model of project management
   a. Definition phase: project assignment and project organisation (+ work in groups)
   b. Planning phase: Tools of project planning (project structure plan, analysis of the project environment, risk analysis etc.) (+ work in groups)
   c. Execution phase: emphasis on project controlling, including the tools of project controlling
   d. Closure phase

9. Project documentation and communication
   a. project hand book
   b. design of the project communication

Course goals and objectives

NPM

The participants will
- understand the NPM model and will have reflected its application to their own organisations (or to the institutions they work with as trainers and coaches)

- know the key drivers for success for a reform process (The Eight Levers of Successful Cooperation)

Change Management

The participants
- know the basic logics of change management.
- are able to design architecture for organizational change for own project plans.
- acquire knowledge about the methods for the steering of change processes.

Project Management

The participants
- know the basic terms, concepts and methods of project and programme management.
- are able to plan and steer simple to moderately complex projects.
- are able to choose and use adequate project management methods.

Particular Course Topics

- pointing out new developments in public administration
- providing a basic understanding of the principles of NPM, change management and project management
- enabling the participants to apply these concepts to their own organisations or to their client's organisations
- providing relevant tools to the participants
- facilitating the exchange of experiences between the participants
- addressing the influence of country-specific frameworks in public administrations in different Western Balkan Countries

Methods

presentation with MS PowerPoint-slides and with flip chart
Case Studies
Group work
Analysis and discussion in the plenum
Participants are encouraged to ask questions

Exercises

NPM

- Self-evaluation of the development stage in terms of NPM in the participants´ organisations with a questionnaire (work in small groups, that are formed according to assumed similarities of the participants‘ organisations, analysis in the plenum of commonalities and differences)

- "The Eight Levers of Successful Cooperation " – analysis of the paper in small groups: questions for a better understanding of the concept/ what has already been familiar/ which aspects can be agreed upon immediately, which aspects cause surprise/irritation/rejection?

Change Management

- Work in groups on the participants´ own practical examples in the field of change management

- Case Study in the plenum on a practical example of a participant
- What can be done to ensure the success of this change process?

Project Management

- Practical example: design of the project assignment, the project objectives and the project organisation (work in groups)

- Practical example: Elaboration of a project structure plan (work in groups)

Instruction materials

- literature: Schedler/Pröller – NPM, PM Baseline by Project Management Austria;
- Good practice examples
- Case studies (We-Go partners and epractice.eu)
- Slideshow, Presentation
- "We-Go e-Government ABC"
- Photo documentation of flip charts
- EIPA study: "Organisational Changes, Skills and the Role of Leadership required by e-Government", Luxembourg, June 2005
- Scientific paper of ICG and the Danube University Krems

Course M4: Process Management in e-Government projects

General Course Information

Teaching unit	8 á 45 min	**Duration**	2 days	**Course number**	**M4**

Target group

- Politicians, public sector management and employees in the administration on all level, academia and private sector (NGO,…) in Western Balkan countries
- Trainers and coaches with public administration clients in Western Balkan countries

Course Description

Basic principles of process management in E-Government

Course goals and objectives

Students should gain a comprehensive overview over:

Visioning: Developing an project and process vision

1. stakeholder analysis, including environment analysis
2. information gathering and analysis
3. process map / topic map: overview over processes and determination of relevant processes
4. inclusion of peripheral conditions
5. topic maps as a tool for participative process (re-)design
6. modelling of organisational structure
7. yellow pages: collection and analysis of staff knowledge
8. definition of an introduction method for redefined process
9. feed back mechanisms: consolidation of results
10. development of a model for life-cycle improvement

Particular Course Topics

Knowledge in Process management

- stakeholder analysis
- post-analysis
- basic interviews
- questionnaires and process investigation
- modelling of organisational structure
- feed back mechanisms: consolidation of results
- development of a model for life-cycle improvement
- use-cases for electronic digital papers

Methods

The basics will be conveyed through lectures with interleaving discussion. The awareness for the subject will get levered using common practice examples, targeted towards the needs of the audience. Applied Team work complements the theoretical basics.

Lecture: 5 units
Practice: 3 units

Exercises

- Good Practice examples:
- Exercises in stakeholder analysis
- Yellow pages exercise

Instruction materials

- Slideshow, Presentation
- "We-Go e-Government ABC"
- EIPA study: "Organisational Changes, Skills and the Role of Leadership required by e-Government", Luxembourg, June 2005
- Good practice examples
- Photo documentation of flip charts

3.3. e-Government Technology

Course T1: Communications Architecture and Interoperability

General Course Information

Teaching unit	8 á 45 Min	**Duration**	1 day	**Course number**	**T1**

Disclaimer: The involved systems for communicating systems, encompassing humans and it-systems, are likely to be diverse in different countries and are highly influenced by legal regulations. As such the present curriculum can only serve as a framework.

Target group

Project leaders and designers of E-Government solutions and applications
IT knowledge workers

Course Description

The student will learn all essential technical and organisational components of an e-government strategy. As such the prime goal is to raise the understanding of necessary components, institutions, legal frameworks and work flows to enable e-government.

This is an introductory lecture. Further material and training activities about this topic will be provided by WP1 in close cooperation with WP3.

Course goals and objectives

The student will understand that e-Government involves a number of necessary components that need to interoperate in order to achieve a seamless and interchangeable e-service without media discontinuity.

The student will be enabled to envision possible problems in projects dealing with data exchange. He can identify and classify obstacles and knows when to reach for qualified expertise. The basic knowledge of interoperability techniques and the vocabulary for mutual comprehension with experts will be taught.

Issues particular to the course

Components of Communication Architecture for e-Government

- Identification
- E-forms
- Public registers and directories
- Work flow systems
- E-delivery

- collaborative e-government
- relevant aspects of law

Towards a reference architecture:

- open standards for interoperability: XML, SOA(P), web services, UDDI

The following interoperability topics will be discussed in detail:

Technical interoperability:

- XML as a universal data interchange container
  - What is it, what are the benefits and what are useful applications of XML?
  - XML Schema definitions (XSD) to ensure proper interchange ability
  - XML Signatures and canonicalization
  - XML and its application in E-Government
  - XSLT as a tool to separate data from presentation
    - One data set, many representations: PDF, Office Documents, etc.
  - SOAP as the solution to combine heterogeneous systems using proven technologies (XML for Data, RPC for connection establishment)
    - Web Service Description Language (WSDL) and service discovery (UDDI)
  - Unicode
    - Fonts and representation
    - Encodings: UTF-8, others
    - Unicode and web sites

Methods

Primarily lecture and discussion. As introductory class, more tailored educational methods are suitable for subsequent lessons. As this lecture is meant to raise awareness for interoperability topics, applied studies are not planned.

Instruction materials

Link to WP1: Interoperability

Use of material prepared in WP1: recommendations for achieving compliance with EIF and roadmap for applying these recommendations on service level. WP1 will in close cooperation with WP3 plan and implement 2 workshops (see WP1) for managers and professional experts – 80 student days per country.

- Good practice examples
- Slideshow, Presentation
- Case studies (We-Go partners and epractice.eu)

1. We-Go Cases:
National Strategy for Information Society (FYRoM)
Enabling citizens' initiative to e-participate (Estonia)
e-Pay (Serbia)

e-Budget (Serbia)

2. The epractice.eu portal (http://www.epractice.eu/cases) has a number of cases (e.g.: Acronym of the case: NCTS Web address of the case: http://www.carina.hr/engindex.htm (Croatia); Acronym of the case: SWEB Web address of the case: www.sweb-project.org (FYRoM)) that can be introduced and discussed in the training events.

- "We-Go e-Government ABC"

1. http://www.unicode.org/
2. http://www.zvon.org/
3. http://www.w3.org/

Course T2: Security and PKI Infrastructure

General Course Information

Teaching unit	8 á 45 Min	**Duration**	2 days	**Course number**	**T2**

Target group

- Politicians, public sector management and employees in the administration on all level, academia and private sector (NGO,…) in Western Balkan countries
- Trainers and coaches with public administration clients in Western Balkan countries

Course Description

The course will give the student all necessary information in the field of information security.

Course goals and objectives

Knowledge increase:

- Basic understanding concerning information security
- Advanced knowledge in IT-Security
- Expert knowledge in PKI

Domain specific acquirement of capabilities in the area IT-Security, PKI and E-Government Projects

Particular Course Topics

The following topics will be discussed in detail:

- Security issues in public communication
- Public Key Infrastructures: PKIs in detail, certificates, application of PKI's in IT systems as an integral part for authentication and authorisation
- The Web of Trust
- The role of the certificate authority seen both from the technical point of view and from an organisational point of view.

Integration of certificates and PKI's in Networks, firewalls and other security appliances.

- Networking protocols
- Risk management and current threats for security systems
- Information security and IT security
- Continuity planning
- Possible envisioning of further trends for hackers
- Symmetric and asymmetric encryption algorithms

- Signatures
- Certificates, Certification Authorities and PKI
- Applications
- Standards

Methods

The basics will be addressed through lecture with interleaving discussion. The awareness for the subject will get levered using common practice examples, targeted towards the needs of the audience. Applied Team work complements the theoretical basics.

The goals will be achieved using this techniques:

- Lecture
- Discussion
- Exchange of experiences
- Case studies and good practice examples

Instruction materials

Basic texts:

1. Kryptografie, Klaus Schmeh (dpunkt.verlag)
2. IT-Security Management, Grundlagen, Instrumente, Perspektiven, Oliver Jorns (vdm Verlag Dr. Müller)

Advanced material:

1. PKI, e-security implementieren, Andrew Nash, William Duane, und Celia Joseph (RSA-Press)
2. Information Security based on ISO 27001/ISO17799-A Management Guide, Alan Calder (Van Haren Publishing)
3. Der IT Security Manager, Klaus Schmidt (Hanser-Verlag)

- Good practice examples
- Slideshow, Presentation
- Case studies (We-Go partners and epractice.eu)

1. We-Go Cases:
e-Voting (Estonia)
Enabling citizens' initiative to e-participate (Estonia)
e-Pay (Serbia)
e-Budget (Serbia)

2. The epractice.eu portal (http://www.epractice.eu/cases) has a number of cases (e.g.: Acronym of the case: buergerkarte Web address of the case: www.buergerkarte.at (Austria); Acronym of the case: SWEB Web address of the case: www.sweb-project.org (FYRoM)) that can be introduced and discussed in the training events.

- "We-Go e-Government ABC"

Course T3: IT Service Management in a Nutshell

General Course Information

Teaching unit	8 á 45 Min	**Duration**	2 days	**Course number**	**T3**

Target group

- Anyone who requires a basic understanding of IT Service Management
- Individuals who need foundation level knowledge of the ITIL framework
- Business management that needs information on how IT will be able to enhance the quality of IT services provided to the customer.
- IT management who needs a guideline and best practices on IT service management
- IT staff that is working within an organization that has adopted or plans to adopt service management best practices based on ITIL.

Course Description

1st Day

Introduction
Overview of ITSM and ITIL
Content of ITSM – Service Support
Group exercise

2nd Day

Recap
Content of ITSM – Service Delivery
Group exercise
Recap
Q&A

Course goals and objectives

- Gain a basic understanding of what IT Service Management is all about
- Get used to terms and specific vocabulary used in the area of ITSM
- Understand the process landscape and interdependencies thereof ITSM has to be aware about
- Describe the benefits that can be realized using ITSM best practices
- Be prepared for taking the ITIL Foundation Exam

Particular Course Topics

Discussions and the exercises need tight cooperation between the participants themselves and the trainer. So not being quite fluent in English or German might raise some issues

resulting in degraded transfer of knowledge.

Methods

Presentation
Discussion
Group exercises

Exercises

At the beginning of day two, the participants will form at least two groups to work on a short case study covering the content of day one, presenting the results and discussing the solution approach.

Another case study (same approach) will be done at the beginning of day three.

Instruction materials

- ITIL material
- Slideshow, Presentation
- Case studies (We-Go partners and epractice.eu)
- “We-Go e-Government ABC”

3.4. e-Government Legal Overview

Course L1 – e-Government Law and IT policies

General Course Information

Teaching unit	8 á 45 Min	**Duration:**	1 day	**Course number:**	**L1**

Disclaimer:

- Law, mostly seen as an enabler for E-Government, actually plays a very crucial part. It must be kept in mind that only processes strictly adhering to the law can be established. While some communities offer services, which may not follow strictly the law but are used anyway, it is very likely that on the long run such services will be under pressure by legal affairs.
- This curriculum can only serve as a framework. Although there are existing common denominators for e-Government throughout the whole EC, the actual legal implementations are distinct enough that for every country a tailored curriculum is necessary.

Target group

- Politicians, public sector management and staff in Western Balkan countries
- Trainers and coaches with public administration clients in Western Balkan countries

Course Description

Law is an essential part as an enabler for e-government. The law describes both technical implementations (security, delivery of notices, etc.), as well as the organisational workflow (which circumstances require strong cryptography to sign a request). The course will offer a tight integration of e-government application and law.

Course goals and objectives

The student will be enabled to anticipate legal regulations when designing e-government services, either they are web based or they use other means of communication.

Especially the following topics will be discussed:

- Overview EU e-directives
- Levels of security: The law enforces different levels of security, mostly depending on the effects of application
- Presentation: The appearance of public accessible e-government services is regulated by law and acts. This especially involves accessibility and standard elements of web sites.
- Work flow: Certain services, in order to adhere to the law, need to follow a

process, described by the law. The implementation must follow these defined processes.

- IT-Policies:
  - Goals & objectives of IT-policies
  - Types of IT-policies
  - Organisational aspects of policies
  - Good Practice IT Policies

Particular Course Topics

E-Government projects which are set up by the government, to replace or enlarge existing governmental services, need to adhere to the legal regulations. Thus future project leaders, while they probably need not know every legal aspect, have to operate and obey the legal framework.

The course will thus particularly deal with the topics:

a. Overview EU e-directives (EU / national Signature Directive, EU eBusiness Directive, EU Service Directive, National Signature Acts, Data Protection Act,…)

b. Accessibility
   Legal actions and their mapping to public available (E-)services
   e-Government across the border: Design an implementations of E-Government processes in other countries

c. IT-Policies
   - Framework, Requirements and Objectives for the electronic communication using Internet for public administrations
   - Guidelines, handbooks, checklists
   - Good Practice: E-Mail policy, Domain Naming Policies, Internet Policies, Transfer Policy, definition of document formats
   - In detail:
     - Guidelines for the use of e-mail. Guidelines for communication when transferring data
     - Guidelines for communication in the internet
     - Guidelines for accepting, rejecting and processing document formats

   Security handbook

Methods

The lecture will tightly integrate the legal regulations into existing or envisioned governmental E-Services. The methods used:

d. lecture
e. discussion
f. case study
g. good practice analysis

Exercises

Case study of e-government processes in different countries. The result will be a matrix, visualizing the differences as well the similarities of different e-government implementations.

Instruction materials

- Good practice examples – The law and acts in effect: Austrian E-Government Act
- Slideshow, Presentation
- Case studies (We-Go partners and epractice.eu)

1. We-Go Cases:
Electronic law making process in Austria - e-Law
National Strategy for Information Society Development in Macedonia (FYRoM)
e-Voting (Estonia)
Enabling citizens' initiative to e-participate (Estonia)
e-Pay (Serbia)
e-Budget (Serbia)

2. The epractice.eu portal (http://www.epractice.eu/cases) has a number of cases (e.g.: Acronym of the case: ELAK im Bund
Web address of the case: www.bka.gv.at (Austria); Acronym of the case: e-Depot
Web address of the case: www.e-notariat.be (Belgium)) that can be introduced and discussed in the training events.

- EIPA study: "Organisational Changes, Skills and the Role of Leadership required by e-Government", Luxembourg, June 2005
- "We-Go e-Government ABC"

4. Overview Lecture Notes and Cases

The following two tables give an overview of the lecture notes described in detail above and cases available for the We-Go training activities.

We-Go Lecture Notes	
Course number[3]	**Provided by**
O1/L1 Introduction to e-Government	BKA/DUK; eGA;
O2 Registers, Data Bases and WFM	BKA/DUK; eGA; FOI; SRC;
O3 Policies	BKA/DUK; ITI; MTM
O3 E-Services	BKA/DUK
T1 IOP, Communication Architecture	BKA/DUK; eGA; FOI; MITC; PEXIM
T2 Security, PKI, eSig, eID	BKA/DUK; eGA; FOI; PEXIM
M1 NPM	DUK
M2 Change Management	MTM
M3 Project Management	DUK/Project Management Austria
M4 Process Management	ITIL
T3 IT Service Management – ITIL	ITIL

The next table gives an overview of Case Studies provided by We-Go partners. The cases will be used as good practice examples in the relevant lectures.

Case No.	**Topic**	**Relevant for Course No.**	**Provided by**
1	Electronic law making process in Austria - e-Law	O1/L1	BKA/DUK
2	National Strategy for Information Society Development in Macedonia (FYRoM)	O1/L1/O2/O3/ T1/T2	MTM
3	Human resource Management Information System in BiH	O2	MITC
4	e-Justice	O1	MITC
5	Slovenian State Portal for Business Entities e-VEM	O2/O3	SRC

[3] M3/M4/T3: Lecture Notes for training activities in these area are based on international standards (ITIL/Project Management Austria). We-Go will fall back on existing material to cover these topics. Therefore no lecture notes that are covering these topics where submitted.

6	e-Government Portal in Slovenia	O2/O3	SRC
7	e-Government Registries: document management in public administration in Slovenia	O2/O3	SRC
8	e-Voting	L1/O2/T1/T2	eGA
9	Enabling citizens' initiative to e-participate	L1/O2/T1/T2	eGA
10	e-Pay	L1/T1/T2	PEXIM
11	e-Budget	L1/O2 T1/T2	PEXIM

The table below shows which of the prepared courses and topics have been chosen as relevant by WB country.

Curricula requested	**Course number**	**BiH**	**HR**	**MK**	**SR**
Introduction to e-Government					
▪ e-Government Introduction	O1	✓	✓	✓	✓
▪ e-Government Registries	O2	✓	✓	✓	✓
▪ e-Government Websites	O3	✓		✓	✓
e-Government Management					
▪ New Public Management	M1	✓	✓	✓	
▪ Change Management	M2	✓	✓	✓	
▪ Project Management	M3		✓	✓	
▪ Process Management	M4		✓	✓	
e-Government Technology					
▪ Communications Architecture and Interoperability	T1	✓	✓	✓	✓
▪ Security and PKI Infrastructure	T2				✓
▪ IT Service Management	T3			✓	
e-Government Legal Overview					
▪ e-Government Law and IT policies	L1	✓		✓	✓

5. Course Evaluation template

This We-Go evaluation template is distributed to all participants of all We-Go training activities. This will help us to evaluate the quality as well as the satisfaction of the participants which will furthermore help us to improve the course that We-Go offers.

We-Go training

Title of lecture:
Course number:
Name of lecturer:

Participant's information	
Age	☐ <25 ☐ 26-35 ☐ 36-45 ☐ 46-55 ☐ >56
Gender	☐ male ☐ female

General Information/Framework	
Lecture and lecturer (multiple answers possible)	☐ style of the lecturer ☐ group work ☐ presentation ☐ discussion ☐ individual work ☐ workshop ☐ excursion ☐ case study ☐ other: _____ _____
Participation	☐ total ☐ 80% ☐ <80%
Enough breaks?	☐ Yes ☐ No
Scriptum received?	☐ Yes (see next question) ☐ No
Please rate the script?	☐ Very good ☐ Good ☐ Satisfactory ☐ Sufficient ☐ Not sufficient

What did You especially like?

What should/could be improved?

Suggestions:

Feedback for the lecturer	Very good	Good	Satisfactory	Sufficient	Not sufficient	Do not no
The professional competence of the lecturer	☐	☐	☐	☐	☐	☐
The lecturer has tied in on my previous knowledge	☐	☐	☐	☐	☐	☐
The lecturer has recognised and responded to the different requirements of the participants	☐	☐	☐	☐	☐	☐
The lecturer has communicated the content in a good way	☐	☐	☐	☐	☐	☐
The lecturer has adequately assisted in autonomous learning	☐	☐	☐	☐	☐	☐
The lecturer is familiar with using new media and learning environment (internet, e-mail etc.)	☐	☐	☐	☐	☐	☐
Overall evaluation of the lecturer	☐ Very good ☐ Good ☐ Satisfactory ☐ Sufficient ☐ Not sufficient					

6. Annex: Lecture Notes and Cases

7. Work Package 3: Cluster of participants

Austrian Federal Chancellery	BKA	Austria
Danube University Krems	DUK	Austria
Centre for Management and Information Technologies	MITC	Bosnia and Herzegovina
Internet Institute	ITI	Croatia
eGovernance Academy	eGA	Estonia
Metamorphosis Foundation	MTM	Macedonia
PEXIM	PEXIM	Serbia
Jozef Stefan Institute, University of Ljubljana	JSI	Slovenia
SRC.SI system integration	SRC	Slovenia

SIXTH FRAMEWORK PROGRAMME

Call title: IST Call 6, Call identifier: FP6-2005-IST-6, Area: 2.6.5: International Cooperation
Instrument: Coordination Action (CA)

2.6.5.1. International cooperation for eGovernment and eParticipation
Target countries: Western Balkan

Contract for:

COORDINATION ACTION

We-Go
Enhancing Western Balkan eGovernment Expertise

Work Package 3 - eGovernment Academies Deliverable D.3.2.1. Courses and Curricula We-Go Lecture Notes

Version: 1.0, 08.07.2008.

Proposal/Contract no.: **Contract no 045472**
Start date of contract: **1st December 2006**

1. We-Go Lecture Notes

The following two tables give an overview of the lecture notes described in detail above and cases available for the We-Go training activities.

We-Go Lecture Notes	
Course number[1]	**Provided by**
O1/L1 Introduction to e-Government	BKA/DUK; eGa;
O2 Registers, Data Bases and WFM	BKA/DUK; eGa; FOI; SRC;
O3 Policies	BKA/DUK; ITI; MTM
O3 E-Services	BKA/DUK
T1 IOP, Communication Architecture	BKA/DUK; eGa; FOI; MITC; PEXIM
T2 Security, PKI, eSig, eID	BKA/DUK; eGa; FOI; PEXIM
M1 NPM	DUK
M2 Change Management	MTM
M3 Project Management	DUK/Project Management Austria
M4 Process Management	ITIL
T3 IT Service Management – ITIL	ITIL

[1] M3/M4/T3: Lecture Notes for training activities in these area are based on international standards (ITIL/Project Management Austria). We-Go will fall back on existing material to cover these topics. Therefore no lecture notes that are covering these topics where submitted.

We-Go Academies : Train-the-Trainer program

D3.2.1. Lecture Notes

We-Go
Enhancing Western Balkan
eGovernment Expertise

Lecture Notes

Introduction to eGovernment.

Good Practice: Estonia & Austria

Table of Contents

Contents

Course number O1 / L1: Introduction of e-government

1. Introduction

Modern Information and Communication Technologies (ICT) allow public administration to provide new electronic services via the Internet. These new eGovernment services can respond more effectively to the needs of users. The services can be provided efficiently and can be accessed easily via the Internet. It is no longer necessary to make one's way to an office. The services offered are available electronically, regardless of time or place.

What is eGovernment?

1.1. eGovernment Defintion

The provision of electronic administrative services via the Internet offers users convenient access to public administration. For authorities that use ICT to provide electronic services, this will mean new chances and large-scale internal adjustments in their organisation. Some processes will have to be revised and operations will have to be adapted to meet the new requirements[1]. Internal work will be increasingly automated. Administrative staff will therefore require the knowledge and skills needed to operate the technology used.

eGovernment (from **electronic government**, also known as **e-gov**, **digital government**, **online government** or in a certain context **transformational government**) refers to the use of internet technology as a platform for exchanging information, providing services and transacting with citizens, businesses, and other arms of government. eGovernment may be applied by the legislature, judiciary, or administration, in order to improve internal efficiency, the delivery of public services, or processes of democratic governance. The primary delivery models are Government-to-Citizen or Government-to-Customer (G2C), Government-to-Business (G2B) and Government-to-Government (G2G) & Government-to-Employees (G2E).

What are the four Interaction domains?

Within each of these interaction domains, four kind of activities take place:

- pushing information over the Internet, e.g: regulatory services, general holidays, public hearing schedules, issue briefs, notifications, etc.
- two-way communications between the agency and the citizen, a business, or another government agency. In this model, users can engage in dialogue with agencies and post problems, comments, or requests to the agency.
- conducting transactions, e.g: lodging tax returns, applying for services and grants.
- governance, e.g: online polling, voting, and campaigning.

The most important anticipated benefits of eGovernment include improved efficiency, convenience, and better accessibility of public services.

While eGovernment is often thought of as "online government" or "Internet-based government," many non-Internet "electronic government" technologies can be used in this context. Some non-internet forms include telephone, fax, PDA, SMS text messaging, MMS, wireless networks and services, Bluetooth, CCTV, tracking systems, RFID, biometric identification, road traffic management and regulatory enforcement, identity cards, smart cards and other NFC applications; polling station technology (where non-online e-voting is being considered), TV and radio-based delivery of government services, email, online community facilities, newsgroups and electronic mailing lists, online chat, and instant messaging technologies. There are also some

[1] This also allows the authorities to act in a more transparent manner.

	technology-specific sub-categories of e-government, such as m-government (mobile government), u-government (ubiquitous government), and g-government (GIS/GPS applications for e-government). There are many considerations and potential implications of implementing and designing e-government, including disintermediation of the government and its citizens, impacts on economic, social, and political factors, and disturbances to the *status quo* in these areas. The phrase "e-government" has been a rallying cry for public sector modernization since the 90's, but for many it is now losing its appeal as a slogan or concept. This trend has various drivers. Firstly, there is a wish to mainstream eGovernment so that best use of technology is integrated into all public sector activity rather than seen as a special interest or add-on. Secondly, many administrations recognise the importance of linking eGovernment to wider public sector change programmes. Thirdly, the phrase eGovernment is itself not particularly useful in motivating a change programme. These sorts of considerations have led countries such as the UK to talk of transformational government rather than e-government. Finally, there is the issue of the implications for the public sector of Web 2.0. All these considerations suggest that eGovernment is entering a new phase and one in which the term "e-government" is itself becoming less popular- (source: Wikipedia) At EU level, eGovernment is defined as: *"The use of information and communication technologies in public administration combined with organisational change and new skills in order to improve public services and democratic processes and strengthen support to public policies."*
EU Comission Definition?	It is important to keep in mind that, while administrative matters can now be dealt with via the Internet, they do not have to be: eGovernment is offered as an alternative, not as a replacement. The traditional office setting continues to be available to people who prefer personal contact with the authorities or are not yet familiar with the new technologies. However, eGovernment can offer advantages to these people too: Even in the case of a conventional visit to an office, administrative matters can be dealt with more effectively as a result of eGovernment. **European i2010 inicitaive** i2010 is the Commission's initiative for information society and media policies. It ensures coherence across the Commission's information society and media policies and seeks to reinforce the important contribution of information and communication technologies (ICT) to the performance of our economies and the renewed Lisbon Strategy. In its i2010 initiative, the Commission outlines three policy priorities: ▪ to create an open and competitive single market for information society and media services within the EU. To support technological convergence with "policy convergence", the Commission will propose: an efficient spectrum management policy in Europe (2005); a modernisation of the rules on audiovisual media services (end 2005); an updating of the regulatory framework for electronic communications (2006); a strategy for a secure information society (2006); and a comprehensive approach for effective and interoperable digital rights management (2006/2007). ▪ **to increase EU investment in research on information and communication technologies (ICT) by 80%**. Europe lags behind in ICT research, investing only €80 per head as compared to €350 in Japan and €400 in the US. i2010 identifies steps to put more into ICT research and get more out of it, e.g. by trans-European demonstrator projects to test out promising research results and by integrating small and medium sized enterprises better in EU research projects.).

- **to promote an inclusive European information society**. To close the gap between the information society "haves and have nots", the Commission will propose: an Action Plan on eGovernment for citizen-centred services (2006); three "quality of life" ICT flagship initiatives (technologies for an ageing society, intelligent vehicles that are smarter, safer and cleaner, and digital libraries making multimedia and multilingual European culture available to all (2007); and actions to overcome the geographic and social "digital divide", culminating in a European Initiative on e-Inclusion (2008).

i2010 is the first Commission initiative to be adopted under the EU's renewed Lisbon strategy. It focuses on the most promising sector of the EU economy: ICT account for 40% of Europe's productivity growth and for 25% of EU GDP growth.

More information on i2010 can be found at:

http://europa.eu/i2010

1.2. Benefits of eGovernment

There are several benefits that implementing the eGovernment provides:

- **eGovernment helps improve efficiency in government.** ICTs are a necessary enabler of reforms to the ways in which public administrations work. Improving internal operating systems – financial systems, purchasing and payment arrangements, internal communications and sharing of information – and programme processing and delivery arrangements can generate operating efficiencies and improve performance.
- **Enhanced quality of service** has been a major component of public administration reform over the past two decades, and the use of ICTs to generate improvements in services has been a primary driver for eGovernment activity. In particular, the use of the Internet has given a major boost to customerfocused, seamless services, which aim to transcend the structure of public administrations. Online services are increasingly seen as part of a broader services strategy, with important customer and efficiency benefits. As users of public services are often obliged to interact with government, user dissatisfaction with the quality of government services can quickly become a major political issue.
- ICTs can support **more effective outcomes** in key policy areas such as health, welfare services, security and education. Ultimately, governments and public administrations exist to deliver policy outcomes, and ICTs are a major enabler across all major policy areas. The use of the Internet to deliver value in these areas is a major preoccupation in member countries.
- Better governance arrangements in themselves will **promote economic policy objectives**. More specific effects may range from impacts on ICT production, e-commerce diffusion and business productivity to indirect effects such as reduced fiscal requirements owing to more effective programmes and efficiencies flowing through to the broader economy.
- EGovernment can help **forward the reform agenda**. When aligned with modernisation goals, implementing eGovernment can help administrations focus on the additional changes needed to meet service delivery and good governance concerns. At the same time, it provides some valuable reform tools and builds support from high-level leaders and government employees for achieving those objectives.
- Through citizen engagement**,** eGovernment can **improve the overall trust relationship** between government and public administrations. E-government, by improving information flows and encouraging active

participation by citizens is increasingly seen as a valuable tool for building trust between governments and citizens.

- These objectives may involve trade-offs between efficiency and effectiveness, efficiency and openness, accountability and customer focus. When this is the case, priorities will need to be set, but it should not be assumed that such trade-offs are inevitable. Several Nordic countries have put in place specific offices (ombudsmen) to handle citizen complains with regard to privacy and citizen trust, this supports both privacy protection and efficient use of data.

Transferring of competencies from the state to the local level, the municipalities are assuming greater development responsibilities for their communities. All this requires a serious effort and the use of the information and communication technology in this process can and should assist local governments to work more efficiently and provide **better services to the citizens.**

1.3. Fundamental Principles

- Everyone should be able to use eGovernment services, regardless of their location or special needs. Wherever possible, citizens should also be able to use familiar technology, such as mobile phones. You can only claim to reach the widest possible number of citizens if access is provided for everyone, without discrimination and without the need for special skills.. This includes access via an intermediary for all those who are unwilling or unable to use a computer themselves.
- Electronic services provided by public administration should be attractive to all users. The design of services should be simple to make it accessible to everyone. The primary aim in structuring processes must therefore be to make them as convenient as possible. Convenient access increases the willingness of users to make increased use of electronic services.
- The aim of an effective service for citizens must be the widespread availability of electronic services, including payment and delivery, so that all local obstacles to access can be removed. In addition to standard interfaces, a standard layout for forms is a basic precondition for the elimination of user inhibitions.
- Increasing efficiency is one of the fundamental objectives of eGovernment. In addition to the creation of an infrastructure, implementation is therefore focused on the integration of processes which are used particularly often. In particular, this applies to processes in the areas of finance, justice and business.
- The basis for an efficient back office is provided by the electronic workflowsytems (electronic record system), central registers and coordinated resource management, together with internal portals. This also ensures an efficient basis for transaction-orientated procedures. The greater the willingness to make extensive use of electronic administrative services, the greater the chances are that the administrative systems will be able to function effectively.
- The administrative authorities decide, based on a cost effectiveness analysis, whether a process should be automated using electronic records or using an integrated application. This decision will not affect citizens (apart from how long requests take) as the service will be available electronically even if further processing is carried out by hand in the conventional manner.

A successful eGovernment system is based on three fundamental building blocks:

1. A clear legal framework which can be easily understood and can therefore rapidly become part of public awareness.
2. Secure and therefore sustainable systems and services as a precondition for nationwide implementation, and to ensure an increase of citizen confidence

in electronic administrative services.
3. The use of sustainable technology on the basis of open standards and defined interfaces in order to ensure continuous adaptation to new technology.

Sustainability can be achieved only by implementing international standards and open interfaces the use of which is not restricted to the products of a particular manufacturer. Such implementation lays the foundation for seamless interaction between different systems and organisational structures. The use of flexible interfaces and standards which are not restricted to individual providers is also consistent with Austria's SME-orientated economic structure and can therefore contribute to improving Austria's attractiveness as a business location. The "Open Source eGovernment" initiative offers advantages to the economy throughout, as these same expenses lead to higher competitiveness.

1.4. Framework Conditions

The public expects a service-orientated performance from a modern administration. A public administration that does not use modern information and communication technologies has become inconceivable. New quality standards such as efficiency, speed, service orientation, flexibility and security are among the objectives that modern public administration pursue.

The medium of the Internet provides administration with new means of internal communication. In the past, only certain steps of an administrative procedure could be carried out electronically; now entire transactions can. In the future, the global use of the electronic signature will guarantee the necessary level of information security and cryptography will ensure data protection. The implementation of this technology and its application must become a matter of course.

Together with the developments in technology, the self-definition of administration has changed. The picture of a fragmented administration has been replaced by the "one-stop" principle established at European level. Citizens should no longer be burdened by the complexity of the administrative apparatus or by competence issues. It must be possible for the user to obtain a service from a central point, irrespective of the processes that the administration must carry out in order to deal with the matter. Service must therefore become synonymous with ease, convenience and speedy completion.

1.5. Vision

Interoperable system architectures, secure automated transactions, technology-neutral developments, structured and standardised process models, cost awareness, integration of existing methods and procedures, network and information security and change management are the characteristic features of a modern and efficient administration. The outmoded fragmented administrative structure is replaced by a cooperative administration model.

eGovernment in the information age gives rise to a new kind of relationship between citizens and the authorities. New means of communication and technologies offer users free and open access to the virtual world of public institutions. Public administration is shedding its bureaucratic character and transforming into an efficient, service-orientated provider of services.

Applicants for services become customers enjoying the best possible service. User-friendly procedures, transparent processes, quality-orientated service and proximity to citizens are the essential features of a modern administration. Requests by citizens and business are to be conducted interactively by way of an uncomplicated and time-saving dialogue. Administrative decisions and documents are delivered electronically. Electronic signatures and encryption mechanisms ensure data security, data integrity and data protection.

eGovernment gives citizens the chance to participate directly in opinion-forming and decision-making processes. Public discussion forums and Internet chat rooms can be used to intensify the dialogue between citizens and the bodies responsible for political decision-making. In the future, the virtual world will make it easier to involve citizens early on in the legislative process.

1.6. Objectives

In order to have smoothly functioning, partially automated procedures, the underlying processes must be designed jointly. Current transactional processes must be analysed and – where necessary – remodelled.

Close cooperation between the authorities at all levels leads not only to increases in quality but also to valuable synergies. Sharing infrastructures, distributing the workload and costs arising from the structuring of processes and co-ordinating the development of modules for technical procedures all help to avoid duplication and partial solutions.

In the long term the administration will continuously be confronted with new technical concepts. In order to ensure that development in eGovernment does not remain static, it must be possible to make appropriate use of these concepts. Strategic considerations must take account of change management from the very beginning in order to remain forward looking. Particularly in the field of security, not only new developments but also additional and stricter requirements are to be anticipated.

Adaptable technologies require continuous training of administrative staff. The management and transfer of knowledge are central components of a modern system of administration. The future will, above all, bring a broader range of applications making it possible to participate actively in the administrative process. In order to prepare for this challenge, the skills of administrative staff must be generally increased in the field of IT and eGovernment. Plans for the outsourcing of operative tasks and increased involvement in strategy and structural changes must go hand-in-hand with a marked increase in social and technical skills.

1.7. Principles

eGovernment strategy can be based on the following principles:

- **Proximity to citizens:** The administration must be at the service of citizens and not vice versa. Online services must be easy to locate.
- **Convenience through efficiency:** Citizens expect greater convenience from online procedures: No need to go to an office, no restrictive office hours, no waiting, no being sent from one authority to the next, but rather straightforward processes, intelligent forms which are easier to complete, responsible handling of data and speedy completion of requests. In order to meet these expectations, public administration must optimise processes by automating them and making use of process models.
- **Confidence and security:** Electronic contact with public administration must be just as secure as the conventional visit to an office. In the electronic world, the identification and authentication of persons is ensured by sector-specific personal identifiers (ssPINs) and electronic signatures. The secure exchange of information and transfer of data is guaranteed by defined security standards.
- **Transparency:** The success of technical solutions and their acceptance among users is dependant on the involvement of all relevant groups in their development. It is particularly important that the private sector and the

administration cooperate in advance so that implementation can be endorsed by all. Transparent processes provide the basis for cooperation.

- **Accessibility:** Services provided by the public authorities must be available to all without discrimination. This also applies to the new electronic administration system. eGovernment is to be available to all social classes and groups. Technical and social barriers must be removed. The adoption of the Web Accessibility Guidelines is an attempt to counteract the risk of exclusion. Greater availability of public terminals should in future facilitate the access to eGovernment. Whether it be the Federal Government, the provinces, municipalities or local authorities, all are called upon to make an increased effort to achieve this aim.
- **Usability:** The range of electronic services offered must be structured in an easily comprehensible, clear and straightforward manner. A standard layout for forms and portal structure – arranged according to personal circumstances – facilitates clarity, navigation and usability.
- **Data protection:** Citizens place a high degree of confidence in the administration with regard to data protection. The use of new technologies in administration allows that confidence to be extended to electronic administrative systems also.
- **Cooperation:** Smoothly running eGovernment can be achieved only by comprehensive cooperation between all levels of the administration. Existing applications and infrastructures must be shared in order to achieve the desired aim of organisational, financial and administrative efficiency. Cooperation between public bodies should be based on the fundamental approach of making interfaces openly accessible and basic functions available free of charge.
- **Sustainability:** The modular structure facilitates change management, which permits continuous further development. Open eGovernment contributes to improving competitiveness. The strategic coordination of the ICT sector within the administration is of fundamental importance in that regard.
- **Interoperability:** Systems must be able to communicate with each other. Therefore eGovernment policies have to be designed to govern implementation are being drawn up on the basis of internationally accepted standards and open interfaces.
- **Technological neutrality:** Information and communication technologies are being developed rapidly. eGovernment solutions must therefore be open to new technologies. No particular technology has preference and dependency on monopolies must be avoided.

The use of information and communication technologies makes it possible to organise public administration in accordance with these principles. The range of electronic services offered represents an alternative to the traditional office, and is available 24 hours a day. Citizens can choose freely between the two forms of dealing with administrative procedures. Open eGovernment, accessible to all members of the public, tries to avoid the risks of digital exclusion.

2. Central and Local eGovernment

2.1 Central Government

Description of structure and functions of central ICT coordination (example):

Forum for Information Society

Forum is advisory body for government, gives opinions and makes recommendations to the government and Minister of State. Forum is headed by Minister of State. Members are from civil service, academic institutions and private sector. Members of Forum are opinion-leaders of the field. Forum fulfils also PR functions on Information society issues.

- gives opinions and advise on basic and strategy issues on ICT
- gives opinions and makes recommendations about ICT related legal acts
- gives opinions and advice on Information Society Action Plan issues

Information Policy Unit - Central coordination unit

1. Responsible on ICT strategy planning, implementing and supervising processes. PR on Information Society issues.
2. Have rights to get information from government bodies about the use of ICT systems and about results of the systems development processes.
3. Responsible on drafting the ICT budget in state budget in cooperation with Ministry of Finances. Unit is supervising most important development projects (in steering committee level)
4. Responsible on coordination of drafting of main ICT related legal acts (digital signature act, personal data protection act, telecommunication act, databases act ect.) Unit mast have right to present opinion and approve all ICT related legal acts. Often ICT related acts are initiated by ministries as: Personal data protection act – Ministry of Justice, Telecommunication act and Digital signature act – Ministry of Transport and Telecommunication
5. Have right to initiate new ICT-related legal acts – for example Databases act.
6. Is responsible on management of the work of CIO work groups, is planning and implementing CIO training activities.
7. Coordinate the international cooperation activities in the field of ICT. Often the international cooperation is performed in other ministries (e-Health issues – Ministry of Health, e-Business issues – Ministry of Economy, telecommunication and basic ICT infrastructure issues in Ministry of Transport and telecommunications etc.) but central coordination is done by Unit.
8. Initiate cross-government projects and programmes.
9. Responsible on general guidelines, recommendations, standards

CIO (Chief Information Officer)

Central Coordination Unit need to have contact points in ministries to cooperate with them. CIO are nominated in the ministry level (normally he/she is on the level of head of department) with the following responsibilities:

- Responsible on creating and implementing ICT action plan in ministry level.
- Responsible on planning and proposing for approval to the ICT council of ministry the annual ICT budget. ICT budget must be in-line with both government ICT action plan and ministerial action plan.
- Responsible on implementation of projects – procurement, supervision of projects, implementation, ICT training issues of ministry etc.
- Responsible on ICT systems maintenance and user help-desk functions
- CIO is a member of ICT task group, leaded by Central Coordination Unit

Ministerial level ICT Council

- Headed by head of administration
- Members of council are key persons of main departments and sub-units of ministry
- Topics and decisions of Council are prepared by CIO
- Council mast approve all strategic initiatives in the field of IT developments of ministry
    - o initiating new projects,

- annual ICT budget,
- intermediate reports of on-going projects
- decisions and responsibility of re-engineering processes, needed for implementation of new projects.

2.2 Local Government

At the local level, e-governance and the appropriate use of ICT can enhance and support economic and social development, particularly in empowering officials and municipal representatives, ensuring linkages, networking, timely, efficient, transparent and accountable services. E-local governance means exploiting the power of ICT to help transform the accessibility, quality and cost-effectiveness of public service and to help revitalize the relationship between customers and citizens and the public bodies who work on their benefit.

Information Society development is in large extent issue of local governments – local governments, compared with central government, are more close to the citizens. As after decentralization municipalities will offer new, wider variety of services for citizens it is great challenge to offer those services in traditional way, but as well as e-services.

According European researches local governments in developed countries are offering up to **77% of public e-services**. Often local government portal is the first stop to reach central government services.

Implementation of broadband strategy as well as information security basics are important issues for local governments. Building framework for IT infrastructure development and offering e-services for businesses is making local government central body, influencing development of economy in the region. Competition between local governments in the field of development of information society is the issue of welfare of the region - to offer new workplaces, better place for living, social security, taking account of the needs for services.

Implementation of e-services and broadband strategy is also possibility to overcome problems of different social groups and remote areas. Well-developed IT infrastructure with intensive offering of e-services by the local government is challenge to engage to the decision-making process large groups of active citizens and supporting development and implementation of e-democracy in the region.
Local eGovernment is about:

- **Transforming services** – making them more accessible, more convenient, more responsive and more cost-effective. It can make services more accessible to people with disabilities. It can make it easier to join up local services (within councils, between councils, and between councils and other public, voluntary and private agencies). It can help improve the customer's experience of dealing with local public services.
- **Renewing local democracy** – making councils more open, more accountable, more inclusive and better able to lead their communities. eGovernment can enhance the opportunities for citizens to debate with each other, to engage with their local services and councils, to access their political representatives and hold them to account. It can also support councillors in their executive, scrutiny and representative roles.
- **Promoting local economic vitality** – a modern communications infrastructure, a skilled workforce and the active promotion of e-business can help local councils and regions promote employment in their areas and improve the employability of their citizens. If you lead a council, or a council service, you should be asking yourself and your organisation: do you know how you are going to use egovernment to achieve these benefits?

Key objectives of local eGovernment:

- **more 'joined up'** - by linking services across organisations in the region, through improved communications, shared information systems, access points and delivery methods. This includes **delivering services jointly** with central and local government agencies and departments, the health service and the voluntary sector in particular;
- **more accessible** - from home, libraries, community centres - indeed anywhere for the convenience of the public rather than from council offices at the end of a queue. Equal access for all and social inclusiveness are key. Services will be available at times and in ways which suit the public – not constrained by normal office hours or specific technology to access the service (access channels);
- **delivered or supported electronically** – creating more responsive, better value and faster services and information access, for example, through joint contact centres and web sites, and simplifying access to services for "life episodes" such as changing school, setting up a business, or moving home. Seamless delivery and the removal of unnecessary bureaucracy are key aims;
- **open and accountable** - providing more information about plans, priorities and performance, encouraging public consultation and supporting councillors in keeping in touch with the people they represent;
- **used by 'e-citizens'** – we need to support and encourage members of the public to adopt electronic services where appropriate, especially where this reduces transaction costs and allows us to focus scarce resources on those in our communities who need it most. Though it is hard to know what the public will expect from electronic public services in the future, and we recognise that not everyone will want or be able to access services electronically, careful design and continuing consultation will help avoid costly investment mistakes.

There are also some risks concerning the information society development of the region:

- The role of the IT component is overstated. In fact the technological component is most easiest part of the development and implementation of the IT systems.
- There is sometimes understanding that it is possible simply to transfer IT systems from one country or even from one municipality to another. This is in most cases impossible because of complexity of procedural and organizational matters
- There are often arguments that IT systems are very expensive and because of lack of budget the IT development is not possible. Often the systematic approach in ICT budget planning is even more important than amount of money. It helps save money and even with the use of limited resources to guarantee the sustainability of development and implementation..
- There is no-one to translate the difficult technology related language to the language, understandable for top managers. Because of that some fear that IT companies are using the situation and trying to sell something expensive and not suitable
- There is sometimes understanding that top managers have no role in this development process: Everything is fixed by the legislation and main problem is to find company who will make the programs according to the existing legislation. The IT development process is widely change management process where leadership issue is most important. For that some basic knowledge of managers of the municipality is needed.

The solution of most of these problems is well **functioning enabling framework**. To guarantee the smooth planning, development and implementation of ICT systems, organizational, regulative and fiscal frameworks should be in place. Following paragraphs will give some descriptions, explanations and recommendations in establishing these frameworks.

Organizational Framework

Contrary to what is often thought, the biggest challenge when developing an information society does not lie in how to get the information technology together, but in shaping the organizational, legislative and fiscal framework of the local government to support the development of e-governance.

The organizational model offers the local governments a framework in which to situate the decision-making processes and project management activities, related to introducing e-government.

As stated above, the organizational model can differ according to the size and the level of organization organisation of the local government it is to be applied to. A further division is made between the internal (applying to the back-office of the local government) and the external aspects (applying to the interaction with central government) of organization

"City-type" municipalities – internal dimension

Even if the basic responsibility of IT development remains in the hands of the city mayor or head of administration of the municipality, in local municipalities that can allocate sufficient resources, the responsibility concerning IT projects should be delegated to a specialised IT manager.

The IT manager, which we will refer to as "CIO" or "**Chief Information Officer**", should be placed at a sufficiently high level within the municipality (usually at the level of head of department). He or she will be responsible for:

- creating and implementing an ICT action plan on the level of the municipality;
- planning and preparing the annual ICT budget, in line with both the municipality and the central government ICT action plans;
- implementing projects, including procurement, the organization of supervision and answering to the municipalities training needs;
- maintenance of the ICT architecture and user support;
- participation in an ICT task group of municipalities, to be lead by the Central Coordination Unit of the Ministry of Local Governments.

Benefiting from the supportive, advisory and preparatory activities of the CIO, a city **ICT council** should be established to assist the mayor in overall strategic decision-making.

Such an ICT Council

- is headed by the city mayor or head of administration;
- consists of the key persons in the main departments and sub-units of the municipality;
- coordinates the efforts of all actors involved in the ICT projects and integrates the changes in the internal working of the departments;
- benefits from the preparatory work of the CIO;
- has the authority to approve all the strategic initiatives concerning the development of ICT in the municipality, including propositions to initiate new projects, the annual ICT budget[2], intermediate reports on ongoing projects and measures needed to implement re-engineered processes.

The tasks of the ICT Council can, depending on the size and specialisation and on the existing organization within the municipality, be taken up by the City Council itself.

In bigger municipalities and municipalities with a more complicated division of tasks, **IT Correspondents** can be appointed. Preferably, they have a better knowledge and understanding of ICT issues. They support the implementation of new technology in the department and act as contact persons for the CIO. IT Correspondents need to be offered more intensive training on IT and can be rewarded for their extra efforts using financial and non-financial incentives.

With ICT comes the issue of data protection. Where at first basic physical and procedural security measures can be sufficient, a comprehensive security policy has to be developed over time. The need for such a policy grows with the development of different systems and the exchange of data, enlarging the risk of unauthorised use of information.

The issue of data protection should be tackled by a **Data Security Officer**, who can be especially appointed and trained or who's tasks can be observed by a senior official within the municipality. The Data Security Officer implements organizational, physical and technical data protection measures after analysing the risks connected to the implemented mechanisms of information gathering and exchange.

Ideally, the work of the Data Security Officer is supported through feedback gained from regular external security audits.

The ICT centres that are joint foundations of the local governments and the UNDP will have to gain a more institutionalised status. This can be achieved through full integration of these centres into municipal governments, either as IT departments or IT service centres.

Part of the activities, such as training and software development, can be separated from the municipality government and can grown into independent companies.
Other tasks and activities can be performed in cooperation with IT departments of other municipalities, either through direst cooperation or through the creation of a specialized (non profit) entity, working primarily or exclusively for the municipalities that control it.

"Small" municipalities - internal dimension

ICT manager in small municipality is not necessarily working full-time for municipality. His/her working time could be shared with other institutions – school, government institution or private company.
The person responsible for IT could be outsourced from company. The main role of the person is to have clear vision of the future developments and understanding of the municipality needs – as well in the office and broader.
All services could be outsourced as well. But there is dangerous moment - somebody from the municipal organization should be wise subscriber and contractor for the outsourcing partner.

External dimension – big city-type municipalities

Central IT strategy of country should be taken into account on the municipality level. Local government strategies and action plans should reflect the basic issues of central IT-strategy. Organizationally, the strategic questions of ICT development are discussed in the government-founded, nation-wide IT-board.

Representatives of big municipalities should be members of nation-wide IT-board. Basic and strategic information society questions of the municipalities are presented for the opinion of central IT-board. To harmonize the development levels of municipalities, working group of municipality-level ICT managers should be formulated. This task-group is focused to solve common issues of ICT development in the municipalities. This is also a good organizational mechanism to harmonize local government views to be presented to the central level of IT-board.

Municipalities' IT working group could be the body that provides advice, opinions and decisions of nationwide cooperation of municipalities.

External dimension – small municipalities

Small municipalities should cooperate in the framework of local government associations. Small municipalities are usually not capable to run their own IT-strategies and projects. This is the reason why for small municipalities common strategy (information policy document) should be developed.

Another option is to establish jointly owned (by municipalities or Association of Municipalities) ICT company that provides services for municipalities – document management system, financial system, e-mail system, etc. The same role can also be assigned to the association of the ICT Centers.

Legislative / regulative framework

ICT is the most important development component of modern world and valuable foundation of information society. In developed countries its use and implementation is based on optimally arranged regulations and international standards that create stable and predictable legislative environment with laws that are clearly formulated, transparent, nondiscriminatory and technologically neutral.

Privacyprotection and data handling, intellectual property rights, contract law, electronic signature law, electronic commerce law, telecommunications law and many others, need to be enacted to provide a secure and stable environment attractive.
For EU candidate countries the Key Steps to a New e-legislation are harmonization with EU legislative, fulfilling the obligations from eSEE Agenda and WSIS Action plan, amending existing laws and adopting new laws and by-laws.

Fiscal framework. Structure of budget

ICT budget planning is part of general municipality budget planning. From several best-practice examples, it is important to fix the structure and methods of ICT budget planning by internal regulation of Municipality. It is recommended to describe ICT related expenses clearly in Municipality budget. Ideally, half of the IT-budget is used for running and maintenance costs and half for development and investments. From international experience, the share of ICT expenses from the general budget is 1-2%. In parallel with financing possibilities from municipality budget, often international donors are supporting development projects. The choice of possible development projects is depending on the strategic aims of these organizations. Quite often this financing is aimed to support the projects related to the civil society development, transparency, eDemocracy and anticorruption issues. In these cases the mechanism and rules of financing depends on the regulations of these international organizations.
Despite of these external possibilities, IT budget from municipality budget is one of the priorities not depending how much the share of this money is from general budget. This is important because of sustainability of the work of these systems, the possibility to use the process for general coordination functions etc.

ICT budget is often divided into:

- Running costs of systems and infrastructure. There is the need to renew ca 20% from infrastructure every year. The calculation formula can be used to evaluate the need for this renovation: c=a*b*0.2 (c - need for infrastructure renovation budget, a – number of ICT workplaces in municipality, b – estimated cost of unit of infra, usually 2-3 000 EUR). In addition to the renewal of the infrastructure some other costs should be estimated – cost for Internet connectivity service, cost of soft and hardware maintenance, cost of software licence, cost of ICT staff training etc.
- Cost of development projects. This cost is often evaluated used the

expert method.

Technical Model

Technological model for municipalities consists of two basic parts:

- IT- infrastructure
- Information systems

Basic components of both parts are similar, since most of functions that municipalities are called to perform are common and established by the law. There are some differences between city type of municipalities and small rural municipalities but they are relatively minor and will be dealt within the text.

IT infrastructure

The IT infrastructure for the municipality is the material part of the e-model for municipalities. The equipment and the connectivity whether wired or wireless are the backbone of information exchange both within a municipality and between the municipalities. Since IT equipment is also the most expensive part of the e-model that has to be implemented with very scarce resources, one has to be very careful in the planning process. A general recommendation is to aim at harmonious development of the infrastructure in order for not to create artificial bottlenecks that do not allow to use the obtained resources efficiently.

The IT infrastructure for a municipality consists of personal computers, local area network(s), user identification and authorization systems and basic software. For the uninterrupted flow of data that is a precondition of data exchange between administrations, one needs to aim at developing a broadband Internet connection in every local authority. Since this is also a need on behalf of central government, it is advisable to create a centrally launched and financed project to reach that aim whereby the central government will pay for the initial setup of the broadband connection and municipalities would be responsible for the running costs. Such a layout will set a basis for sustainable functioning and development of municipal IT systems.

It is strongly recommended that every person who needs to have a workstation, would have it connected to Internet and equipped with basic set of software tools. Local governments should themselves develop a fixed standardized list of necessary software for an ordinary workstation of their municipality in order to facilitate the exchange of information and keep track on proprietary issues of the software.

The introduction of an ICT system at local level would typically go through the following steps[3]:

- Systemic analysis of processes and procedures of local self government
- Feasibility analysis of the information system
- Design of the network
- Installation of the information system
- Training of users
- Implementation of a monitoring system for model usage

In order to have a fully functioning information system, the following basic technical preconditions should be met:

- Local network-all the computers in the local administration should be networked, or at least one computer in each department or office should be in the network
- Central server-is required to host the model and supporting software

[3] Based on the report "Capacity Building of Local Governments-Development of Model Macedonian Municipality

- Internet connection-according to the needs of the local government network and its financial capacity. Large municipalities might use a dedicated line, providing twenty-four hour connection with Internet. Smaller local governments may only be able to afford a more limited connection

For the implementation of the local information system, the following infrastructure is needed:

- Minimum informatics equipment of the local government is one computer in each department or office. One high quality computer will function as server.
- Knowledge of Windows and Internet by employees who will perform the interactive work with clients.
- An appropriate software package including users' manual.
- A team of experts to conduct the basic systemic analysis, install the model, and train the users.

In order to provide for better comprehension of the process of development of eGovernment and for a competent demand for electronic administrative services, it is necessary:

- To carry out regular monitoring of the perceptions for the consumption of electronic administrative services.
- To organise and implement an awareness programme for the utilisation by businesses, citizens and administration of electronic services.
- Using the capabilities of eGovernment the traditional channels for service delivery must be preserved, developed and organised according to the "one-stop-shop" concept in order to avoid the "digital divide" between the different target groups.
- To carry out a periodic evaluation of the advancement in the implementation of electronic services.

3. eGovernment Development Planning

Besides of building of sustainable enabling environment eGov development planning is important. The planning should be systematic, stable and sustainable. In this planning process, organizational, legislative and fiscal environments are having important roles. Quite often there are two types of plans – strategic and long run plans and operative, one-year action plans. The methods to define these plans are different, also depending on the size of the municipality. It should be also said that sometimes the strategies and action plans are not in the paper and having more "ad hoc" nature but thise plans normally exists despite they are on paper or not.

Where We Are - Indicators and Benchmarking

For strategy and action planning reasons it is important to know what is the IT situation of municipality. One example of an assessment that **balances** efficient administrations with responsive democracy is the BEGIX (Balanced eGovernment Index) tool focused on measuring 'balanced e-government' by combining electronic and participatory services.

The self-evaluation tool BEGIX (Balanced E-Governance Index) is based on the concept of balanced eGovernment according to which a "correct" eGovernment is a balanced combination of electronic services and forms of electronic participation that is developed within change management framework. The concept was developed in the course of a benchmarking survey carried out by Bertelsmann Foundation and BoozAllenHamilton.

A matrix forming the basis of balanced eGovernment comprises five areas (see

Figure 1) :

- Benefit
- Efficiency
- Transparency
- Participation
- Change management

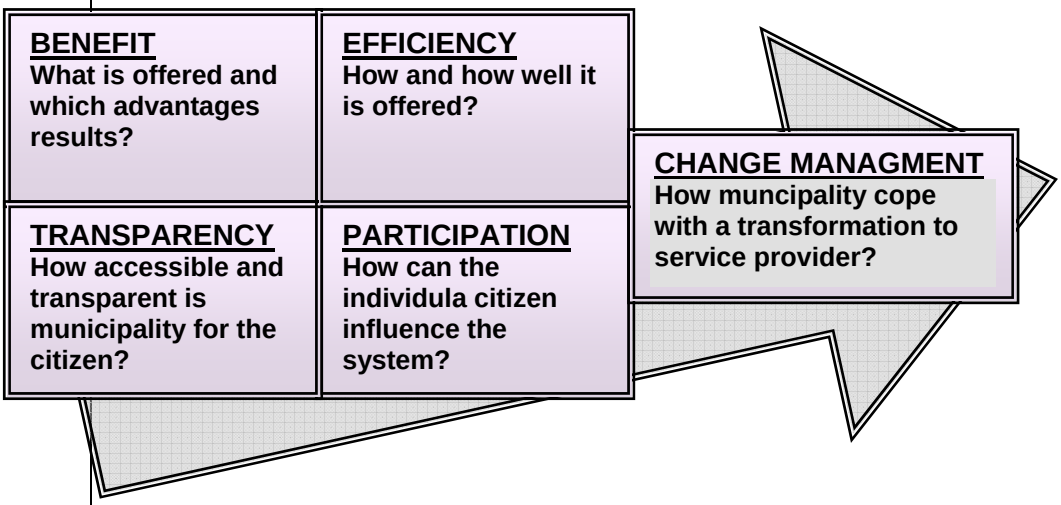


Figure : The Balanced eGovernment Scorecard

3.1 ICT Strategy of Municipality

In theory IT strategy should be developed according to the general development strategy of the municipality and not vice versa. Bigger municipalities often have some general strategy papers while smaller ones often do not have. In most cases the strategy is build in combination of bottom-up (development needs proposed by the different units of municipality according to their everyday needs) and top down (from some strategic considerations of development, incl. tasks set by the national Information Society Strategy) planning. The strategy development is collective work of all of the staff of municipality but specially IT organization. The time horizon of strategy is often 4-5 years and this is the bases of operative plans – annual action plans.

There are often following parts or building blocs of the strategy:

- To increase efficiency in administration, benefiting both the business sector and the citizens of the municipality in everyday life – activity, directed to the external dimension
- To increase efficiency and transparency (questions about anticorruption etc.) of the business of the municipality itself – this activity is focused to internal dimension, to improve back-office processes of the municipality;
- To support democratic processes through the tools of e-democracy - focused to the external processes
- To increase access to Internet and public information. Questions about e-inclusion, broadband strategy.

The focus on the top leaders of the municipalities is maid with the intention to explain in pragmatic way most important issues of the information society development. It is utmost important that this strategic development is managed by the top leaders of the municipality. There are several reasons:

- The implementation of the ICT systems cause changes in organization and processes. These changes can not be managed by IT managers. These are general top management questions.
- ICT development are derived from general development plans of the municipality. This is the issue of top management of the municipality.
- Efficiently functioning IT systems are establishing environment for economic

development, increase of foreign investments, transparency of local government etc. Personal leadership in these developments will give political credibility and reliability.

- Well managed and functioning IT systems will build ground for growth of financial stability of municipality. This will give clear message to the voters of the community about positive changes and stability.

The ICT strategy of the municipality should be clearly documented and should be based on rules and regulations. Concerning ICT, a set of basic documents has to be created over time.

The tools for coordination of ICT development in public administration are money and regulations. The usage of both of these tools are prerogative of top managers.

3.2 Action Plan for Implementation of ICT

Annual action plans are more concrete project description where in parallel with the strategic aims, several more concrete aspects are defined. Usually these are specific aims of the project, expected time-frame, responsible persons or organizations, general methods to proceed with the project, predicted budget and human resource needs and main deliverables. Action plans are normally prepared by the CIO and approved by the IT Council. In small municipalities where CIO and Board does not exist, the plans are prepared by IT advisor and approved by the head of municipality. ROI and profitability is one aspect which is often under discussion when action plans are prepared.

Action plans consists often benchmarks to measure the success of development with the special focus on projects in Action Plan. Benchmarks consists also fiscal issues.

The supervision of the planning process is the duty of top management of the municipality. This is in many cases accompanied with fiscal and IT auditing processes.

The goal of the action plan is to define the priority activities in each municipalities for introduction and implementation of the e-governance at local level.

Action plan format is a matrix that involves all the necessary aspects of e-governance and can be used by each municipality.

The matrix consists of the following components:

- Actions – the activities that should be taken by municipality for achieving the development of e-governance at local level.
- Expected results – end result/target of the activity
- Person/department – who is responsible for the fulfillment of an activity?
- Required resources – what is needed for completing the activity?
- Funding source – from where the funding should/ can come (municipality budget, donor organization etc).
- Success criteria – the precondition that is needed for implementation.
- Deadline – when the task should be completed?
- Status – status description after each 3rd-6th months
- Financial resources – what is the financial measure for the activity.

The activities are divided into 5 action lines. Action lines are important components for the successful implementation of the e-governance in the municipalities. Each action lines have several sub-activities and municipalities can continuously add new necessary activities.

Action plan could have following major action lines:

1. Organization related
    a. *Human Resources*
2. IT Systems

   b. *IT Infrastructure*
   c. *Information Systems*
3. Security
4. E-services and e-democracy
5. Other

In order to ensure the implementation of the action plans, the following activities should be focused/considered:

1. Each municipality should point the person who is responsible for the implementation and revision of an action plan.
2. Action plan should be active document and it should be reviewed and modified by municipalities at least after each 3-6 months.
3. Monitoring the progress of the action plan. The assistance should be provides to municipality. It is good to involve outside expertise for measurement the implementation of the action plans – the municipalities also can be consulted about the further necessary activities.
4. Develop a network between municipalities – to organize regular meetings between the municipalities during which the action plans are discussed and ideas can be discussed.

3.3 E-services for citizens and businesses

As after decentralization municipalities will offer new, wider variety of services for citizens, it is great challenge to offer those services in traditional way, but as well as e-services. According to European researches local governments in developed countries are offering up to 77% of public e-services. Often local government portal is the first stop to reach central government services

The application of the ICT in the public sector has generally three dimensions:

- G-to-G or the use of the information and communication technology to improve the functioning of the administration,
- G-to-C or the provision of services to the citizen and
- G-to-B or the provision of services to the businesses.

The European Commission has defined a list of twenty basic public services. For twelve of these services, the citizens are the target groups and for eight of them businesses are the target groups.

In order to measure the "availability of public services online", a four-stage framework has been defined[4] and widely accepted. This framework provides basic guidelines of how to proceed with the development of various services to the citizens and businesses.

- **Stage 1- Information**: The information necessary to start the procedure to obtain this public service is available on-line.
- **Stage 2- One-way Interaction**: The publicly accessible website offers the possibility to obtain in a non-electronic way (by downloading forms) the paper form to start the procedure to obtain this service. An electronic form to order a non-electronic form is also considered as stage 2.
- **Stage 3- Two-way Interaction**: The publicly accessible website offers the possibility of an electronic intake with an official electronic form to start the procedure to obtain this service. This implies that there must be a form of authentication of the person (physical or juridical) requesting the services in order to reach stage 3.
- **Stage 4- Full electronic case handling**: The publicly accessible website offers the possibility to completely treat the public service via the website,

[4]Report on "Online Availability of Public Services: How is Europe Progressing?". 3rd March 2005 (http://europa.eu.int/information_society/soccul/egov/egov_benchmarking_2005.pdf)

including decision and delivery. No other formal procedure is necessary for the applicant via "paperwork".

It is important to note that first, primary and most used service for both the citizens and the businesses is simple information provision. By using its own web site a municipality can and should provide both information about its own setup and activities as well as various local information. One should not forget that web-sites will become quickly the front windows or gateways for not only the local population but also for people from other localities and tourists.

It should be aimed to reach the situation where 20 services for citizens and businesses, fixed in the eEurope action plan will be offered at least on the second-stage of service delivery. It is recommended that these services are developed and implemented centrally but in many cases used and supported by each municipality. It should be mentioned also that in most cases the precondition for development of e-services is well-functioning back-office systems of municipality as well as operational central basic registers.

3.4 eGovernment Funding

A number of features of budgetary arrangements can work against efficient implementation of e-government. Current budgetary frameworks provide financing for individual projects, but do little to account for the shared responsibility inherent in many eGovernment projects.

EGovernment funding:

● To the extent that an explicit choice is made, the implementation of eGovernment is often unlikely to win out in competition with other compelling public policy objectives such as education, security and health.

While most eGovernment proposals will be argued for in terms of programme outcomes rather than in terms of advancing eGovernment *per se,* the **level of resources** devoted to eGovernment is ultimately a matter for governments to determine in the light of their overall priorities.

● The difficulty of measuring costs and potential benefits for eGovernment projects makes it hard to develop funding cases for projects and compare alternatives in a budget-setting context.

● The treatment of certain ICT spending as capital rather than recurrent expenditure is a major challenge. Not all ICT expenditure is of a capital or investment nature, but involves maintenance, associated recurrent staffing costs, or small-scale projects. However, if major projects are not considered as investment, they will need to compete with other more pressing recurrent funding proposals, and in this context will seem to involve large levels of expenditure.

● Budget time horizons can pose problems for e-government. Many eGovernment projects will be multi-year in nature, and thus require commitments to spend resources over a long period, sometimes well beyond the annual or multi-year budgeting horizon. Such projects represent a commitment to spend future revenues, and governments are understandably reluctant to tie up future spending. Projects that do not require such a commitment may be favoured.

EGovernment collaboration:

● There are a number of **budgetary rigidities** that prevent shared funding arrangements. The vertical nature of current arrangements means that it can be difficult to request joint funding, to pay into a project being done by another agency, or to pool funds. There are few mechanisms for shared funding, and it can be difficult to assess the extent to which agencies are benefiting from (and hence should contribute to) a shared project.

● The use of **performance-based budgeting** can create disincentives for

collaboration, by rewarding independent behaviour at the expense of shared projects (see section on legislative and regulatory barriers).

● There is no framework for **profit sharing**. Agencies have no incentives to eliminate redundant systems by sharing systems with other agencies unless they can share in some of the savings generated.

3.5 Possible solutions

A number of steps can be taken to help overcome the aforementioned budgetary barriers. **EGovernment funding** can be assisted by the following measures:

- Major ICT projects could be usefully **classified as capital investment**, involving a single or a series of up-front capital outlays, with a consequent stream of benefits. This would enable a fairer comparison of such proposals with recurrent spending alternatives, or in some systems remove the capital project from recurrent budget frameworks. Classifying such major projects as capital investment help with funding of eGovernment projects. This will also help with problems of budget time horizons.
- In a number of countries, spending on eGovernment requires **separate** approval by the eGovernment co-ordinating office to ensure that there is no duplication or inconsistency with broader strategies and architectures.

Clear rules and structured consultation processes will help maintain agency confidence in this approach.

Public-private partnerships can be used to bypass budgetary constraints and thus respond to a number of barriers, including obtaining capital, budget-time horizons and disincentives for innovation and collaboration.

For example, using a private partner to build the required infrastructure, and then leasing it, or otherwise paying on a user-pays basis will reduce the need for up-front capital, but with the risk of greater long-term cost.

- Specific central **funding for innovation** can be used to fund innovative and high-risk demonstrations that otherwise would not receive funding.
- Arrangements could be used to augment this funding though linked (or matching funds) from other agencies, private partners, or by using seed financing from a central fund with the expectation that the investment will be repaid (in part or in full).
- An agreed approach to the **assessment of costs and benefits** of eGovernment can help evaluate and fund successful projects (see section on Monitoring and Evaluation).
- The ability of agencies to **retain savings** generated from eGovernment initiatives will be important as an incentive for agencies to look for efficiencies. The linked nature of many eGovernment projects across traditional programme and organisational lines means that shared budgetary arrangements are essential. On the basis that the bulk of funds for eGovernment will (and should) be provided through agency budgets, the budget process can be used to promote co-ordination of eGovernment initiatives.

EGovernment collaboration can be aided by the following measures:

- A **central register** of eGovernment initiatives seeking funding would enable agencies and eGovernment co-ordinators to see the range of new proposals and identify potential duplication.
- **Central funds** can be used to encourage certain activities, such as collaborative initiatives by agencies.
- Under the **lead agency model**, an agency funds a project that benefits other agencies as well as itself.
- Another possibility is that a number of **agencies co-ordinate their approach** to obtaining funds. This may be done, for example, by dividing a

project into segments. (However, this approach can lead to implementation problems regarding the division of the project, especially as some agencies may be successful in obtaining funding while others fail.)

- Under **pooled funding** arrangements, agencies share funding for a common project. It is important to be able to formalise such arrangements in quasicontractual arrangements, to provide clarity for all parties and to allow for a unified project management and implementation approach.

4. Legal framework for ICT regulation: General comments

ICT related legal regulation should take into account the fast development of the field and to avoid focus on specific technologies. Over-regulation in this field is dangerous and should be avoided – so called "soft methods" are often better than tight technology related regulation. In most cases the regulations are not fixing technology or technological standards but rights and responsibilities of organizations and physical persons.

Under "soft methods" we understand field related policies and principles, international and national standards (standards are often not compulsory but recommended) and ICT interoperability framework documents, which are also not laws but principles which are strongly recommended.

Several basic principles are important to agree and to fix before establishing ICT related legal framework. Often these principles are more common, not relevant only in the field of information society. These principles are sometimes described in some Information Policy or Information Society Strategy paper. ICT is in nature "horizontal issue" crossing very many fields of activities. It means that ICT is from one side tool to enable reorganization of processes. From other side this should be seen as possibility to for new processes, which were unthinkable before. Therefore ICT related regulations are crossing very many laws and regulations. In the international practice there are almost no purely ICT laws.

Before establishing ICT legal framework this is important to agree:

- The share of roles and responsibilities between public and private sector.
- How to make supporting framework for public-private partnership.
- What are the measures to avoid digital divide.
- What are the principles to guarantee the rights of persons privacy
- If there is will to form special Information Society Law or ICT Law?

There are several fields to be regulated more directly related to the ICT.

- Freedom of information (incl. access to information). Public Information Law, some aspects of telecom regulations (universal services, principles of pricing of telecom services etc.), legislation about re-use of public information.
- In parallel to the freedom of information there is the need to protect privacy of persons, state secrets etc. So, the legal infrastructure is establishing rules and restrictions on the use of information. Examples here are Personal Data protection Act, State Secret Acts etc.
- Digital signature related regulations are establishing general principles about issuing digital certificates, organizational responsibilities etc. In parallel with the digital signature act, there are infrastructure components (ID-cards, digital ID carriers…) which are sometimes regulated by the law – persons identity documents etc. It might be under discussion whether the regulation about her Sometimes there
- In lower level – regulations issued by the Government (Government decrees etc.) there are much more specifics related to the use of ICT. For example government document management regulations, digital archiving rules,

principles of use and standards of digital maps etc.
- Regulation about establishing official registers and databases.

Without knowledge of concrete overall legal framework of different countries there are some general need for regulations. Following list can form the TOR for ICT related legal regulations but should be handled in the framework of the general national legal structure. It means that the names of the Laws, the structure how to regulate some specific aspect and even if there is need to regulate some aspects at all (because of concrete national legal framework and information policy principles agreed) can be different. From the other hand, some legal regulation might come from some general international regulations of agreements. For example in EU level personal data protection, telecom regulations, some aspects of digital signature regulations, re-use of public information and also freedom of information principles are to be regulated in the National Law.

Freedom of Information Act:

The purpose of the Act is to ensure that the public and every person has the opportunity to access information intended for public use, based on the principles of a democratic and social rule of law and an open society, and to create opportunities for the public to monitor the performance of public duties.

Act could describe:

1. the conditions of, procedure for and methods of access to public information and the bases for refusal to grant access
2. restricted public information and the procedure for granting access thereto to the extent not regulated by other Acts
3. the procedure for the exercise of state supervision over the organisation of access to information
4. Need to have web pages of all public sector organizations
5. List of information which should be presented in the web pages of public sector organizations
6. Responsibilities and penalties of public institutions about active presenting of public information
7. Tasks to establish infrastructure to ease access to information (for example PIAPS in public libraries of schools)
8. Aspects of commercial re-use of public information
9. Procedures and rules in which cases the access is restricted

5. ICT Policy making

5.1. Defining Public Policy

The Oxford English Dictionary defines policy as "A course of action, adopted and pursued by a government, party, ruler, statesman, etc.; any course of action adopted as advantageous or expedient." While this definition suggests that policy is the realm of those in power – governments or official institutions – a wider sense could include the vision, goals, principles and plans that guide the activities of many different actors/stakeholders.

ICT policy generally covers three main areas: telecommunications (especially telephone communications), broadcasting (radio and TV) and the internet. It may be national, regional or international. Each level may have its own decision-making bodies, sometimes making different and even contradictory policies.

Besides, studies of public policy have offered many definitions of the term, ranging from broad examples such as "whatever governments choose to do or not to do", to others which provide more specific defining characteristics, e.g., "a purposive course of action followed by an actor or set of actors in dealing with a problem or matter of

	concern". To build a picture of the diversity of opinion represented in the field, it is useful to highlight the range of key concepts included in a wide range of definitions. The following is a list of these core elements: Public Policy is: o **authoritative government action:** Public policy is action implemented by the government body which has the legislative, political and financial authority to do so. o **a reaction to real world needs or problems:** Public policy seeks to react to the concrete needs or problems of a society or groups within a society, e.g., citizens, non-governmental organizations (NGOs) or government bodies. o **goal-oriented:** Public policy seeks to achieve a particular set of elaborated objectives which represent an attempt to solve or address a particular need in the targeted community. o **a course of action:** Public policy is usually not a single decision, action or reaction but an elaborated approach or strategy. o **a decision to do something or a decision to do nothing:** The outlined policy may take action in an attempt to solve a problem or may be based on the belief that the problem will be solved within the current policy framework, and therefore takes no action. o **carried out by a single actor or a set of actors:** The policy may be implemented by a single government representative or body or by multiple actors. o **a justification for action: T**he outlined policy usually includes a statement of the reasoning behind the policy. o **a decision made:** Public policy is a decision already made, not an intention or promise. **Members of the Public Policy Community** The making of public policy has direct impact on a society, and therefore the people involved at various levels in the process are generally numerous and diverse. These individuals or groups who have a direct or indirect interest in the outcome of a policy decision, i.e., the stakeholders, can include government agencies, policy advisers and a wide range of non-governmental or community groups and individuals. At the center of this community is the relevant governmental agency or agencies designated to handle the problem or issue in question. In some instances, the policy analyst, policy center or think tank may enter into a direct advisory relationship with the government agency as its client. In this case, the governmental agency looks to the policy analyst or center to carry out an in-depth study of the issue and make policy recommendations which will then form the basis of the government's policy. In general, the empirical basis of these in-depth studies is previous research carried out by policy study centers into the issue in question. While this direct relationship between analyst and government does not commonly exist in CEE, nevertheless many policy researchers, analysts and centers aim to influence the policy debate on particular issues. This is achieved through publishing their studies, which they may then also publicize for the broader public policy audience though the media and various other methods. Needless to say, in any democratic society, all stakeholders will also do their best to advocate for their preferred policy option in whatever means they find the most effective, e.g., with the responsible government agency, with other government/parliamentary representatives or through the media. Such stakeholders can include NGOs, international governmental organizations (IGOs), other policy advisers or centers, local authorities, political parties, community groups, unions or concerned citizens. Figure 1. represents the broad community and their relationships from the point of view of the policy adviser.
What areas do ICT policy covers?	
Diverse definitions of public policy exist but share core elements.	
What are the core elements of a public policy?	

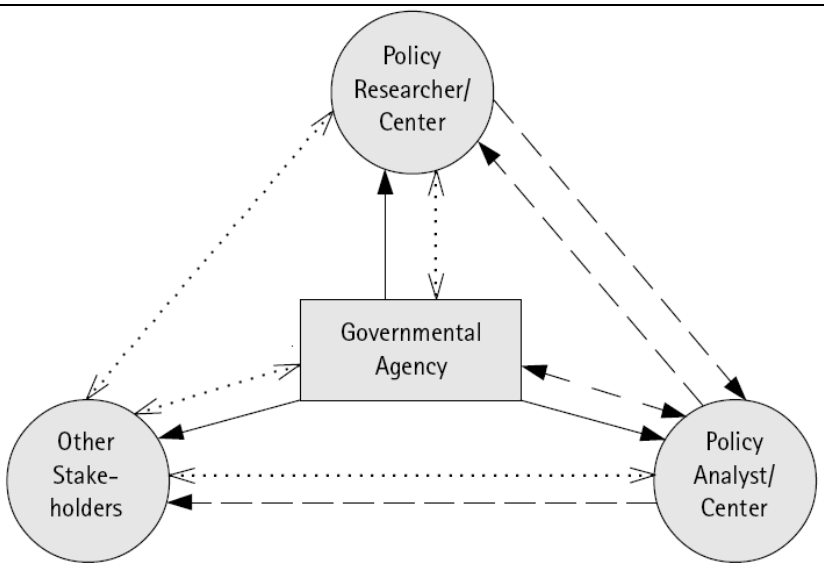


Figure 1. The Public Policy Community from the Policy Adviser's Perspective

5.2. Multi-stakeholder partnerships for ICT policy

The public sector has been the major force behind most ICT policy and national ICT strategy initiatives in Western Balkan Countries over the last decade. However, it is becoming increasingly clear that the success of ICT in development cannot be met without the active participation of civil society, the media and the private sector. The main ingredients of ICT for development include a range of areas that need to be addressed – an enabling policy and regulatory environment, access to basic infrastructure, accelerated development of basic ICT skills, development of appropriate content, ICT applications for development, and advanced ICT research and development to provide innovative solutions applicable in developing country contexts. Such wide range of requirements needs strategic alliances between different actors at national, regional and international levels. No single sector in society can deliver services to address the complexities of sustainable development; nor can public initiatives alone meet ICT for development challenges. As a result the multi-stakeholder approach has become preferred to a traditional top-down approach for promoting policy changes and managing accountability in the implementation of ICT programs. The understanding that the "voices of the commons" are a strong catalyst for change and a key for meeting these ICT for development challenges has given rise to the increasingly pivotal role of civil society organizations (CSOs) drawn from non-governmental organizations (NGOs), faithbased institutions, grassroots organizations, professional associations, trade unions, consumer groups, research institutes, think tanks and the media. Their involvement in multi-stakeholder processes with the private sector and policy-makers has given rise to a new form of multi-stakeholder partnership that has created a positive force for driving forward ICT policy and ICT for development (ICT4D) programs around the world. Some governments have launched their own partnership programs, reaching out to other stakeholders in order to enhance their work in ICT policy, planning and program implementation.

What are multi-stakeholder partnerships for ICT policy?

What are the goals of a multi-stakeholder partnership?

What are the benefits of multi-stakeholder partnerships?

What is the difference between networks and multi-stakeholder partnerships?

Definition of multi-stakeholder partnership:

Multi-stakeholder partnership is a very broad term that describes groupings of civil society, the private sector, the public sector, the media and other stakeholders that come together for a common purpose, which here refers to the intent to drive changes in ICT policy development and ensuing implementation. In such partnerships the partners have a shared understanding that they play different roles and have different purposes, but that they can pursue collective goals through collaboration and common activities to achieve such goals. These partnerships are voluntary, with participation driven by the perceived benefits they may see emerging

What is the role of the partners in a multi-stakeholder partnership? What can be the risks of a multi-stakeholder partnership?	from the process. Such partnerships are increasingly being used to challenge and lobby for change in policy processes. This is, in a number of cases, underpinned by collective research funding to support a particular position in the policy process and to raise general levels of awareness and knowledge about the issues under consideration. Multi-stakeholder partnerships show a range of modalities – from loose forum-like structures allowing for active debate and the exchange of knowledge and experience, to more formalized structures based on the creation of a legal entity with appropriate governance structures to ensure transparency and accountability. The multi-stakeholder partnership is often viewed as a network approach. However there is a substantial difference between networks and multi-stakeholder partnerships. Networks rely on the membership of like-minded institutions that share a common purpose for core activities, while multi-stakeholder partnerships aim to band institutions with different agendas together to address common issues that may affect them or their stakeholders. Networks tend to be self-organizing, evolving in response to complex realities facing them or their constituents. They are highly dependent on informal leadership to achieve their purpose. Multi-stakeholder partnerships can be regarded as networks with some formal element (e.g. a name or collective identity, guiding principle and small secretariat). Multi-stakeholder partnerships are often created by agents (champions, external donors, etc.) to address specific policy challenges. **Goals of a multi-stakeholder partnership:** The core theme of multi-stakeholder partnerships is joint value creation by all the participating members. Multi-stakeholder partnerships are important to bring about policy change, share risks, and find innovative and synergistic ways to pool resources and talents, based on each participant's strengths. Multi-stakeholder processes are longitudinal and iterative initiatives that are developed to deliver mutual benefits for all that are engaged in the process on a long-term basis. The purpose is to pursue a shared vision, maintain a belief in favor of joint problem solving, and add value to the challenge under consideration beyond that which can be achieved through the efforts of individual initiatives. The main goal of a multi-stakeholder ICT process is to see change in policy and implementation. The specific goals of multi-stakeholder partnerships in ICT policy development are to: - Identify specific ICT issues that affect social and economic progress and which need priority attention - Carry out joint analysis and research which will better inform the policy formulation process and subsequent implementation - Pool resources, talents and other capabilities of a diverse range of stakeholders, thereby strengthening the capacity to effect change - Share information on problems and solutions, and promote greater levels of understanding and trust between the various stakeholders - Develop guidelines for best practices, written inputs into policy processes or action plans for the implementation of ICT policy changes - Build the capacity of citizens to gain confidence, knowledge and skills, which in turn will enable them to participate more fully in the policy development process - Lobby policy- and decision-makers for change - Raise the level of awareness of ICTs through collaborating with the media - Evaluate and monitor progress of change and subsequent policy implementation - Address other ICT issues **Benefits of multi-stakeholder partnerships:** Multi-stakeholder partnerships do not only bring key stakeholders together to discuss policy issues, build consensus and implement solutions, but also help to improve equity between players, and promote transparency and participation of the public in

	the ICT policy process. The multi-stakeholder process uses a wide range of methods and tools of engagement including face-to-face meetings, online discussions, training workshops and the formation of working groups to prepare briefing papers, inputs into policy processes and background research on priority ICT topics. In general: - Multi-stakeholder partnerships promote inclusivity and equity in ICT policy and implementation. The approach facilitates the participation of all interested parties in the process in an equitable manner – from issue identification, preparation of supporting research, knowledge sharing, development of action plans and assigning tasks to monitoring the progress of policy changes - Multi-stakeholder partnerships expand the analytical capability to address ICT policy issues. The involvement of a wide range of stakeholder groups enables the development of a more comprehensive analysis of policy issues than any single stakeholder group can achieve. - Multi-stakeholder partnerships promote grassroots mobilization and participation. Their simple existence encourages the participation of civil society and community-based organizations in the policy debate. Multi-stakeholder partnerships also help in raising the awareness of the key actors and their constituencies. - Multi-stakeholder partnerships promote the development of focused and holistic action plans. - Multi-stakeholder partnerships foster the sharing of skills and innovation. Bringing stakeholders with different perspectives together encourages all participants to see problems in new ways and enables the development of new and innovative strategies for change. - Multi-stakeholder partnerships provide an important platform for training a new crop of experts who help to sustain the partnership and animate the policy debates on an ongoing basis. This can take place either within the partnership or outside it, when these experts move on to new positions in the ICT arena. Capacity-building is therefore a very important outcome of the multi-stakeholder process, even when this is not explicitly built into the process. - Multi-stakeholder partnerships create a balance between market orientation and development orientation. The participation of civil society and the public and private sector helps to maintain a strong balance between commercial and public interests, ensuring that delivery genuinely focuses on sustainable outcomes. - Multi-stakeholder partnerships encourage good governance. Partnerships provide an opportunity for different groups to identify conflicts, gaps or overlaps between their respective policies and programs, and to better coordinate their work going forward. - Multi-stakeholder partnerships enable participants to leverage their financial resources. They are useful on a number of levels during the policy formulation process: a) for pooling financial resources during ICT policy processes to ensure that policy recommendations are backed up by solid background research to support particular approaches in the development of an ICT policy; and b) for the combined undertaking of participative processes such as workshops and think tanks, awareness raising campaigns through the media, the creation of online discussion lists, and the preparation of briefing papers. - Multi-stakeholder partnerships motivate both leaders and laggards. They create platforms for encouraging those with limited commitment and for bringing progressive actors together. Success tends to breed success. - Multi-stakeholder partnerships promote ownership and commitment for action. They enable participants to gain a better understanding of the need for change, feel ownership for a proposed plan of action and create a platform for peer pressure to ensure delivery of outcomes. - Multi-stakeholder partnerships help to develop trust among groups that are usually suspicious and hostile towards each other. Civil society, government and the private sector are traditionally suspicious of each other. The media, a relatively new player in ICT policy processes, in turn brings in suspicions relating to the accuracy of reporting and exposure of decision-makers, which

is often not welcomed. This model promotes trust and encourages further partnership outside the core partners.

However the multi-stakeholder process is not always straightforward. It could fall into the trap of too much talk and no action, with continual meetings and discussions and no recognizable and tangible result being achieved. This is a particular risk if there is no political will to change and no widespread support from key players. Enlisting all key stakeholders, reaching agreement on a shared vision and establishing procedures for accountability and measuring progress (checks and balances) are all important for the multi-stakeholder process to succeed.

5.3. The policy making process

Having briefly looked at the nature of the public policy community and multi-stakeholder partnerships, this section focuses on the nature of the policy-making process and the role of the communication tools used in that process. It begins with an overview of the policy-making process, or policy cycle, as it is commonly known. This should help gain insight into the communication tool normally used to report and record the outcome of this process-the policy paper.

The second sub-section examines the various purposes the policy paper can play in the policy-making process. The section concludes by outlining a strategic approach deciding which other communication tools to use to disseminate policy ideas and recommendations to a wider audience. This final element is intended to illustrate the relationship between the policy paper and these other tools.
While different approaches to the policy-making process exist depending on the context and purpose(s), the textbook model commonly accepted within the field of policy science is called the policy cycle (as seen in figure 2).

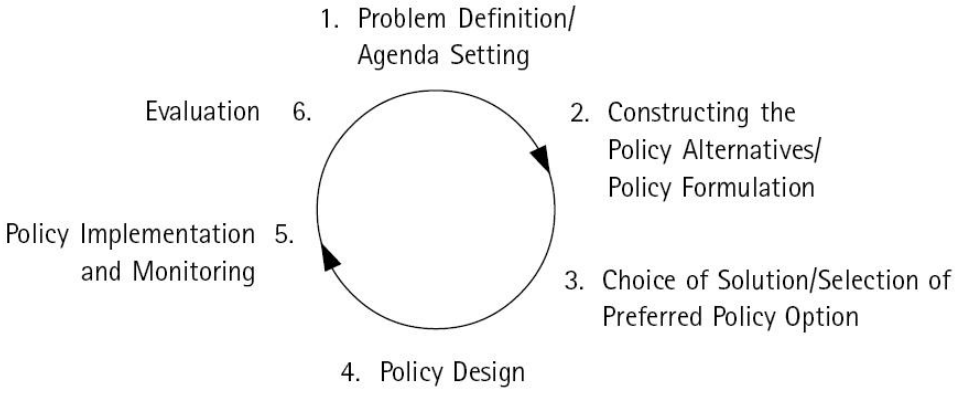


Figure 2. The policy making cycle

As with many models, the strength of the policy cycle lies in its power to guide; however, its weakness lies in its lack of flexibility. In other words, while such a model can never prescribe the specific action that the policy specialist should take in every situation, it informs the context within which the policy specialist should act in order to follow best practice. In addition, the true nature of policy-making is that each stage in the proposed six stage process has the potential to inform previous and following steps in the cycle, e.g., weighing your options to select the best policy option can often help to deepen and widen the problem definition stage.

How many steps does the policy-making process have? What is the purpose of each stage?

What is the strength of the policy making cycle? What is its weakness?

It is also important to note the inherently collaborative and interactive nature of all stages of this process. Most effective policy research and analysis is carried out in teams and involves different levels of interaction with various stakeholders throughout the process. For example, such interactions can range from discussions with policy researchers in the problem definition stage, to researching the cost-benefit of policy options with the target groups, to meeting with representatives of government to promote policy recommendations. A brief look at the steps of the process follows to highlight the focus of each.

Step 1: Problem definition / Agenda setting
As a starting point in the policy-making process, a problem is usually identified by a group of people in a particular society. If policy specialists, CSO members, a group of

citizen or another group of people are interested in finding a solution to a certain problem, they should attempt to either get it onto the government's political agenda, i.e., turn the problem into an issue, or make it a higher priority issue if it is already on the agenda. In order to do this, it is necessary to convince both the relevant government agency and the broader policy community that a real problem exists which requires government action. In order to achieve this in the politicized world of public policy, it should be presented in a suitably persuasive and comprehensive argument which details the causes, effects and extent of the problem based on a wide variety of sources.

Step 2: Constructing the policy alternatives/Policy formulation
Once the nature of the problem is sufficiently detailed and the issue is on the government agenda, the first step in attempting to address the issue is to elaborate the possible ways it can be solved, i.e., determine the policy option. It is often difficult to find the ideal alternative, so finding the most feasible and realistic policy alternatives for the context is a real challenge.

The policy cycle is a guide not a prescription; it is iterative and collaborative

Step 3: Choice of solution/Selection of preferred policy option
Following the elaboration of the alternatives, a preferred policy option to address the particular problem is then selected based on a set of evaluation criteria. The use of this criteria-based evaluation process not only allows choosing a suitable alternative, but it will also form the basis on which to authoritatively argue for the legitimacy of the proposed policy option. Although the issue in question and the context will determine the specifics of the evaluation criteria: effectiveness, efficiency, equity, feasibility and flexibility/improvability

Step 4: Policy design
Once the preferred policy option are selected and presented to the relevant government agency, and assuming that they also accepted it fully or modify the proposal, it now becomes public policy. The government agencies must now decide how they can most effectively implement the policy. In order to elaborate an effective policy design, the agency must choose a policy instrument mix (e.g., legal, organizational or network empowerment) and a delivery organization mix (e.g., governmental or non-governmental, public or private) to provide the services or products outlined in the policy (as described above in the Multi-stakeholder partnership section).

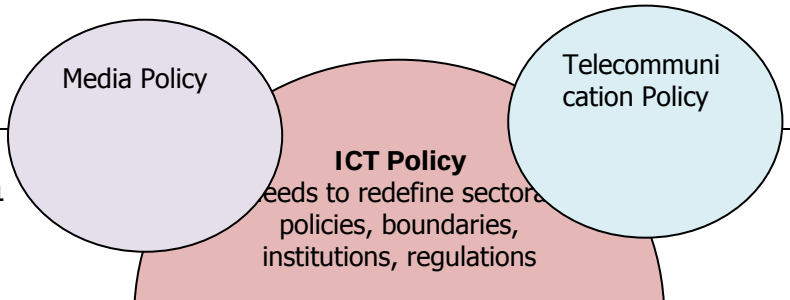
Step 5: Policy implementation and monitoring
Next, the policy is implemented according to the policy design. A balance between good policy design and effective implementation usually leads to the most effective outcomes. Also, an on-going process of monitoring needs to be conducted which forms the basis of a comprehensive evaluation procedure relying on multiple sources of data.

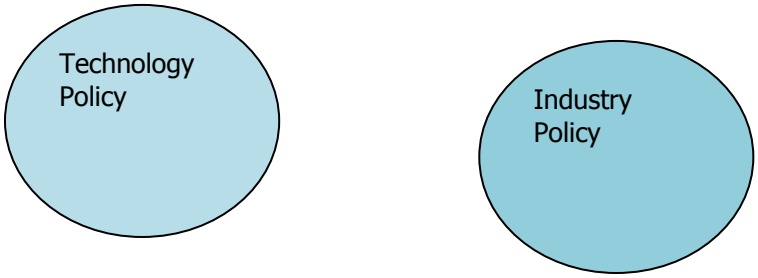
Step 6: Evaluation
Within the framework of any good policy design and implementation plan, a comprehensive evaluation procedure is essential in determining the effectiveness of the implemented policy and in providing the basis for future decision-making. In designing a policy evaluation plan, government agencies and delivery organizations need to consider how the policy objectives can be accurately and effectively measured and how the evaluation data collected will be used as a basis for decision-making.
The evaluation process consists of looking at the particular public policy in practice, both in terms of objectives and means employed. It will involve a broad group of people including bureaucrats, politicians as well as CSOs and other stakeholders.

Who start the policy-making process?

What is the goal of the problem definition step?

5.4. ICT policy issues



Who monitor an implement policy? How policy outcomes are evaluated?	
Why is the evaluation important? Who designs policy evaluation plans? Who is involved in the evaluation? What consist the evaluation process?	

Summary:
Although policies are formally put in place by governments, different stakeholders and in particular the private sector make inputs into the policy process and affect its out-comes. Thus, for example, in the International Telecommunications Union, an intergovernmental body for governments to coordinate rules and regulations in the field of telecommunications, the influence of multinationals has grown enormously. Privatization of state-owned companies has meant that governments can rarely control telecommunications directly. The privatized telecom companies, often partly controlled by foreign shareholders, look after their own interests. In the context of globalised markets, large and rich corporations are often more powerful than developing countries' governments, allowing them to shape the policy-making process.

The epractice partal (http://www.epractice.eu/cases) has a number of cases (e.g.: Macedonia: Acronym of the case: SWEB, Web address of the case: www.sweb-project.org;
Croatia: Acronym of the case: MojaUprava; Web address of the case: http://www.mojauprava.hr ,...) that are linked to this topic and can be discussed in the training events.

6. EXAMPLE: Estonian Information Policy

So far, information policy related activities in Estonia have mainly been focused on the development of ICT infrastructure and the creation of systems necessary for implementing sectoral policies. In order to increase the competitiveness of the society, more emphasis needs to be placed on the development of citizen-centred and inclusive society, knowledge-based economy, as well as transparent and efficiently functioning public administration.

The year 2006 can be considered ground-breaking. While in previous periods, we have mainly concentrated on the development of the necessary IT framework and environment, the Estonian Information Society Strategy 2013, approved by the Government of the Republic on 30 November 2006, mainly focuses on how to use the "IT power" smartly, increasing thereby the living standard for all of us.

6.1. e-Estonia : some Introductory Facts

Estonia has nearly 1,3 million inhabitants. In Estonia It solutions developed within the construction of e-State constitute a part of our state administration. We use information technology as an instrument for increasing administrative capacity and ensuring an innovative and convenient living environment for citizens**. That is a lifestyle that values simplicity, speed, comfort and economic savings.**
Therefore the keywords behind the development of e-State in Estonia are sustainable development and high-quality environment.

In building e-State, Estonia has benefited from its small and adaptable population as well as favorable starting point in terms of economic policy a decade ago. We do small yet good thins with help of public-private partnership and are proud of that.

By February 2006, ID cards had been issued to 61% of the population (over 900 000 ID cards).
In 2002 the Estonian Parliament approved Internet voting for local elections in October 2005 and national Parliamentary elections in 2007.
By January 2006, over 355 agencies and 50 state databases had been joined with the secure data exchange layer X-Road.
Estonia is one of the TOP 10 Who Are Changing the World of Internet and Politics - Estonia has the most advanced information infrastructure of any formerly communist eastern European state.
90% of the young people aged 12–24 are most active Internet users, however, also two thirds of the children aged 6–9 use the web, whereas 58% of the working population aged 25–49 are using the Internet.
In all central government agencies 100% of the needs for computer workplaces have been covered.
62.9 main phone lines per 100 households, the digitization level of main lines are

82%.
Mobile phone penetration is approximately 90%. 95% of banking operations are carried out electronically with the number of Internet bank clients amounting to nearly 800,000.
In 2004 about 80% of the performers of state examinations received their results via SMS.
Usage of mobile parking constitutes approximately 50% of total income gathered from parking fees.

The Principles of Estonian Information Policy 2004-2006, approved by the Government of Estonia in 2004, set out three main objectives: introduction of e-services in all state agencies together with respective training and awareness-raising activities for the whole society; keeping the level of ICT use in Estonia at no less than the average level of the EU, ensuring thus the efficiency of the Estonian economy and society in general; and increasing the export capacity of the Estonian ICT sector.

At the end of 2006, it could be noted that Estonia has made considerable progress in the implementation of public sector e-services, being among the EU leaders in the field. For instance, according to the Capgemini survey of 2006[1], Estonia ranked second after Austria in terms of fully electronic services. In addition, success has been achieved in other dimensions related to the development of the information society. The following includes some examples of that:

- Advanced communications network and good Internet availability. In 2006, the internetization programme for sparsely populated areas of market failure – Village Road 3 (KülaTee 3) – was continued. The objective of the programme is to ensure, by the end of 2006, Internet availability in all populated areas in Estonia.
- Service-oriented approach to the development of information systems and a secure data exchange layer called the X-Road, which constitute the cornerstones of the so-called common service space. In 2006, common use of data from databases and information systems having joined the X-Road increased significantly. The extensive use of the X-Road, also by the private sector, imposes extremely high requirements on the system's availability. To ensure this, several development projects were carried out in 2006.
- The Citizen Portal at www.eesti.ee, reflecting the state as an integral whole, where authorized users have three possible roles: that of the citizen, the entrepreneur, and the official. While in 2005 main focus was placed on ensuring the accessibility of the portal, in 2006 emphasis was primarily placed on the development of services from perspective users' view. The child care service targeted at parents, local government officials, employees of child care establishments, and officials in the ministries is just one example of such services.
- High-quality IT solutions in the private sector, in particular Internet banking and mobile applications.
- Success stories in the Estonian ICT sector (i.e. the Internet communications company Skype, the provider of various GIS and mobile positioning services – Regio, the provider of different m-applications and m-solutions – Mobi Solutions etc.).
- Wide use of ICT in education as a result of the Tiger Leap programme aimed at the internetization of general education schools and improvement of IT skills among teachers.
- The largest functioning public key infrastructure in Europe, based on the use of electronic certificates maintained on the national ID card and allowing to considerably improve the security and functionality of IT solutions. More than 80% of the population possesses the ID card that enables both electronic authentication and digital signing. Relevant legislation is in place, giving the digital signature equal power with the handwritten one, and imposing a responsibility on public authorities to accept digitally signed documents.
- Eagerness of Estonians to use innovative solutions (wide take-up of IT solutions provided by the Tax and Customs Board, Internet banking, m-parking, eVoting etc).

On a self-critical note it has to be admitted that the provision of e-services at local level still leaves a lot to be desired. In addition, much more can be done in terms of awareness raising and training.

6.2 Objectives of the Information Society Strategy 2013

The Information Society Strategy 2013 sets out objectives in three dimensions on which the functioning of the society is based – social, economic and institutional.

By widening access to digital information and increasing possibilities for participation Estonia wants to achieve a situation, where:

- high-quality Internet will be available throughout Estonia for a comparable price;
- all Estonians will have switched over to the digital-TV and consumers will be able to use public services irrespectively of technological solutions used for their provision;
- all public sector websites will be accessible for people with special needs;
- everybody will have at least basic computer and Internet skills;
- public awareness will have increased about the possibilities and threats, including those concerning IT security and intellectual property, related to the information society.

Under its economic pillar, the strategy seeks to increase the technology-intensiveness of the Estonian economy. This requires, on one hand, that companies will use ICT to increase their productivity and competitiveness while also adjusting their business models in accordance with new technological possibilities. On the other hand, this requires an increase in the added value generated by the Estonian ICT sector and the strengthening of the sector's export capacity.

By ensuring conditions for the effective application of ICT by businesses and the increased competitiveness of the Estonian ICT sector, we seek to achieve a situation, where:

- the application of ICT will enable Estonian businesses to launch innovative products and services as well as to considerably increase their productivity;
- the number of Estonian computer scientists and IT professors will correspond to the needs of the economy;
- national curricula will be modernized in order to ensure technical-technological competences necessary for coping in the information society and knowledge-based economy;
- as a result of constant revision of state-commissioned education, the number and qualification of Estonian IT specialists will correspond to labour market requirements.

Under the institutional pillar, the strategy aims to ensure the citizen-centeredness, transparency and efficiency of the public sector. Transforming the public sector presumes, on one hand, that state and local government business processes will be efficient, simple and transparent. On the other hand this requires the use of the common service space for the provision of services for citizens and businesses as well as for more efficient communication between public bodies.

In increasing the efficiency of the public administration, the most important objectives are the following:

- all management of public business will be electronic;
- the state information system will be service-oriented and function in accordance with user needs, not based on institutional structure;
- the electronic personal identification mechanisms used in Estonia will correspond to the world's best practice and will be usable both in Estonia and internationally;
- possibilities will be ensured for the use of Estonian e-services by citizens of other countries, in particular those coming from EU member states.

The implementation of the Information Society Strategy requires the involvement of all parties. To this end, the public sector co-operates with organisations representing the private and third sector as well as with the academia.

The Information Society Strategy does not deal with purely technological aspects of the state information system, but seeks – proceeding from the current technological capabilities – to link together the initiatives of different ministries with an ultimate goal of improving the living environment of everybody. The development of the information society is a strategic choice that requires the desire and willingness to change our habitual ways of conduct if necessary.

6.3 Developments in IT legislation, standardization and data security in Estonia

In recent years, there have been several changes in the field of national ICT, which have also started to affect legislation. Information society development through the elaboration and implementation of IT solutions (data exchange layer of information systems, portals, ID card applications, electronic health record etc.), growing demand for the implementation of innovative solutions and increasing need for borderless Europe and world have started a process, which calls for establishing ever more exact rules of conduct and decision-making.

When legislative drafting is far ahead of the actual implementation of laws, it is difficult, if not possible, to anticipate any possible circumstances so as to have the respective field fully and wisely regulated. The ongoing social processes have demonstrated the increasing role of the European Union structural funds that have greatly facilitated the development of *e*Government in Estonia. The obligation to harmonize national legislation with the EU legislation has been fulfilled but the description of actual needs and concrete circumstances is taking place only now when vision has become a reality.

Thus, 2006 was the year characterized by translating the laws adopted for the purpose of applying EU directives into the needs of information society. The vision of the regulation of databases, personal data protection, problems related to digital signatures and certificates, and communications and telecommunications issues have all become a reality. Moreover, the practical importance of the accessibility of information and the principle of administration in free form has grown considerably.

6.3 Estonian ICT legislation acts

Personal Data Protection Act

As regards the field of personal data protection, the draft Personal Data Protection Act has been prepared which will bring along several changes and is planned to be entered into force on 1 January 2008. Thus, the classification of personal data into three groups (personal data, private personal data and sensitive personal data) introduced in the Public Information Act will be replaced by classification into two: personal data and sensitive personal data as the subclass under special protection. The previous list of private personal data will be transferred to the Public Information Act by the implementing provisions of the draft Act and will not be stipulated as a subclass of personal data, but as a single ground for establishing restrictions on access to public information. For the sake of clarity, the definition of personal data has been specified in the draft Act, indicating that the protection of personal data shall extend to all forms of data, including audio and graphic data as well as biometric data (e.g. fingerprints and eye iris patterns).

The processing of the personal identification code is no longer regulated in the draft. The legislation in force provides for the processing of the personal identification code without the consent of the data subject only in the cases specified in acts,

	regulations or international agreements. In all other cases consent is necessary. Such an arrangement has caused inconveniences for both the data subject and the processor of personal data. Therefore, the draft Act extends all general principles for processing personal data also to the processing of the personal identification code. The draft Act includes a new definition: *person liable for the protection of personal data*. Namely, the processor of personal data (the chief processor) can, as an alternative to registering the processing of sensitive personal data, appoint a person liable for the protection of personal data who has to be independent and make sure that the processor processes personal data in accordance with data protection requirements. In addition, the obligations of the processor of personal data to the Data Protection Inspectorate have changed – the draft Act also regulates the processing of personal data for research and statistics. ***Public Information Act*** For practitioners, the draft Public Information Act marks the beginning of a new era in data processing. This is mainly because in addition to smaller amendments also the provisions related to the regulation of databases have been added to the draft Act, whereas these provisions by nature fall under the provisions of (public) information and processing of such information. Upon the adoption of the Public Information Act Amendment Act the present Databases Act will become invalid. Thus, in the draft Act the focus has been shifted from the classification of databases (general register, state register, local government database, internal database) to the classification of data and regulation of data services. Instead of classifying databases, the definition of "basic information" has been introduced. Another new concept is the principle of data authenticity which is important in terms of data quality. According to this principle, the primary data are unique data that are collected pursuant to law in a database of a state information system and not in any other database and that are generated upon the performance of public duties by the database administrator. For the first time, the composition of a state information system, the organisation of databases belonging to a state information system and the legal bases for providing and using data services are determined. The objective is to make agency-centred databases of the state information system service-oriented and create a data exchange environment that would contain information about the existing information systems and databases and would allow monitoring data flows between information systems. This would enable database administrators to better plan the budget and development activities and agencies co-ordinating state information systems to analyse the effectiveness of databases and draft proposals for the development of databases and provision of new services. The draft Act provides for an approach integrating different areas of government through legislation that defines the administration system of the state information system and other support systems for the state information system as well as the status of databases, which are established within the public sector information system, in the integral state information system. Another new principle in the draft Act is that the state should provide local governments with the resources necessary for integrated data acquisition in case data are processed upon the performance of duties assigned or delegated to local governments by the state. ***Digital Signatures Act*** The Digital Signatures Act Amendment Act was initiated so as to specify the regulation of the use of digital signatures and to provide for the use of digital stamp, as respective technological solutions already exist and most of the provisions for use

have also been set down.

A digital stamp is a data unit, created using a system of technical and organisational means, which a person that gives the stamp uses to indicate his or her connection to a document.

Thus, a digital stamp should enable the determination of the time at which the stamp is given and the person who has given it, and link the digital stamp to data in such a manner that any subsequent change of the data or the meaning thereof is detectable. In addition, the draft Act includes a principle according to which the system has to allow for the identification of the application principles followed.

Electronic Communications Act

The issues related to electronic communications have been on the agenda because the European Commission has recommended the Member States to complete the transition to digital television broadcasting by 2012 at the latest and Estonia has been among the last to have started the process only on 26 January 2006. The necessary measures for transition have been drafted and also adopted by the Government and the legislative proceeding is under way.

eHealth Information System Act

The elaboration of the *e*Health Information System Act was initiated in order to implement projects (e.g. Electronic Health Record, Digital Images, Digital Check-In, Digital Prescription – see also Chapter 4.1.1) based on the concept of *e*Health information system developed in the Ministry of Social Affairs. Each of these projects has a number of reasons for drafting a specific law.

Since medical law has not been codified in Estonia, none of the regulations in this field have established the specifics of processing medical data or using respective IT solutions that would regulate the use of data by patients, health care providers and third parties.

Drawing the above provisions together into a single specific law would lead to a situation where the regulations on the *e*Health information system would be understandable to patients and other persons related to *e*Health, rights and obligations would be clear and respective provisions easy to find. This would enhance the protection of patient's interests and public health through increasing the availability and security of data.

By laying down general principles for the management of health information, the eHealth Information System Act also establishes the bases for the maintenance of medical registers.

During the preparation of the draft Act, the possible joint effects of this Act and other legislation in force have been analyzed to ensure harmonized legislation that would take into account the maximum implementation of all valid laws on IT and other fields. Work with the draft Act continues. Hopefully, the Act will enter into force before August 2008 when the implementation of the first four *e*Health information systems will take place.

7. EXAMPLE: Austrian IT Policies & eGov-Act

7.1. The eGovernment Act

The eGovernment Act5 came into force on 1 March 2004. It serves as the legal basis for the instruments used to provide a system of eGovernment and for closer cooperation between all authorities providing eGovernment services. The new mechanisms, such as the citizen card, sector-specific personal identifiers or electronic service of documents, may also be used by the private sector.

The most important principles are:

- Freedom of choice for users of which means of communication to use when submitting public administration requests;
- Security and improved legal protection provided by appropriate technical means such as the citizen card;
- Unhindered access for people with special needs to public administration information and services by the end of 2007, by way of compliance with international standards governing Web accessibility.

The essential regulations are summarised in the following brief overview:

- **Citizen card**. People communicating with public administration can be uniquely identified and authenticated using the citizen card. Requests can be attributed to that person and he or she can be granted access to his or her personal data without any risk in terms of data protection. In order to ensure that a request is genuine and has not subsequently been forged by another person, it must be possible at all times to verify the authenticity of the request. Identity and authenticity are validated using the citizen card and the electronic signature in accordance with data protection provisions. The citizen card can also be used for electronic business transactions (e-commerce) to increase the technical and legal security of Internet transactions. The citizen card is not dependant on a particular brand of technology. Regardless of whether the carrier medium used is a chipcard, a mobile telephone or another technological means, it is essential that the citizen card contain an electronic signature and an identity link that contains the associated security data and functions, as well as any data on authority to act as a representative which may have been granted.
- **Identity link**. The identity link is used to secure a unique link between the citizen card and its rightful holder. More specifically, the sourcePIN Register Authority confirms by way of an electronic signature that a link has been established between the holder of the citizen card and his or her sourcePIN for the purposes of unique identification. The identity link is entered on the citizen card.
- **Authority to act as a representative**. Individuals may authorise another person to submit applications on their behalf. In such cases, the sourcePIN Register Authority enters on the representative's citizen card the sourcePIN of the person being represented and an indicator that authority has been granted, together with an indication of any time or other restrictions. Authority functions can also be used by statutory representatives.
- **SourcePIN**. For the purposes of unique identification, all natural persons registered as resident in Austria are allocated a sourcePIN, which is derived from the ZMR number6 in encrypted form. In the case of all other natural persons, the sourcePIN is derived from their registration number in the Supplementary Register. The sourcePIN of a natural person may be stored only on their citizen card. In the case of legal persons, their entry number in the Register of Company Names (Firmenbuch) or the Central Register of Associations (Zentrales Vereinsregister) or their registration number in the Supplementary Register is used as the sourcePIN.
- **Sector-specific personal identifiers**. In order to guarantee data protection, the sourcePIN of natural persons may not be stored by the

[5] http://ris1.bka.gv.at/Authentic/findbgbl.aspx?name=entwurf&format=html&docid=COO_2026_100_2_30412

[6] A unique number allocated to the citizen in the Central Register of Residents (the *Zentrales Melderegister*, hence ZMR number).

	authorities. The authorities may identify natural persons only by their sector-specific personal identifier (ssPIN). The ssPINs are derived from the relevant person's sourcePIN. This process must be irreversible and it must not be possible to reconvert the ssPIN to obtain the original sourcePIN. An ssPIN is valid only for the sector of activity of the authority within which the initiated procedure falls. In order to generate an ssPIN, the sourcePIN is needed. The sourcePIN may be used to generate the ssPIN - using the citizen card - only with the agreement of the person concerned. If the sourcePIN is unknown, only the sourcePIN Register Authority may generate an ssPIN without a citizen card, and it may do so only in certain circumstances. • **SourcePIN Register**. The sourcePINs required for the unique identification of persons are available from the sourcePIN Register. The function of sourcePIN Register Authority is performed by the Data Protection Commission. • **Supplementary Register**. All natural persons who are not registered in Austria and legal persons who are not registered in the Register of Company Names or in the Central Register of Associations can be registered in supplementary registers. • **Administrative signature**. In relation to citizen card functions, administrative signatures are to be treated by the public administration as equivalent to a qualified signature. The administrative signature will phase out at the end of 2012. An administrative signature can therefore be used instead of a qualified signature in all administrative procedures. Administrative signatures are signatures which provide adequate security for the purposes of validating identity and authorisation but do not necessarily satisfy all the requirements for a qualified signature and, in particular, are not necessarily based on a qualified certificate. The security and organisational requirements to be met by administrative signatures are laid down in the Administrative Signature Regulation (Federal Law Gazette No II, 159/2004 and the eGovernment Act, BGBL. I Nr.7/2008). • **Standard Document Register**. For the purposes of conducting procedures, citizens and businesses have until now been expected to provide proof of certain information, such as birth certificates, proof of nationality or entries in the Register of Company Names. In electronic administration, this is no longer necessary in many cases, as electronic data already available in registers can be used. When a person registers with an authority, the authority verifies the accuracy of the existing personal and nationality data by inspecting the relevant documents (standard documents) and then informs the Central Register of Residents that the information is accurate. Even where no registration procedure is being conducted, a person may request that the accuracy of the information be recorded, provided he or she proves accuracy by presenting the relevant documents. Thus, certain information need no longer be presented by the person concerned but can, with the person's consent, be directly requested by the authority from the Central Register of Residents. Alternatively, the person may also present an electronically signed confirmation of registration issued by the Central Register of Residents. Businesses can use the documentation register provided for in §114(2) of the Federal Fiscal Code7 for the purposes of providing electronic proof of fulfilment of the professional requirements for the exercise of an activity or of the nature of that activity. • **Official signature**. Persons involved in administrative procedures must be able to rely on the genuine nature of documents from the authorities. The official signature is an electronic signature affixed by an authority to an administrative notice or document. This makes it easy to recognise electronic documents issued by authorities. Not only can the genuine nature of the document be verified by means of the official signature, in the case of printed documents, the official signature also certifies the document automatically when it can be converted back into its electronic form. • **Electronic delivery**. Documents issued by courts or administrative authorities may be delivered electronically via a delivery service. Citizens

7 In German: Bundesabgabenordnung (BAO).

may register with a delivery service using their citizen card (signature card) in order to get documents delivered electronically. Thereafter, they will receive administrative documents via that delivery service. The delivery service notifies the recipient as soon as a document is available for electronic pickup. In order to protect the document from unauthorized access by third parties, pickup is only possible after proper authentication using the citizen card. Moreover, the document may also be sent in encrypted form. Therefore, only the holder of the decryption key (private key) can decrypt it. For the delivery of documents to be effective, the notification of the recipient is important. Delivery becomes legally effective immediately on pickup of the documents, or one week after the day the first notification has been sent. The electronic signature of the recipient provided upon pickup serves as confirmation of delivery. Delivery services may be provided by private sector businesses. Permission to act as a delivery service is granted by administrative notice, provided that the defined requirements have been satisfied.

- Fees relief At the moment, no fees will be charged to encourage citizens and businesses to make greater use of electronic administrative procedures.

SourcePIN Register Regulation

The sourcePIN Register Regulation8 came into force on 3 March 2005 (part four of it, only on 1 July 2005). The regulation defines the activities of the SourcePIN Register Authority that are necessary to implement the citizen card concept and the cooperation with its service providers. The main provisions are:

- The process to create identity links, in particular the duties of citizen card registration agents, validation of identity, and the identity link dataset. The regulation also lays down that a compliant citizen card environment needs to support an interface that can bind the citizen card to the application. This interface is defined and publishes by the sourcePIN Register Authority.
- The legal definition of the recurring identity. The recurring identity concept is used by persons in possession of an electronic signature but no identity link and who nevertheless want to benefit from electronic communication in an eGovernment conformant process. This will be the case particularly for persons residing abroad and thus not having access to the Austrian citizen card. In this way foreign electronic identity tokens can be integrated into Austrian eGovernment. When used with a citizen card environment the recurring identity results in the acceptance of an electronic identity without identity link.
- The transformation of sector-specific personal identifiers (ssPIN) into so called "external ssPINs", the creation of ssPINs for specific authorities and for data applications of the public sector. The ssPIN Register Authority has an interface to create and transform ssPINs available to public authorities. This interface is also accessible via the portal network of public authorities. Each request for calculating a ssPIN is recorded by the sourcePIN Register Authority.
- The electronic presentation and verifiability of authorities used in the citizen card concept. One of the remarkable achievements of the citizen card concept is the possibility to represent oneself electronically by proxy. The sourcePIN Register Authority electronically signs a representation dataset and thus prevents forgery of such datasets kept in a citizen card. A service to revoke such electronic authority to act by proxy online via the Internet will be provided by the sourcePIN authority.

eGovernment Sectors Delimitation Regulation

For the purpose of generating sector-specific personal identifiers, each public sector

8 http://ris1.bka.gv.at/Authentic/findbgbl.aspx?name=entwurf&format=html&docid=COO_2026_100_2_30412

data application needs to be assigned to a sector of State activity. The eGovernment Sector Delimitation Regulation9 defines the designation and the sector-identifier.

Supplementary Register Regulation
In addition to the sourcePIN Register Regulation and the eGovernment Sector Delimitation Regulation the Supplementary Register Regulation10 represents a core element of the implementing measures accompanying the eGovernment Act. The regulation covers implementation of the citizen card concept by enabling the unique identification of natural persons and other concerned parties who for legal reasons cannot be enrolled in the egovernment principal registers. For natural persons therefore the supplementary register to the Central Register of Residents (Zentrales Melderegister) has been installed. Other concerned parties can be registered with the supplementary register to the Register of Company Names (Firmenbuch), or the Central Register of Associations (Zentrales Vereinsregister), respectively.

The supplementary register is separated into a register for natural persons and a register for "other concerned parties". For the supplementary register for natural persons the Federal Ministry of Interior acts as service provider, the Federal Ministry of Finance for the second supplementary register.

Administrative Signature Regulation
This regulation[11] aims to providers of administrative signatures and citizen cards and lays down the necessary security and organisational conditions for signature creation. Adherence to the regulation is ensured by the involvement of the sourcePIN Register Authority in the citizen card issuance process. The sourcePIN Register Authority may assist creation of a citizen card with administrative signatures only if the administrative signature unit fulfils the requirements.

An administrative signature is an electronic signature of a citizen that basically fulfils the requirements of a secure electronic signature, but that is not necessarily based on a qualified certificate. In principle two kinds of administrative signatures can be distinguished: The first case is a signature token (e.g., a chip card) possessed by the user. The second case is server-based signatures. The Administrative Signature Regulation ensures sufficient protection of the private signature keys and binds the creation of a signature to two factors – possession and knowledge ("something you have" and "something you know").

In the case of server-based signatures the signature creation data must remain under the sole control of the signatory. This is ensured by one-time-use codes that are used in addition to authorisation codes. The one-time code is only available to the signatory and may neither be accessible for the security server creating the signatures, nor may it be systematically determined. Both the authorisation code and the one-time code are cryptographically secured when communicated from the user to the security server.

Delivery Service Regulation
The amendment to the Delivery Act, BGBl. Nr. 200/1982 version BGBl. I Nr. 65/2002 took place together with enacting the eGovernment Act (BGBl I Nr. 10/2004). Electronic delivery is regulated by Part III of the Delivery Act which in particular lays down the conditions to provide delivery services and its supervision. The Delivery Service Regulation12 specifies the admission standards that are defined in § 29 of the Delivery Act. These include criteria to assess the technical and organisational ability of delivery services and in particular the reliability concerning data protection aspects. An annex to the Delivery Service Regulation13 gives the technical

9 http://ris1.bka.gv.at/findbgbl.aspx?name=entwurf&format=html&docid=COO_2026_100_2_112317

10 http://ris1.bka.gv.at/findbgbl.aspx?name=entwurf&format=html&docid=COO_2026_100_2_216992

11 http://ris1.bka.gv.at/findbgbl.aspx?name=entwurf&format=html&docid=COO_2026_100_2_72782

12 http://ris1.bka.gv.at/findbgbl.aspx?name=entwurf&format=html&docid=COO_2026_100_2_216851

13 http://www.bka.gv.at/zustelldienste

specifications that are to be fulfilled by delivery services. These specifications are to be published in the Internet.

Delivery Forms Regulation
The Delivery Forms Regulation 1982, BGBl Nr. 600, has been amended by Regulation BGBl II Nr. 235/2004 where forms to carry out the various steps of electronic delivery have been defined. This includes the form for the first, second, and final notification. The third notification is not made electronically, but by postal delivery.

Publication in the Internet under E-GovG and AVG
According to AVG (Allgemeines Verwaltungsverfahrensgesetz) § 13 paragraph 1 eGovernment authorities have to publish certain information on the Web and have to inform citizens on how they can communicate electronically with the authority14. Thus information to be published on the Web includes how and to which address applications can be directed, whether an electronic signature is needed, and which formats are recommended or required for the application.
According to the eGovernment Act (§ 19, paragraph 3) the recognised logo for the official signature (see chapter on official signature) must also be published on the Web. Information on office hours is to be published on the Web site of the authority (§ 13 paragraph AVG).

Under the provisions of the Delivery Act and the Delivery Service Regulation the Federal Chancellor has to publish the notified official delivery services and the accredited delivery services, as well as the technical specification according to the Annex of the Delivery Service Regulation.

7.2 Austrian IT Policies

Internet Policy
The Internet Policy represents an attempt to lay down common criteria for online communication between authorities and external partners (citizens and the private sector), and between various authorities. The aim is to facilitate use by standardising the communication interfaces while at the same time satisfying the necessary security standards. The general Internet policy thus serves as the foundation for further implementation in the administration.

Common communication criteria and minimum requirements make it easier for external communication partners to navigate in and use the system, and they also heighten security:

- The target group of external communication partners is defined (authorities, citizens, private sector).
- Minimum requirements for file formats, sizes and types (restrictions, compressibility and expandability, formats which require support, etc.) are defined for each form of communication.
- File formats which can be classified as potentially harmful programmes are not permitted for security reasons. They are generally rejected or their acceptance is prevented by appropriate technical measures.
- It should be possible to read or process documents sent by the authorities irrespective of the commercial or other software products of users. Specific official formats are defined.
- Standardised signature procedures are to be followed with respect to documents signed by the authorities.
- When authorities communicate with each other, the same document formats should be used as are used in communications between authorities and citizens.

[14] The authority has to publish the addresses and technical conditions required in order to effectively file an application in the bulletin and on the Web. In case an application arrives at a different addres, the application has – at the onus of the applicant – to be fowarded to the correct address.

- Additional formats may be permitted on the basis of bilateral agreements.
- The security requirements to be met by the transfer of data depend on the degree of sensitivity of the data (HTTP, HTTPS, FTP, etc.).
- Proposals are to be made in order to counter measures to be taken to deal with various risks (e.g., viruses, infiltration by hackers).

E-Mail Policy

Citizens are increasingly using e-mail to communicate with public authorities, and even public administration authorities are making increased use of electronic media to exchange information rapidly and efficiently. Security and reliability therefore play an important role. The e-mail policy[15] defines general principles, requirements and recommendations with respect to communication with public administration by e-mail. As a result, citizens can expect and rely on uniform structures when communicating with the administration.

Generally, the objective is a formalised form of communication which can be automated in order to achieve maximum rationalisation. Defined procedures are intended to lead to a smooth exchange of information. With networks becoming more open, the security factor is becoming more and more important. Integrity, authenticity and – frequently –confidentiality of information are among the essential quality criteria to be met by e-mail communication. The e-mail policy can be regarded as a package of organisational measures, basic technical requirements and defined procedures intended to serve all users as a guarantee of the secure transfer of information:

- The e-mail policy is, in principle, directed at the two target groups: authorities and citizens. It is on the basis of this general policy that the authorities draw up their own e-mail policy.
- In addition to minimum requirements and compulsory rules, the policy lists further elements to be defined by each authority. These elements are accompanied by a series of proposals in the form of best practices.
- The requirements are laid down on the basis of flexible, internationally available and recognised standards. Thus, the POP 3, IMAP und SMTP proposals, which are widely available worldwide, are among the transfer protocols used for client-server communication and for communications between servers.
- Encrypted and signed information must likewise be based on current standards (e.g., MIME and S/MIME).
- Moreover, requirements must be met for remote access to e-mail systems which are, in principle, similar to those applicable to other remote access rights within the authority.
- Further policy guidelines relating to security and the maintenance of functionality include limitations on the size of e-mails, the refusal or acceptance guarantee for various file formats, checks for harmful files, spam filters and measures to be taken where these requirements have not been complied with.
- Guidelines for the use of electronic signatures and encryption: specific e-mails sent by the authorities must be electronically signed by the administrative staff in as many cases as possible. This contributes to ensuring authenticity and increasing confidence in electronic communication media.

Domain Policy

It is the aim of the domain policy to standardize the performance of public administration using the Internet and to create corresponding standards and minimum requirements. Furthermore, the domain policy aims to guarantee compliance with various demands regarding security and organization. The policy includes generally valid guidelines for the contents of a Web site (what is allowed, what is not allowed, what is recommended), but infrastructural questions are also addressed.

[15] http://www.cio.gv.at/it-infrastructure/emailservices/mailpolicies/

The Web site of a public administration authority should contain the following content:

- Individual Internet policy.
- Web publications. According to §13, paragraph 1 and 5 of the AVG, BGBl. No. 51/1991 it is intended that addresses together with any technical requirements that introduce applications effectively in a legal way, may also be published.
- A contact address, in order to make it possible for citizens to get in contact with the authority easily. For security reasons, a contact form is preferred over an e-mail address.
- A sitemap for easier navigation.
- A search function that is easy to locate.
- An "About us" section.
- Multiple languages: Because of growing mobility and in the spirit of a united Europe, it is reasonable to offer the most important content also in English.
- FAQs: Frequently-asked questions should be provided on an individual answer page.
- Electronic forms should correspond to the "style guide"[16] if they are offered.
- Informative bug pages. The contents of the bug page should be clearly structured and easy to understand in order to avoid standard bug reports.

The layout should show the following standards:

- According to §1, paragraph 3, E-GovG, BGBl. No.1/2004, public administration Web sites must fulfil WAI guidelines, level A (at the latest by January 1, 2008).
- HTML standards must be followed. It is important to support at least HTML 4.01 Transitional[17] or XHTML 1.0 Transitional[18].
- Dublin Core Meta-data. It is recommended to include meta information according to Dublin Core (DCMI) in Web sites. In this way search engines, Content Management Systems, etc. can point towards more information, and they can therefore deliver better quality results.
- Style guide. When forms are offered, it is necessary to adhere to the Austrian eGovernment style guide.
- Browser and screen independence. It is important to make sure that Web sites are viewable with all current browsers, and that different screen resolutions don't negatively affect the readability of the site.
- Download of documents. In terms of interoperability, documents for download should be made available both in RTF and PDF formats.

In terms of security techniques it is important to adhere to the following guidelines:

- Data transfer should exclusively be carried out via SSL. The SSL certificates used should meet the requirements for server certificates19. It is especially important that they contain the administration attribute represented by the certificate extension OID20. If sensitive data is being transferred, it is important to choose unique user identification; the best option is to use the citizen card.
- Active scripting elements should be used sparingly, both because of security reasons and also in compliance with WAI guidelines. Web sites should also function without any active scripting.

16 http://reference.eGovernment.gv.at/Styleguide.299.0.html

17 http://www.w3.org/TR/html4/

18 http://www.w3.org/TR/xhtml1/

19 http://www.cio.gv.at/it-infrastructure/pki/

20 http://reference.eGovernment.gv.at/

- Access to the Web server for administrators and other appropriate users should be sufficient secure.

WAI Guidelines

When the heads of government decided to adopt the Action Plan eEurope 2002, Austria declared its support for the principle of non-discrimination in the field of Internet access. The federal administration has therefore undertaken an obligation to implement at least to Level A of the WAI Guidelines[21] of the World Wide Web Consortium. In the long term, all levels are to be gradually implemented. Moreover, prompted by the conclusions reached by the Council of Europe in 2002[22], the ICT Board agreed to demand compliance with Level A of the WAI Guidelines when issuing instructions for new Web content.

The eGovernment Act places public administration under obligation, from 2008, to offer barrier-free access in accordance with international standards of accessibility for disabled persons.

The purpose of the Web Accessibility Initiative (WAI) is to make Web content accessible to all, regardless of any physical or technical restrictions. Therefore, when developing texts or multi-media products, account must be taken of the needs of people who have physical disabilities or are subject to technical limitations. Such restrictions may be caused by out-of-date hardware or software, a loud environment or an impaired view of the screen.

The WAI Guidelines are set out in order of priority. Priority 1 (Level A) concerns absolutely essential precautionary measures which must be taken to ensure that content can be read by the target group. The most important principles are:

- The separation of content and style. Style elements should not be contained in the page content. Where style sheets are used, it must also be possible to read the texts without style sheet.
- For elements such as pictures, video or graphics, a text alternative or a description must be provided.
- Care is to be taken with the use of colour in texts and an alternative representation without colour must be provided.
- Texts in foreign languages must be marked in order to alert reading tools to changes in language.
- The rows and columns in data tables must be labelled with headings in order to facilitate readability. In the case of more complex tables, associated data cells must be linked.
- It must be possible to display sites without scripts and applets. Otherwise, alternative information must be offered.
- Flickering screens are to be avoided or it must be possible to stop the flickering.
- If a site cannot be structured in an accessible way, an alternative site should be made available which must be updated as often as the original site.
- If frames are used, they must have headings to facilitate navigation.

Priority 2 (or Double A) measures improve the accessibility of Web content. Priority 3 (or Triple A) measures entail compliance with more extensive guidelines which make certain Web content even more accessible.

Compliance of Web content with the WAI Guidelines may be indicated by the conformity logo A, AA or AAA, which is conferred for that purpose by the W3C Organisation. Bearers of the logo voluntarily undertake an obligation to conform to the guidelines.

21 http://www.w3.org/Consortium/Offices/Germany/Trans/WAI/webinhalt.html (German translation)
22 http://www.cio.gv.at/eGovernment/wai/

Accessibility belongs to the fundamental principles of the Austrian eGovernment strategy[23]. Conformity with the WAI Guidelines is therefore one of the criteria which must be fulfilled in order to obtain the Austrian eGovernment Quality Mark.

The gv.at Domain
Directories are used to store certificates and certificate revocation lists (CRLs). Directories are essential for the useful application of PKI in public administration. The details of the key elements of directories are set out in the Guidelines on PKI Directories of the gv.at domain24:

- Public keys are required for encrypted communication and to verify electronic signatures. Signature and encryption certificates are therefore published in directories. Access to the directory must be open to all and free of charge and is obtained via LDAP and HTTP protocols.
- The certificate status (period of validity and validity) can be determined by way of a CRL25 request.
- For data-protection reasons, a distinction is drawn between public and trusted access. Access rights are granted according to the nature of the access. In the case of access from trusted networks of the public administration (e.g., from *.cna.at), extended access rights are granted. Technical methods that require a greater degree of qualification are used for this purpose.
- Depending on whether certificates are accessed using an LDAP or HTTP protocol, certain access requirements must be complied with.
- Read access to the directory is not subject to any particular protective mechanism since data relevant to the PKI is signed by the issuer of the certificate. Such access can, however, be restricted on the basis of need, provided such restricted access serves the purpose of the security application. Write access is subject to authentication and encryption.

8. The digital divide

The digital divide is a barrier to eGovernment in that people who do not have access to the Internet will be unable to benefit from online services.
While eGovernment can also improve services to citizens through other channels (notably by improving back office procedures), the inability to provide online services to all citizens can hold back eGovernment projects.

Additionally, the groups in society with lower levels of access tend to be those that are already disadvantaged. For example, lower income groups have less access to the Internet than higher income groups. Such disadvantaged groups are often the targets of government interventions and have a higher level of ongoing interaction with government. Many of their interactions with government are complex – establishing identity, entitlement for assistance, complex medical or social intervention – and they are not all well suited to online provision. While access to government information and services would be important for such groups, they may not benefit from enhancements to service quality and greater choice through online services.

EGovernment services may by their very existence encourage individuals to access the Internet. However, for most citizens, transactions with government are relatively rare and will not generally provide households with the main incentive to purchase a PC and Internet connection. However, government information and opportunities for consultation and participation, particularly at the local level, may be important in conjunction with other factors such as educational uses, access to e-mail and messaging and home PC use. It is thus important, on eGovernment grounds alone,

23 http://www.guetesiegel.gv.at
24 http://www.cio.gv.at/it-infrastructure/pki/Verzeichnisdienste0_9.pdf
25 Certificate Revocation List

for governments to continue policies and specific interventions to reduce the digital divide. A specific focus on frequently used government services with value to groups with low access, along with overall marketing of online government services, could be an important element of digital divide policies.

8.1. CASE EXAMPLE: Look@ the World Project, Estonia

The Government and a number of private companies announced a project in 2001 (Look @ the World project, www.vaatamaailma.ee), as a result of which the percentage of Internet users in Estonia should increase from the present numbers to over 90%. The project focuses on further improvement of access to the Internet in Estonia. Private companies have announced that they are willing to invest a sum equal to the Government's yearly IT. Primary aim of Look@World project was **to provide of equal opportunities** for access, skills and motivation to use Internet.

The main focus areas of Look@ the World Project were: **To provide basic computer and Internet training for 100'000 persons (current non-Internet users);**

- During 1,5 years total 11'000 trainings which makes over 50 trainings every day;
- Involves creation of 17 new computer classes with 30 full-time lecturers and about 200 part-time lecturers at schools;
- Target group blue-collars, servants, older population.
- Training involves 4 hours basic computer and 4 hours Internet course.

To train other organisation leaders and opinion leaders

- Additional training for school teachers (to use more ICT in curriculum);
- ICT possibilities training for Municipality leaders ;
- ICT possibilities training for Small- and Medium Enterprise leaders;

When planning and reviewing the IT infrastructure of a municipality, one should keep in mind not only the needs of the administration but also the question of access for the citizens. In larger towns one can at least partly rely on private sector solutions but in small communities these might not be economically sustainable, at least in the current level of development. However, there is no sense to develop e-services in the circumstances where only a tiny fraction of people can potentially have an access to the Internet.

8.2. CASE EXAMPLE: Public Internet Access Points, Estonia

People all over the country can access the Internet from over 700 Public Internet Access Points (PIAP), 51 per 100 000 people - one of the highest numbers in Europe. The PIAP has special traffic sign, with the @ symbol, showing its location. Most of PIAPs are located in libraries and other municipal buildings across the country. One can easily locate the nearest PIAP by accessing this website www.regio.delfi.ee/ipunktid There are more than 380 areas (city squares, hotels, pubs, airports etc.) that currently provide high-speed wireless Internet access.

We-Go Academies : Train-the-Trainer program

D3.2.1. Lecture Notes

We-Go
Enhancing Western Balkan
eGovernment Expertise

Course O2
Registers, Data Bases and Workflow management

Lecture Notes

Contents:

Course O2 : "Registers, Data Bases and WFM"
Lecture Notes

1. Introduction

About public registries

Public registries are public catalogues, registers, archives and indexes of documents that hold facts of public interest, recording the state as well as any change of state made to subjects of particular entries.
They include the following:

- Civil Registry (a government record of births, deaths, marriages, etc.)
- Magisterial Registry of Incorporated Businesses
- Registry of Trades
- Registry of Pollutants
- Registry of Historical Monuments
- Registry of Accredited Court Experts
- etc.

Purpose of public registries

These, as well as many other public registries contain facts on people, businesses, property, firms, buildings, places, etc. In addition, there are registries that contain information on how public officials perform their duties. Every member of the community has the right to freely access this body of information, and this right stands as a prerequisite for the participation of an individual in matters of public interest.

Maintenance and overall importance

Public registries are maintained on a local, as well as national level mostly by judicial or governmental bodies, but also often by public firms, concessionaires and other holders of public authority, according to law and other regulations.
The content of public registries represents an important, if not the most important part of the information infrastructure of every state.
Depending on the accuracy and coherence of the data they contain, public registries can represent an important stimulant, or great hindrance to reforms in economy, state administration, and the society as a whole.

Changes in public registries through time

Public registries have been in existence since the beginning of civilization. Their form and media may be going through constant change, but their structure, their content and the way they have been managed have often remained the same for centuries. Until recently, books have been the principal mode of data storage, while that role today belongs to computer databases. The manner, regulations, and procedures of input and modification of entries in public registries are all defined by laws, statutes and other legal acts, which are today incorporated into computer software. The essence of conducting transactions is that the information contained in registries is changed in such a way that does not undermine their integrity, legal consistency, security, privacy, etc. Through the use of computers, public registries have also gained a technological component. Therefore, dealing with public registries ceases to be the sole domain of juridical domain, and becomes an object of wider scientific interest, as well as developmental enterprise in the IT industry.

Summary
Chapter 1 introduces public registries, their types and their purpose. Furthermore it discusses public registries' maintenance and their overall importance. It is said that public registries have been in existence since the beginning of civilisation, and how they went through constant changes, but their structure, their content and the way they have been managed have often remained the same for centuries.

2. Basic principles of public registries

Public registries in practice

All developed countries have structured their vital public as information systems. Although there are certain differences from country to country regarding the legal regulations on data content, its modification and dissemination and other areas of public registries, it can be generally said that public registries are based upon following principles (a supplemented set of principles from Hessen 1995):

Principles that public registries are based upon

a) The principle of constitutivity determines that the facts contained in a public registry are, from a juridical point of view, constitutive, which means that any interested party can hold them credible, and that there exists legal protection of parties, who, in good faith, had put their trust in the facts contained in public registries.

b) The principle of authenticity determines that the information entered into a public registry has been recorded from credible documents, which is the basis of the registration procedure, and that the registration has been performed through legally based and proscribed procedures.

c) The principle of registration determines that the legal changes (eg. transfer of ownership or the size of a parcel) are not legally valid until registered at a public registry.

d) The principle of compliance determines that all parties affected by a certain right or obligation contained in the public registry need to give their compliance regarding any changes made to this right or obligation, except when stated otherwise by law.

e) The principle of identification determines that the subjects and the objects of an entry into a public registry have to be unequivocally recognizable, that all facts entered into a public registry have to be tied to a subject or an object of the entry, and that this principle also applies to credible documents forming the basis upon which the registration is being made.

f) The principle of publicity determines that the facts contained in public registries be available to the general public.

Principles from a to e are focused on preserving the juristical and factual quality of information, which can be, through the application of modern information technologies, implemented and monitored more successfully. A complete realization of the publicity principle (f) is nowadays significantly facilitated through the application of modern IT and related technologies.

Implementation examples

The publicity principle is implemented differently in different countries. For example, in Netherlands, Belgium and France anyone who so desires can view land and real estate records. In Germany, on the other hand, a party has to prove juridical interest to be allowed access. In Great Britain, the only person allowed access to records of a particular land parcel would be its owner, or someone entitled by the owner. This has been abated by a 1988 legal act that came into effect in 1991. Regardless of specific practices

	and regulations of particular countries, we can conclude that all developed countries open public registries, but also respect, to varying degrees, the protection of privacy, which is, to a certain extent, in opposition to the principle of publicity. This principle is extremely important, since public registries, in addition to covering the area of statuses, concern themselves with the area of implementation of public responsibilities. For example, the Aarhus Convention, which is the UNECE Convention on access to information, public participation in decision-making, and access to justice in environmental matters which was ratified on the 25th of June 1998 in the Danish city of Aarhus, determines that «improved access to information and public participation in decision-making must improve the quality of decisions being applied, contribute to public awareness on environmental issues, give the public an opportunity to express its concern and enable governing bodies to assume responsibilities with regards to the aforementioned.

Summary

Although there are certain differences from country to country regarding the legal regulations on data content, its modification and dissemination and other areas of public registries, it can be generally said that public registries are based upon following principles: The principle of constitutivity, The principle of authenticity, The principle of registration, The principle of compliance, The principle of identification and The principle of publicity. Those principles are discussed in detail.

3. Models and construction of public registries

Reforms of public registries

During the past decade, developed countries have undertaken significant reforms of their public registries. These reforms have primarily been enabled by accepting the challenges and opportunities presented by the advent of new technologies, a fact that needs no further elaboration. Still, much deeper reforms stem from an ontological redefinition of these systems, their essence, their mission, and their goals. Based on the new paradigms of acquisition and dissemination of data, public services, and a society integrated through information and communication technologies (e-Society), led to the development of the concept of e-Government, whose e-variants of public registries make up their significant components.

Examples of successful practice and reference models of particular public registries have been developed and published

To improve the efficiency and successfulness of the construction of public registries, examples of successful practice and reference models of particular public registries have been developed and published on the level of international associations and organizations. For example, a document under the title of Cadastre 2014 (Kaufmann and Steudler, 1998) contains guidelines and recommendations for the reform of the cadastre and the land record system, but also for the construction of public registries in this area. Among other things, the reform of these systems leads to the following:

Reform effects

- Erasure of traditional boundaries of «maps» and «books», which also applies to those countries whose cadastre and land record components belong to separate institution
- Transformation of business processes and working procedures, without which it would be pointless to introduce new technologies,
- Integration of the cadastre and the land record systems in a functional sense

The basic issue arising from research and development of complex information systems

The basic issue arising from research and development of complex information systems is the statistical and dynamic integration of data and processes. The main prerequisite for the development of public registries and their integration is the creation of suitable models. Generally speaking, models of information systems describe their structure, their data content, functionality, interface transactions with the user, as well as other integral attributes. The data component describes object of data, their attributes and connections, various limitations of attributes and connections, etc. The process component describes the ways and mechanisms of data access and its application. For the representation of logical models, various modeling methods and techniques are used, ranging from the traditional structural techniques to the modern, object-oriented kind. An object-oriented model of a system describes its static structure, functionality and behavior. In so doing, it is important that the model developed be as independent from any particular programs, data storage solutions or technical platforms as possible.

Defining a system of classification and encoding of data, which facilitates the retrieval and analysis of data

A part of creating a registry model is devoted to defining a system of classification and encoding of data, which facilitates the retrieval and analysis of data. A model of a public registry should also be able to provide for the conversion of existing data from physical files.

A model thus created serves as a development base for databases and applications. The fundamental elements of such public registries are most frequently:

Elements of public registry model

- Database (along with its supervising/controlling system),
- Applications for conducting transactions (most often desktop applications)
- Applications for public access to public registry data (web applications).

A public registry database can be centralized or distributed, transaction- or web-oriented, and often feature multimedia. For example a real estate cadastre database necessarily contains attribute and graphic data.

About transactions

According to a widely accepted definition, a **transaction** is a set of actions that change the state of a system in such a way that the consistency of said system is retained. A transaction determines the logical unit of work that is performed in its entirely or not performed at all. The consistency of information systems generally refers to the consistency of the data they contain. Within the theory of databases, the acronym ACID is used when referring to essential requirements governing each transaction. These are:

Transaction's essential requirements (ACID)

- **(A)tomic** – An atomic transaction is performed in its entirety or else all its effects are nullified.
- **(C)onsistency** – The consistency of a database remains intact after each transaction.
- **(I)solation** – Transactions are mutually isolated, which means that concurrent transactions may not, at any time, come into collision.
- **(D)urable** – After a transaction has been confirmed, it must be able to survive a system crash or malfunction.

The described ACID transactions are beneficial for short-lasting activites (in the real world, that is, meaning seconds or minutes). Processing resources and particular data entires must stay locked during an ACID transaction, or,

	in other words, other users must be precluded from modifying the state of the part of the system currently engaged in a transaction. The premature release of locked resources can cause a cascade rollback. This problem is prevented by extending the «lockdown» period, which in turn decreases the availability of resources and the concurrency of transactions happening in the system.
ACID benefitions	We may conclude that ACID transactions are beneficial for: • short-lasting system activities, • systems where concurrency is not of importance, • tightly integrated systems. Unfortunately, changes of states in public registries, from the moment of initialization of a transaction, through its performance, verification, and ending with compliance and registration of the new state, may last for very long periods of time. For example, a change of a business nature in a cadaster (such as a parcelation) may take months, from the moment of initialization to the final resolution. There is a notable asynchronous nature of events, meaning that logically connected changes do not happen in a single temporal instance, and that they are performed by different governing and judicial bodies. Furthermore, concurrency is of great importance is such systems, in order to ensure the availability of data. Therefore, «lockdowns» should not last for long periods of time.
Loosely integrated systems and their characteristics	As far as transactions that go through a number of public registries are concerned, there arises a special issue centering on the fact that public registries are most often distributed and loosely integrated systems, of a B2B (Business-to-Business), or G2G (Government-to-Government) type. Generally speaking, what defines loosely integrated systems are the following characteristics (Sungsuk Jang, 2003): • according to the majority of attributes, are independent from other systems, • have their own resources at disposal and are able to act autonomously, • function according to their own rules and juridical regulations, • often belong to different organizations, that may either be competitors to one another, be distrustful of each other, have their own or even opposing agendas, and are not mutually completely honest, • there are situations where these systems need to act synchronized and integrated in order to accomplish a goal. Loosely integrated system suffers from serious issues of data inconsistency and questionable performance of transactions. The biggest problem is how to perform transactions so that data remains consistent. Therefore, modeling their dynamics, as well as the judicial regulation of transaction methods and procedures is of utmost importance.

Summary

Chapter 3 begins with discussion about reforms of public registries through time. Examples of successful practice and reference models of particular public registries have been developed and published on the level of international associations and organizations. Some reform effects are mentioned, along with the basic issue arising from research and development of complex information systems. Chapter continues on to definition of transaction, its characteristics (ACID) and ends with loosely integrated systems discussion and their characteristics.

4. Croatian example: model for integration and transformation of cadastral and land registration systems

The basic facts about the system in Croatia

The Croatian model for integration of cadastral and land registration system is very similar to other middle European and transition countries.
The basic facts about the system in Croatia are:

- The Law on Land Registers (October 1996) [5] provided legal preconditions for the computerization of registers on real estates in the Republic of Croatia. Provisions of this law foresee computer aided and processed land registers (EDP – Land Register).

- The Law on National Surveying and Real Estate Cadastre (November 1999) [4] establishes the computerized Real Estate Cadastre.

- Computer aided and processed EDP - Land Register integrated with the computer aided and processed Real Estate Cadastre make together the Database of Land Data of the Republic of Croatia (or, in short, BZP), kept uniquely and centrally for entire Croatia.

- The entire system is mutually organized by the Ministry of Justice, Local and Self Government and the State Geodetic Administration. The responsibility for keeping and maintenance of this public register is shared between land register departments of municipal courts (judicial system) and cadastral offices (governmental offices).

- Basic legal acts provide only the general guidelines for data processing bases of land registers and cadastre. Therefore, a whole series of subsequent bay-lose, procedural manuals and computer programs has been produced to govern the transformation of manually kept into computer data process registers, as well as the way of handling such new registers.

Figure 1. represents the transformation model of an actual cadastre into the Real Estate Cadastre on a very high logical level.

Definition of Cadastre

The Real Estate Cadastre in Croatia corresponds to the definition of cadastre, as given by Henssen [2] at the Delft seminar. This paper was also the basis for the work on Cadastre 2014 [3].

Henssen's definition is:

Cadastre is a methodically arranged public inventory of data concerning properties within a certain country or district, based on a survey of their boundaries. Such properties are systematically identified by means of some separate designation. The outlines of the property and the parcel identifier normally are shown on large-scale maps which, together with registers, may show for each separate property the nature, size, value and legal rights associated with the parcel. It gives an answer to the question where and how much.

Figure 1: Transformation model of an actual cadastre into the Real Estate Cadastre on a very high logical level

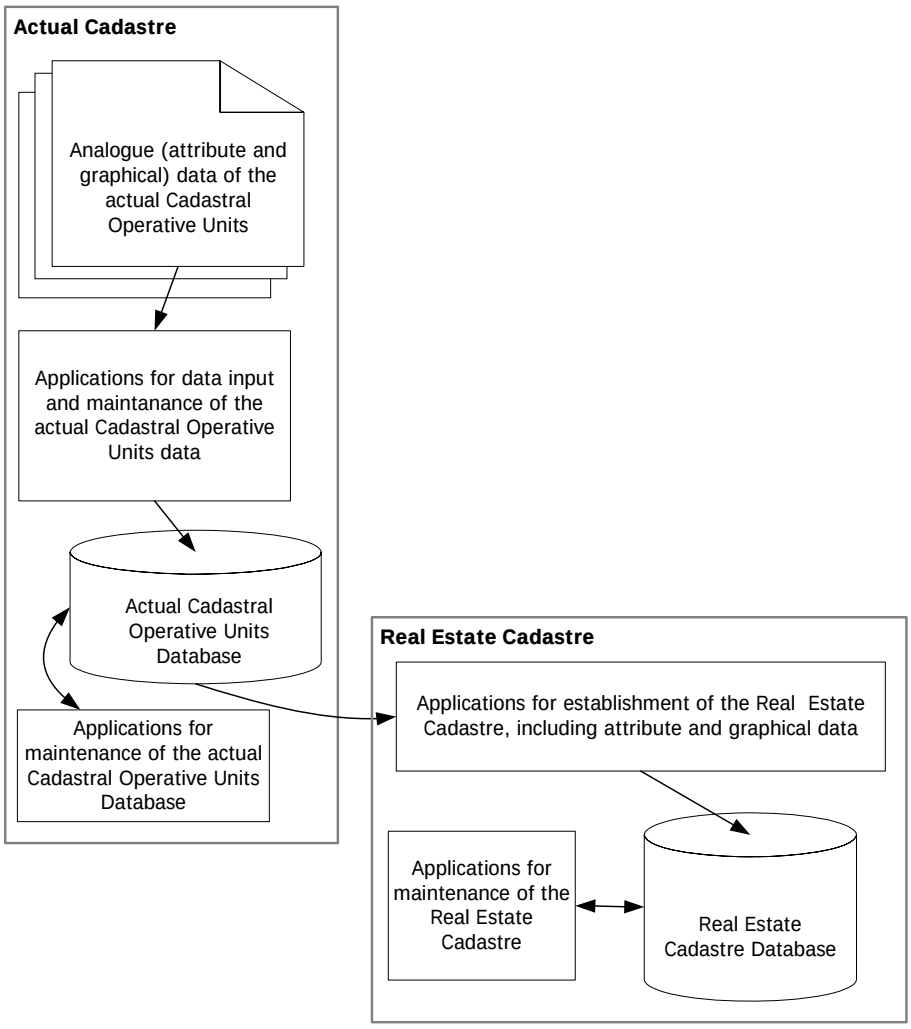


Figure 1. Transformation model of actual Cadastre into the Real Estate Cadastre

Figure 2. represents the transformation model of actual land register books into the EDP - Land Register.

Figure 2: Transformation model of actual Land Register Books into the EDP - Land Register

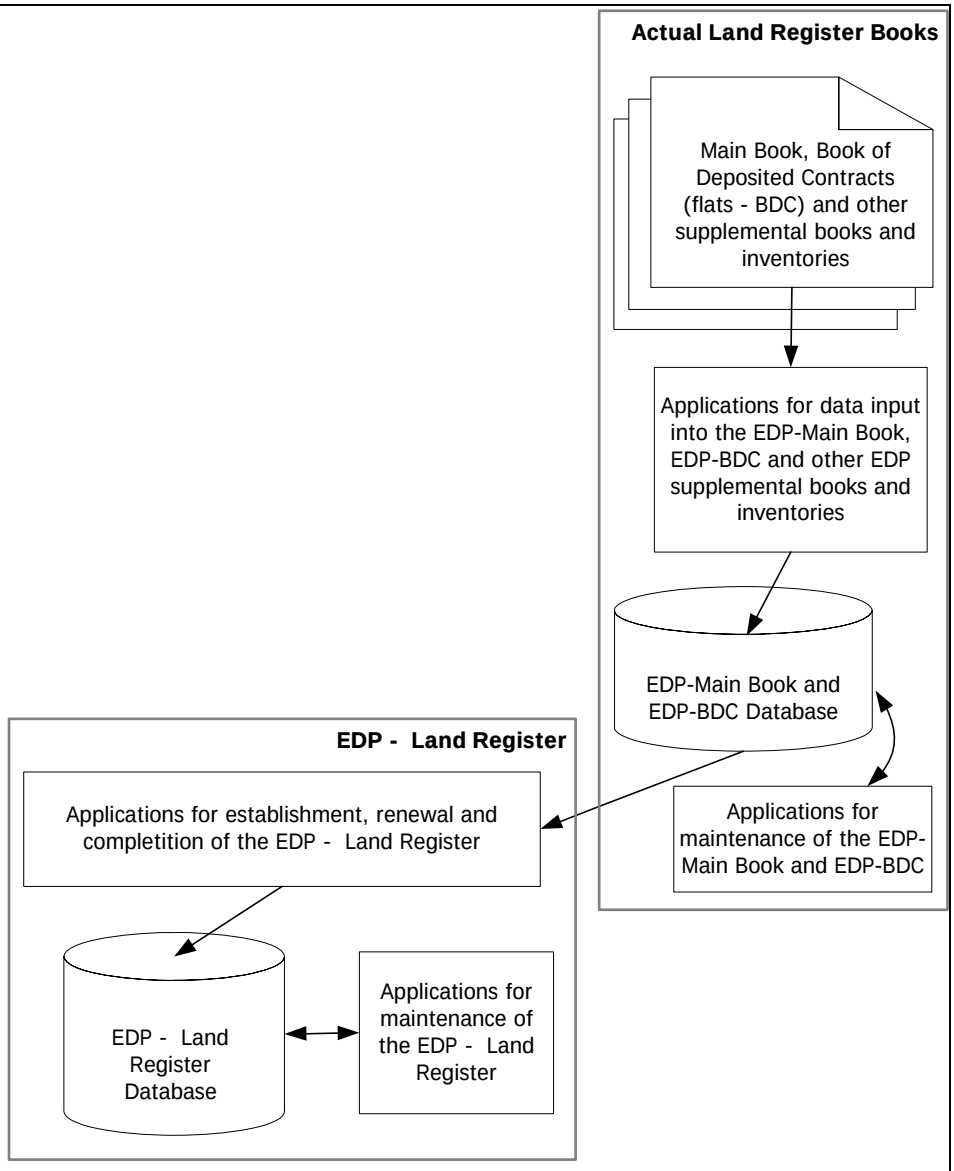


Figure 2. Transformation model of actual Land Register Books into the EDP - Land Register

About land registration

The EDP - Land Register in Croatia corresponds to the result of the land registration process, as defined by Henssen[2]:

Land registration is a process of official recording of rights in land through deeds or as title on properties. It means that there is an official record (land register) of rights on land or of deeds concerning changes in the legal situation of defined units of land. It gives an answer to the questions who and how.

The result of an integration of the Real Estate Cadastre and the EDP - Land Register is the Database of Land Data of the Republic of Croatia. The establishment and maintenance of this database corresponds to the result of the land recording process, as defined by Henssen [2]:

Land registration and cadastre usually complement each other, they operate as interactive systems. Land registration puts in principle the accent on the relation subject-right, whereas cadastre puts the accent on the relation right-object. In other words: the land registration answers the questions as to who

and how, the cadastre answers the questions as to where how much.

Figure 3. represents the integration model of the Real Estate Cadastre and the EDP - Land Register into the Database of Land Data

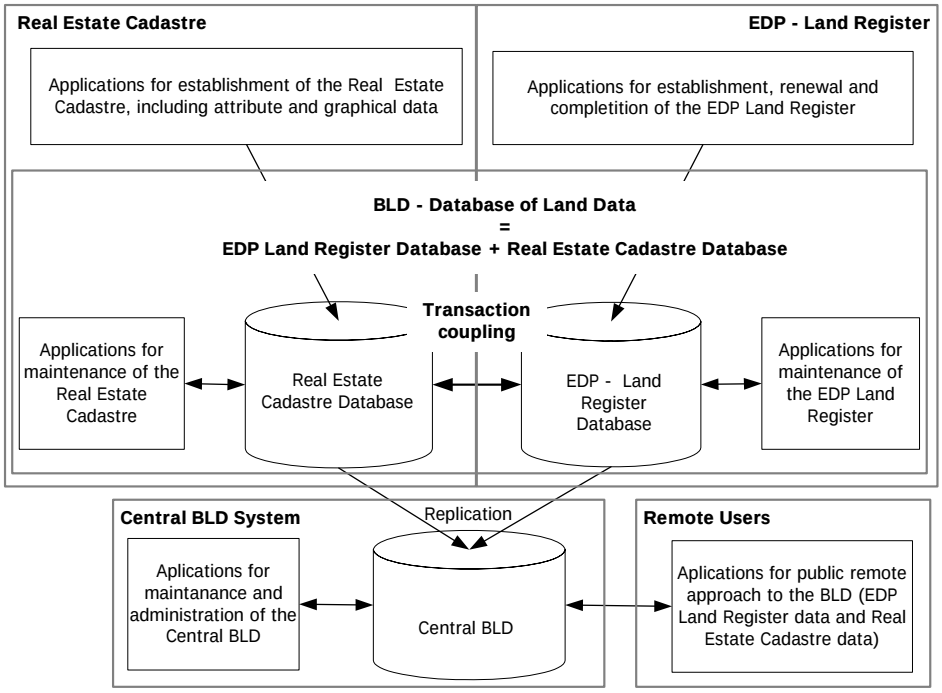


Figure 3. The integration model of the Real Estate Cadastre and the EDP - Land Register into the Database of Land Data

Summary

The Croatian model for integration of cadastral and land registration system is very similar to other middle European and transition countries. The basic facts about the system in Croatia are discussed along with enclosed illustrations. Chapter then gives us a definition of cadastre, and ends with a discussion about land registration.

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Standardised access to registers offers considerably advantages: the Register of Company Names, Land Register, Register of Associations, etc. simplify procedures for the administration and the private sector. Use of the electronic signature makes it possible to have open systems which can be devised and operated independently of each other.

5. Introduction

Shared Registers and Databases

Before old structures and old processes in the public administration should be broken up, complex, but smart processes, both for the front office and especially for the back office are required. Underlying registers and databases – in the past maintained by different authorities – now can be accessed and maintained simultaneously by all authorities concerned, or even by autonomous authority agents, which perform the citizens' applications. Effective one stop government becomes possible.

Which are the prerequisites for this scenario? There are lots of registers and databases needed, to hold the required information in store. Additional, in some cases, authorities' access to private companies databases is required, e.g. access to the income data of employees, stored in the IT-systems of their employers.

In some cases, additional services can be provided to citizens on base of an "opt in"-model, e.g. in case of domicile changing, it should be possible for the citizen to choose whether the authority should notify the new address to various private companies, as banks, insurance or mail-order companies.

Shared Registers and Databases

The most important point is that the change from a number of different autonomous registers and databases that where in the past maintained by different authorities are put together so that all authorities that depend on data from a number of registers afterwards can accessed and maintained this shared register simultaneously. Another very important aspect is that the quality of data will be improved through the shared register. The repeated matching of data will remove mistakes: e.g. one citizen has two different addresses in two different autonomous registers. Maybe he moved and on registry has the old and one registry the new address. With one shared data base this mistake can be removed through the matching of information received in different authorities.

In Austria for example there are several shared registers and databases, partly established by the Austrian E-Government Act, partly established by other laws and already productive:

	• Central Register of Residents (CRR) – (Zentrales Melderegister (ZMR): Contains domicile and personal data of every person living in Austria. • Supplementary Register for Natural Persons (Ergänzungsregister natürlicher Personen): Contains natural persons not living in Austria, but in contact with Austrian authorities, e.g. abroad citizens or citizens of foreign states not living in Austria but in contact with Austrian authorities. • SourcePIN Register (Stammzahlenregister): Contains the source identification number (sourcePIN) – (Stammzahl) derived from the person's registration number (ZMR-Zahl) in the Central Register of Residents or in the Supplementary Register. • Supplementary Register for legal persons (Ergänzungsregister für juristische Personen): Contains legal persons not contained within the Register of Company Names or within the Central Register of Associations, which are in contact with Austrian authorities, e.g. consortia of natural or legal persons. • Real Estate Database (Grundstücksdatenbank), buildings and domicile register (Gebäude- und Wohnungsregister (GWR), register of valid addresses. Other registers, e.g. central trade register (Zentrales Gewerberegister (ZGR), register of industrial plants, passport register, driving licence register, weapons register and criminal records (Strafregister). The use of all these registers enables public bodies to collaborate in an efficient way, but also to observe the E-Government Act. Using the system of sector-specific personal identifiers (ssPIN) each public body has access to these registers in accordance to it's competency and authorisation, either for queries or for updates. ## 6. Registers in Austria provided by BKA/DUK ### 6.1. Organisational Structure
What is the main register in Austria?	Decentralised and federalist organisational structures and competences as in Austria require a high degree of technical coordination in order to avoid processes being unnecessarily duplicated. The aim is to make optimum use of eGovernment mechanisms. Registers which are used in conducting eGovernment procedures will be available to all administrative levels participating in the Austrian portal group (Interoperability). This will permit authentic access to the data in the registers and avoid redundant storage of data.

6.2. Standard Documents Register

What will the introduction of the standard document register allow?

When dealing with public authorities, citizens are often confronted with repeated demands to provide documents such as their birth certificate or certificate of nationality. The establishment of the Central Register of Residents (CRR) provided an infrastructure for the Standard Documents Register which makes it possible to carry out high-quality electronic identification of citizens. In the medium to long term, this will replace the use of standard paper documents. Therefore the CRR/SDR is one of the central tools of eGovernment:

- The Standard Documents Register allows online access to the data of standard documents. Documents required to validate information e.g., personal status and citizenship, no longer have to be physically presented but rather will be obtained electronically by submitting a request to the CRR. In practice, the person concerned can ask the authority to verify the necessary data electronically in the Standard Documents Register. This will simplify administrative procedures.

In what form can a citizen obtain confirmation about his data?

- Authorities will not have to set up their own register. The CRR will simply record the accuracy of the registration data in an electronically readable form after it has been verified by the local registration authorities by inspecting the original documents. The verification procedure will not entail any additional work because it is compulsory to verify identification data by inspecting the documents. The fact that the data is accurate will be entered directly into the CRR by the local registration authorities. At the request of the person concerned, the accuracy of registration information can be recorded by the registration authority in the ZMR even where no registration procedure is being conducted, provided the person presents a document which can serve as proof of accuracy.

As an alternative to a request by the authority for the standard documents, the presentation of a proof of residency, in which the accuracy of the data is recorded, can replace the submission of those documents. Confirmation of residence is available in either paper or electronic form. Like the paper version, an electronic confirmation provides the same proof of identity as a public document because it is signed electronically by the public authority.

If requested by the applicant, it is possible to use all the electronically available data entries made by public institutions for the purposes of validating standard documents.

6.3. SourcePIN Register

Where may the sourcePIN of a natural person be stored?

The SourcePIN Register for natural persons is a virtual register. The entries of the CRR are read only during the generation of sector-specific personal identifiers and never persistently stored. A natural person's sourcePIN may only be persistently stored on the person's citizen card.

Who is the sourcePIN register authority?

The SourcePIN Register Authority is the Data Protection Commission since electronic identification has implications for data protection. The authority's tasks include:

Which tasks are include in the work of the sourcePIN register authority ?

- maintaining the SourcePIN Register
- maintaining the Supplementary Register
- reaching agreements with certification service provider to allow them to open citizen card registration points
- defining the mathematical processes required for calculation of sourcePINs or substitute sourcePINs and publication thereof

What are the numbers of the Register of Company Names, the Central Register of Associations and the supplementary register used for?

The registration numbers of the Register of Company Names, the Central Register of Associations or the supplementary register are used to create the sourcePINs of legal persons.

What kind of sourcePIN do people get who are not registered in any Austrian register?

Persons who wish to approach the authorities but are not registered in any Austrian register can, upon request, be entered in the Supplementary register if the application for registration bears a qualified electronic signature which is linked to an equivalent proof of unique identity in the country of origin. The Federal Chancellor by regulation lays down the detailed requirements for equality. The sourcePIN Authority upon application of the data subject has to provide the SourcePIN of the principal directly to the citizen card enabled application where the official procedure is carried out.

6.4 Supplementary Register

In electronic procedures conducted by public authorities, the sourcePIN is used

Why was the supplementary register set up?	as a basis for identification and for the generation of sector-specific personal identifiers of natural persons. The sourcePIN of natural persons is derived from the number uniquely allocated to a person in the Central Register of Residents. With respect to legal persons, their entry number in the Register of Company Names or in the Central Register of Associations serves as the basis for calculation. Only natural persons who are currently or who have been residing in Austria are registered in the Central Register of Residents. However, in order to enable persons not obliged to register (e.g., Austrians living abroad) to have access to electronic administration through the citizen card, a Supplementary Register was set up. There is also the issue of non-natural persons, who are not registered in the Register of Company Names or Register of Associations. Examples are churches, communities, etc. These persons should have the possibility to access eGovernment services as well. In these cases, the sourcePIN can be derived from the respective registration number of the Supplementary Register:
Who requests the registration in the supplementary register?	• The Supplementary Register will cover persons who are not registered in the Central Register of Residents or in the Register of Company Names or Register of Associations. • The person will be registered either at his own request or, in certain cases, at the request of the authority carrying out the data application. For the purpose of registration, the person wishing to register must provide the identification data required under the Registration Act. Legal persons must provide proof of their legal existence including their legally valid name. • The purpose of registration is to establish the unique identity of the person concerned and provide electronic proof thereof.
How are natural persons kept in the supplementary register?, **How are non-natural persons kept in the supplementary register?**	• Natural and non-natural persons will be kept in separate databases. The sourcePIN Register Authority may be assisted by the Federal Ministry of the Interior for the "Supplementary Register of natural persons" and the Federal Ministry of Finance for the "Supplementary Register of all other persons". For the latter group procurations and geographical/organisational subdivision (e.g., branches) may be registered as well. • The detailed provisions governing the Supplementary Register are laid

down in a regulation by the Federal Chancellor.

6.5. Register of Addresses

What does the register of addresses contain?

The foundations for the establishment of the Register of Addresses were laid by the Buildings and Homes Act (GWR-Gesetz, Federal Law Gazette 2004 Part I, No. 9) and the amendment of the Surveying Act (Vermessungsgesetz, Federal Law Gazette 2004 Part I, No. 9). Those acts made it possible to create an authentic database of geographical addresses for the whole of Austria. eGovernment data applications and other administrative registers can make use of the data contained in this single authentic source.

The Register of Addresses is maintained electronically by the Federal Office of Metrology and Surveying as a specific register forming part of the land database. An up-to-date and complete database of addresses is thus available for eGovernment purposes.

- The Register of Addresses contains geocoded addresses of buildings and properties issued by the authorities.

What information does the address contain?

- The address contains a variety of information (district, town, street, reference number, cadastre district, property number, etc.). Each plot of land is allocated an address code and each building an address number.

Who is providing the address data for the register of addresses?

- The address data is provided by the local authorities immediately an address is issued or changed. Notification is given via an online application or a standardised XML interface. The online application for addresses, buildings and homes is provided by the Federal Institute for Statistics free of charge.

Why is the recall of certain address data free of charge?

- Certain address data (district, location, street, reference number, plot coordinates, postcode, address code, house number, building coordinates, building function, and address number) can be requested free of charge by authorities. This is intended to lead to an intensive use of the address register. It is not permitted to save or process the results of the enquiry for commercial purposes. Flat-rate fees for further usage of the data are fixed in a regulation. No fees apply when authorities make enquiries in the course of carrying out functions required of them by law. There is likewise no such obligation on the Federal Institution for Statistics or fire brigades or other emergency services where use of the register relates to crisis-

	management tasks. • More detailed provisions on the technical features of the Register of Addresses, its content and structure are laid down in a regulation. **6.6. Building and Homes Register** The Federal law on the Buildings and Homes Register (Federal Law Gazette 2004 Part I, No 9) provides for the setting up of a building and homes register for statistical, research and planning purposes. The register will be set up and maintained by Statistics Austria, the federal institution for statistics. A variety of address and structural data is to be contained in the register: • The register hosts address data of plots of land, buildings, homes, occupiers, workplaces without premises and buildings, and descriptions thereof. The address data for plots of land and residential buildings is provided by the Address Register.
Who will provide the data for the buildings and homes register?	• The data stored in the Buildings and Homes Register (address data, administrative data, survey data) will be provided primarily by the Address Register, the Central Register of Residents, local authorities and district councils.
For which statistical purpose will the buildings and homes register be used in the future?	• For statistical purposes, the Buildings and Homes Register will serve as the basic register for any census based on register data. There will be no need in the future, therefore, to carry out a census in its current form. Provision is also made for local authority statistics and reports.
What is the requirement for authorities to get free online access to the data of the buildings and homes register?	• Online access will be free for authorities for the purpose of fulfilling the functions conferred on them by statute. Local authorities will be able to access all registered data relating to their local authority area. District councils will be granted access rights to the extent necessary for performing their local surveying functions. The Central Register of Residents has access to residential addresses. • The buildings data will be transmitted to the Buildings and Homes Register via the online application for addresses, buildings and homes which is provided by the Federal Institution for Statistics. This is the same application as for the transfer of address data to the Register of Addresses.

	As laid down by statute the Buildings and Homes Register, including the online application for addresses, buildings and homes, was introduced in 2004. The initial data consisted of data available from the directory of building addresses, statistics on residential buildings, data from the 2001 buildings and homes census and data collected by the Federal Agency for Weights, Measures and Surveys such as geocodes. ## 6.7. Central Register of Residents The legal basis for the establishment of the Central Register of Residents was created with the amendment of the Registration Act (Meldegesetz) 2001. The Federal Ministry of the Interior operates and provides services relating to this data application. The authorities responsible for data protection are the registration authorities. The Central Register of Residents is a public register and information can be issued to persons who can prove that they have a justified interest to obtain residence data of a person and provide certain data for its identification.
Who has access to the central register of residence?	The whole data set of each person saved in the Central Register of Residents consists of: • Identity Data The names, the sex, birth information (city of birth, date of birth, federal state and state respectively), the entry number in the Central Register of Residents and the nationality. In case of a non-Austrian person, passport information (type, number, issuing authority, issuing date and state) is also saved. • Residence Data Street/house number/building number/door number, postal code, municipality/federal state, date of the registration and deregistration, name of the owner of the accommodation.
On which basis are natural persons identified in electronic communication with authorities?	In electronic communication with authorities, natural persons are identified on the basis of a sector-specific personal identifier. This personal identifier is generated from the sourcePIN, which is derived from the ZMR number. The ZMR number is allocated to all persons registered in the Central Register of Residents as a unique identifier. The eGovernment Act makes provision for an amendment to the Registration Act in order to take account of the functions of the Central Register of

When do bodies of public corporations, local authority associations, judicial officers and social insurance institutions have the permission to make enquiries?	Residents in eGovernment: • The ZMR numbers (contained in the Central Register of Residents) must be made available to the sourcePIN Registration Authority so that it can perform its functions. • Where technically possible, a request for registration information from the ZMR can be made using the citizen card and the information can be issued by that means. • In order to make an enquiry as to a person's principal residence, the interested party must state the first name and surname of the person and a further piece of information. If a private-sector ssPIN is given as information, the person making the enquiry must use his or her own sourcePIN in order to be able to verify the ssPIN. • Bodies of public corporations, local authority associations, judicial officers and social insurance institutions must be permitted to make an enquiry where such an enquiry is necessary to perform the functions conferred on them by statute. The data saved in the Central Register of Residents must be kept up-to-date. Therefore, the Residents Act was amended via the eGovernment Act. Since then, changes of nationality, name and sex must be announced to the Central Register of Residents. ## 6.8. Central Register of Associations The Central Register of Associations (ZVR) has an important role to play in eGovernment. The eGovernment Act permits the use of the ZVR in eGovernment processes by way of an amendment to the Associations Act (Vereinsgesetz) 2002. Like the Central Register of Residents, the Register of Company Names and the Supplementary Register, the Central Register of Associations contains an identification number (ZVR number), which constitutes an important element of electronic communication between citizens and authorities. The Central Register of Associations is operated and maintained by the Federal Ministry of the Interior as an information storage system. Responsibility for the Central Register of Associations lies with the association authorities, which store certain information (name, ZVR number, date of establishment, seat,

	representatives and their ssPINs, etc.) on associations in their jurisdiction in a local register. The data kept in the local registers of associations is transferred to the ZVR in the joint information system. For the purposes of unique identification of each association, the ZVR issues a unique ZVR number and communicates this number to the local association authorities. The information on associations kept in the ZVR is processed in such a way that it can be retrieved only on the basis of the association's name and ZVR number. Certain data can be requested online by anyone free of charge if there are no restrictions imposed. The provisions guaranteeing data security (request rights, cautions for staff, technical protective measures to prevent unauthorised access, data migration) are laid down in a regulation. The amendments made to the Association Act 2002 by the eGovernment Act relate, essentially, to the ZVR number, register enquiries and provisions on access: • Associations must use their ZVR number for external legal matters. This principle of publication means that the sourcePIN of an association is identical to the ZVR number. • Bodies of regional and public law corporations are to be granted the right to make online requests for certain data in order to enable them to carry out their statutory functions. The sector-specific personal identifiers of representative and operational bodies cannot be requested. Public law corporations can make enquiries only on request. Requests are rejected by administrative notice. The data processed in the Central Register of Associations may be used jointly by the association authorities.

Summary:

The data of most Austrian citizens is stored in numerous different registers. However these registries can be seen as the backbone of all e-government applications and they have to be maintained, corrected and updated.
There are several shared registers and databases, partly established by the Austrian E-Government Act, partly established by other laws and already productive:

The use of all these registers enables public bodies to collaborate in an efficient way, but also to observe the E-Government Act. Using the system of sector-specific personal identifiers (ssPIN) each public body has access to these registers in accordance to its competency and authorisation, either for queries or for updates.

7. State registers provided by eGa

What registries exist in Estonia?

State registers in Estonia are working under different ministries and the system is basically very much decentralized. There is misunderstanding that registers in Estonia are organizationally centralized (example was about Centre of Registers and Infosystems under the Ministry of Justice) and it was possible because of the small size of Estonia. In practice there were some attempts to develop more centralized registry systems but it was not happening because of different reasons. The way Government is working in Estonia is very much decentralized. All ministries are relatively independent in their decision making processes and their work principles are not supporting centralization of some of their activities across government. In most cases horizontal cooperation between government institutions is complicated. Also info-political considerations were against centralization both organizationally and also taking into account technical platforms. In addition to that data protection considerations and specially personal data protection principles are avoiding centralization. Some centralization of databases environment occurs in some ministries but this has happen because of some pragmatic considerations and it can not be considered as centralization of registers system. Example about centralization of some registers under separate ministries - Centre of Registers and Infosystems under the Ministry of Justice, Agricultural Registers and Information Board (not all agriculture related databases) under Ministry of Agriculture, Estonian Motor Vehicle Registration Centre (not all registers of this Ministry) under Ministry of Economic Affairs and Communications. In Estonia we have more than 200 different officially formed registers from which about 100 are more important for building eServices. Population Register, Business register, Land register, Car register and some others are the biggest.

Is this modelled on other countries?

Categorization of registers was fixed by the Estonian Databases Act (entered into force in Estonia in April 1997). By definition of this Act there were general (or basic) national registers (population, legal persons, immovable property, state assets) which fall to the same category as described in the study "Public Registers and Barriers to eGovernment". Besides the general national registers there were also State registers (database which is established by the Government pursuant to law or an international agreement and which is necessary for the performance of the functions of one or several ministries), other state agency databases and local government databases. The categorization of these registers has been done on the basis of the process of establishment (by Law, by Act of Ministry or Local Government etc.) and taking into account the Scandinavian practice. Recently the categorization was changed and in the new Law (Public Information Act) we are not

emphasizing the establishment process and the status of registers but rather the importance of basic data (not basic register). There is no reason to extract from the registers system separately Basic Registers because the same organizational, legislative and technical barriers are relevant for most of the state databases.

Public Information Act and related ministry level sub-acts are forming regulatory environment for registers system. Some rules of integration of the system and also general descriptions of responsibilities and principles of supporting systems are given. Above mentioned amendments to the legal acts were made during the implementation process of the system.

The principles in Personal Data Protection Law are influencing the development and implementation of the registers integration projects. The main problems and discussions were about permission to use single eID and allow cross usage of data between different registers.

8. Document management systems and document exchange environment provided by eGa

The European Union's vision for *e*Government in the next decade foresees "increasing the efficiency of *e*Governance as a tool for good governance". While so far, *e*Governance has primarily denoted more efficient services for the public, now increased emphasis is put on the rationality of the public administration; efficiency, openness and transparency of governance; and participatory democracy. From the viewpoint of document management, good governance means cost-effective and rational use of resources, simplification of administrative processes, increased availability and quality of services, and improved interoperability of document management systems.

The State Chancellery as a public body co-ordinating the development of document management in the Estonian public sector considers the interoperability of document management systems one of its priorities in the coming years. In 2005, the agency launched an electronic document exchange project between ministries with an aim to put an end to paper-based correspondence. In the course of the project, document management systems of ministries will be interfaced, ensuring thus their interoperability and paving way for the gradual transition to paper-free document exchange in the public sector. As a result of the project, the different document management systems of ministries will be able to exchange documents over the secure data exchange environment X-Road through a specially designed

document exchange centre.

To map the initial situation, a survey was carried out at the beginning of 2005 on the basis of document exchange reflected in document registers of agencies. The analysis of volume of documents provided the basis for making the choice of ministries to be involved in the pilot project. The mapping of metadata also served as a preparation for the unification of metadata composition. The survey showed that despite the composition of documents in electronic form, the correspondence between ministries as well as administrative agencies in their jurisdiction is still mainly paper-based.

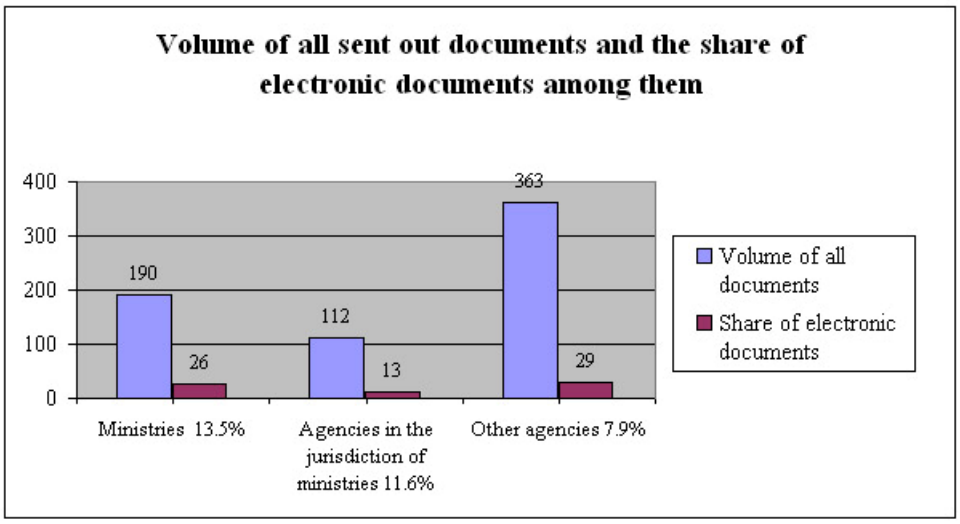


Figure 1. Volume of all sent out documents and the share of electronic documents among them

A directory was compiled of the mapped metadata in order to unify the composition of metadata components in agencies, support the document and information exchange between information systems and enable detailed search simultaneously in several information systems.

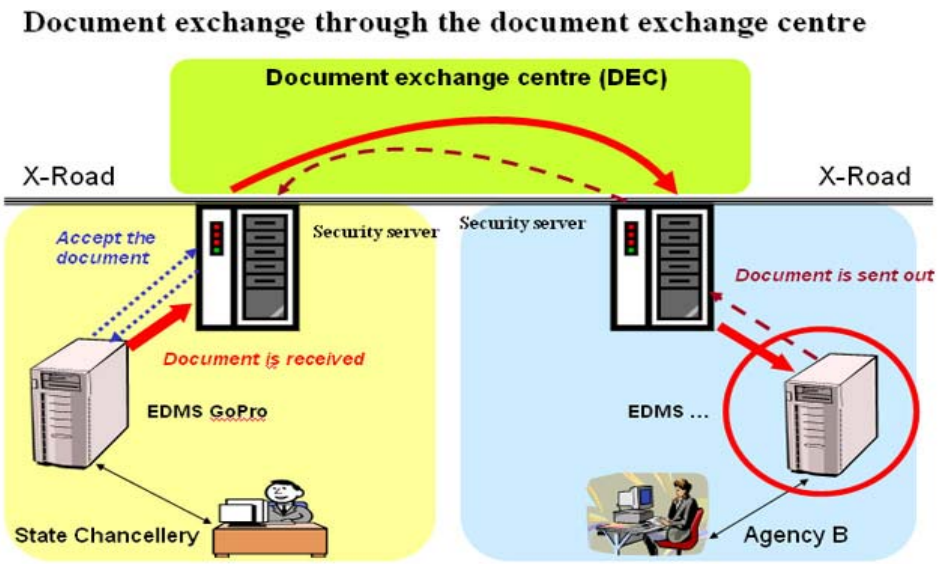
In the elaboration of the directory, the following characteristics of metadata were taken into consideration:

Reusability – metadata created for document management must be re-usable in other fields of life and conform to metadata standards of other fields of activities.

Multilevelness – based on an international standard on archive description, multi-level descriptions will be used in document management.

Modularity – metadata is to be presented in groups by document management events; they can be used by organisations either one at a time or in combination

	with other metadata schemes. When employing metadata, a certain amount of metadata components is mandatory for all organisations. Additional metadata will be recommended, but each organisation will be able to decide upon their implementation depending on its document management requirements. The project for the development of electronic document exchange in the ministries consists of the following stages: Within a pilot project carried out in 2005, paperless communication based on a bilateral agreement was tested between document management systems using two different software. Agencies involved in the pilot included the Ministry of Defence, the Ministry of Finance, the State Chancellery, and the Ministry of Interior. In the second stage of the project, during 2006, the rest of the ministries were involved. Automatic and secure document exchange was tested between several different document management systems through the X-Road. The document exchange was based on a multilateral agreement. As a next step, county governments, administrative agencies in the jurisdiction of ministries etc. will be gradually involved in the project. In the third stage of the project, paperless document exchange will be gradually extended so as to include other types of documents (legal acts, invoices etc.). Pursuant to the principles set out in the “Estonian IT Architecture and Interoperability Framework”, Estonia is moving towards an architecture based on multilateral agreements, which allows to significantly reduce the number of connections needed for the communication between information systems and facilitates the administration of those connections. The development of paperless document exchange between public sector document management systems is based on the same principle. In 2006, the Estonian Informatics Centre procured and implemented a document exchange centre, which enables secure XML-based automatic data exchange between document management systems over the X-Road (more about X-Road in Interoperability lecture notes).



Document exchange through the document exchange centre is shown on Figure 2.

9. **Document exchange centre (DEC)** provided by eGa

The document exchange centre (DEC) is a common central component (information system) for document management systems and applications for handling the documents of state portals (eForms, DigiDoc). The objective of the system is to link dispersedly located document management systems through the X-Road and to ensure both short-term and long-term preservation and processing of documents. The functionality of the DEC is independent of the document format and does not impose any restrictions on the document type. In the future, the DEC will offer the following online services:

logistics of documents;

processing services;

DEC's internal procedures with documents;

functions of document management;

enquiries and notification services;

administrative procedures of the system.

In May 2005, the State Chancellery approved the concept elaborated by the Estonian Informatics Centre as a basis for the further development of electronic document exchange.

	The main advantages of the chosen multilateral solution are the following: There is no need to conclude agreements with all communication partners. Thus, in order to launch electronic document exchange, an agency only needs to join the DEC and the environment's services must be opened for it. Document management systems willing to join the DEC only need to be able to make X-Road queries, they do not even have to be able to respond to them. At the same time, the DEC (as a database) must be able to respond to X-Road queries, but does not have to transmit them to many different systems. The DEC as a central high availability information system acts as an asynchronous buffer, ensuring the possibility to preserve a document when the document management system of the receiving agency is not available and accept the document at a time suitable for the receiver. The DEC was implemented in May 2006. At the same, another pilot concerning document management that had been initiated by the State Chancellery was completed. In the course of the project, a data exchange interface enabling direct communication between document management systems Postipoiss and GoPro was developed. Besides, descriptions of the most widely used documents, letters and metadata were elaborated within the project. In July 2006, the Estonian Informatics Centre organised a public procurement for the development of DEC interfaces for other document management systems. During 2006, interfaces were developed for the following document management systems: Amphora, the Citizen Portal, Livelink, Postipoiss, Sharepoint, GoGpro, and Webdesktop. The wider implementation of the DEC has only just begun. By November 2006, nearly 500 documents had been exchanged over the DEP by about 60 agencies. This number is on constant increase. In the longer perspective, the use of the DEC will probably be extended so as to include other types of documents (e.g. financial documents, such as invoices). In addition, evolvement of the DEC into an infrastructure for the transmission of messages with described semantics can be foreseen. The DEC will allow to gradually implement paperless document exchange in the public sector regardless of document management software used in specific agencies. Such a document exchange will ensure the integrity of transmitted digital documents and create preconditions for their long-term preservation.

9.1. CASE EXAMPLE Administration system of the state information system

The administration system for the state information system (RIHA) is an improvement of the state register of databases. The objective of RIHA is to create a real integral information system that would give a clear view of the state's IT resources. RIHA will be established as the sixth support system for the state information system (the five current support systems are the data exchange layer X-Road, the classifications system, the system of address details, the system of security measures, and the geodetic system).

The presently operating RIHA administrates and provides access to the information systems and databases of the state and local governments, and the metadata of data services offered by them. All state and local government agencies are obliged to register their information systems.

The current solution of RIHA is not very effective and therefore further developments are on the agenda. The objectives and functionality of RIHA should be much more extensive – in addition to the maintenance of records, it should also comprise metadata and information on all other processes taking place during the life cycle of an information system. This means gathering information throughout the life cycle from defining the need to create a system, deciding on its establishment, and organising procurement to developing, completing or reorganising the system.

The functionality of RIHA will be increased so that RIHA would be able to map the state information system as a whole and give an up-to-date overview of the state's IT resources. Only this way there would be a clear picture of the already existing state information system components in various state institutions, the components still needed, and the available resources and options for their optimal use. It is important to provide all information system counterparties (spheres of competence) a respective view according to their role/responsibility and ensure an integral treatment of the key objects.

RIHA will be a tool for the system components themselves, i.e. a decision-making tool for information system administrators as well as for the state's IT co-ordinators. Based on the data in RIHA, the information system administrator can, for instance, plan developments for his/her system, and the state's IT co-ordinators can use the statistics to analyse and draft the state information policy action plan and development strategies and make other kinds of decisions. Moreover, the whole dataflow could be monitored at government-to-government level as well as at

government-to-citizen and government-to-business level. RIHA enables to define weaker links of the system and provide necessary solutions. The integrity of the state information system can be achieved only if its processes are transparent and can be monitored.

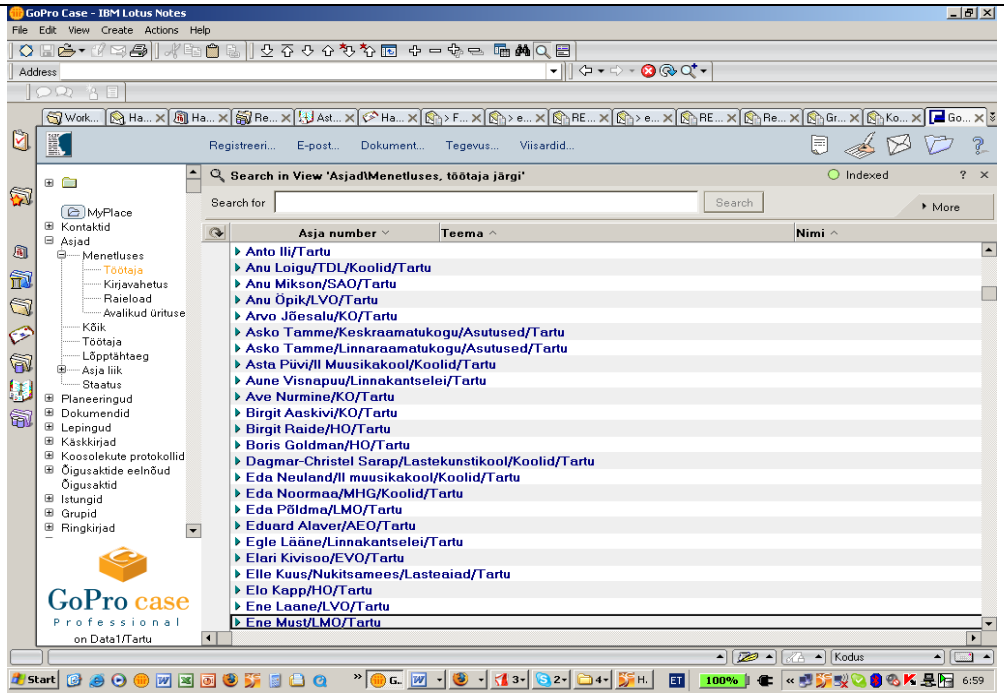
In order to create RIHA as an integral system, it should first be defined as clearly and explicitly as possible. Initially, the system has been defined in the concept of RIHA available at http://www.riik.ee/arr/kontseptsioon.htm (in Estonian only). The concept serves as an input for the further development plan for RIHA.

Although RIHA is currently under elaboration, the web-based registration service is already functioning – the application form based on the ID card is available at https://www.eesti.ee/arr (in Estonian only). The user is authenticated with the ID card after which he or she submits a request to register an information system. The request is confirmed and access for registering is provided by the RIHA administrator. After obtaining access, the information system administrator fills in the necessary data fields.

In addition to the metadata of the information system, the administrator submits necessary data on the services provided by that information system (in case of X-Road, the administrator needs not register the services separately) as well as on the classifications and standards used. Should the administrator need data from another information system, he or she can submit a respective proposal via RIHA to the administrator of that information system to create a new service. The same option is also planned for the citizen (based on authentication with the ID card).

It is possible to search for all objects in RIHA; information systems and agencies that have joined X-Road have been structured by administrative fields (ministries). The basic data in RIHA are public and accessible for everyone.

9.2. CASE EXAMPLE Digital document management system GoPro in Tartu City Government (Estonia)



Content

Until the year 2001 document management in Tartu City Government was handled by traditional methods. Documents were in registers, even in paper databases, or in separate database in computer. Documents moving from one department to another were re-entered in multiple registers.

According to the Public Information Act (2002), issued by the national government of Estonia, all public institutions should publish on their web pages a registry of incoming and out coming mail, all legislation (approved documents and drafts, except protected personal data), results of researches, etc. Next to that the "Common regulations for procedures", into force since March 1st 2001, requires that registers of the documents must be handled digitally.

Already in May 2001, a working group in the Tartu city office formulated the objective that "The Tartu City Government needs to implement new digital document management system to have faster, secure and easily accessible governance".

After an analysis of the existing situation, the following requirements were set to the solution:

- ease of creating new documents and cases
- ease of creating new legislative acts
- fast flow of documents
- accessible from city government computer network, but as well through the

Internet

- an automatic publication of documents in city web page
- digital archiving tool
- unique registry
- possibilities to create different views: by client, by case, by office worker, by institution, etc
- automatic reminders and other control tools over the workflow
- pre-design of workflow
- city government and city council meeting tools
- permanent commissions and ad-hoc workgroups working tools
- scalable (possibility to add to the same system city institutions)
- in Estonian language
- time frame and scope: total implementation in 12 months with 250 persons

The software, IBM Lotus GoPro, is a complex and secure document, case and contact management program. It can be used either through Lotus Notes client or via a web browser.

It offers the following basic functions:

- Contact management
- Case management
- Mail management
- Archiving
- Group letters
- Document approving system
- Reminders
- Document follow-up
- Scanning of the documents
- Out of office function
- Log and history of actions

Since the implementation of this system, Tartu City Government and Tartu City Council have a digital document, cases and contact management system, which fully responds to the needs of the organisation and the requirements of legislation, increases performance of the organisation and makes the decision-making process faster, secure and transparent.

The performance of city officials was increased greatly. Officials can use online document and cases database; have different views - by client, by case, by office worker, by institution, etc. The speed of the workflow has dramatically increased.

	Earlier an approval took approximately one day, now it is common that 5 to 6 approvals are given in 1-2 days. It is easy to monitor the status of the document or case. Use of the system with full functionality from a distance is possible at any time and from any location using an Internet connection. http://www.tartu.ee/?lang_id=1&menu_id=2&page_id=1208 Most functions, related to the registration of population, real-estate, businesses and cars are centralized to the central level state register. At the same time, different municipalities have different needs for information. It should be discussed in which amount enlargement of existing state register data set certain municipality should enlarge registers. There are possible IT-mechanisms which allow integrate data sets of state registers and municipality level important information. From the beginning clear understanding should exist about ownership of data and cross-use of data by central government and municipalities (use of data for analysis, privacy, financial issues).
Summary:	

10. Electronic Document Management System as a part of ERMS provided by SRC

Is document management the same as electronic records management?

What for is EDMS used?

Electronic document management systems (EDMS) are used to:

- store and index documents for easy search and retrieval
- integrate with office software packages and messaging systems
- enable collaborative work
- provide access and version control over documents

What is an ERMS?

Electronic records management systems (ERMS) differ from document management systems as they are designed specifically to manage the creation, use, maintenance and disposal of electronic records for the purpose of providing evidence of business activities. To do this they:

- capture and maintain contextual information (metadata) about the record to support records management processes (eg classification, registration, search, retrieval, preservation and disposal)
- provide links between records that manage the same business activity
- apply controls to records, such as access and security controls, to preserve their content and secure their integrity

ERMS may also incorporate document management functionality. Such systems are generally referred to as electronic document and records management systems (EDRMS).

An EDMS…	**An ERMS…**
• allows documents to be modified;	• prevents records from being modified;
• allows documents to exist in several versions;	• allows a single final version of a record to exist;
• may allow documents to be deleted by their owners;	• prevents records from being deleted except in certain strictly controlled circumstances;
• may include some retention controls;	• must include rigorous retention controls;

• may include a document storage structure, which may be under the control of users;	• must include a rigorous record arrangement structure (the classification scheme) which is maintained by an administrative role;
• is intended primarily to support day-to-day use of documents for ongoing business.	• may support day-to-day working, but is primarily intended to provide a secure repository for business records.

What document defines standard for electronic records management?

The European Commission has issued guidelines MoReq (Model Requirements for the Management of Electronic Records) which are here introduced in a way to introduce main concerns when for planning and introducing an Electronic Records Management System. The MoReq specification is designed explicitly with pragmatism and usability in mind. It is primarily intended to serve as a practical tool in helping organisations meet their business needs for the management of both computer-based and paperbased records. While its development has taken traditional archival science and records management disciplines into account, these have been interpreted in a manner appropriate to electronic environments. Thus, MoReq was developed with the needs of managers of both electronic and physical records in mind.

The management of electronic records is complex, requiring a large range of functionality to be implemented well. Clearly, a system to meet these needs – an ERMS – requires specialised software. This software may consist of a specialist package, a number of integrated packages, custom-designed software or some combination; and in all cases, there will be a need for complementary manual procedures and management policies. The nature of an ERMS will vary from organisation to organisation. This specification makes no assumption about the nature of individual ERMS solutions. Users of this specification will need to determine how the functionality of an ERMS can be implemented to meet their requirements. An ERMS is primarily an application for managing electronic records, though it may also be used to manage physical records. The emphasis of this specification is firmly on the management of electronic records. An ERMS is often closely integrated with an Electronic Document Management System. Technically, an ERMS manages records, while an EDMS manages documents (which are not records). However, especially when used to support day-to-day working, it can be difficult to

separate their functionality.

What records to capture?

Determination of which documents should be captured into a records system should be based on an analysis of the regulatory environment, business and accountability requirements and the risk of not capturing the records.

10.1. ERMS requirements

10.1.1. Classification Scheme

What functional requirements should be specified when planning an ERMS?

A classification scheme lies at the heart of any ERMS. It defines the way in which the electronic records will be organised into electronic files, and the relationships between the files. Records management aggregates files in a structured manner, and good practice dictates that this structure should reflect business functions. The representation of this aggregation is referred to as a "classification scheme". The classification scheme is commonly a hierarchy, though it may be supported by a thesaurus and may not be hierarchic. The remainder of this specification focuses on the hierarchical view.

What defines a classification scheme?

Exmp: The ERMS must support and be compatible with the organisation's classification scheme.

10.1.2 Controls and security

Organisations must be able to control who is permitted to access records and in what circumstances, as records may contain personal, commercial or operationally sensitive data. Any access to records, and all other activities involving them and related documents or data may also need to be stored in the audit trail to ensure legal admissibility and to assist in data recovery. Security of records also includes the ability to protect them from system failure by means of backup, and the ability to recover the records from backups.

Retention and disposal

10.1.3. Retention and disposal

A fundamental aspect of records management is the use of retention schedules to govern the removal of records from operational systems. Retention schedules define how long the records have to be kept by the ERMS, and how they may be disposed of.

10.1.4. Capturing records

"Capture" is used to encompass the processes of registering a record, deciding which class it is to be classified to, adding further metadata to it, and storing it in the ERMS.

processes originate from both internal and external sources. The electronic

documents may be in various formats, may be produced by different authors; and may be received as single documents and as multiple document files. They may arrive through different communication channels e.g. local area network, wide area network, electronic mail, facsimile, letter post (to be scanned) and at variable arrival rates and volumes. A flexible input system is required to capture documents with good management controls so that these diverse requirements are addressed.

10.1.5. Referencing

The various entities of the ERMS (classes, files, volumes, records) need identifiers. These identifiers must be unique for each occurrence of each entity; the uniqueness must extend either across the entire ERMS or within the relevant hierarchic level. As the requirements for these references are common, they are brought together here for classes, files, volumes, and records.

10.1.6. Searching, retrieval and rendering

An integral part of an ERMS is the ability for the user to retrieve files and records. This includes searching for them when precise details are not known, and rendering them. Rendering is producing a representation on-screen ("displaying") or printing; it may also imply playing audio and/or video Accessing files and records, and then viewing records will require a flexible and broad range of searching, retrieval and rendering functions to meet the demands of the different types of user. Although this can be thought of as not being classically a records management function, the required functionality is described here on the grounds that an ERMS without good retrieval facilities is of limited value.

10.1.7. Administrative functions

A level of organisational change is normal, and must be allowed for in the ERMS maintenance and system support facilities. An ERMS must also provide the Administrator with facilities to support events such as changing number of users, increasing demand on storage capacity, recovery from system failure and monitoring system errors. Some of these facilities may be provided by the associated EDMS or database management system.

10.1.8. Other functionalities

Requirements which may be relevant for functionality closely allied to electronic records management not stated before fall into the category of other funcionalities. This covers requirements for the management of physical records within the ERMS, document management, workflow, electronic signatures and other authentication mechanisms.

	The need to maintain physical records may or may not exist, according to the legislative and regulatory environment; where there is such a need, care needs to be taken to preserve integrity and usability of electronic and physical records taken as a whole. These issues should be addressed by appropriate organisational policies. In each case, requirements are presented at a high level. As they do not define the core functions of an ERMS, these requirements are deliberately indicative rather than complete. Requirements that fall into this category can be: • management of non-electronic records; • hybrid file retention and disposal; • document management; • workflow; • electronic signatures; • encryption; • electronic watermarks etc.; • interoperability and openness. ## 11. Non-functional requirements Some of the attributes of a successful system cannot be defined in terms of functionality. In practice, non-functional requirements are important to success. While non-functional requirements often are difficult to define and measure objectively, it is nevertheless valuable to identify them so that they can be considered, at least at a high level. Accordingly, several are generic to many kinds of IT system. In addition, users need to consider their needs in relation to current technical and operational standards, and in relation to the ERMS supplier's support services including documentation, training and consultancy. Organisations need to add their own requirements in these areas, depending on their size and structure, physical characteristics and current technical operating environment. Suggested non-functional requirements that should be considered are: (1) ease of use, (2) performance and scalability, (3) system availability, (4) technical standards, (5) legislative and regulatory requirements, (6) outsourcing and third party management of data, (7) long term preservation and technology obsolescence.
What are benefits of document management system?	## 12. Benefits of Document Management Thousands of organizations around the world use document management every day instead of paper filing systems. Document management offers a number of benefits over paper or microfilm systems.

Fast retrieval

Imaging lets you find documents quickly without leaving your desk. Paper and microfiche are slower because users must go to files and search manually.

Flexible indexing

Imaging can index documents in several different ways simulta- neously. Indexing paper and microfilm in more than one way is awkward, costly and time-consuming.

Full-text search

Imaging systems can retrieve files by any word or phrase in the document, a capability that is impossible with paper or microfiche.

No lost files

Imaged documents remain in their folders when being viewed, so none are lost or misplaced. Plus, index template and full-text searches can find documents if they are accidentally moved. Lost documents are expensive and time-consuming to replace.

Digital Archiving

The risk of loss or damage to paper or electronic records is reduced with a document management system. Keeping archival versions of documents in a document management system helps protect paper documents from over-handling and keeps electronic documents in a non-proprietary format.

Share files easily

Imaging makes it easy to share documents electronically with colleagues and clients over a network, on CD or through the Web. Paper documents usually require photocopying to be shared, and microfilm requires conversion to paper.

Improved security

Imaging can provide better, more flexible control over sensitive documents. Imaging controls security at the folder, document or individual word level for different groups and individuals. In contrast, all paper documents in a filing cabinet or filing room have the same level of security.

Save space

Imaging will help recover valuable office space that was previously taken up by bulky paper files.

Disaster recovery

Imaging provides an easy way to back-up documents for offsite storage and disaster recovery. Paper is a bulky and expensive way to back-up records and is vulnerable to fire, flood and theft.

Summary:

Electronic file system is integral part of Electronic Records Management System (ERMS) being part of information system within the organisation. When planning ERMS relevant requirements should be tackled and answered by decision makers. The checklist of general functional and non-functional requirements is listed in the chapter.

We-Go Academies : Train-the-Trainer program

D3.2.1. Lecture Notes

We-Go
Enhancing Western Balkan
eGovernment Expertise

Course O3:
Customer Oriented eGovernment Websites

Lecture Notes

Contents:

1. Introduction

1.1. Basics

What is a website?

A website is a collection of electronic documents linked together logically in order to provide consistent information. These documents are stored on a computer that is connected to the internet, and made available via the World Wide Web.

By virtue of the HTTP protocol on which the WWW is based, it is possible to assign a unique identifier, or address, to every collection of documents, which distinguishes it from other sets of documents available on the web, and makes it possible for users to precisely locate the computer in which it is stored, and access it.

Hence, a website is called a web site because it represents one of many possible distinct locations (or sites) where information is available within the World Wide Web.

What is an e-Government website?

An e-Government website is a tool designed to support the activities of governmental bodies by giving them the possibility to exchange information with other parties (in particular the public) over the internet. The typical users of e-Government websites are citizens, firms, other governmental agencies, civil society organisations/NGOs, or the press, i.e. all the parts of society that entertain relations with public agencies (and have access to the internet).

What are the functions of an e-Government website?

A website is first of all a communication tool, as it provides individuals and organisations based in remote locations with a way to share and exchange information over the internet.

More specifically, and from the point of view of its owner, an e-government website can fulfil one or more of the following functions:

- It can be a publishing tool, similar to a newspaper, a magazine, a book or a radio/TV broadcast (example: a website that illustrates governmental programmes, or reports on parliamentary and agency activities);
- It can be a marketing tool , providing agencies with a way to publicise and

	promote their services and activities as they would by buying advertising space in the press, or producing a brochure or other promotional materials; an e-government website may be used for building or enhancing the profile and image of public institutions (example: increasing the trust of the public for a new regulatory authority), or to actually promote commercial services (example: websites that promote state library and documentation services, or the activities of a statistical office, or sites that invite investment in public bonds or other publicly-managed financial instruments); ▪ It can be a transactional tool, when they allow the users and the public agency to exchange all the information necessary to support a transaction of any kind (e.g. registering complaints, requesting licences, but also more complex transactions, like paying tax, or managing tenders and contracts); ▪ It can be a work tool, allowing a public agency to exchange information with its employees and/or other stakeholders in the organisation, and therefore facilitate professional activity in general (e.g. a website with restricted access that provides police authorities with access to vehicle registration databases managed by transport authorities, or a site designed to make medical knowledge resources available to doctors based in remote rural locations). Government agencies may be interested in one or more of the possible functionalities described above and, if planned and realised appropriately, a website can represent a relatively inexpensive and efficient solution if compared to other ways of communicating. But it's important to understand that having a website will not solve all the communication needs of an organisation, and that there are advantages and disadvantages to using the web as a communication tool. But, a website is only one of a variety of communication tools potentially available to governmental organisations, and - like other media applications - it has its advantages and disadvantages, or consequences. Agencies considering investing in a website should therefore first evaluate whether communicating through a website is an appropriate and sustainable way to address their communication needs.
What are the benefits of having an e-Government website?	**Benefits** ▪ **Cheaper:** A website can be a very cost-effective way to exchange information, both for its owner and its users. From the agency's point of view, for instance, a website can reduce the number of enquiries agency

staff has to deal with, by providing answers to the most common questions or queries (also known as FAQs, Frequently Asked Questions) it normally receives, and therefore reduce the amount of staff effort and cost needed to respond to them. In general, a website makes it possible to publish extensive information on regulations, procedures and other aspects of an organisation's work, which would otherwise need to be disseminated through direct human intervention: this means an agency can dedicate less staff time to dissemination activities, allowing either for a reduction in staff numbers, or for their employment elsewhere in the agency. Websites also represent a cheaper alternative to the production and dissemination of printed materials, like leaflets, letters and so on. This said, it should always be considered that building and maintaining a website also has its costs (see Disadvantages below), so agencies planning to use a website to try to cut staff costs should always make sure that the savings obtained do offset the cost in terms of staff and money necessary to build and maintain a web application. A website can also represent a cheaper communication alternative from the users' point of view, especially if they are located in remote regions or abroad, as a phone call to an internet provider is often cheaper than a long-distance call, or a physical visit to the agency.

- **Quicker:** web publishing is immediate, and this enables agencies to introduce changes to their public literature easily and relatively quicker than with traditional and more costly methods depending on print. The immediacy of web publishing also allows the fast release of news and other information items to the public, which an agency may find useful to, say, respond to promptings from the media, or act in moments of crisis. In addition to this, if maintained properly a website provides information 24 hours a day, 7 days a week, and can therefore cater for the parts of the population that either finds it hard to visit the agency in person (including, for instance, the disabled) or to contact it during working hours. This can extend to providing the possibility to conduct transactions (e.g. requesting a licence) outside working hours and/or without visiting government offices, which can be useful in countries or regions where travel is slow, costly or generally not easy. Conducting transactions online is also generally faster, as data can be recorded and transferred very quickly, as opposed to what happens with other, more traditional ways of handling bureaucratic procedures (e.g. paper-based forms, manual input by officials, etc.).
- **Better:** websites can provide better ways to manage information compared to traditional means. Hypertext enables you to provide access to complex sets of information in relatively easy and user-friendly ways (see:

How Does A Website Work?) and, combined with databases, it can also provide users with ways to interact directly with the data, i.e. consult it, update it and/or send it to other destinations: in other words, a website can enable users to initiate and/or complete service transactions without recourse to human intervention. The absence of a gate-keeping role on the part of humans not only saves time and money, but it is also likely to help reduce and prevent phenomena such as corruption and bribery, a problem experienced by many governments: by potentially cutting out "middlemen", websites represent a relatively transparent way of administering services and information, in comparison to traditional means. Having a website also provides governmental bodies with an opportunity to systematically collect information about their clients and users: this includes running surveys, asking users to share their personal data in order to register for specific services (and therefore easily create and maintain a database of users of these services), and generally monitoring the behaviour of visitors to the site (e.g. through statistical analysis, which can be used to establish what information users are most interested in).

- **New:** a website provides a new, additional point of contact for the growing part of the population that uses the web. It is estimated that currently almost 10% of the global population has access to the internet, representing a 15-fold increase since 1995 (see: How Many Online?). That said, it should be considered that the percentage of internet users in developing countries is very often significantly lower than in developed countries (though it will increase, albeit slowly, in the years to come). This means that agencies with international audiences (e.g. donors, international institutions, and governments of other countries) may be in a better position to exploit the potential of communicating on the web than those who deal directly with the local population. Implementing the use of e-mail and/or online forms through a website also offers a fast and efficient alternative communication method for those who prefer indirect contact to communicating in person or on the phone (for time or personal reasons). Ultimately, a website can generally introduce new ways of doing things, or new services altogether (e.g. paying your tax by credit card, which may have been too expensive via traditional channels because of the expenses connected to having card-reading machines, etc.). Finally, a website also represents an innovative tool for staff recruitment , providing agencies with a way to advertise vacancies to a wide audience relatively cheaply, and therefore enlarge the potential base of recruitment, with the added bonus that those who apply via a website are likely to be in possession of computing and web skills that could be put to good use in

	the organisation.
What are the downsides of having an e-Government website?	**Disadvantages (or Consequences)** ▪ **Websites cost.** Building and maintaining governmental websites can require quite a lot of time and money. Apart from technical costs, there are also important human resource costs: any existing or new staff working on the web must be trained both on the technical and communicational aspects of the new technologies they are to use. Agencies should therefore always factor in recruitment, training and other organisational costs when budgeting for a website - all of which can be particularly expensive in developing country contexts, where local capacities and expertise may not be sufficient, and trainers, consultants and technologies have to be called in from abroad. ▪ Implementing the use of e-mail through an e-government website potentially leads to **a new flow of enquiries from the public**, through a different channel: agencies should therefore ensure their organisational structure is capable of dealing with these communications in a timely and efficient way, especially considering that web users often expect quicker reaction and communication than those who communicate with traditional methods . It is hardly acceptable to adopt e-mail as an additional, fast method of communication and then leave e-mails unanswered for long periods of time. Again, this points to the costs mentioned in the previous point. ▪ Web publishing usually represents an alternative and additional source of information to print publications, press releases and media broadcasts: it is essential that the entire information output by a governmental organisation is consistent and not contradictory, and adding an extra source like a website makes this even more complex, especially considering the immediacy of web publishing. This is particularly so when it comes to information with legal value (e.g. laws or contracts), where discrepancies can cause serious issues. ▪ Publishing information of legal value or granting access to information databases through a website can pose security dangers to governmental organisations, as malicious users (also known as hackers) can break into website systems through the internet and access, modify or delete information (up to and including making a website inaccessible, or deleting it completely). Defending your website from the attacks of hackers should be a priority, especially if it carries or gives access to legal or confidential information. All this leads to more costs in terms of software and expertise.

What are different phases in realisation of en e-Government Website?	▪ A website does not reach the entire population, but only the part of it that has access to the web (see Benefits above). This is especially a problem in developing countries, where access to the internet is still often limited to a very small part of the population. Websites should therefore be considered only as alternative means of communication, and traditional methods of exchanging information should also be offered and maintained, at least until they become redundant (as was recently the case with the telegraph). **1.2. Critical path in building an e-Government Website** There is no ready-made formula for planning the different phases of the realisation of your website. But it generally helps to consider the following sequence, which is common to the production of most web applications: ▪ **Planning:** establishing goals and priorities, discussing technical aspects for their implementation, budgeting for the project, assigning responsibilities. ▪ **Design and development:** creating the structure and graphical layout of the site, first conceptually, then practically. ▪ **Implementation:** gathering contents and editing them, creating all the pages that will host them, finding web hosting arrangements for the site, loading, testing, launching and promoting the site. ▪ **Maintenance:** day-to-day running of the site, reviewing/updating contents, testing of technical features, general technical maintenance, fostering public awareness. ▪ **Evaluation:** monitoring the performance of the site in relation to the goals originally set for it, reviewing the project's budgets and goals accordingly, considering expanding or reducing/cancelling specific features. The results of the fifth phase (Evaluation) may generate new requirements and demands, which are likely to feed back into one or more of the previous phases in the process, thereby repeating the cycle more than once (e.g. it may be decided that a new section for different information needs to be set up: this needs to be planned, designed, implemented and maintained like the rest of the site, and will eventually be evaluated as part of a more general evaluation process).

2. Planning

Why is planning important?

Building, developing and maintaining successful sites are all operations that require a good deal of investment in terms of time and money: government agencies considering the adoption of a website as one of their communication tools should therefore make sure that the operation is planned appropriately, by giving particular attention to both the agency's and the users' communication needs, and producing a sustainable and realistic project, in accordance with the (sometimes scarce) resources at their disposal.

A simple and effective approach to planning a website is to answer five basic questions:

- Why do you want to set up an e-Government website?
- Who is the website for?
- What information do you need to put on the website?
- Whom will you make responsible for it?
- How much can you spend on it?

2.1. Why set up an e-Government website?

Your website will be more likely to be successful if you determine clear objectives for it. These objectives have to be **SMART**: Specific, Measurable, Agreed, Realistic and Timed.

Make the objectives SMART

Specific - setting goals as specifically as possible will enable you to provide clear guidelines on the features and functions that need to be implemented on your website, and therefore economise in terms of time and resources. For instance, instead of defining your goal as "providing information to the public", it would help to say "provide X type of information, to Y type of public, in Z format and at XYZ conditions". Vagueness in your objectives may lead to the realisation of an unfocussed, confusing and potentially unsustainable web application.

Measurable - the objectives you set should be measurable. If, say, one of your objectives is "to reduce the time it usually takes to obtain a licence by half" (e.g. by allowing the transfer of documents in electronic format through the site, rather than relying on traditional mail), you should make sure that the

	organisation you work for already has reliable methods in place to measure this reduction. In this case it would mean that you need to a) establish the average time taken to obtain a licence with traditional methods, and b) record the time when the request is filed through your site, and the time of release of the licence, and compare this to the time taken with traditional methods: some of this requires the implementation of specific technical features in your website, and it is essential to establish this from the start. **Agreed** - it is important that the objectives you set are agreed with the key stakeholders in your organisation, and particularly with management; this will provide you with common and formally accepted criteria to review the progress of the project in the future, and with the clarification of the different lines of accountability by the people involved in the project. If you obtain the sponsorship of key people in your organisation, you will also be in a better position to solicit resources for the project's realisation. Best practice would be also to include representatives of user groups in your discussions and consult them on their expectations from the website you intend to set up. **Realistic** - agencies should make sure that they evaluate the skills and resources they have at their disposal, and plan accordingly; setting unachievable goals for an e-government website represents a waste of time and public resources; e.g. rather than aiming to handle ALL applications online, it may be better to aim to handle "at least 90%" of applications this way. **Timed** - it is valuable to set deadlines for the achievement of objectives, as it helps to measure the achievement of your objectives: e.g. "handle 90% of enquiries online by 2006". Deadlines can be reviewed if priorities change or unforeseen difficulties arise (including technical problems, which can be quite common with websites): it is therefore important to also build some flexibility into their definition.
Prioritize objectives	Assigning different priorities to your goals will help you make important decisions that affect the design and implementation of your website (e.g. gearing the design towards a particular type of audience in order to obtain the site's primary goal). This will help especially if resources are scarce: if you don't possess the necessary resources to achieve all goals, you can use what is at your disposal to obtain at least the most important ones. If you only possess very limited resources, you may consider dropping or deferring some of your goals to a later stage of the life of the website. For example, if you assigned top priority to online transactions that are likely to put heavy technical requirements on the project (more than simply publishing information), you would need to use most of your resources towards that goal, which may jeopardise your chances of achieving the other ones. The bottom

line is that **it is usually better to achieve a limited number of goals efficiently than to pursue a larger number of goals and only achieve them partially**.

2.2. Who is the website for?

In fact, this is the factor that will have the biggest influence on the way you structure and design your site: you should always bear in mind that a website is primarily a communication tool, and that as such, it should be as easy and straightforward as possible to use for your intended audience. In other words, the way you organise and structure contents, the navigation system you implement, and the layout of the site should be as user-friendly as possible.

In real-life situations, and especially if you set multiple objectives for your website, it is likely that you will be looking at catering for a variety of users. In this case, it would help to prioritise users in different categories, as this will provide you with clear criteria for taking decisions in case you cannot satisfy the needs of all users with the resources you have at your disposal (i.e. you would give priority to the communication needs of the most important, or largest, group of users).

There are two main aspects it would help to focus on when you analyse who the users of the website could or should be: the type of activity they would be likely to be undertaking when visiting your website, and the users' technical profile.

Users by type of activity

The activity users intend to undertake, or the informational need(s) they intend to satisfy when they visit your e-government website, will influence the way they use the website itself, and you should be prepared to take this into account when planning the site. In the case of e-government websites, main user profiles can be roughly divided into two categories:

- **Seekers of information:** these users are looking for a specific piece of information, and they will browse the site until they succeed (or fail); as such, they usually benefit from the implementation of site search features, indexes, sitemaps, and a hierarchical, category-based navigation system, which all help them to find the information they want more quickly. In order to cater for cases in which the information required cannot be found on the site, it would also help to supply e-mail contacts or indicate other communication channels through which enquiries can be made.
- **Users in need of online services:** these users are looking to undertake

an online transaction through a website (e.g. requesting a permit, or paying tax). They need to be pointed directly to this service, as carrying out the transaction itself is likely to require consulting a variety of web pages and completing different steps. Implementing direct links or buttons to services from the homepage, or from every page on the site, would reduce the time it takes for the transaction to be completed. Clear instructions and explanations for every step in the transaction are also very beneficial, and can foster the users' trust of the application, and of the institution at large.

This is only a very rough categorisation, and you should remember you might have different types of users using your website, falling in different categories. But it's important to determine who the main users of your site will be, and design the website according to their needs.

Users by technical profile

This includes both the technical setup your users are likely to be using when they access your website, and their skills and proficiency in using IT and alphabet-based communication tools.

The typical users of e-government websites may also be people with varying (and sometimes limited) IT and general literacy: this is especially the case if the site is designed to cater for a very wide section of the population. You should therefore make sure that the site is usable and comprehensible by most, if not all, users, including those whose skills and literacy are limited. This means first of all using common language and clear, extensive instructions. But it also means that you may have to provide alternative routes for users, e.g. instructions for disabled people, or information in the different languages in use in your audience. If, instead, your typical users are specialists in a specific discipline, and your website is designed to cater for their needs (e.g. a website providing access to a medical knowledge resource database for doctors and hospital staff), you should make sure the terminology used in the site is specialised enough to be meaningful to them.

Failing to understand these requirements from the outset may lead to the need for an expensive and time-consuming review of the project later on, or to its ultimate failure.

You should also consider that there may be a difference between who you think, or you want the users of your site to be, and who they may actually turn out to be.

Define the group(s) of people that you want to appeal to and the group of people that are likely to want what you have to offer. If they are the same, that makes life easier, if they are different, then at some level you need to address both groups, while focusing your efforts on the intersection – the group that you want and want you in return. Obvious? Then why does almost every website get this wrong? Perhaps it may be obvious, but it is harder than it seems and as a result, most people go back to addressing themselves as the audience.

Some things to consider about your audience:

- **Cognitive overload** - avoid visitor confusion and focus on the key elements.
- **Accepted practice** - what the audience already knows and expects.
- **Elegant variation** - making your site interesting, engaging visitors and supporting your message.
- **Content consumption** - how audiences usually consume web content (patterns and behaviours).
- **F-pattern hot-spots** - research on consumption patterns and where to put your key elements.
- **Cognitive dissonance** - what happens when your site doesn't match visitor's expectations.
- **Classes of sites** - common types of websites (brochure, transactional, functional and portal).
- **Audience worksheet** - take a moment to think about your web site and it's audience.

2.2.1. Making searchers into visitors and visitors into users

Large volumes of web publishing advice focuses on the importance of encouraging visitors (traffic) to your website – in effect turning searchers into visitors. If we examine the Google search paradigm, a search is made upon a short phrase (let's say: cognitive dissonance). The resulting options are ordered on the basis of context (term relevance) and PageRank (page importance). As the searcher scans the results, they make a decision based on three additional pieces of information; the title (usually the window title of the web page), the description (usually some part of the opening text of the web page), and the web address of the page. To a greater or lesser extent, these five items; context, PageRank, title, description and address can be gamed (manipulated for the purpose of improving search outcomes). Legitimate manipulation is called Search Engine Optimization (SEO), inappropriate manipulation is likely to get your website or web page 'blacklisted' and removed from the search

results. If this combination grabs the attention of a searcher, they click on the web link, in effect transformed into a visitor to your web page.

Your new visitor comes complete with the contextual expectations that they had as a searcher. In effect, the visitor will make a rapid and largely involuntary assessment of the appropriateness of your content to their perceived need (more complex than simply the search phrasing). Although as a web publisher, you cannot address all relevant expectations, as a starting point, your web page is effectively guilty of misleading content (whether deliberate or accidental) if the content does not match the synopsis (the five items that turned the searcher into a visitor). Significant inconsistency will create a state of dissonance, and most likely the visitor's immediate departure from your website.

Using the example of a search on the phrase 'cognitive dissonance', I would expect pages containing definitions and psychological discussion, perhaps a page on web visitor behavior is a stretch, however if I ended up on a page about accommodation in Morocco then I would feel my time was being wasted. Obviously, simply getting visitors to your web content is insufficient. If it is accompanied by perceived manipulation, then it is likely to create a level of distaste in the mind of your visitor that prevents them from absorbing any meaning from your content, no matter how well intentioned – this is why we have borrowed the term cognitive dissonance which includes the process of becoming closed to communication that is contradictory to an established belief or expectation.

Audience fragmentation

In reality, the audience is fragmented, so your content will resonate for some and disenfranchise others. The disenfranchised group will most likely exhibit the effects of cognitive dissonance, refusing to assimilate the message if it contradicts their expectation, instead departing rapidly. There will always be a part of your audience that will be dissatisfied, but the aim is to try and ensure that it is not the most important audience groups that exhibit dissonance.

Controlling cognitive dissonance

Keep your search elements (page title, opening content and address) in alignment with the page content in order to keep visitors long enough to become content consumers.

In addition, regular examination to ensure that the needs of the best fit segments of your audience are being met, will reduce dissonance in critical

audience groups. This only comes from a well conceived and regularly examined web communication strategy and a strong understanding of your audience and your content's place on the web.

In addition, use accepted practice, appropriate branding, navigation and content structures to meet the expectation of your audience in relation to the nature of your content and the purpose of your site. First-time site visitors make a rapid assessment of the likely suitability of a site and the general 'feel' and style of a site communicates as much as the content about the likely suitability and appropriateness of the material to the visitor.

2.3. What information do you need to put on your website?

An e-government website is primarily a communication tool designed to facilitate the exchange of information between the public agency and citizens, or other parts of a society. The aim of this exchange of information is usually to support decisions (e.g. helping a citizen or an organisation to decide whether to apply for a public grant, or convincing a donor that they should fund a government project), or to facilitate a transaction (e.g. enabling a citizen to request a permit or licence). In short, e-government websites are there to support actions on the part of their users, by supplying all the information needed to take decisions, or finalise transactions.

You should therefore ask yourself what will the typical user be trying to do when visiting my website? What actions is s/he likely to want to undertake, to which the website could be of support?

This will help you establishing the type of information you should supply through your site. By running through what could be the typical decision-making processes of your users, you will be able to identify the information they require in order to make their decisions, and evaluate whether this can be supplied through your website.

In the very likely case that you have set up a number of different, prioritised goals for your site, and have identified a number of prioritised groups of users, you will also have to assign priorities to the types of information you will need to supply through the site.

Reflecting on what information you should provide through your website is particularly important if you consider that sourcing, editing and managing

contents is perhaps the most time-consuming and human resource-intensive aspect of the realisation of a web project: while design and technical implementation normally require the input of a relatively limited number of people, the production of relevant, up to date contents usually depends on the involvement of staff from different offices and departments in your institution, and needs to be planned efficiently, and fit into people's workloads. It is therefore essential that you focus on what the key requirements are in terms of contents for your site, and this is where prioritising types of information, and the formats in which they are made available, will be useful.

It should also be noted that in some cases you may want to provide particular pieces of information which may appear as being of secondary importance if compared to the core goals of the site, but which may help you attracting a larger number of users, which you can then try and direct towards the core functionalities of the site (e.g. in order to attract young people to a site that contains information about birth control or HIV prevention, it may help to also publish information that is relevant to other aspects of their life, such as entertainment or sport, which may not be entirely relevant to the ultimate objective of the site, but which could exercise an important "pulling" power for young users).

Whatever you choose to publish on your site, you should make sure that you set some priorities for the different types of contents, and that you actually are in possession of the information needed, or of efficient ways to obtain it from your organisation. And you should always put yourself in the position to review contents and priorities in the future, if the perceived users' needs change (e.g. after carrying out an evaluation, or survey).

2.4. Who will be responsible for the website?

Although it may be designed to help you reduce administrative work in some areas, you should always consider that a website will create work for your agency.

Staff resources will be needed not only to produce and launch the site at the start of the project, but also to maintain and review it in the long term, and to respond to the extra flow of enquiries through different channels it may generate.

However you decide to allocate the necessary staff resources for developing and running a website, you should make sure you think in a long-term

perspective: i.e. you will need to find staffing solutions that fit with the agency's priorities and budgets in the long run, to make the project viable and sustainable.

Roles and Responsibilities

There are three main areas of activity in the development and maintenance of a website, for which you should assign responsibilities:

- **Design and Development:** elaboration of the structure and graphical layout of the site, implementation of the navigation system, creation of sample pages (also called templates) and other technical aspects connected to the creation of the site. This is not necessarily a permanent function: most of this work will in fact be done only at the outset of the project, during which you (as the person responsible for the project) will need to work in close collaboration with whoever you have made responsible for it, be it internal to the agency or hired externally. But you should consider that you may need to review the design or implement new features later on, once the website is up and running, so you should always make sure you have access to the skills and resources needed to carry out this work if necessary.
- **Website Administration:** day-to-day running of the site, including reviewing and updating contents and making sure that links, forms and other features of the site keep working. This is an essential aspect of the delivery of a website, as it guarantees that the site is online, that it works properly and that it provides the information you want it to provide, in a timely and accurate fashion. The management and oversight of a website are long-term operations which usually require medium to advanced technical skills, and are best carried out in-house (i.e. using resources internal to the organisation), for better immediacy and accuracy.
- **Content Provision:** this aspect of producing and maintaining a website is often underrated, but it's a very important part of the process. Content should be uploaded regularly and kept up to date: relevant members of staff in your organisation should therefore commit to providing content for the areas in which they operate and on which they have knowledge and expertise. Remember, too, that website contents need to be adapted for publishing: writing for the web follows different rules than, say, writing for a magazine or writing a report, and you should make sure that someone in the organisation is trained to handle different types of contents and make them fit for publishing on the web (e.g. keeping paragraphs short, identifying possible links, etc.).

To cover all these functions you will need to allocate resources and identify the people who will carry out the work, both in the short and in the long term. In order to do so, you should ask yourself the following questions:

In-house or outsourced?

For every aspect of the production of a website, you should choose whether it is more convenient and efficient to address it by using internal resources that can be made available within your organisation (in-house) or by hiring another public agency or a private company to do it (outsourcing) . This depends very much on how important the website is for your organisation. Outsourcing can be expensive, as private companies generally charge hefty amounts of money for web work. If the website becomes a constant and essential feature of the agency's work and requires a constant input of resources, you would probably be better off using internal resources. You may also decide that you want to outsource some of the work, and keep in-house the rest. A typical example: the first stages of the design and implementation of a website are often assigned to professional web designers outside the organisation. The maintenance of servers, which can be complex and rather expensive to run, is also very often outsourced, unless the organisation is very large or needs to control their servers directly (e.g. for security or legal reasons). Content management is instead often done in-house, as it requires knowledge and expertise that can be found more easily within the organisation than outside it.

Existing or new staff?

In the case of in-house solutions, you should evaluate whether it is possible to assign tasks to existing staff, or if you need to employ new staff. This depends on the workload generated by the website: if this can be sustainably integrated into present workloads, then you may choose to work with existing staff. But it is likely that you will need extra resources to run a website properly, so you should also consider employing new staff. This doesn't necessarily mean employing a new person to work on the web; perhaps one or more current employees possess the necessary skills, or are willing to develop them - the bonus in this case is that they already know the organisation very well: they could therefore be the right person for the job, so you might want to give them new web-related positions, and recruit new staff to cover the one they are leaving vacant. Training and redeploying existing staff may also be an interesting solution for organisations undergoing reform and restructuring, as it may help in finding a new role for members of staff that may otherwise become redundant.

However you decide to allocate the necessary resources for developing and

running a website, you should always make sure that you do so in a long-term perspective. While a website can be quite expensive and resource-intensive to set up at first, if you want it to be successful you will have to take into account a constant effort, both in terms of time and money. Regular reviews and updates of contents are essential, as is the general maintenance of the site. If you opt for in-house solutions, you can try to make sure that website-related tasks are integrated into the job descriptions of the staff you employ, and that sufficient time and incentives are provided in order to carry them out. Don't leave this to improvisation: it's a recipe for disaster. If no one has the time to work on the site, this will become unusable and will detract from the overall image of the organisation. Like all other operations within your organisation, creating and running a website must be sustainable, if it is to be a success.

2.5. How much can you spend?

Creating and maintaining a website costs money and you should make sure you budget for these costs appropriately. Most of the expenses are human resource-related, but you should also budget for technical costs, and unforeseen circumstances (e.g. technical problems, unexpected requirements, training due to staff turnover, etc.).

Human Resource Costs

Building the necessary skills to construct and maintain a website can be pretty expensive, especially if you choose to hire external companies to do part of the work.

Opting for in-house solutions may appear less expensive, but it may turn out to represent an important cost in the long term, especially if you choose to employ new staff. And even if you decide to only use existing staff, they will need to be trained to do the job, and will not be in the position to contribute to the rest of the organisation's work during training - so you should factor that in when you budget for the project.

Opting for outsourced solutions does not entirely eliminate internal costs, as staff internal to the organisation will have to set up tenders and manage relationships with the company or companies chosen to do the work. Liaising and collaborating with external companies in order to explain what your organisation needs, and managing this relationship, can also be rather demanding, especially in the initial phases of the project (e.g. design). Often the amount of time needed for planning and setting up the site is underestimated: make sure you don't make this mistake.

Technical Costs

There are obviously some technical costs you have to take into account when it comes to producing and maintaining a website:

- **Hardware costs** (computers for internal staff, printers, scanners, connections etc.).
- **Software costs** (web design software, content editing software, picture editing software).
- **Hosting costs:** unless you decide to implement your own servers (which has itself its own costs in terms of hardware, software and maintenance) or a central public agency can provide hosting for you, you will have to pay for commercial web hosting services, i.e. pay a company to provide file storage and to connect the site to the internet.
- **Technical support costs** (technical help in case of software or hardware failures, general maintenance).
- **Domain name registration costs** (e.g. www.mysite.gov): the address of a site must be registered with the relevant authorities. Depending on national arrangements, this may be free of charge for governmental organisations; if not, you will have to pay a company to register and handle the web address (or domain name) for you.
- **Promotion costs:** the cost of publicising and promoting the website, especially when it is first launched (e.g. brochures, adverts, etc.). It is no good creating a website and letting no one know about it: you will need to spend money in order to make the public aware it exists.

Working With Limited Resources

Nowadays governmental institutions usually face important financial constraints, and have limited resources at their disposal. It is therefore likely that you will not be able to command princely sums to create and develop your website, and that you will have to work with a tight budget.

When budgeting for the project, you should therefore try to establish a balance between:

What you ideally want to do with your website and so, ideally, how much you would need to spend on it.

How much you can justify as a basic and fundamental need, without which the basic features of the project cannot be implemented.

How much you are likely to get.

This balance depends on a variety of factors, such as the goals you set for the website, and the level of sponsorship and support you manage to obtain for the

	project inside and outside your organisation. This is also where setting priorities for your goals will prove most useful (see: Why Do You Want To Set Up An eGovernment Website?). If the budget only covers a part of the goals, you should concentrate on the most important ones, and drop other, secondary goals, or defer them to a later stage, when the business benefits of having a website can be proven and you are in a better position to solicit more resources. If the budget available does not even allow you to achieve the most basic and primary goals of your website, the project might have to wait, or you might consider modifying its goals, or catering for a more restricted category of users. In order to make the case for specific budgets to be put aside for the realisation of a website, you will probably need to demonstrate how this investment can be beneficial for the agency, and how it may lead to savings, or increase the agency's income (e.g. by attracting donors, or combating tax evasion by providing easier ways to pay tax). When you do this, a full calculation would make sure you offset any benefits with the real expenses of creating and maintaining a website, especially in the long term.

What are three key elements of a web site?

3. Design & Development

3.1. Key web site elements – designing a web site

According to W3C Recommendations all documents are composed of three main elements: content , structure , and presentation:

- The content of a document is the information it actually conveys.
- The structure of a document refers to the way this content is logically divided into parts and sections (e.g. chapters, paragraphs, etc.).
- The presentation of a document is the way its content and its structure are conveyed to the user.

Designing an online document means managing its structure and its presentation in ways that make it easy for users to consult it and make use of its content for their purposes.

In order to do this effectively, it is essential to handle structure and presentation as separate elements - and find specific solutions for each of them. For instance, you may want to structure the contents of this page in different ways, in order to organise it more logically for your use (e.g. you could decide to change the length or the order of its paragraphs, or add/eliminate titles and headers): but this need not necessarily affect the way it is presented (e.g. the font used for headers, or the background). Or you could change the way it is presented (e.g. by adopting a larger or smaller font, or by making additional use of pictures to convey contents) without affecting its structure.

The distinction between content, structure and presentation can be extended beyond single documents, to include a whole collection of documents, like a website:

- The content of a website is represented by the sum of the contents of all the documents that compose it,
- The structure of a website is the way these documents are logically organised (e.g. a homepage, a number of subsections, etc.), and
- The presentation of a website is represented by the ways in which its contents and its structure are presented to the user (e.g. navigational

What does designing a website mean?	menus, the use of colours or special fonts to highlight specific structural elements, or the use of a logo and a common colour scheme to inform the user that some or all documents belong to the same collection, etc.). It's a common mistake to consider website design simply as the creation of a visual layout for your site, and to pay less attention to designing its structure and planning its contents. In fact, concentrating primarily on graphical layout only serves to address the presentational elements of a website, and it usually leads to nice-looking websites that unfortunately do not properly address the communication needs of the users and of the public agencies that own the sites. And it is no use having a shiny, elegant website if it doesn't deliver the information in easy and accessible ways. Therefore, designing a website means finding technical solutions to manage both the structural and the presentational elements of a site. As with single documents, these elements should be kept as separate as possible, so that it is possible to review one of them (e.g. redesigning the look of the site, or merging/renaming/creating new sections) without affecting the other: this is the secret to a sustainable, durable and effective web application.
What are design elements of user-friendly sites	**Design elements of user friendly web sites** 1. A site's theme and purpose should be evident from the beginning. 2. Elements of the site should be cohesive and not fight other elements for attention. 3. Navigation should be fluid and obvious, not scattered and hectic. 4. Colour palettes should be complimentary and cohesive. Many web authors try and fill a page with as many colours as they can to dazzle the viewer, but usually leaves them with a headache. 5. Consider the bandwidth available to your users. Your site should be streamlined and elegant in its transfer from server to user. 6. Site components should fit together and make a whole, not just take up space. 7. A web site should look and feel like a complete unit, not bits and pieces here and there. 8. Your site should be interactive and engaging, not static and dull. People need a reason to visit your site and they need a reason to return. 9. Informative, current, dynamic, thoughtful, clear, useful, and so on - these are words that should describe your site. Do they? 10. Be cautious using clip art! Many web designers take ready made clip art from existing sites that distribute these images freely. Not only do these images not look professional, they do not stand out as many other sites

have the same images.

3.2. Content

Probably the most important element of a good site is providing visitors with **quality information**. Provide credible, original content in as many forms as possible. Original content is the most important trait of a great web site.

Provide **valuable information** to the user, not lots of data. Aim for quality information, not just quantity of information. It is recommended that information be weighted, with the material of most interest to the public given the highest priority. For the information to be valuable it should be well-edited. For external links include only the best sites with concise descriptions. For internal content be like a magazine editor, don't rush to publish mediocre or incomplete articles. Typos are unacceptable.

Provide **timely information**. Web sites should be updated regularly. Stale web sites say "been there, done that."

Share everything you learn. Great web sites share everything they learn and hear (that's relevant of course) with their users. Give behind the scenes accounts of your latest site features, go open source, start a newsletter, and you'll get more than you give.

Customize and target your content/site to your users. Custom-tailor the information to user preferences. One of the Web's strengths is the volume of information available. That is also one of its weaknesses. Sites that offer customization features allow the user to filter the content they see. The future of the Web are "one-to-one" Web sites. These automated, database-driven sites adapt the content, advertising, and even the look to individual users.

Make your web site easy to read. Make your pages as easy to read as possible. Black text on a white background is the easiest to read.

The second most important trait a web site should have is **interactivity**. Be interactive; good interactivity engages the user and makes your site memorable. The Web is an interactive hypermedia communications medium that your web site should reflect. Sites that involve the user and have a sense of fun or adventure will get more hits. Another advantage of interactivity is self-generating content. By allowing your visitors to interact with your site they

actually create content for you. Script-driven user surveys and forums allow visitors to share information with others and can help shape your site to better serve their needs. Forum or chat software is a great way to do this.

Make your site well-organized. Many users still have dial-up access. They want to find the information they need and log out quickly. Don't waste the user's time. Figure out what is most useful and put it up front. Balance the number of levels (the degree of hyperization) with page length to minimize scrolling and display time. Sun Microsystems found that users equate poor organization with poor site design in their extensive usability study of their home page. They also found that users don't want to scroll. However, the hits on Discovery Channel Online increased by 40% after they went from non-scrolling design to a scrolling design. It depends on your application. Designing pages so important content is "above the fold" is a good idea, though some sites take this maxim to an extreme and cram everything into a cramped mess. Where possible, size your pages important content to fit into the typical user's screen. Web pages should be at most two 8.5 x 11 pages in length. I've seen many examples of huge 100K+ one page sites.

Part of having a well-organized site is providing **multiple ways of easy navigation**. Supply both text and graphics for buttons. Users feel more comfortable if you maintain a consistent look and feel throughout your site.

Use an appropriate metaphor. Using a **good graphic metaphor** for your interface makes the user feel more comfortable navigating your site. Good metaphors could elevate a merely good site to a great site.

Fill a niche. Dominate a subject area; become "The Site" for that subject. Don't duplicate a list when you can point to it. Leverage other people's work to reduce your workload. Let others who specialize in a particular topic keep their list up to date for you. On the other hand, don't make lists that point to lists ad infinitum, seek out the meat of the site and point directly to the article or resource.

Have a secure and automated server. Usage statistics, what's new, what's old (tours, outline), autoresponders, bad URL checkers, and search engines are some of the tools webmasters should utilize.

Track the traffic on your web site. Part of web marketing is gauging the effect your pages have on the public. Most Content Management Systems nowadays allow site developers and their clients to easily see the popularity of

different pages, stay duration, where they come from and where they go, and even the path they take through your site. Include a “What's new” area to give frequent visitors a way to see what has changed since their last visit.

Automate. Maintaining a large Web site can be a daunting experience. Use automation tools where possible for site maintenance. Use local spiders to help check for old URLs. Where you choose to link will affect how fast your links will fail. The deeper into a site you link, the more likely it is to change. Don't move popular pages in your site unnecessarily, you'll break the links to your pages. If you do move them, provide a "this page has moved" page. Many orphaned links are a sign of webmaster neglect.

Ensure easy search. Let users search your site with reliable and advanced search tools. Offer an overview of your site with a TOC or site map.

Make your site secure. Allowing adventurous users to sniff around your files (especially your server configuration files) is not a good policy.

3.2.1 Five reasons why Quality Content is needed

1. Businesses depend on web sites. You should adopt the same attitude towards your site. The public judges an organization by its web site. It's the face shown to the world.
2. Web sites are just containers. Without high quality content, a web site is pointless.
3. Web writing requires different skills. Even excellent writers have much to learn. These skills are not intuitive. Content must be adapted for:
   - Skim-readers
   - Search engines
   - Web structure
   - Legislation
4. A content management system is not enough. Bad content is bad content no matter how well it is managed.
5. Web editors cannot create every document. They cannot be expected to create documents on topics which they know very little. Content should be kept close to a knowledgeable source or topic expert.

3.2.2. Five checks to run on each web page for quality control of web content

1. The 3-second test. Could the user get the gist of this page after looking at it for 3 seconds, and without scrolling?

2. The accessibility test. Can all users get the essential information regardless of ability, computer, modem, browser or preferences?
3. The "so what?" test. Why should the user care about the information and services being provided? And, is it obvious what the user is supposed to do next?
4. The "yeah, right!" test. Can the user trust the information provided? How up-to-date is it? And is it accurate?
5. The serenity test. Does the page look spacious, calm and orderly? Does its appearance make the user feel confident and calm?

3.2.3. Brief advice about writing for the web

1. Only post what is needed. You want “killer content” not “filler content.” It should be valuable to the visitor, not just the publisher.
2. Information must be accurate. Check and recheck the reliability of the information. It is better absent than wrong.
3. Don’t use two words when one will do. For example ‘each and every one’, is saying the same thing twice. Be succinct.
3. Vary sentence length. Don’t have the same length sentences throughout the page. Try a long sentence and then a short one.
4. Use spelling and grammar check. It is important that the content looks professional.
5. Users don’t read chunks of text fully; instead they scan and pick out keywords, sentences and paragraphs. Write for ease of scanning. Don’t require users to read long, continuous blocks of text, instead use subheadings within articles; meaningful headings; and/or bullets.
7. Try to summarize who, what, when, where, why, and how, in the first 30 words.
8. Write about one idea per paragraph. Use an inverted triangle style of writing -- start with the conclusion by putting the most important information first and then go into the details. Tell the user immediately what the page is about.
9. Headlines should be short and descriptive - about five words long.

3.2.4. Interactive content

If you plan to provide interactive content, such as:

- Search engines
- Scripting - Javascript, Flash, AJAX and other dynamic content
- Submittable forms
- Web applications
- Public forums

	there are requirements that you need to consider. Use this checklist in providing interactive content: ▪ Ensure that all information conveyed with colour is also available without colour. This applies principally to navigation labels and error messages. ▪ Ensure that foreground and background colour combinations provide sufficient contrast for navigation, text and informational elements when viewed by someone having colour deficits or when viewed on a black and white screen. ▪ Ensure that dynamic content is accessible. Provide an alternative presentation or page, and ensure that equivalents for dynamic content are updated when the dynamic content changes. ▪ Web pages are not to contain any blinking or scrolling text, or flashing objects. Additionally, until user agents allow users to freeze moving content, minimise movement in pages. ▪ Ensure that pages are usable when scripts, applets, or other programmatic objects are turned off or not supported. If this is not possible, provide equivalent information on an alternative accessible page. ▪ For scripts and applets, ensure that in the absence of a mouse or equivalent device - have an alternative event handler and specify logical event handlers rather than device-dependent event handlers. ▪ Periodical page auto-refreshing is discouraged. However, if deemed necessary, pages must refresh at a refresh rate of 5 minutes or greater (>=5 minutes). ▪ Ensure that any element that has its own interface can be operated in a device-independent manner and is also directly accessible or compatible with assistive technologies. ▪ Provide keyboard shortcuts to important links (including those in client-side image maps), form controls, and groups of form controls. ▪ Create documents primarily in the valid formal grammars. Documents, including any web page and/or form, validate to: - HTML 4.01, Strict or Transitional - XHTML 1.0, Strict or Transitional - CSS, CSS1 or CSS2 - RSS 1.0 ▪ Clearly identify changes in the natural language of a document's text and any text equivalents for: - paragraphs - captions - navigation - labels

	- block quotes ▪ Specify the expansion of each abbreviation or acronym in a document where it first occurs. ▪ Until user agents support explicit associations between labels and form controls, for all form controls with implicitly associated labels, ensure that the label is properly positioned. ▪ Create a logical tab order through links, form controls, and objects. ▪ Web pages are able to be printed in whole. Any page which requires landscape orientation to achieve this must be made clear to the user. ▪ Never use Frames. ▪ All instances of requests for users to authenticate themselves in a web site must comply with the standards for these services. ▪ For exchange of personal information between web site user and the environment hosting the agency web site(s), the hosting environment must as a minimum: - Encrypt personal information using Secure Sockets Layer (SSLv3) or Transport Layer Security (TLS), - Use certificates that have a trust chain that is available in commonly used browsers. ▪ Any capture of credit card details online must comply with the Payment Card Industry (PCI) Security Standards Council's Data Security Standards (DSS). ▪ Descriptive labels must be tagged as <label>. ▪ Users receive online confirmation that the information they have submitted has been received, for example by displaying a web page. ▪ When an appropriate mark-up language exists, use mark-up rather than images to convey information. ▪ Do not use deprecated features of W3C technologies. ▪ Until user agents allow users to turn off spawned windows, do not cause pop-ups or other windows to appear and do not change the current window without informing the user. If a window has to be spawned, then the user must be informed (giving them an option to cancel), or the option given to the user asking if they wish to open in the same browser form, or, pull up a new form. ▪ When the overall "look and feel" or functionality has been modified the web site must work satisfactorily in a minimum list of web browser types and respective versions prior to being released as a production web site. ▪ Provide a disclaiming content on your web site. As a minimum, the disclaimer should state that the information contained within the web site is true and accurate to the best of the agency's knowledge; however, the agency cannot accept any liability for its accuracy or content.

	▪ Any content item that is deemed necessary to have its own disclaimer notice should have such a notice or link to the disclaimer notice associated with the content to which it pertains, such that there is no ambiguity as to what item of content it is disclaiming. ▪ If you plan to accommodate any kind of discussion forum(s) on your site(s), then a mechanism for screening of content is recommended, preferably by moderation and/or user authentication as a prerequisite for user entry of the discussion content. Monitoring of content entered post user entry is acceptable for screening, but equally important that the monitoring be performed at least daily. ## 3.3. Structure ## 3.4. Presentation ## 3.5. Usability
What is usability?	The meaning of usability can be described in four key requirements: ▪ **Usability means thinking about how and why people use a website.** First step in creating a usable website is to understand your user's goals in the context of user's environment, task or work flow, and letting these needs guide the design. ▪ **Usability means evaluation.** Usability relies on user-feedback through evaluation rather than simply trusting the experience and expertise of the designer. Unlike conventional software acceptance testing, usability evaluation involves watching real people use a website (or prototype), and using what is learned to improve the final product. ▪ **Usability means more than just "ease of use".** The 5 Es – efficient, effective, engaging, error tolerant and easy to learn – describe the multi-faceted characteristics of usability. Interfaces are evaluated against the combination of these characteristics which best describe the user's requirements for success and satisfaction. ▪ **Usability means user-centered design.** Users are satisfied when an interface is user-centered – when their goals, mental models, tasks and requirements are all met. Usable website is created when combination of analysis, design and evaluation is approached from the user's point of view.

ISO 9241 definition of usability	ISO 9241 standard defines usability in as “the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use".
What are the five characteristics of website usability?	This definition can be expanded, and made more comprehensive, by including five above-mentioned characteristics which must be met – the website must be: ▪ Effective ▪ Efficient ▪ Engaging ▪ Error Tolerant ▪ Easy to Learn ▪ Effective
What is effectiveness?	**Effectiveness** is the completeness and accuracy with which users achieve specified goals. It is determined by looking at whether the user’s goals were met successfully and whether all work is correct. It can sometimes be difficult to separate effectiveness from efficiency, but they are not the same. Efficiency is concerned primarily with how quickly a task can be completed, while effectiveness considers how well the work is done. Not all tasks require efficiency to be the first principle. For example, in interfaces to financial systems (such as banking machines), effective use of the system -- withdrawing the correct amount of money, selecting the right account, making a transfer correctly – are more important than marginal gains in speed. This assumes, of course, that the designer has not created an annoying or over-controlling interface in the name of effectiveness. The quality of the user assistance built into the interface can have a strong impact on effectiveness. The effectiveness of an interface often relies on the presentation of choices in a way that is clearly understandable to the user. The more informative an interface can be, the better users are able to work in it without problems. Good interface terminology will be in the user’s language and appropriate to the task. Another design strategy to increase effectiveness is to offer redundant navigation, especially for ambiguous situations. Although this may create inefficient paths, it allows the user to work effectively by making more than one choice lead to the correct outcome. This can be especially valuable in interfaces which support infrequent users or those often unfamiliar with the content

	domain. **Efficiency** can be described as the speed (with accuracy) in which users can complete the tasks for which they use the product. ISO 9241 defines efficiency as the total resources expended in a task. Efficiency metrics include the number of clicks or keystrokes required or the total 'time on task'
What is efficiency?	It is important to be sure to define the task from the user's point of view, rather than as a single, granular interaction. For example, a knowledge base which doled out small snippets of information might be very efficient if each retrieval was considered one task, but inefficient when the entire task of learning enough to answer a user's question is considered. Navigation design elements such as keyboard shortcuts, menus, links and other buttons all have an impact on efficiency. When they are well-designed, with clearly expressed actions, less time and effort are needed for the user to make navigation and action choices. Making the right choices for efficient use of the software depends on an understanding of the users and how they prefer to work. For example, are they likely to use the interface infrequently or to be habitual users who might learn hidden controls and shortcuts? Do they use the keyboard, mouse or other input devices? For example, keyboard shortcuts can be extremely efficient for proficient users who work with the interface intensively. If they are the primary interaction tool, they can slow down users who are unfamiliar with them, or with the software. Similarly, an interface structured around a set of hierarchical choices which may be the best solution for one-time or infrequent users, might be frustratingly slow as the only way of interacting with a frequently-used program.
Definition of engaging website	**Engaging.** An interface is engaging if it is pleasant and satisfying to use. The visual design is the most obvious element of this characteristic. The style of the visual presentation, the number, functions and types of graphic images or colours (especially on web sites), and the use of any multimedia elements are all part of a user's immediate reaction. But more subtle aspects of the interface also affect how engaging it is. The design and readability of the text can change a user's relationship to the interface as can the way information is chunked for presentation. Equally important is the style of the interaction which might range from a game-like simulation to a simple menu-command system. Like all usability characteristics, these qualities must be appropriate to the

Definition of error tolerant web site	tasks, users and context. The style of engagement that is satisfying for a repetitive work tool is different than an e-commerce site. Even within the same class of interfaces, different users may have widely divergent needs. What is important is that the design meets expectations and needs of people who must use the interface. **Error Tolerant.** The ultimate goal is a system which has no errors. But, product developers are human, and computer systems far from perfect, so errors may occur. An error tolerant program is designed to prevent errors caused by the user's interaction, and to help the user in recovering from any errors that do occur. Note that a highly usable interface might treat error messages as part of the interface, including not only a clear description of the problem, but also direct links to choices for a path to correct the problem. Errors might also occur because the designer did not predict the full range of ways that a user might interact with the program. For example, if a required element is missing simply presenting a way to fill in that data can make an error message look more like a wizard. If a choice is not made, it can be presented without any punitive language. (However, it is important to note that it is possible for an interface to become intrusive, or too actively predictive.) For those errors which are out of the control of the interface – system failures or other disasters - take a lesson from flight attendants and quietly, calmly guide the user through the process of helping the program recover from the problem. Some guidelines for preventing errors are: ▪ Make it difficult to take incorrect actions. Design links and buttons to be distinctive, use clear language, avoiding technical jargon, and be sure that dependent fields or choices appear together. ▪ Make it difficult to take invalid actions. Limit choices when possible to those which are correct, provide clear examples for data entry, present only appropriate navigation options. ▪ Make it difficult to take irreversible actions. Provide the ability to back track, provide means to undo or reverse actions, avoid dead-end screens. Don't indiscriminately use confirmations – users become insensitive to them. ▪ Plan for the unexpected. Allow for users to add new entries, take exceptional routes through the interface or make choices you did not predict. Be polite about "correcting" mistakes that may arise from this lack

	of foresight.
What is an "easy-to-learn" interface?	**Easy to Learn.** One of the biggest objections to "usability" comes from people who fear that it will be used to create products with a low barrier to entry, but not powerful enough for long, sustained use. But learning goes on for the life of the use of a product. Users may require access to new functionality, expand their scope of work, explore new options or change their own workflow or process. These changes might be instigated by external changes in the environment, or might be the result of exploration within the interface. An interface which is easy to learn allows users to build on their knowledge without deliberate effort. This goes beyond a general helpfulness to include built-in instruction for difficult or advanced tasks, access to just-in-time training elements, connections to domain knowledge bases which are critical to effective use. Allow users to build on not only their prior knowledge of computer systems, but also any interaction patterns they have learned through use in a predictable way. Predictability is complementary to interface consistency. A consistent interface ensures that terminology does not change, that design elements and controls are placed in familiar locations and that similar functions behave similarly. Predictability expands this to place information or controls where the user expects it to be. This concept has been discussed in connection with Palm Pilot design– and especially important if you make an interface which goes beyond the boundaries of simple platform design standards. Good use of predictability requires careful user analysis and observation, but can make new functions easy to learn by providing controls where the user expects them to be.
What are the benefits of usability strategy?	Benefits of implementing a usability strategy when designing a web site are: • Increased end-user satisfaction; • Increased end-user productivity, success and completed tasks; • Reduced long-term development costs; • Reduced training and support costs.
Which factors contribute to good usability of a web site?	### 3.5.1. Factors that contribute to good usability ▪ Clear, logical navigation system, which follows best practice standards, so the user finds it familiar and does not have to learn anything new.

- Intuitive and logical site structure.
- Obvious sense of “where am I, where have I been, and where can I go”
- Easy way of searching the site, if it is reasonably large.
- Links displayed clearly as obvious hyperlinks.
- Appropriate use of colour, with special regard to colour-blind users.
- Body text that is not too small, and not of a fixed size.
- Plenty of white space, informative page headings, short paragraphs, plus subheadings to lead the eye through the page.

3.5.2. Pervasive Usability Model in website design

What is a Pervasive Usability Model?

Pervasive Usability advocates application of methods to evaluate design’s usability at every stage of the design process, keeping in mind the goals of the project and the users' needs.

Pervasive Usability stands out from other usability testing methods as it can be conducted throughout the product’s lifecycle, not just in the preliminary development stages. It’s also unique because the steps involved in this method are quite simple, and can be less taxing on those conducting the test.

1. **Requirements Analysis**
   - Determine goals for the website from the perspective of the user and the business.
   - Determine the user needs and target usability requirements.
   - Evaluate existing versions of the site.
   - Perform a competitive analysis.
   - Perform user interviews and surveys.

2. **Conceptual Design**
   - Sketch out a site design and architecture at an abstract level.
   - Conduct a task analysis to find critical features.

3. **Mock-ups / Prototypes**
   - Rapidly create visual representations (mock-ups) or interactive representations (prototypes) of the site.
   - Evaluate usability through focus groups, user tests, and walkthroughs.
   - Use the evaluation results to create more mock-ups or improve the prototypes.
   - Repeat this process (design iteration) until the design and usability goals are met.

4. **Production**
   - Create the final product.
   - Evaluate functionality through testing, quality assurance, usability testing, and field testing.
   - Use evaluation results to improve the product.
   - Repeat production iteration process until business goals have been met.

5. **Launch and Maintenance**
   - Launch the website.
   - Maintain and refine with user feedback.
   - Use feedback to create new requirements, and begin major design improvements (system iteration).

Evaluation occurs at every stage of the process. Similar types of evaluation can occur at different stages of the design process to keep in mind the goals of the project and the users' needs. And if it comes down to a choice, reduce the scope of the project rather than the usability.

3.5.3. Testing usability with zero budget

1. **Identify goals for usability testing**

   Identify the goals you want to measure. Test the most important goal first. Then as your testing skill improves, assess other goals.

2. **Select testers**

   Find five people with little or no familiarity with your site that are willing to give you one hour. Testing five people will turn up over 90% of your site's problems. Look for typical target users with a variety of computer and web experience ("tool skills").

3. **Conduct the test**

   Test subjects individually. Have your test visitor sit at a blank computer. Take a few minutes to explain that your visitor is part of a website study. Emphasize that it is not a test of his or her ability, but only of how easy the site is to use. Explain that you hope your test visitor will verbalize thoughts as much as possible during the exercise.

   Bring the test subject to the site directly -- or for a more typical user experience, let your visitor "google" the site. Once on the site, ask the visitor to complete the task you have prepared, whether it is to fill in an

online form or find specific information.

Observe carefully. Ask few questions. Rather, watch expressions on your test subject's face. Give zero guidance -- positive or negative -- unless absolutely necessary. Note impressions, challenges, and "blocking points" (points of failure or confusion).

If the test subject completes the task promptly, try testing other goals. If you still have time, consider running through some similar agencies' sites, noting impressions, and learning what you can that will help you to improve your own site.

For your first usability test concentrate as much on measuring the users' physical reactions as you do on the on-screen reactions. Are they engaged, frustrated, happy, comfortable, anxious, challenged? Note these reactions as they occur. Part of the goal is for you to develop these observational skills and learn to quantify the results.

Let's assume that your visitor should find and fill in an online form. Ask him/her to do it as they normally would. As your test user proceeds, ask yourself:

- How easy was it to find the form?
- What information does a test subject need to fill it in?
- Is the information about the form clear and available?
- Is the information organized in a logical sequence?
- What missteps did the test subject make?
- Did the test subject scroll down every page?
- Did the test subject read the text or just skimmed it?
- Does the mouse wander excessively during the search?
- Normally people are far more patient in a test than in real life. Ask: Would you have given up under normal circumstances?
- Could the test subject leave the site and come back in a day or so and easily find the form/information again?
- Ask your test subject how the site will use the personal information submitted.
- Time how long it actually takes to fill out the form.
- With the filling-in complete, check to see if the confirmation information meets expectations.
- Was the experience one which created a good experience and encourages return visits?

- Have you succeeded in attracting a long-term user or just a one-time visitor?
- Have you made your users/visitors feel valued and appreciated beyond a mechanical "thank you" confirmation?
- Have you delivered more then expected?
- Have you surprised your visitor/user with your professionalism and your attitude?

3.6. Accessibility

3.7. Web design best practices checklist

Page Layout

- Appealing to target audience
- Consistent site header/logo
- Consistent navigation area
- Informative page title that includes the company/organization/site name
- Page footer area — copyright, last update, contact e-mail address
- Good use of basic design principles: repetition, contrast, proximity, and alignment
- Displays without horizontal scrolling at 800x600 and higher resolutions
- Balance of text/graphics/white space on page
- Good contrast between text and background
- Repetitive information (header/logo and navigation) takes up no more than one-quarter to one-third of the top portion of the browser window at 1024x768 resolution
- Home page has compelling, interesting information above the fold (before scrolling down) at 1024x768
- Home page downloads within 10 seconds on dial-up connection

Browser Compatibility

- Displays on current versions of Internet Explorer (6+)
- Displays on current versions of Firefox (2+)
- Displays on current versions of Opera (9+)
- Display on current versions of Safari (both Mac and Windows)

Navigation

- Main navigation links are clearly and consistently labeled

	▪ Navigation is easy to use for target audience ▪ If images, Flash, or DHTML is the main navigation, clear text links are in the footer section of the page (accessibility) ▪ Navigation is structured in an unordered list (accessibility) ▪ Navigation aids, such as site map, skip navigation link, or breadcrumbs are used (accessibility) ▪ All navigation hyperlinks "work" — are not broken **Colour and Graphics** ▪ Use of different colors in page backgrounds/text is limited to a maximum of three or four ▪ Color is used consistently ▪ Color has good contrast with associated text ▪ Color is not used alone to convey meaning (accessibility) ▪ Use of color and graphics enhances rather than distracts from the site ▪ Graphics are optimized and do not significantly slow download ▪ Each graphic used serves a clear purpose ▪ Image tags use the alt attribute to configure alternate text to display if the browser or user agent does not support images (accessibility) ▪ Animated images do not distract from the site and either do not repeat or only repeat a few times **Multimedia** ▪ Each audio/video/Flash file used serves a clear purpose ▪ The audio/video/Flash files used enhance rather than distract from the site ▪ Captions are provided for each audio or video file used (accessibility) ▪ Download times for audio or video files are indicated ▪ Links to downloads for media plug-ins are provided **Content Presentation** ▪ Common fonts such as Arial, Verdana, Tahoma or Times New Roman are used ▪ Techniques of writing for the Web are used: headings, bullet points, short sentences in short paragraphs, use of white space, etc. ▪ Fonts, font sizes, and font colours are consistently used ▪ Content provides meaningful, useful information ▪ Content is organized in a consistent manner ▪ Information is easy to find (minimal clicks) ▪ Timeliness: The date of the last revision and/or copyright date is accurate ▪ Content does not include outdated material ▪ Content is free of typographical and grammatical errors

	▪ Content provides links to other useful sites ▪ Avoids the use of "Click here" when writing text for hyperlinks ▪ If standard link colors are not used, hyperlinks use a consistent set of colors to indicate visited/nonvisited status ▪ If graphics and/or media is used to convey meaning, the alternate text equivalent of the content is provided (accessibility) **Functionality** ▪ All internal hyperlinks work ▪ All external hyperlinks work ▪ All forms function as expected ▪ No JavaScript errors are generated **Accessibility** ▪ If images, Flash, or DHTML is the main navigation, clear text links are in the footer section of the page ▪ Navigation is structured in an unordered list ▪ Navigation aids, such as site map, skip navigation link, or breadcrumbs are used ▪ Colour is not used alone to convey meaning ▪ Image tags use the alt attribute to configure alternate text to display if the browser or user agent does not support images ▪ If graphics and/or media is used to convey meaning, the alternate text equivalent of the content is provided ▪ Captions are provided for each audio or video file used ▪ Use attributes designed to improve accessibility such as title and summary when appropriate ▪ Use the id and headers attributes to improve the accessibility of table data ▪ If the site uses frames, use frame titles and place meaningful content in the noframes area ▪ To assist screen readers configure the html element's lang and xml:lang attribute to indicate the spoken language of the page.

What does implementing a web site mean?

4. Implementation

Implementing a website means passing from the design stage to the completion and the launch of the site.

Implementation involves the following groups of tasks:

- Management of the content - gathering all the contents necessary to populate the pages of the site, and entering them into the pages;
- Management of technical aspects - transferring the pages to a server, and testing them;
- Launching the site by informing the public about its existence.

4.1. Management of web site content

Gathering contents for a site and turning them into meaningful web pages is perhaps one of the most time-consuming aspects of delivering an e-government website.

In order to reduce the impact of this operation on your organisation in terms of workload, and to ensure the accuracy and reliability of the contents you publish, it is best to establish clear policies in relation to contents, and a content management (or workflow) strategy.

4.1.1. Web policy

The information published through a web site must be owned by someone, who is ultimately responsible for its accuracy, and is liable for any problem that may arise from its publication and diffusion.

Before you start gathering contents for your e-government website, it is therefore important to establish who decides what will be published, and to establish clear lines of responsibility and accountability for the contents published through the site. In the case of e-government sites, as with any other government publication, ultimate responsibility usually lies with the government itself, or with a specific agency or office. But it is important to locate this responsibility with specific individuals or groups (e.g. an editor or

	editorial committee), so that the process is as manageable as possible, and any dispute that may arise can be handled in a transparent and objective manner. This is especially important if the information you publish through your site has a specific legal value, and can affect the relations and transactions between your agency and the public (example: publishing the wrong date as a deadline for tax declarations may mislead citizens and make them incur penalties; if the mistake was made on the part of your publishing team, this should be acknowledged, and alternative solutions should be found so that the citizen is not penalised unfairly). You should also make sure that the information you publish on your site is not of libellous nature and does not cause offence or prove to be discriminatory in any way. Editorial responsibility for a site should be made as explicit as possible on the site itself, again for reasons of transparency. Users should know who to complain to in case of problems arising from such information. And in general, it is always best to clarify what the source of any information is. In this respect, you may find it helpful to create a page on the site specifically dedicated to this, which explains who owns the information, and how to make a complaint. Such pages usually also specify what use can be legitimately made of the information that is published: for instance, you may want to specify that the contents of the website may not be reproduced without permission, i.e. that they are under the copyright of your agency or under a broader Government Copyright. This is not because its contents may have commercial value (not often the case with governmental information), but because you need to retain control of the diffusion of such information, to make sure this is accurate and up to date. After all, you cannot bear responsibility for contents published through channels that are out of your control. At the same time, you should make it clear that any information you decide to incorporate into your website from another source (e.g. another agency, a member of the public, or a private company), is clearly labelled this way, and that you cannot be held responsible for its accuracy: this is usually done with the use of disclaimers, i.e. short explanatory texts that indicate what the source of the information is, and that it is not under your control. Disclaimers should also be used in the case of links from your site to other, external sites, which are outside your editorial control. Once you have established where ultimate editorial responsibility lies, this can then be devolved throughout your organisation: this is because in the case of

complex websites, it would be unrealistic for a single person or committee to produce and edit all the information that is published online. Instead, the task must be devolved to a number of individuals and offices, who are also arguably in the best position to contribute accurate and up to date contents. But also in this case, it is important that you establish clear lines of responsibility, so that the process is as manageable and transparent as possible.

Well prepared and thought-through web policy will provide guidance on all the issues relevant for preparation, implementation, maintenance and publishing of web site. There are tangible benefits to developing and implementing web policy. A site built following web policy will generally be:

- Less bandwidth intense;
- Future-proof;
- Extensible;
- Easier to maintain;
- Optimized for search engines;
- Compatible with newer browsers; and,
- Accessible.

Policies should be designed to deliver the greatest benefits to the greatest number of web users while ensuring the long-term viability of any document published.

Web policy usually contains three types of items:

- **Mandatory:** These are requirements and standards which are objectively testable. Items designated as mandatory are recognized on a broad basis as best practice standards, and all web site contributors must comply with these standards to ensure consistency, performance, and interoperability.
- **Recommended:** These are the items that are considered of high importance and web site contributors are encouraged to comply with them.
- **Guidelines:** These are examples of best practices from other organizations that have complied successfully with a particular standard or have taken a successful approach to a particular problem.

Typically, web policy document would contain directives regarding following issues:

1. **Legal and Statutory Authority**
   - Implementation
   - Changes and revisions
2. **General web page standards and guidelines**
   - Content management

	▪ Communication ▪ Content approval ▪ Content and presentation - Logo - Branding - Document formats - Dynamic content - Forms and workflow - Colour - Flash - Images - Mapping and GIS - Mashups - Multimedia - Page layout and navigation - Site markup - Special purpose documents - Style Sheets—CSS and XSL - Tables and frames - Text and fonts - Writing content ▪ Development and site implementation - Access control services - Authentication services - Database APIs - E-mail implementation (HTML) - Online payment handling - RSS Services - Software as a service - Web services - Validation - Web reporting services - XML services ▪ Reporting, monitoring, and metrics - Analytic monitoring tools - Alert monitoring tools - Consolidated feedback and adoption rates ▪ User interface - Browser access - Page formatting - Page size

	- Plug-ins - Cookie requirements - JavaScript - HTTP Error handling **3. Accessibility and Usability guidelines** ▪ Standards - National ▪ Standards - W3C ▪ Accessibility and document image files ▪ Screen readers ▪ Multimedia, audio, and video files - Alternative forms of accommodation - Captions - Audio descriptions ▪ Non-standard extensions ▪ Java and JavaScript accessibility ▪ Universal accessibility design guidelines - Text based design - Graphics and images - Multimedia files - Wireless access ▪ Usability tools ▪ Other usability resources **4. Advertising and acknowledgements** **5. Copyright and attribution** **6. Internet domain names** ▪ Registration for domains and sub-domains ▪ Use of other domain names **7. Linking to other internet sites** ▪ Link maintenance and testing ▪ Use of non-governmental web services on government web sites **8. Privacy and Security** ▪ Citizen access to personal information ▪ Information collection guidelines ▪ Privacy ▪ Security assurance - Secure Socket Layer Certificates - Secure Multipurpose Internet Mail Extensions (S/MIME) - Payment Card Industry Data Security Standards (PCI DSS) **9. Management of financial, electronic, and signed records** ▪ Technologies and methods - Encryption

- Secure Socket Layer (SSL)

- Records retention

10. Search functionality on the web site

- Agency site search
- Site maps

11. Tagging and use of meta tags on the site

- Meta Tagging Standards
- Tagging guidelines

12. Definitions

13. References and Additional Resources

In case you have decided to implement a Content Management System [CMS], the Web Policy and Guidelines document should also contain a CMS User Manual to provide directions on proper use of the CMS.

4.1.2. Content Preparation Assignment and Workflow

This refers to the way in which contents for a website are gathered from existing sources, or produced from scratch, and edited for use on the site.

It is likely that your organisation already produces a wealth of information, be it for internal use, or for public use, e.g. for reports, newsletters, leaflets, press releases and so on. Creating an entirely new strand of content generation and producing information for your website from scratch would therefore represent a duplication of efforts, and ultimately be inefficient. You would be much better off if you tapped into existing information flows, and adapted existing information for use on your site. This would also ensure more consistency in the contents you publish through the different media channels you use.

But generating contents for a website from existing information is not an entirely hassle-free, zero-cost operation: writing for the web is different from writing for other types of publication, so contents need to be adapted for the medium. And tapping into existing information flows means integrating an extra operation into existing professional practices. This will need to be done in a sustainable and user-friendly way (the users here being public agency staff).

In this case, the most important thing to establish, and perhaps the most difficult to obtain, is the commitment of internal staff to producing information that is fit for web publishing, on top of the tasks they already carry out as part of their job. For this reason, it is important that the task of generating and

managing contents for the web is built into the job description of the people who are supposed to do it, and that they are a) provided with the tools and the training necessary to carry out the task, and b) rewarded accordingly.

It is also for this reason that it is important to establish clear responsibilities as far as editing specific pages or sections of a website is concerned, and why you may therefore find it helpful to put in place specific policies (see section above on Content Policies) in this respect. The content of each page on your website must be clearly owned by someone, who will be responsible for its timeliness and its accuracy, and will be officially tasked with its production and maintenance.

If your website is very complex, and the public agency produces a vast amount of information destined to be published through a variety of platforms, you may find it helpful to investigate the possibility of adopting software-based content management systems (CMS), which will help you by automating many of the tasks required to publish information, and provide ways to rationalise workflows in this area.

However you choose to address this issue, it is likely that you will find the initial gathering of contents in order to deliver the first version of your new website the most difficult part of your project, as you will need to rely on the contribution of a potentially large number of people within your organisation, and on the ability of your designer(s) to liaise efficiently with them. Make sure you build in some extra time for problems and hiccups at this stage, as it is easy to underestimate how much time and resources need to be invested to populate your web pages with effective, usable content.

That said, you should also make sure that the methods you intend to use in order to manage workflows in this area are also sustainable in the long term, as you will need to have contents regularly reviewed and up to date also in the future (see: How Do I Maintain My eGovernment Website?).

Technical Aspects

What Do I Need to Do To Make The Site Available To The Public?

Hosting
Domain Name Registration
Loading and Testing the Website
1. Hosting

	In the very early stages of the development of your site, you will also need to investigate possible alternatives for hosting it, i.e. setting up one or more computers (or servers) on which the files that compose your website are stored and made available to the public via the internet (see: How Does A Website Work?). Setting up and administering servers is a complex technical operation that requires advanced IT skills, and is best done by professionals. When considering hosting solutions, you have two alternatives: you can either hire an external company to store the files on their own servers, therefore effectively "renting" hard disk space and powerful internet connections from them (note: this service may also be offered by the government's central IT agency, so it would be worth a check first); or you can decide to buy (or rent) a server yourself, and run it within your organisation. If you go for the latter, you may still want to hire an external company or organisation to set up this technology on your premises and maintain it in the future, as the cost of running your own server autonomously can be quite onerous, especially in terms of the skills required for the task. If the website you intend to implement is relatively simple and you only possess limited resources, it may be preferable to go for the first option, and outsource hosting altogether. The disadvantage of doing this is that you would have less control on how the server performs, and you would depend on the economical wellbeing of the company you choose: if the company goes bust without notice, for instance, you may see your site going offline very rapidly, and it may take some time for you to set up an alternative hosting solution with another company. Outsourcing hosting altogether also means that you would entrust the safekeeping of your data to a third party: this may pose some issues if this data is of confidential nature, or is linked to national security or other delicate areas of government (e.g. defence, or finance). In this case, you should make sure that the company you use can be trusted, and that clear and legally binding written agreements are established between you and the company as far as the security of the data is concerned, and the type of access to it guaranteed to the company's employees for maintenance purposes. If your website is large and complex and/or if it contains confidential, sensitive information you need to keep as safe and secure as possible, you may want to opt for in-house hosting solutions. These have the advantage of giving you complete control over the server technology you use, enabling you to modify it

according to your needs, also at short notice. But it can be quite expensive, especially in terms of human resources, so you should make sure you do have the necessary budget to run the servers effectively in the long run, and the necessary technical support at any time of day and year, so that your site is always, or nearly always, online.

You could also investigate sharing in-house server technology with other agencies or offices in your government, in order to reduce costs by sharing them between different organisations. And note that other agencies may already possess the technology necessary or, as mentioned, the government's central IT agency may have a scheme designed to provide hosting to agencies and offices, also (or especially) if they are based in regional locations. The advantages and disadvantages of opting for such solutions are an amalgamation of the points illustrated above.

However you choose to host your site, you should make sure that the technology you use is good enough to perform the tasks required of it: a server must be able to respond to the multiple requests for pages from the visitors to your site in a fast and efficient manner, and it must provide solid systems to back up data in case of data loss or other problems connected to data storage. The connection of the server to the internet should also be powerful enough not to cause long loading times for the pages and files that compose your site.

2. Domain Name Registration

Your website will need a unique web address , or domain name , also known as URL (Universal Resource Locator). This is usually in the format http://www.sitename.domain (such as http://www.whitehouse.gov).

Domain names are normally registered with independent internet authorities, through specialised and accredited companies, known as registrars . The process is relatively simple in this circumstance: you need to contact one of the registrars, or a company that acts as the intermediary between website owners and a registrar, and ask them to reserve the domain name for you (see http://www.icann.org/faq/#howregister for more information).

That said, it is likely that as a governmental agency, your organisation will have exclusive and usually free access to specific types of domain name that are reserved for governments in your country (which may contain the letters "gov" followed by your country's top level domain , e.g. ".in" for Indian sites, or ".ng" for Nigerian sites). Before you contact a private registrar, you should therefore

check what the arrangements are for your country, by contacting your country code manager (see http://www.iana.org/cctld/cctld-whois.htm for a list of these by country). In developing countries, it is often the case that the authority managing domain names is actually a governmental agency itself, or the national public telecom operator (PTO) - so do check with the Ministry of Communications, or its equivalent in your country, who will very probably be in the position to assist you in this process.

The domain name you choose should reflect the identity of your organisation, but it should also be as short, easy and intuitive as possible, so that it looks or sounds familiar to users and is also easy to include in printed publications, letterheads, or e-mail signatures.

3. Loading and Testing the Site

Once you have finalised the design of your site (see: How Do I Design My eGovernment Website?) and populated it with contents (see: How Do I Populate My eGovernment Website With Contents?), you will need to transfer all the files that constitute it to your server, so that it is accessible via the internet.

It is likely that during the design phase of your site, you and/or your web team will have already transferred some pages to your server to check if they work, and what they look like from remote machines. Now, you will need to transfer the entire site to the server.

Once you have loaded the site, you will need to test it . You and your web team should take some time to actually visit the site in its entirety to see if it works, i.e. if all links are functional, if images display fine, and if there are any technical problems with it.

It helps to ask colleagues in your organisation to check the site as well, as they may find details that need to be changed, or any other errors and mistakes. In particular, it would be useful to involve the people who have contributed contents to it (the owners of the contents), as they will be the people who are most familiar with that content. This is because after working intensively and for a long period on a website (or on any other project, in fact!), it's easy to lose sight of the details, and you may end up overlooking some important functionalities of your site: a fresh, untrained look at the site will work wonders in this phase, and will help you avoiding launching an inaccurate or malfunctioning website.

At this stage, it is also a good idea to involve senior management in the testing as well, especially if they have personally sponsored your project, in order to get a qualified and authoritative "fit to print".

Once you are sure the site is complete and that everything is where it's supposed to be, you may also want to test its performance under "stress", i.e. simulate a situation in which the site receives a large number of requests over a short period, to make sure that the servers you use are capable of dealing with them without collapsing or causing long loading times. This is practically impossible to do manually, and will require specialised software that automatically generates a high number of requests for specific pages, and monitors the server's performance. As this is something that you will need to do very rarely, you may be better off hiring a company to carry out these performance tests for you, rather than acquiring the software.

Once you are finished testing the site, you are ready to proceed with its official launch.

aunching a Website

How Do I Launch My Website?

It's no good having a website if you don't inform potential users of its existence. Uploading a website and then expecting it to attract visitors automatically by itself is not realistic.

This is especially true of e-government websites: the development of e-government web applications is still a relatively recent phenomenon, especially in developing countries, so citizens and organisations may not necessarily expect their government to be involved in online communication (especially if they are not familiar with the internet). The spontaneous demand for an e-government website may therefore initially be limited, with citizens and other stakeholders opting "by default" to handle their exchanges of information with government through other more traditional communication channels (e.g. the telephone, the post, the press, but also a visit to the agency's offices or counters).

In order to "switch" at least a part of this audience to your website, you will need to promote it appropriately (see: How Do I Maintain Awareness Of My eGovernment Website?) and the initial launch of the site represents perhaps

the best opportunity for you to start doing so.

Needless to say, to promote the launch of a new communication enterprise you will have to make use of your existing communication channels.

A press release and an invitation to journalists to contact the agency for more information may be a good idea. Producing leaflets and making them available at offices and counters for visitors to take, or sending them out in a postal campaign, will also help in raising awareness among your potential audience. If you have at your disposal a list of e-mail contacts to which you think it would be appropriate to send general information about the agency and its activities, make sure you use this to inform your contacts about the launch of the site: people who use e-mail are also extremely likely to have access to the web, and are therefore more likely to be part of your primary target audience.

You should specify a specific launch date for your site and, if your budget allows it, you could also organise a little ceremony or reception to mark the event, inviting staff, business partners, representatives of citizens' organisations and the press, if possible. After all, with all the hard work you have done, you and your team will also deserve a bit of a party!

As much as the launch of a website is an important occasion for its promotion, it should be noted that promoting a website does not stop at that, and that more work will need to be done during the life of the site (see: How Do I Maintain Awareness Of My eGovernment Website?).

1.3. Subtitle No. 3

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(Area for highlights:

Insert cues, main ideas, questions that connect parts of the lecture, prompts that help the study, keywords.

The questions could later be used for testing purposes.)

5. Maintenance

Maintaining an eGovernment website means ensuring that the site remains usable and accessible at all times, and that it keeps fulfilling its functions in the best possible way.

This applies not only to the technical aspects of a site, but also to the quality and usability of its contents: the information you publish should be as accurate and timely as possible, and this will require dedicated efforts on the part of your organisation.

It is also important to maintain the public awareness of the site, by promoting it appropriately and ensuring it remains "out there" along with other publicised communication channels: after all, you have produced the site to achieve specific goals, and you will only achieve them if your site is used by the maximum amount of people possible - so you will need to promote it.

5.1. Management of web site content

Like any other website, an e-Government website is only useful if the information it carries is accurate and up to date, i.e. if this information can be used effectively to facilitate present or future relations between your organisation and the public.

In order to publish information that is accurate and up to date, you will need to obtain the commitment of your content contributors to regularly produce contents for the site, and also to review these periodically, if this is possible.

You can help this process by setting "expiry dates" for specific, time-sensitive items of information, such as transitory regulations, or items linked to deadlines, and more in general by organising a regular schedule for updates to specific sections of your site. It is likely that such a schedule will depend on the production of new information elsewhere, be it within your agency or outside it. It will therefore help if you can formally link the review of web contents to the production of such information, so that web editing becomes part of a wider information workflow within your agency, or between this and other

organisations. Sometimes this will take some mediation effort, as modifying workflows may impact on the work practice of departments or other groups of staff that lie beyond your sphere of control: in these cases it helps to have the backing of senior figures in your organisation, who champion your web project and recommend its full implementation.

The other main driver in the maintenance of your contents will be feedback from users. By keeping track of enquiries received through the website, and providing website-specific feedback channels (e.g. using forms that users can fill), you will be able to collect impressions and suggestions on how contents can be improved, or on any problems arising from them. It may also help to keep a record of the words users input into the search engine on your site, as this can provide an idea of what users are looking for, as can running surveys with users (more on this in: How Do I Evaluate My eGovernment Website?).

Finally, you should consider that the life course of a piece of online information does not end when you take it offline: especially in governmental settings, where the information on offer is likely to have legal value, it is essential to provide archival facilities for old/expired documents, up to a certain amount of time. This will enable you and your agency to establish exactly what information was published at a specific time in the past, providing you with key evidence in case of legal disputes or other problems connected to the contents you publish.

5.1. Technical maintenance

A website needs regular technical maintenance in order to remain a useful tool for the user. Technical faults not only may prevent you and your users from achieving your respective communication goals, but they may ultimately lead to a loss in the image and reputation of your organisation, especially as the web spreads wider and users become more sophisticated and demanding.

As much as it may seem obvious, the first thing you should check is that your site is actually regularly online. Servers sometimes stop working, and unless your site is highly interactive or has very high traffic (both likely to lead to rapid enquiries from users in case the site is unreachable), it may take a while before you realise that the site is actually offline (or "down"), unless you check it regularly. Setting it as the default homepage in your browser can help this process. It is also possible to run software that regularly checks the activity of your servers and alerts you to any problems that may arise.

Then, you should make sure that the site's interactive features and mechanisms are regularly tested, and that any problems they may suffer are fixed as quickly as possible. This includes:

Checking the links between the documents you host, and between these and any external web pages they link to; it is possible to automate this process using specific link-checking software which will scan through the site and identify any malfunctioning (or "broken ") links, providing you with a report that will help you fix the problems.

If you have implemented specific accessibility features in your website (e.g. providing alternative navigational mechanisms for disabled people), you should check that these are applied consistently and on a regular basis throughout the site; it is common to overlook these aspects after the first phase of implementation of a site, especially if work is rushed and you need to publish things quickly: therefore, it is important that you run regular reviews of contents using accessibility software (e.g. screenreaders), especially on new documents or sections of your website.

Other interactive features such as web forms, online database query systems and other enquiry and response mechanisms should also be tested regularly, to make sure they function properly, especially if they serve the purpose of supporting partial or full transactions between users and your organisation, which may in fact be among the primary goals of your project.

Testing should ideally be carried out on a variety of platforms, both old and new. When new pieces of software or hardware are available, it would be good practice to test the site also with them, so as to make sure that it complies with the latest standards in web communication. At the same time, you should make sure that changes in the functionality of a website are also supported for users of less than recent technology.

Finally, it is always a good idea to regularly make copies (or "backups") of the data that constitutes your website, so that if the computer on which it is normally stored fails or crashes and it becomes unworkable, you will not lose all the data and will be able to restore the site as soon as possible, on another machine.

5.3. Public awareness

The promotion of your site should not stop after its initial launch.

In fact, the promotion of your site really starts once the site is online, not before, as now it is possible for other sites to provide links to yours. Online

	promotion is perhaps the most effective form of promotion, as it takes advantage of the key feature of the World Wide Web, the possibility to link from one document to another, and between separate sites. Users navigating other parts of the web can therefore be directed to your site: this will only happen if you publicise your site through the web. This can be done in a variety of ways: First, you should submit the address of your site to search engines , i.e. specific types of site dedicated to helping users find information of any kind on the web (e.g. Google); once submitted, the address of your site will be logged in the search engines' records and when users look for information that relates to your area of activity, this address is likely to be included in the results of their searches, ready for users to reach. Search engines use different criteria to classify and rank websites in relation to the queries they receive: among these are the title s of pages, and other specific items of information attached to a page that can be determined at your end, like keywords and descriptions ; all these can be included in the HTML code of a page, and are called metadata (i.e. data "about" the page). You should make sure that the metadata of your pages is always meaningful, kept up to date, and that it is as specific as possible (e.g. it would be better to entitle a page "How to Pay Your Tax" than just "Payment"). It is also essential to publicise the address of your site to other site owners, asking them to include it among the links on their sites; this will help you "capture" audience from other sites, and will work especially if you manage to get your link on sites that specialise in subjects that are closely related to your area of activity (e.g. a link to your department from a page on a UN website dedicated to e-government). As a minimum, you should make sure that your site is listed on any other governmental websites related to yours; it should also be noted that some search engines (e.g. Google) use the number of links from other sites to yours as a criterion for the evaluation of the site's popularity: therefore, as much as cross-linking can be expected to happen spontaneously if your site proves to be useful, actively promoting your site to other site owners may further improve your chances of achieving high positions in search engine listings, and therefore improve your visibility. Beyond this, a key factor in improving search engine visibility is to have good quality content, written in simple and understandable language, and providing alternative definitions or wordings for the same concept: this is because search engines employ "spider" software (called this way because it runs through the web from point to point like a spider would do), which scans through the contents of each page it comes across on the web and stores the words it contains for reference. If what you write in your site corresponds closely to

	what users of search engines are looking for, it is more likely that the site's address will rank high in the results. And because users are likely to define and call things in different ways, it will help if you consider this when writing contents for your site, and therefore spell out clearly and in several ways the information you intend to convey. Another important vehicle for the online promotion of websites is e-mail, as it often allows you to include "clickable" links in the body of text: this means that the recipients of e-mail with links in them are just one click away from reaching your site, thus making it a very effective and direct means of promotion. In order to fully take advantage of the promotional value of e-mail, it would be useful to compile mailing lists, made of the addresses of visitors to your website: these can be obtained by asking users to register for specific services, or by logging their address when they make enquiries online. You can then send these users newsletters , which regularly provide them with information about the site, and about any updates or new features, or which generally publicise the site's existence, thus maintaining public awareness. But note that if you choose to use e-mail as a promotional medium, you should make sure that users are informed that their e-mail address may be used for this purpose, and that they are always given the possibility to "opt out" from these mailings (or, even better, allow them to "opt in" voluntarily, rather than include them by default in your lists). Sending unsolicited mail is likely to detract from the image of your agency, and in many countries it is also illegal. The other main strategy to maintain awareness of your site is offline promotion , using traditional communication channels. For a start, you should make sure the address of your site is always included in your official literature: not just reports, brochures and other publications but also letterheads, business cards and e-mail signature files. Secondly, you could consider including promotional brochures or cards in your agency's customary postal mailings (e.g. in reply to a query, or attached to a bill) to make recipients aware that information or transaction mechanisms are also available via your website. If budget allows, you could also consider regular or one-off public awareness campaigns through the media (press, radio, TV), where the benefits of the site are illustrated in direct and effective ways. Finally, never underestimate the power of word of mouth as a promotional tool, which again is connected to the quality of the service you provide: if users are satisfied with your website, it is likely that they will make other potential users aware of its existence, and personal recommendations from trusted individuals often tend to rank higher in people's considerations than public promotional or

	advertising campaigns. However you choose to promote your website, you should always make sure that the techniques you adopt are realistic, especially in financial terms, and that they target the right audiences in the right way. A low-budget but constant and promotional effort may work better than big, "one-off" promotional activities, and it will be also easier to fine tune according to the lessons you learn with experience.

(Area for highlights:

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6. Evaluation

As with all projects, you need to evaluate your website in order to understand whether it has achieved the goals you initially set for it and/or to review its functionality with a view to improving it.

Therefore, evaluating your website implies asking the following questions:

- Does the website achieve the objectives it was created with?
- If it does, at what cost? I.e. is it cost-effective?
- If it doesn't, why? And what extra efforts or changes are needed to achieve such objectives?

Asking these questions will help you monitor the progress you have made since the inception of the project, and will provide you with justifications for its existence (or with reasons to abandon it if proves to be a failure). It is also likely to provide you with justifications for further investment in the project, enabling you to develop it further, or to make its production less demanding for staff (e.g. by appointing extra staff to manage it better).

5.3. Effective ways to evaluate e-Government web site

This depends on the goals you have set for it, and on how these can be measured.

The goals you have set may be of a quantitative nature (e.g. dealing with 80% or more of overall enquiries, generating a specific amount of income from tax or services, or reducing the time taken to answer enquiries by half). But goals may also be qualitative (e.g. establishing a high-profile image and reputation for an institution, or providing a higher level of service to citizens compared with traditional means). In either case, you should choose adequate instruments and parameters for your evaluation.

The following are examples of some of the tools at your disposal.

Monitoring Website Traffic

Monitoring Transactions

Monitoring Visibility and Awareness
Monitoring User Activity and Satisfaction
Cost and Cost-Effectiveness
Monitoring Website Traffic

You can use specific software to monitor traffic on your website, i.e. keep a count of the actions initiated by users on your server within specific periods of time. In other words, you can extract usage statistics from the activity of servers. These will help you answer some basic quantitative questions, such as "how many users a day?", or "what is the most visited page / downloaded document / form filled?".

It should nevertheless be noted that unfortunately, due to the technical aspects of how the web works, it still isn't possible to obtain very precise statistics (e.g. users may have to make different attempts at loading a page or submitting a form before they are successful, or may save contents on their own PCs (hidden from your monitoring software) rather than consult web pages regularly at your site, or some of the visits may actually be made by "spider" software rather than real users (see: How Do I Maintain Awareness Of My eGovernment Website?).

In this respect, it may be safer to carry out overall comparisons over periods of time or between specific activities, rather than focus on absolute counts: e.g. it would be safer to state that "page xyz was visited roughly 20% more this month compared to last month" rather than saying it was visited "by x number of individuals"; the same goes for comparisons between sections or pages (i.e. you can monitor if a page or section is more used/downloaded than another, in relative terms). It should also be noted that you can make comparisons between overall usage statistics for different sites (provided the same data collection and analysis method is used on all of them).

Monitoring Transactions

As mentioned, monitoring traffic using web statistics does not provide very precise sets of data for your evaluation. In some cases, it may be more helpful to monitor the number of actual transactions (e.g. enquiries) that take place via a website. This is because transactions can be better defined, as actions that lead to specific and measurable outcomes. For example, if you have a web form that enables enquiries from users to be sent to a specific e-mail address, you could then count incoming messages, which would equate to successful enquiries generated by the website. This is particularly useful if your goals are

in some way connected to the number of transactions handled via your website (e.g. if you set out to answer x number of enquiries each month).

It is likely you will want to connect the quantity of transactions also with other data, such as their growth over time, or the time taken to handle them, or the proportion of online enquiries compared to the ones logged via traditional methods. In this case, you may need to design or acquire specific information systems that accept and process all the relevant information and provide you with meaningful results. The scope of such operations goes beyond the aims of this text, but it is worth noting that the more complex the goals you set out to achieve, the more expensive and time-consuming it will be to measure and evaluate achievements, so you should always make sure that you budget appropriately for this kind of activity when you plan the project.

If possible, you should also try to monitor transactions that may have been initiated by a visit to your site, but then taken forward via other channels (e.g. people who visit your agency may be doing so after reading information on the site). This can be done by asking the individuals who interact with your organisation where they heard about the agency or about a new service, for instance (as it may have been via your website). This will help you estimate if and how the site is "creating business" for your agency, by facilitating contact with users in general, and inviting them to interact with your organisation, though not necessarily online.

Monitoring Visibility and Awareness

This is partly connected to the promotional activity you undertake for your site (see: How Do I Maintain Awareness Of My eGovernment Website?).

Part of the task of delivering a web project is also ensuring that as many potential users as possible are aware of its existence, and that the site is easy to find - as this is likely to contribute importantly to the achievement of the goals you have set.

Running a few searches in the most popular search engines, using different combinations of words related to what your agency deals with (but also simply inputting the name of your agency, for a start), can already give you an idea of how your site fares in terms of search engine ranking, and therefore visibility. Some search engines (e.g. Google) also allow you to have a rough count of the number of incoming links to your site, which is another important factor in the

	visibility and reachability of your site: but as with usage statistics, it is safer to take these figures with a pinch of salt, and to perhaps limit your analysis to relative counts (e.g. comparing to other sites, or between moments in time). Usage statistics will also provide you with information on what sites users are coming from when they access your site (referrer logs), i.e. it is possible to establish which incoming links are more effective and useful for you. Another way to evaluate awareness in potential users is of course to ask them: for example you can run surveys with non-users (e.g. people who handle their relation with your agency via other communication channels) and ask them whether they are aware of the possibility of communicating with the agency through the web, whether they know the web address of your site, and so on. The same can be done with current users (generally easier and more cost-effective than with non-users), for example asking questions that help you understand the level of user awareness of different sections of the site, or of the different information and services you offer online. You should also keep monitoring whether your site is listed on (and linked to from) other important sites in your area of activity, and solicit the inclusion of links to the site when new sites or information databases are made available in relation to your field of action (which implies generally monitoring the "web presence" of the sector in which you operate). Monitoring User Activity and Satisfaction This relates more to the patterns of usage of your site, and to the quality of the experience users enjoy when dealing with your agency online. As mentioned, usage patterns can be estimated in quantitative terms by analysing server statistics. But these statistics will not tell you much about the preferences and expectations of the people who use your site: in this case it may help to run surveys with current users (e.g. by e-mail) asking them for example to rank the types of activity they undertake when visiting your website in terms of importance, or preference, or the sections they use the most, or any features they'd like to see implemented in the future. This will tell you whether your site is responding to user expectations, which services are more popular, and whether it needs to be improved or new goals need to be set. You could also analyse search logs , if possible, i.e. keep track of the keywords input by users in the search box of your site (most site search software usually provides you with this option): this will help you understand what it is your users are looking for the most (and because they are using the search feature

to find it, it may mean that they haven't been able to find by navigating the site, which should push you to reconsider the navigation system you have implemented).

You should also try to monitor user satisfaction : as much as it is important that your site is used by many, it is also crucial that users are satisfied with the level of service you provide online, as this is likely to lead them to continue using the site, and therefore guarantee its sustainability. Again, user surveys can help: for example, you could ask users to express their level of satisfaction with the services they use, and provide them with ways to submit suggestions for the improvement of the level of service. It also helps to keep feedback channels permanently open (rather than simply run surveys, which only provide limited windows of opportunity for users to express their opinion): online feedback forms, clear indications as to how to make an enquiry about the site (as opposed to about specific services), and generally providing visible and user-friendly feedback mechanisms, are good and relatively inexpensive ways to extract information about the level of satisfaction of users of your site.

Cost and Cost-Effectiveness

It is likely you will have been assigned a specific budget for your project, and that you are supposed to achieve specific goals keeping expenses within such budget.

It may therefore be important that you monitor your expenses regularly and transparently, listing what is spent for what feature or function of the site, if possible.

This will help you calculate the cost-effectiveness of your site and of its different features. If, for instance, your site provides mechanisms to answer enquiries online (e.g. online forms), you can divide the number of enquiries by the cost of maintaining and attending to these mechanisms (both in terms of real money and staff time taken), and compare this with the cost of dealing with enquiries logged using other communication channels. If enquiries logged online "cost less" per unit than traditional enquiries, your site can be said to be a cost-effective way to address enquiries in general, which would in part justify the financial effort and investment needed to run it. If, on the contrary, online enquiries cause higher costs per unit (unlikely, but possible), you may have to review expenditure on the service, or consider ways to make it more cost-effective (or to abandon specific services).

If your site is designed to generate income of any kind (e.g. tax revenues, or licence fees), an analysis of the return on investment may also be applicable, whereby you offset the expense needed to offer a service with the income it generates (including any savings generated specifically by the fact that the service is offered online, as outlined above). This will help you calculate how much income is generated per unit of investment (e.g. $1.20 for every $1 invested), and therefore establish whether the site is contributing revenue rather than requiring expenditure, e.g. compared to other communication channels.

In general, monitoring cost-effectiveness will help you justify the existence of the project, and more importantly, is likely to provide you with solid grounds to solicit new funding in order to continue it or expand it.

Quality Assurance - Testing your site

There are three levels of testing your site:

- Automated testing: Using automated testing tools.
- Full testing: Comprehensive testing involving automated testing tools, manual review and user testing.
- Self audit: Formal comprehensive testing resulting in a compliance report.

Automated testing

Regular automated testing is useful in preventing minor problems blowing out into bigger ones, especially if you are running new software such as a CMS, or at the start of a comprehensive site check. Note that it's not a substitute for manual testing.

- Automated testing for accessibility

  The tools below check accessibility issues laid out in the Web Accessibility Initiative (WAI) guidelines. These tools return results that can't be considered comprehensive, but which provide a good overview of your compliance level.

  - Webaim [http://www.webaim.org/]
  - Hisoft / Accverify [http://www.hisoftware.com/access/newvIndex.html]

  Colour blindness simulators are also very useful.
  Wickline Color Filter [http://colorfilter.wickline.org/]
  Visicheck Color Blindness Tester [http://www.vischeck.com/vischeck/vischeckURL.php]

Color Vision

Browser accessibility toolbars contain simulators of various kinds, letting you to check what happens when you degrade your site by disabling styles, tables, image, etc.

Web Accessibility Toolbar form Vision Australia
Firefox Accessibility Extension from Mozilla
Accessibility plugin for Internet Explorer
Automated code testing

Coding errors can present obstacles to users of some technologies. The W3C HTML Validator will identify any errors in your pages. You can also check the validity of your CSS at the W3C CSS validator.

For testing individual pages, the Web Developer firefox extension is a helpful suite of code checking tools.

Full testing

Full testing involves the running the automated testing tools above, along with the all-important hands on user testing.

User testing

Fully effective testing of usability and accessibility requires manual testing, ideally including disabled users (it's also a good idea to involve this group in the design process. See the Assistive technology page for more information).

This wiki will be providing more information on running user testing, but in the meantime, there are a number of good resources and testing plans available on the Internet.

Just Ask: Accessibility in User-Centered Design Free online version of the book, with a focus on disabled testers.
User testing Web Access Centre
How to Conduct Usability Evaluations for Accessibility: Methodology Guidelines for Testing Websites and Intranets With Users Who Use Assistive Technology Nielsen Norman Group (Note: $US82)

	Self audit You are expected to complete a self audit at least once a year. A self audit checklist is available which will help you review compliance against the Web Standards and Recommendations. **5.3. Public awareness**

(Area for highlights: **Insert cues, main ideas, questions that connect parts of the lecture, prompts that help the study, keywords.** **The questions could later be used for testing purposes.)**	Body of the lecture. Free text with graphs, pictures, diagrams, etc. Body of the lecture. Free text with graphs, pictures, diagrams, etc. Body of the lecture. Free text with graphs, pictures, diagrams, etc. Body of the lecture. Free text with graphs, pictures, diagrams, etc. Body of the lecture. Free text with graphs, pictures, diagrams, etc. Body of the lecture. Free text with graphs, pictures, diagrams, etc. Body of the lecture. Free text with graphs, pictures, diagrams, etc. Body of the lecture. Free text with graphs, pictures, diagrams, etc. Body of the lecture. Free text with graphs, pictures, diagrams, etc. Body of the lecture. Free text with graphs, pictures, diagrams, etc. Body of the lecture. Free text with graphs, pictures, diagrams, etc. Body of the lecture. Free text with graphs, pictures, diagrams, etc. Body of the lecture. Free text with graphs, pictures, diagrams, etc. Body of the lecture. Free text with graphs, pictures, diagrams, etc. Body of the lecture. **1.3. Subtitle No. 3** Body of the lecture. Free text with graphs, pictures, diagrams, etc. Body of the lecture. Free text with graphs, pictures, diagrams, etc. Body of the lecture. Free text with graphs, pictures, diagrams, etc. Body of the lecture. Free text with graphs, pictures, diagrams, etc. Body of the lecture. Free text with graphs, pictures, diagrams, etc. Body of the lecture. Free text with graphs, pictures, diagrams, etc. Body of the lecture. Free text with graphs, pictures, diagrams, etc. Body of the lecture. Free text with graphs, pictures, diagrams, etc. Body of the lecture. Free text with graphs, pictures, diagrams, etc. Body of the lecture. Free text with graphs, pictures, diagrams, etc. Body of the lecture. Free text with graphs, pictures, diagrams, etc. Body of the lecture. Free text with graphs, pic

We-Go Academies: Train-the-Trainer program

D3.2.1. Lecture Notes

We-Go
Enhancing Western Balkan
eGovernment Expertise

Course O3
E-Services

Lecture Notes

Contents:

1. E-Services

E-services are one of the main aspects of e-government as e-government can be seen as a platform for exchanging of information, providing services and transacting with citizens, businesses, and other arms of government. This means that the public administration has to have a special focus on this topic.

For citizens, the step by step implementation of e-government makes everyday life much easier. The inconvenience of having to carry out business in person at a public administration office will no longer be necessary since the majority of transactions will be carried out online. The wide breadth of services that can be made available can save a lot of time, energy, and inconvenience and eliminate unnecessary formalities. They include anything from applying for online grants to visiting the Web site of the Tax and Revenue Office, requesting a certificate from the Register of Convictions, or finding out about the textbooks for school children program.

Many types of electronic forms are already available online and more are planned for the future. These forms are available on the Internet and in many cases can be filled out and submitted directly online.

When talking about E-Services, which steps have to be taken into consideration?

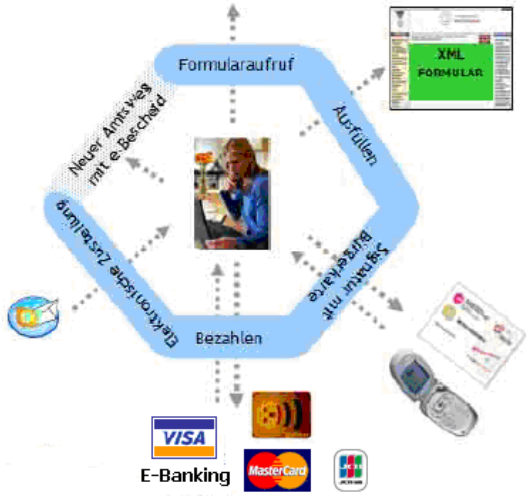
The step into the digital world for public authorities means that in many cases it will no longer be necessary to show up at the public authority in person during specified office hours. Important public authority business can be carried out with a few mouse clicks 24 hours a day, 7 days a week. It eliminates having to spend time in waiting rooms or having to fill out and hand in a paper form in order to request vacation time.

1.1. Electronic services of the public administration

The rapid progress made in technology and the growing demands on public administration mean that long-term technological and organisational strategies must be developed. Administrative processes in widely varying areas and the use of new means of communication and different technologies must therefore be coordinated. The strategy adopted is explained in the two domains "Online Procedures" and "Internal Administrative Procedures and Methods". These deal with the existing framework conditions, objectives, the presentation of electronic administration to users, automated processing within public administration and the following basic components of online procedures:

- Administrative portals leading to online services Electronic forms
- Electronic signature and eID card
- Electronic payment using online banking, credit card or mobile phone
- Electronic administrative notices
- Dealing with multiple media and formats
- Administrative electronic signatures
- Electronic delivery

What are the basic elements of online procedures?	In addition to these basic components, minimum standards applying to the exchange of information, secure transfer of data, electronic records and data formats have to be specified. **1.2. Example for an Online Process** Sustainable eGovernment solutions must be structured in modular form. This means that authorities can react quickly and cost-effectively to changing technical and legal framework conditions. A modular structure makes it possible to adapt individual elements selectively. Most eGovernment procedures are conducted in the same way: an electronic application is created directly onscreen by the person concerned, electronically signed and sent to the public authority. Where costs are incurred, these are paid electronically. If the application is approved, the signed document can be sent electronically from the authority to the recipient. A complete transaction therefore comprises recurring basic elements (electronic form, electronic signature, electronic payment, document signed by the authority, electronic delivery). In order to facilitate the implementation of eGovernment procedures, particularly during the initial phase, a model procedure was developed. This model was intended to demonstrate how individual eGovernment components can be implemented in their entirety. The online confirmation of residence was used as an example of model eGovernment. The most important components of any electronic procedure are: 1. Completion of an application form on the Web. 2. If required by the procedure, electronic identification of the person and signature of the application. 3. Electronic payment of any costs incurred. 4. Electronic delivery of an official certificate, which can also be used in paper form for other purposes. The entire process of electronic confirmation of residence takes no more than two minutes:



The security requirements depend on … ?

What fore do we need a distinction between function and accountability?

What is a electronic Potemkin village?

- The confirmation of residence certificate can be requested via the administrative portal help.gv.at . Citizens call up the online form.
- Before completing the Web form, the type of citizen card (chip card or mobile telephone) must be selected.
- If a mobile phone is used as a citizen card for the first time, the user must register on the eGovernment portal of the telephone company with a user ID and password.
- Having authorised the reading of his or her identity link, the applicant is then authenticated.
- The fully completed form, together with information on any costs, is displayed.
- A mobile phone signature is started by entering the signature PIN and the transaction code which has been communicated by SMS.
- Selection of the method of payment. If payment is made by phone (Paybox), the owner of the mobile phone receives a telephone call from Paybox. The amount to be paid is stated and the owner is asked to enter a payment PIN. Confirmation of payment is sent by SMS.
- The user receives an onscreen message that the certificate requested can be collected from the delivery server.
- The recipient of the certificate identifies him or herself on the delivery server with his or her citizen card and collects the certificate.

1.3. Principles for Online Procedures

On part of each eGovernment strategy has to consider all aspects which must be taken into account when introducing users to electronic administration:

- eGovernment users are directed to the services on offer via portals. Portals can be divided into various categories according to their objective and effect. The security requirements of portals depend on the services offered. The greater the degree of data protection required and binding

What do you have to take in consideration in the eInclusion domain?	nature of the transaction concerned, the more security measures must be taken. All portals offering eGovernment services or dealing with electronic transactions must be set up in accordance with the strategic requirements and must integrate the basic components. o A clear distinction between function and accountability makes it possible to adopt a flexible approach to competing portals. Administrative services may be provided either by the administration itself or by the private sector. Clear provisions have to be adopted in relation to outsourcing to private-sector providers, which govern access and the handling of transactions. There is a clear division of responsibility between the four main elements involved in an online transaction, that is to say, user, portal, gateway and application.
Which possibilities of accessing administrative procedures do you know?	o Users can contact the administration electronically. In principle, the internal administrative handling of a procedure remains independent of the fact that the procedure is available to the user electronically. The administration may make an internal decision according to economic efficiency, whether to process files manually - with electronic support - or process them entirely electronically. Therefore Workflow-Systems and/or Electronic Records System are the internal base of eServices. Otherwise electronic services are like a electronic Potemkin village. It is furthermore important that there is a standard way to submit requests, which is independent of the way in which the procedure is handled. The internal management of administrative processes must be based on a clear process model and be aimed at optimising performance and staff-related components. o Citizens should be able to choose between various different media to communicate with the administration. No particular form of technology is given preference over another and all possibilities are open. Communication with the authorities by electronic means must be understood as an alternative to the conventional paper approach. It remains possible to approach authorities directly in person. This should be taken into consideration in the eInclusion policy. For the business target group electronic communication could be made mandatory.
Why do we need XML structures in the online procedure?	o The access to administrative procedures could be done in various forms and depends on the risk of procedure; e.g for ordering trash cans no identity control could be a solution; for looking into criminal records a strong identity check is necessary. Access to administrative procedures:

What is the last step in the Online procedure? **What are the difficulties in the electronic delivery domain?**	1. No identity check 2. Username password 3. Username password + transaction cods 4. eID systems 5. eID systems + electronic signatures Decision depends on the risk of procedure: e.g for ordering trash cans no identity control could be a solution; for looking into criminal records a strong identity check is necessary. o Online procedures should be handled based on standardised processes and defined interfaces and data formats. With respect to submissions to authorities, the preference is for Web forms that can be automatically converted to XML documents. Intelligent forms for complex communication contain checking mechanisms which improve the quality of the data entered. The XML document that is converted from the request can be signed electronically. This allows identified communication in open networks without any loss of integrity and in line with authenticity requirements. o XML structures should be defined and made public in accordance with a uniform standard. The documents and formats used have been published and can be used by public authorities or organisations instructed by them for administrative applications without restriction. o Notices and transactions issued by the public authorities are signed electronically (official signature) so that citizens can be assured that they are genuine. The formats and presentation chosen should make it possible to reproduce the original electronic document even after it has been printed and it must still be possible to verify the electronic signature. o The public authorities should implement an effective electronic delivery system, irrespective of whether or not the procedure was initiated electronically. Electronic delivery should work across the various administrative areas and could also be extended to deliveries in the private sector. A standard format for transmission and a defined service protocol ensure that the public authority can effectively deliver documents to the delivery service. Service is an identified process. The receipt of a delivery is confirmed by the recipient by way of standardised proof of delivery. o The use of electronic signatures makes it possible to retrace the processes of online applications and thereby heightens the level of transparency and

security. The use of electronic signatures also means that an increase of personal registers and providing networking between them can be avoided.

Where do we need standards for the electronic communication?

1.4. Principles for Internal Administrative Procedures and Methods

Principles for Internal Administrative Procedures deal with the requirements which must be met by internal administrative processing (back office):

Accessibility for everyone. What do we have to consider?

- Citizens expect electronic administration to save them time and provide speedy responses. The introduction of Electronic Record System throughout the the state is therefore one of the basic elements of an eGovernment strategy. Using Electronic Record Systems, it is possible for transactions to be carried out in a fully automated manner and for public authorities to cooperate seamlessly. Standardised Web forms submitted to authorities in XML format can be easily integrated into the internal processing procedure. Likewise, notifications can be directed automatically to the delivery service.

- Administrative processes must be organised in the best possible way in order to ensure that they are handled efficiently and economically. The use of tools to model and optimise processes makes it possible to carry out a detailed analysis of the course of a procedure. Based on this, existing working methods can be reorganised and improved.

- The communication infrastructure used for exchanging information and data must guarantee a smooth flow of communication within public authorities and between administrative units. Security, data integrity, automation and standardisation are of major importance in this respect. For this reason policies should be developed to define for example a standardised e-mail communication, data transfer, communication between security domains and all other necessary communication requirements and mechanisms. Moreover, the equally important requirements of interoperability and compatibility should be met through defined XML schemas.

- The electronic services offered by public administration must be made accessible to everyone. Web forms, Web content and online procedures must be offered taking account of the needs of socially disadvantaged, older or disabled people. Straightforward usability and a clear structure

improve the ability of all users to navigate through available services. By implementing Level A of the WAI Guidelines, Web-content accessibility should be reached in the medium term.

- Only those members of the administrative staff who actually conduct the procedure may access an electronic procedure. Directory services are used to keep a check on which officials should have access procedures, and to manage authentication information. The directories should be able to integrate the applications and improve the quality of source data by serving as a central storage point. Moreover, the directories serve as the basis for further integration (telephone exchange, call centres, etc.).

- Citizens must have confidence in electronic administration. Network and information security are therefore decisive factors in a security infrastructure involving all administrative units. Security domains and those responsible for them must be defined by the individual administrative units. In doing so, external access to the network must be taken into account. System users are authenticated by certificates. Communication is secured in accordance with international standards

- Qualified signature certificates for natural persons are administered by private-sector providers of certification services governed by statute. Certificates for public administration could contain a special attribute, which identifies each authority and is based on international standards. All users can thus be sure that they are in fact communicating with the correct authority. For internal administrative purposes, staff cards will be issued, which the staff can use to carry out their duties. The staff cards could be fitted with the electronic signature and identification number of the official.

- Administrative notices and other acts to be delivered to citizens or businesses are electronically signed on dispatch from the server. The official signature allows the recipient to be sure of the identity of the authority and that the document delivered is genuine. A Web application should be available to users for the purpose of verifying the signature.

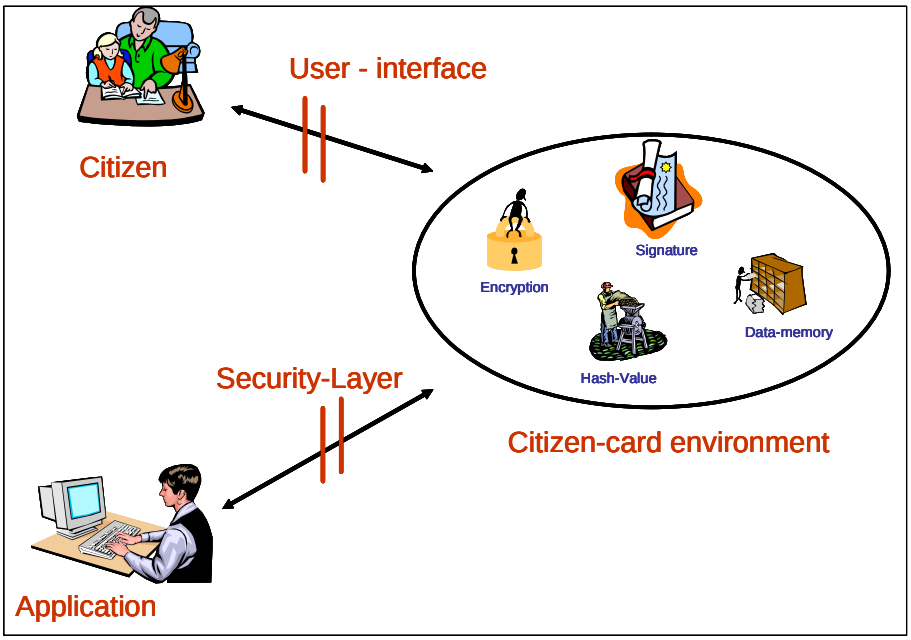
- The importance of IT security is growing constantly. Certain applications and systems must continue to function even in the event of power failures and disasters. The requirements which must be met by a critical infrastructure and framework conditions should be laid down in a policy for backup systems.

2. EXAMPLE: Austrian eID Card Concept for E-Services

The eID card concept serves as the basis for the security infrastructure. This security system is available to all providers. The principal elements of the eID card concept are the secure electronic signature, the qualified certificate and the identity link. Administrative procedures for which there is no statutory requirement for a secure signature can be settled using the administrative signature for a transitional period lasting until the end of 2007.

2.1. eID Card

Up until now, when submitting official requests, citizens have identified themselves with an official photographic identity card, where required. But what happens in electronic administrative procedures? Users are identified and authenticated using the eID card. With this card, applications can be electronically signed and electronic documents from authorities can be collected.



The Citizen-card model

Source: A. Hollosi/G. Karlinger, The Austrian EID card. Introduction

The eID card itself is not dependent on any one particular technology. Moreover, there is not just one kind of eID card. It is up to the citizen to choose what technology to use, from those available, in order to identify him or herself electronically. In principle, any token (not only a chip card) which makes it possible to sign electronically in a secure manner and to store data in free areas is

suitable for use as a eID card. In the same way as a passport, driving licence or identity card can be used as identification in the "paper world", the electronic world offers a variety of possibilities. Regardless of whether a chip card, mobile phone or USB equipment is used, the important point is that the medium satisfies certain security requirements.

The eID card concept is one of the foundations of Austrian eGovernment. It defines the functions necessary for secure electronic communication between citizens and administrative authorities: electronic signature, identification and data memory.

The security requirements which must be met by a eID card are defined in the eID card concept. The two most important requirements are the electronic signature and identification.

2.2. Electronic signature

The “electronic signature” is one of the core components of many e-government solutions. The purpose that this component serves can be explained quite easily. Many application forms require the signature from the person filling it out, which until now had to be signed on the paper itself. With the changeover to electronic services, authenticating the signature has to be carried out electronically. There needs to be a method for adding an electronic signature to a document that provides adequate security, yet is still easy enough to use.

An electronic signature is not just a signature on paper that has been scanned in. It is a mathematical operation that is carried out by the sender and recipient using two keys. Together, these keys form a unique pair. If both keys fit together, the recipient is ensured that the content is really from the person who sent the signature. For electronic signatures, the following aspects are important:

- Authenticity: The message really comes from the given sender and the sender can be uniquely identified.
- Integrity: Manipulation of the signature or the signed document can be detected immediately

In addition to using an electronic signature, the document can also be electronically encrypted. Only the actual recipient of the document will be able to decrypt it and read its content.

Which steps and technical devices are required in order to send documents with an electronic signature from work or home? First of all you will need a computer with an Internet connection and a card reader. The card reader can either be integrated into the computer itself or you can connect an external one to it.

You need a card that has the digital signature certificate saved on its chip. You can even use one of the cards you already have in your wallet, such as your bank card or your social insurance e-card. These cards can be used as “citizen cards” (see

following section) for conducting transactions with public authorities over the Internet. The concept of the citizen card does not rely on a particular data storage medium.

2.3. Identification

It must be possible to establish with certainty a link between an electronic procedure and the person who initiated it. This ensures that non-authorised persons cannot access personal data. Until now, depending on the public authority concerned, reference numbers such as the social security number or tax number were used in administrative procedures for this purpose. In order to prevent confusion as to the person involved in electronic procedures, the sourcePIN is used to identify that person uniquely. The sourcePIN is derived from the CRR number by way of an encryption process and stored in the eID card in an electronically signed form. The sourcePIN can therefore be controlled only by the rightful holder of the eID card. For data protection reasons, the sourcePIN of natural persons may not be stored directly in applications. In administrative procedures, the person must be identified using the sector-specific personal identifier, which is derived from the sourcePIN and the sector code. The application of these two encryption processes (encryption of the CRR number in the sourcePIN and derivation of the sector-specific personal identifier from the sourcePIN) guarantees a high level of data protection and rules out the risk of people shorn of all privacy.

The eID card concept not only lays down particular security requirements but is also aimed at ensuring choice by permitting several different forms of eID cards. At present, all Austrian-issued bank cashpoint (ATM) cards and e-cards are compatible and can be used as eID cards following activation. However, in the spirit of European mobility, even eID cards issued in the other Member States of the EU can be used, provided they are equipped with an identity link or are capable of being so equipped. At present, eID cards are issued for example in Belgium, Estonia, Finland and Italy and it is already possible to use those cards in Austrian eGovernment.

If the eID card is used in an online procedure, the citizen-card environment communicates with the procedural application. This communication is not direct but rather takes place via the security layer interface. This means that applications and the security infrastructure can be developed independently of each other.

2.4. Electronic Delivery

Official notifications and correspondence, such as RSa and RSb letters, are sent in most cases via regular post. If the addressee is not currently present when the letter arrives, he or she will have to go to the postal office in person to pick up the

letter after showing proper identification. With electronic delivery, this inconvenient and time-consuming procedure is no longer necessary. It only takes a one-time registration (free-of-charge, of course) of your citizen card at an electronic delivery service and you will be able to download official notifications and correspondence over the Internet. However, it is important to check whether the electronic delivery service you choose is supported by the particular public authority. When a new piece of correspondence arrives, you will be notified, for example by e-mail.

Figure: Homepage of an electronic delivery service

The following steps are required to pick up official notifications or correspondence:

1. Go to the start page of the delivery service you are registered with and login using your citizen card.
2. If login is successful, you will be able to access your Inbox. The notifications and documents can be printed, downloaded or forwarded.

Figure: A document in the Inbox

The two applications that were introduced serve as examples of how the citizen card and e-government can eliminate many of the formalities when dealing with public authorities. In the following sections, useful Internet sites and additional electronic services that are already able to be used by citizens will be introduced.

2.5. E-Government Quality Mark

The Austrian E-Government Quality Mark was created as a result of an initiative of the ICT Board (now the ICT Strategy Unit) and the Austrian Federal Government in 2003. The Quality Mark is awarded by the Federal Chancellery to e-government solutions that prove to be strategy-conform. It is meant as a quick and easy way to inform users of e-government Web sites as to the trustworthiness and security of the respective pages, applications and products.

The E-Government Quality Mark ensures users that the Web site adheres to the strict requirements of Austrian e-government. Users can conduct business with authorities on the site without hesitation. The latest information on the Quality Mark can be found on the Platform Digital Austria's Web site . The results of the e-government cooperation between the federal government, the provinces, municipalities, local authorities and other public organizations are reflected in the Quality Mark, which in turn benefits citizens even further.

Summary:

E-services are one of the main areas that the public administration has to focus on. Exchanging of information and providing services and enabling transactions for G2C, G2B, G2G, C2G, B2G; It includes among other things:

- Electronic forms which can be completed on the Web and sent immediately;

- Electronic signature with eID card or administrative signature;
- Electronic payment using online banking, credit card or mobile phone;
- Electronic administrative notices;
- Dealing with multiple media and formats;
- Electronic delivery;
- Administrative portals which lead to online services of public administrations;

3. EXAMPLE: Austrian eID Card Concept for E-Services

3.1. Residence Registration Form

The document known as the “Residence Registration form” (Meldezettel) is still important for carrying out many transactions today. The form to apply for a Residence Registration document can be obtained at the local municipal authority direct, or downloaded from the Internet.

In order to apply for the form over the Internet, you must have already registered at an electronic delivery service (see above) so that the municipal authority is able to send it over the Internet. The application itself has a remarkably simple design. The online application form for Residence Registration1 document is available on the HELP.gv.at platform.

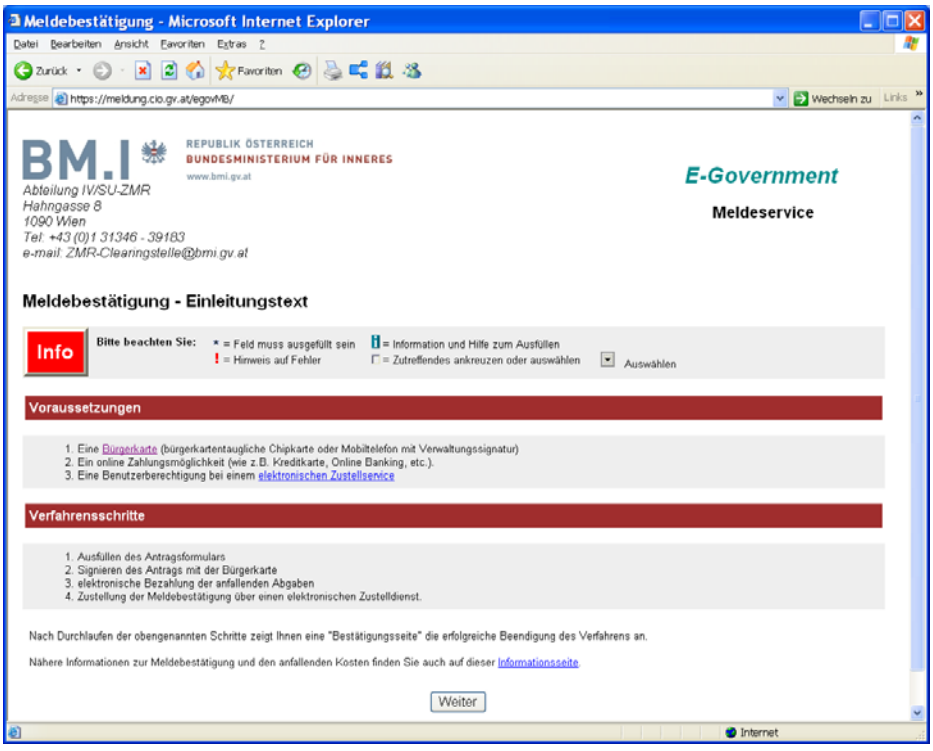


Figure: Application form for residence registration

The application form must be filled out and electronically signed using the citizen card. The fee can be paid using an online payment service. Your residence

[1] http://help.gv.at/linkhelp/besucher/db/formularauswahl.formular?id=562

registration document is delivered shortly thereafter to your inbox.

3.2. Certificate from Register of Convictions

A Register of Convictions certificate can be applied for just as easily. In the past, this document was also referred to as the “certificate of good conduct”. It contains information about any convictions that were entered into the register, or states that no entries were found if the person has a clean record. Providing an up-to-date certificate that shows a clean record is a requirement for many jobs and occupations (for example, for obtaining a business licence, or being hired by a security guard company). In most cases, the certificate needs to be less than three months old.

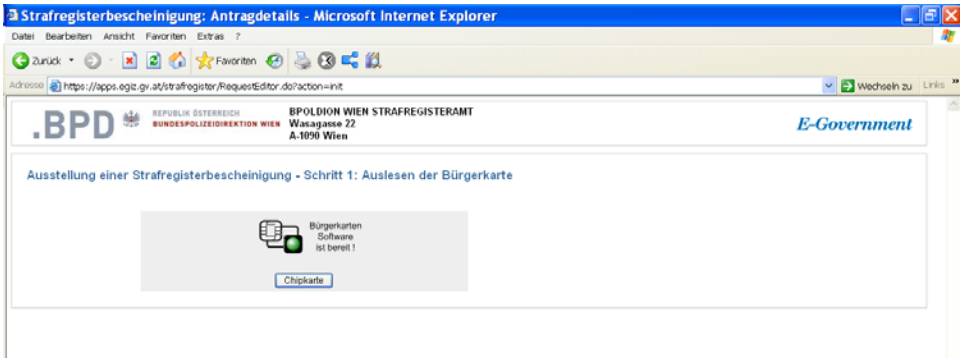


Figure: Applying for an electronic Register of Convictions certificate

The Federal Police Headquarters in Vienna offers an electronic Register of Convictions certificate2. The steps for obtaining the certificate are similar to those for the Residence Registration document, including using an electronic delivery service and paying fees using an online payment service (e.g., via online banking or a credit card).

3.3. e-Grants

Some students at Austrian universities and colleges are reliant on financial aid. It was important, in this area especially, to remove the most major bureaucratic hurdles through the introduction of e-government applications to make it easier for students to gain access to financial support.

[2] http://help.gv.at/linkhelp/besucher/db/formularauswahl.formular?id=600

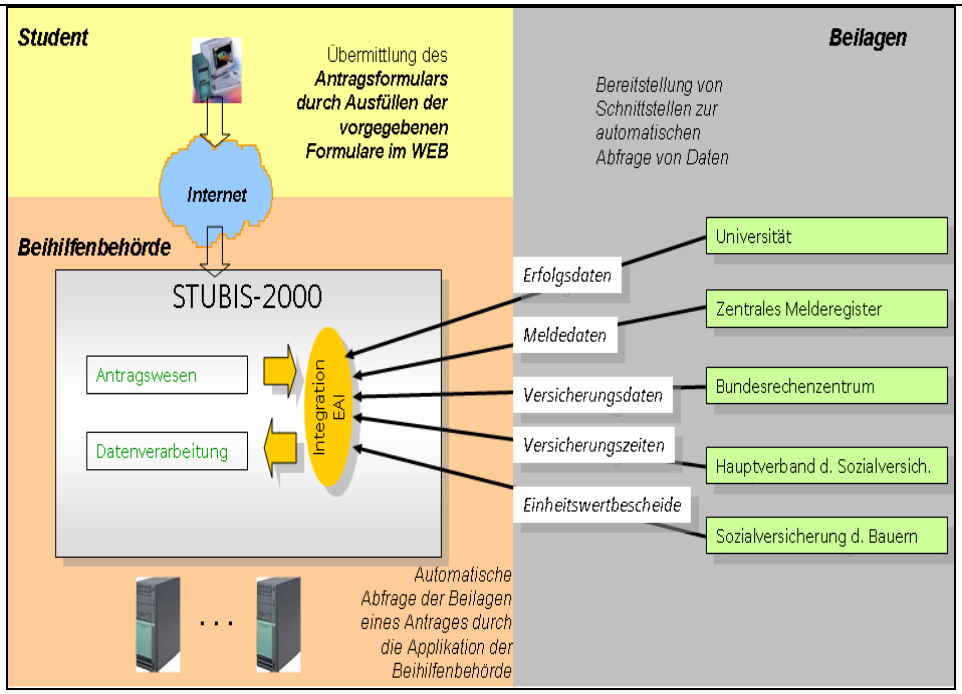


Figure 1: Diagram of the grant application procedure. (Source: bm:ukk)

The Student Support Act requires a plethora of evidence and proof from the applicant, which has to be processed by the corresponding authority and must be presented again each time that the grant is renewed. The online application procedure3 has drastically reduced the time and effort involved. After the application is sent, the system automatically checks once a year whether or not the applicant is eligible based on the available data. It then creates both the application and confirmation forms, likewise automatically, for renewing the grant. The only other thing the student needs to have, other than fulfilling the eligibility criteria, is a citizen card for submitting the application form.

3.4. RIS – The Legal Information System of Austria

It is one of the oldest public government projects in the Internet: the "Legal Information System"4 (Rechtsinformationssytem) has been in existence since 1997. This database can be used not only by law students and lawyers, but by all citizens to look up current and historical laws.

The Legal Information System (RIS) is operated by the Austrian Federal Chancellery and is used, above all, to announce legislation which must be declared by law in the Federal Law Gazette (BGBI) and to provide information about laws of the Republic of Austria. While developing the system, requests from citizens, interest groups, businesses (e.g., those in the law branch, such as lawyers or public notaries), and those in government were taken into particular consideration.

[3] http://www.stipendium.at (Menu item „Antrag")

[4] http://www.ris.bka.gv.at

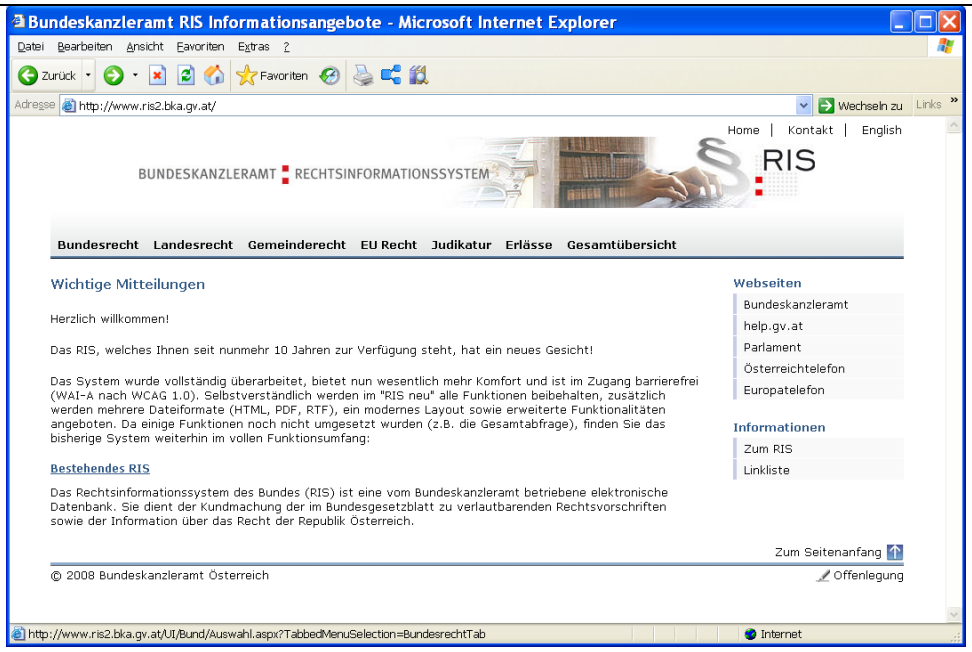


Figure: The Legal Information System homepage

The search interface complies with accessibility standards and is very user-friendly. It only takes a few seconds for the search to return the laws that correspond to the given search term. Since 2004, the Federal Law Gazettes must be published by law in the Legal Information System.

The electronic signature again comes into play here. In order to ensure the authenticity and integrity of the content, all published laws and legislation are affixed with an electronic signature.

Along with the federal law gazettes, the RIS also contains European community law, provincial law gazettes, and all provincial laws currently in effect. Decisions of all the high courts (the Supreme Court, Constitutional Court, Superior Administrative Court) and further commissions and tribunals are also found there. Selected decrees from the Federal Minister round out the offering. The scope of the Legal Information System is constantly being expanded, including historical laws.

3.5. AMS Next Job

One successful e-government service has crossed over into a totally different sector. The project “AMS Next Job” helps people who have been given notice or have left their job to find a new position as quickly and with as little paperwork as possible. As part of the labour market reform bill, the development of this new service was taken on by the Labour Market Service (Arbeitsmarktservice, or AMS), which would allow citizens to declare their unemployment status in advance and apply for unemployment benefits, as well as cancel them again over the Internet.

The new idea: by signing up early for the job search, even prior to being unemployed, the chances of quickly finding a new suitable position are increased and the amount of time spent unemployed is minimized. Optimally, unemployment can be avoided altogether if a new job can be found early enough.

For those who want to fill out the forms themselves, the “Meldung zur Stellensuche” (application to search for positions), “Online-Antrag auf Leistungen aus der Arbeitslosen-Versicherung” (online form to apply for unemployment benefits) and “Check-Out – Abmeldung von Bezug und Arbeitsuche” (cancelling unemployment) are available on the AMS5 Web site.

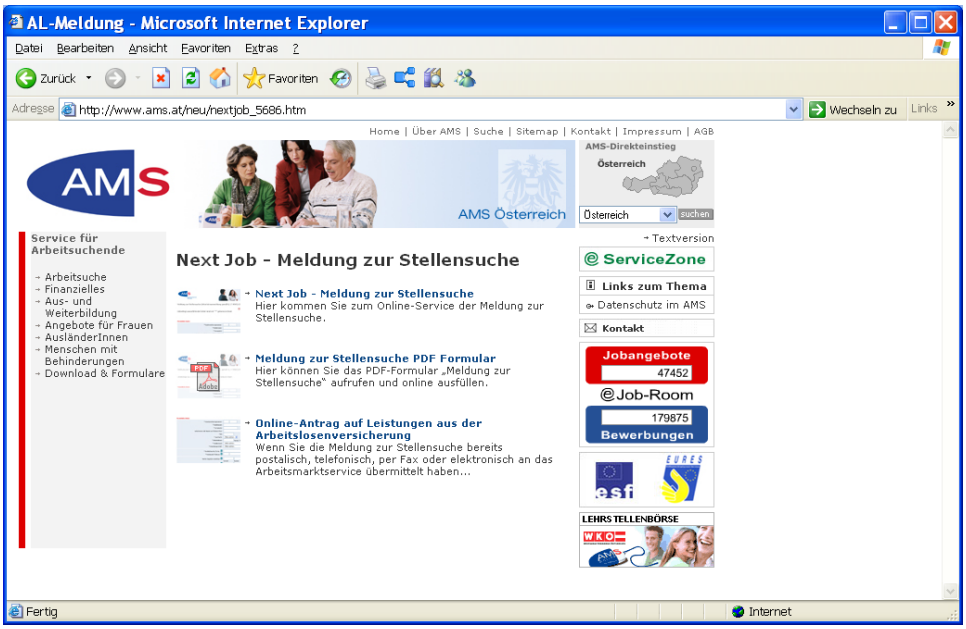


Figure: The AMS Next Job Service for people looking for new positions

With “AMS Next Job”, customer service was improved, and the amount of time and administration efforts for advisors was reduced. However, its biggest success was to substantially reduce the length of time people spent being unemployed by allowing them to declare unemployment status and search for jobs in advance.

3.6. Brochure Database

In addition to the extensive information already available on the Internet, public authorities continue to offer a multitude of brochures on diverse topics. The Federal Ministry for Social Security, Generation and Consumer Protection provides a wealth of publications, in particular on such topics as pension plans, social security laws, planning for elder care and living with disabilities.

[5] http://www.ams.at/nextjob

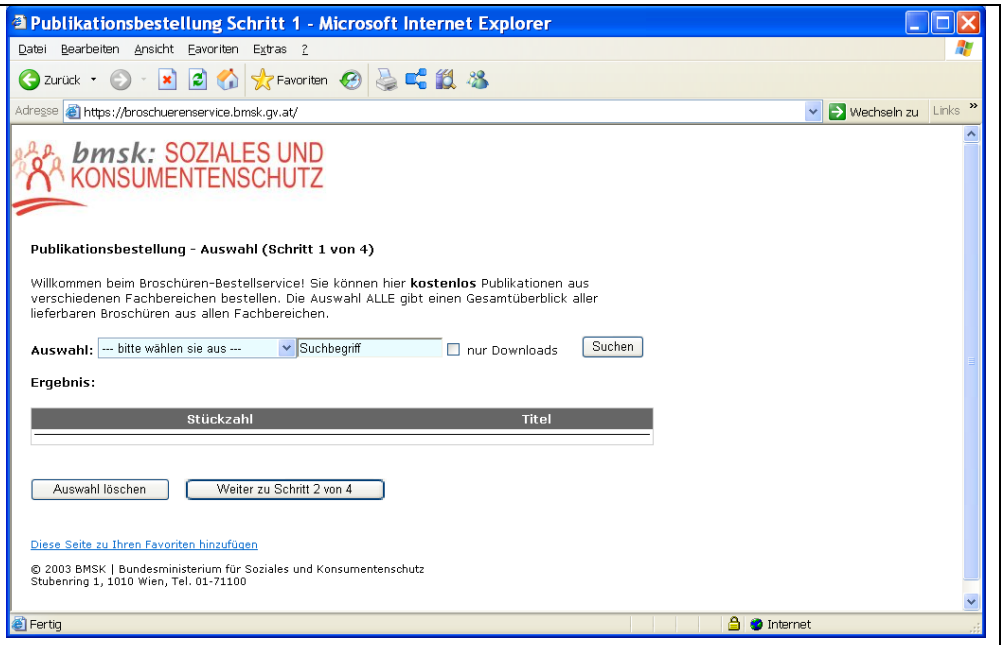


Figure: Online publication ordering service

On average, 35,000 citizens a year contact department employees via telephone, Internet and e-mail. Over 350,000 publications are sent out worldwide every year. The goal of the eService of the Brochure Database (BDB)6 is to manage the enormous administration effort in an efficient manner. Since November 2004, this application has been used to manage all orders, supply stock, and brochure shipments.

These examples contain a large number of best practice cases. A full description of them would go far beyond the scope of this document. All examples are available on the Platform Digital Austria7. Anyone having a look is sure to find useful information and answers to any questions they may have.

3.7. E-Government Services for Austrian Social Security

Austrian Social Security offers services8 for people who are insured, contract partners, employers and pharmaceutical companies.

6 http://broschuerenservice.bmsg.gv.at

7 http://www.digitales.oesterreich.gv.at

8 http://www.sozialversicherung.at

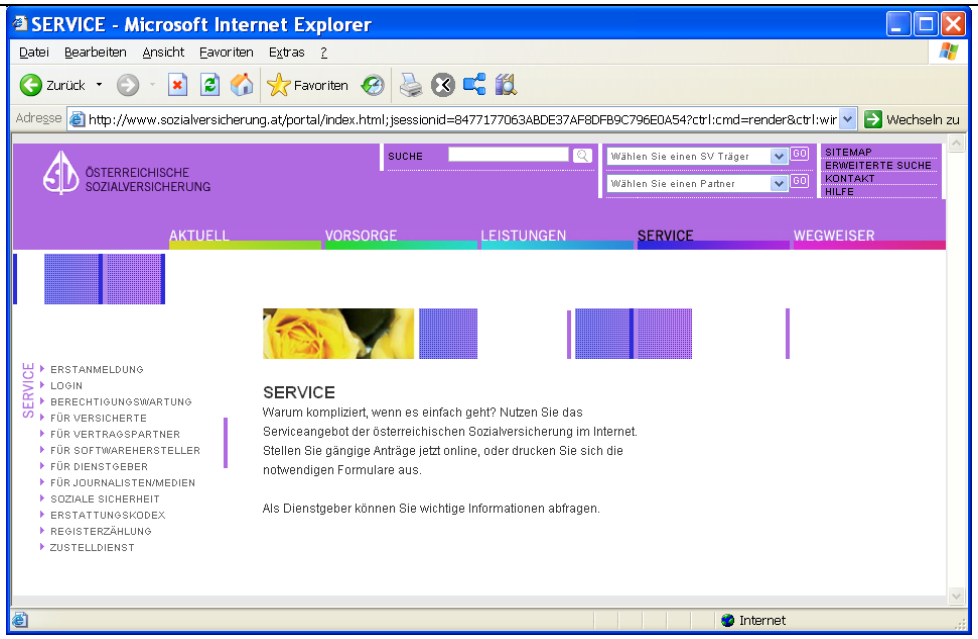


Figure 18: Online services for Austrian social security

For those who are insured:

- Forms (e.g., retirement forms, application for child care allowances, etc.)
- Health insurance data: This service accesses the data stored by the association for social insurance for a given social security number and calculates the amount of services that have been utilised by the insured or his family (up to the date of the application) based on the period insured.
- Health services statement (LIVE): You can look up and print your personal statement of health services that you have utilised.
- Personal Retirement Account (ePK): For all men and women born after 1 January 1955 who have retirement insurance coverage have a retirement account reserved for them which contains information on all the contributions from the insured periods.
- Social insurance data sheet (Versicherungsdatenauszug or VDA): The social insurance data sheet contains information on the periods of time that the citizen was insured as well as information on the amount and origin of contributions that have been made so far.

For Contract Partners:

- Pharmaceuticals Authorisation Service (Arzneimittel Bewilligungs Service, or ABS): This regulation along with Reimbursement Code stipulated the requirements that medications can be provided without a prescription, but only on the condition that in place of advance approval, a check-up must be carried out afterwards by the chief physician service of the social insurance organisation.
- Electronic Medical Statement (Befundblatt): The medical statement is filled-out electronically and sent to the social insurance organisation so that the treatment costs can be reimbursed.
- Health insurance data: This service accesses the data stored by the

	association for social insurance for a given social security number and calculates the amount of services that have been utilised by the insured or his family (up to the date of the application) based on the period insured. • Contract partner account statement online (VPA online): This is a free service of social insurance for contract partners that allows data to be exchanged securely using the citizen card. It is also used to make an electronic account statement available online to contract partners for whom buying commercial software would not be worth the cost or effort. • Compensation form (Verrechnungsschein): Contract partners and service providers use this form to send the bill of services to the social insurance organisation. **For Employers:** • Employer account queries: (DG-Net): This service gives employers read access to their account. **Pharmaceutical companies:** • Electronic workflow of the Reimbursement Code (ewEKO): This online service makes it possible for eligible companies to electronically submit application forms for admissions and changes to the reimbursement code.

We-Go Academies : Train-the-Trainer program

D3.2.1. Lecture Notes

We-Go
Enhancing Western Balkan
eGovernment Expertise

Course O3

ICT Policy making

Lecture Notes

Metamorphosis Foundation

CONTENTS

DEFINING PUBLIC POLICY

The Oxford English Dictionary defines policy as "A course of action, adopted and pursued by a government, party, ruler, statesman, etc.; any course of action adopted as advantageous or expedient." While this definition suggests that policy is the realm of those in power – governments or official institutions – a wider sense could include the vision, goals, principles and plans that guide the activities of many different actors/stakeholders.

What areas do ICT policy covers?

ICT policy generally covers three main areas: telecommunications (especially telephone communications), broadcasting (radio and TV) and the internet. It may be national, regional or international. Each level may have its own decision-making bodies, sometimes making different and even contradictory policies.

Diverse definitions of public policy exist but share core elements.

What are the core elements of a public policy?

Besides, studies of public policy have offered many definitions of the term, ranging from broad examples such as "whatever governments choose to do or not to do", to others which provide more specific defining characteristics, e.g., "a purposive course of action followed by an actor or set of actors in dealing with a problem or matter of concern". To build a picture of the diversity of opinion represented in the field, it is useful to highlight the range of key concepts included in a wide range of definitions. The following is a list of these core elements:

Public Policy is:

-authoritative government action

Public policy is action implemented by the government body which has the legislative, political and financial authority to do so.

- a reaction to real world needs or problems

Public policy seeks to react to the concrete needs or problems of a society or groups within a society, e.g., citizens, non-governmental organizations (NGOs) or government bodies.

- **goal-oriented**

Public policy seeks to achieve a particular set of elaborated objectives which represent an attempt to solve or address a particular need in the targeted community.

- a course of action

Public policy is usually not a single decision, action or reaction but an elaborated approach or strategy.

-**a decision to do something or a decision to do nothing**

The outlined policy may take action in an attempt to solve a problem or may be based on the belief that the problem will be solved within the current policy framework, and therefore takes no action.

-carried out by a single actor or a set of actors

The policy may be implemented by a single government representative or body or by multiple actors.

-a justification for action

The outlined policy usually includes a statement of the reasoning behind the policy.

-a decision made

Public policy is a decision already made, not an intention or promise.

MEMBERS OF THE PUBLIC POLICY COMMUNITY

The making of public policy has direct impact on a society, and therefore the people involved at various levels in the process are generally numerous and diverse. These individuals or groups who have a direct or indirect interest in the outcome of a policy decision, i.e., the stakeholders, can include government agencies, policy advisers and a wide range of non-governmental or community groups and individuals. At the center of this community is the relevant governmental agency or agencies designated to handle the problem or issue in question. In some instances, the policy analyst, policy center or think tank may enter into a direct advisory relationship with the government agency as its client. In this case, the governmental agency looks to the policy analyst or center to carry out an in-depth study of the issue and make policy recommendations which will then form the basis of the government's policy. In general, the empirical basis of these in-depth studies is previous research carried out by policy study centers into the issue in question. While this direct relationship between analyst and government does not commonly exist in CEE, nevertheless many policy researchers, analysts and centers aim to influence the policy debate on particular issues. This is achieved through publishing their studies, which they may then also publicize for the broader public policy audience though the media and various other methods. Needless to say, in any democratic society, all stakeholders will also do their best to advocate for their preferred policy option in whatever means they find the most effective, e.g., with the responsible government agency, with other government/parliamentary representatives or through the media. Such stakeholders can include NGOs, international governmental organizations (IGOs), other policy advisers or centers, local authorities, political parties, community groups, unions or concerned citizens. Figure 1. represents the broad community and their relationships from the point of view of the policy adviser.

What are multi-stakeholder partnerships for ICT policy?

What are the goals of a multi-stakeholder partnership?

What are the benefits of multi-stakeholder partnerships?

What is the difference between networks and multi-stakeholder partnerships?

What is the role of the partners in a multi-stakeholder partnership?

What can be the risks of a multi-stakeholder partnership?

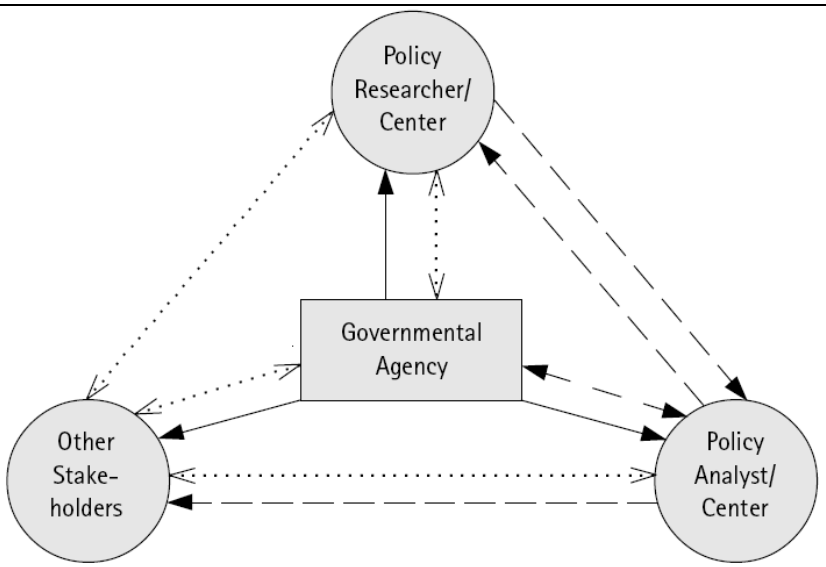


Figure 1. The Public Policy Community from the Policy Adviser's Perspective

MULTI-STAKEHOLDER PARTNERSHIPS FOR ICT POLICY

The public sector has been the major force behind most ICT policy and national ICT strategy initiatives in Western Balkan Countries over the last decade. However, it is becoming increasingly clear that the success of ICT in development cannot be met without the active participation of civil society, the media and the private sector. The main ingredients of ICT for development include a range of areas that need to be addressed – an enabling policy and regulatory environment, access to basic infrastructure, accelerated development of basic ICT skills, development of appropriate content, ICT applications for development, and advanced ICT research and development to provide innovative solutions applicable in developing country contexts. Such wide range of requirements needs strategic alliances between different actors at national, regional and international levels. No single sector in society can deliver services to address the complexities of sustainable development; nor can public initiatives alone meet ICT for development challenges. As a result the multi-stakeholder approach has become preferred to a traditional top-down approach for promoting policy changes and managing accountability in the implementation of ICT programs. The understanding that the "voices of the commons" are a strong catalyst for change and a key for meeting these ICT for development challenges has given rise to the increasingly pivotal role of civil society organizations (CSOs) drawn from non-governmental organizations (NGOs), faithbased institutions, grassroots organizations, professional associations, trade unions, consumer groups, research institutes, think tanks and the media. Their involvement in multi-stakeholder processes with the private sector and policy-makers has given rise to a new form of multi-stakeholder partnership that has created a positive force for driving forward ICT policy and ICT for development (ICT4D) programs around the world. Some governments have launched their own partnership programs, reaching out to other stakeholders in order to enhance their work in ICT policy, planning and program implementation.

DEFINITION OF MULTI-STAKEHOLDER PARTNERSHIP

Multi-stakeholder partnership is a very broad term that describes groupings of civil society, the private sector, the public sector, the media and other stakeholders that come together for a common purpose, which here refers to the intent to drive changes in ICT policy development and ensuing implementation. In such partnerships the partners have a shared understanding that they play different roles and have different purposes, but that they can pursue collective goals through collaboration and common activities to achieve such goals. These partnerships are voluntary, with participation driven by the perceived benefits they may see emerging from the process. Such partnerships are increasingly being used to challenge and lobby for change in policy processes. This is, in a number of cases, underpinned by collective research funding to support a particular position in the policy process and to raise general levels of awareness and knowledge about the issues under consideration.

Multi-stakeholder partnerships show a range of modalities – from loose forum-like structures allowing for active debate and the exchange of knowledge and experience, to more formalized structures based on the creation of a legal entity with appropriate governance structures to ensure transparency and accountability. The multi-stakeholder partnership is often viewed as a network approach. However there is a substantial difference between networks and multi-stakeholder partnerships. Networks rely on the membership of like-minded institutions that share a common purpose for core activities, while multi-stakeholder partnerships aim to band institutions with different agendas together to address common issues that may affect them or their stakeholders.

Networks tend to be self-organizing, evolving in response to complex realities facing them or their constituents. They are highly dependent on informal leadership to achieve their purpose. Multi-stakeholder partnerships can be regarded as networks with some formal element (e.g. a name or collective identity, guiding principle and small secretariat). Multi-stakeholder partnerships are often created by agents (champions, external donors, etc.) to address specific policy challenges.

GOALS OF A MULTI-STAKEHOLDER PARTNERSHIP

The core theme of multi-stakeholder partnerships is joint value creation by all the participating members. Multi-stakeholder partnerships are important to bring about policy change, share risks, and find innovative and synergistic ways to pool resources and talents, based on each participant's strengths.

Multi-stakeholder processes are longitudinal and iterative initiatives that are developed to deliver mutual benefits for all that are engaged in the process on a long-term basis. The purpose is to pursue a shared vision, maintain a belief in favor of joint problem solving, and add value to the challenge under consideration beyond that which can be achieved through the efforts of individual initiatives. The main goal of a multi-stakeholder ICT process is to see change in policy and implementation.

The specific goals of multi-stakeholder partnerships in ICT policy development

are to:

• Identify specific ICT issues that affect social and economic progress and which need priority attention

• Carry out joint analysis and research which will better inform the policy formulation process and subsequent implementation

• Pool resources, talents and other capabilities of a diverse range of stakeholders, thereby strengthening the capacity to effect change

• Share information on problems and solutions, and promote greater levels of understanding and trust between the various stakeholders

• Develop guidelines for best practices, written inputs into policy processes or action plans for the implementation of ICT policy changes

• Build the capacity of citizens to gain confidence, knowledge and skills, which in turn will enable them to participate more fully in the policy development process

• Lobby policy- and decision-makers for change

• Raise the level of awareness of ICTs through collaborating with the media

• Evaluate and monitor progress of change and subsequent policy implementation

• Address other ICT issues

BENEFITS OF MULTI-STAKEHOLDER PARTNERSHIPS

Multi-stakeholder partnerships do not only bring key stakeholders together to discuss policy issues, build consensus and implement solutions, but also help to improve equity between players, and promote transparency and participation of the public in the ICT policy process. The multi-stakeholder process uses a wide range of methods and tools of engagement including face-to-face meetings, online discussions, training workshops and the formation of working groups to prepare briefing papers, inputs into policy processes and background research on priority ICT topics. In general:

• Multi-stakeholder partnerships promote inclusivity and equity in ICT policy and implementation. The approach facilitates the participation of all interested parties in the process in an equitable manner – from issue identification, preparation of supporting research, knowledge sharing, development of action plans and assigning tasks to monitoring the progress of policy changes

• Multi-stakeholder partnerships expand the analytical capability to address ICT policy issues. The involvement of a wide range of stakeholder groups enables the development of a more comprehensive analysis of policy issues than any single stakeholder group can achieve.

• Multi-stakeholder partnerships promote grassroots mobilization and participation. Their simple existence encourages the participation of civil society and community-based organizations in the policy debate. Multi-stakeholder partnerships also help in raising the awareness of the key actors and their

	constituencies. • Multi-stakeholder partnerships promote the development of focused and holistic action plans. • Multi-stakeholder partnerships foster the sharing of skills and innovation. Bringing stakeholders with different perspectives together encourages all participants to see problems in new ways and enables the development of new and innovative strategies for change. • Multi-stakeholder partnerships provide an important platform for training a new crop of experts who help to sustain the partnership and animate the policy debates on an ongoing basis. This can take place either within the partnership or outside it, when these experts move on to new positions in the ICT arena. Capacity-building is therefore a very important outcome of the multi-stakeholder process, even when this is not explicitly built into the process. • Multi-stakeholder partnerships create a balance between market orientation and development orientation. The participation of civil society and the public and private sector helps to maintain a strong balance between commercial and public interests, ensuring that delivery genuinely focuses on sustainable outcomes. • Multi-stakeholder partnerships encourage good governance. Partnerships provide an opportunity for different groups to identify conflicts, gaps or overlaps between their respective policies and programs, and to better coordinate their work going forward.
How many steps does the policy-making process have? What is the purpose of each stage? What is the strength of the policy making cycle? What is its weakness?	• Multi-stakeholder partnerships enable participants to leverage their financial resources. They are useful on a number of levels during the policy formulation process: a) for pooling financial resources during ICT policy processes to ensure that policy recommendations are backed up by solid background research to support particular approaches in the development of an ICT policy; and b) for the combined undertaking of participative processes such as workshops and think tanks, awareness raising campaigns through the media, the creation of online discussion lists, and the preparation of briefing papers. • Multi-stakeholder partnerships motivate both leaders and laggards. They create platforms for encouraging those with limited commitment and for bringing progressive actors together. Success tends to breed success. • Multi-stakeholder partnerships promote ownership and commitment for action. They enable participants to gain a better understanding of the need for change, feel ownership for a proposed plan of action and create a platform for peer pressure to ensure delivery of outcomes. • Multi-stakeholder partnerships help to develop trust among groups that are usually suspicious and hostile towards each other. Civil society, government and the private sector are traditionally suspicious of each other. The media, a relatively new player in ICT policy processes, in turn brings in suspicions relating to the accuracy of reporting and exposure of decision-makers, which is often not welcomed. This model promotes trust and encourages further partnership outside the core partners. However the multi-stakeholder process is not always straightforward. It could fall into the trap of too much talk and no action, with continual meetings and

discussions and no recognizable and tangible result being achieved. This is a particular risk if there is no political will to change and no widespread support from key players. Enlisting all key stakeholders, reaching agreement on a shared vision and establishing procedures for accountability and measuring progress (checks and balances) are all important for the multi-stakeholder process to succeed.

The policy cycle is a guide not a prescription; it is iterative and collaborative

THE POLICY-MAKING PROCESS

Having briefly looked at the nature of the public policy community and multi-stakeholder partnerships, this section focuses on the nature of the policy-making process and the role of the communication tools used in that process. It begins with an overview of the policy-making process, or policy cycle, as it is commonly known. This should help gain insight into the communication tool normally used to report and record the outcome of this process-the policy paper.

The second sub-section examines the various purposes the policy paper can play in the policy-making process. The section concludes by outlining a strategic approach deciding which other communication tools to use to disseminate policy ideas and recommendations to a wider audience. This final element is intended to illustrate the relationship between the policy paper and these other tools.

While different approaches to the policy-making process exist depending on the context and purpose(s), the textbook model commonly accepted within the field of policy science is called the policy cycle (as seen in figure 2).

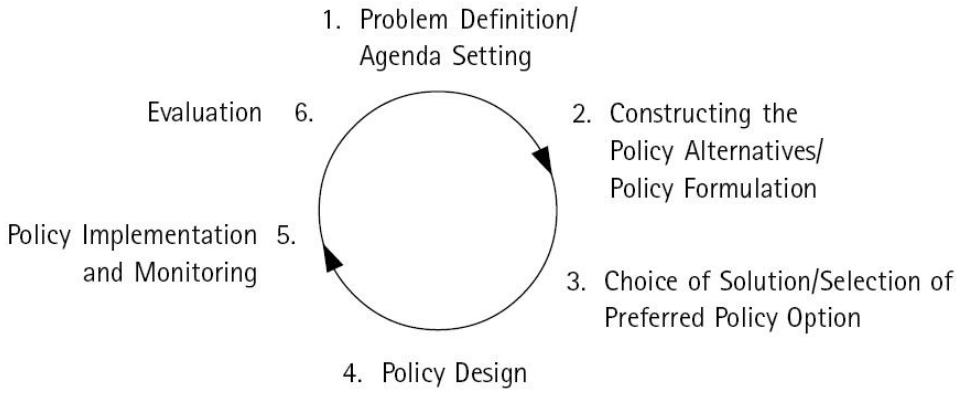


Figure 2. The policy making cycle

Who start the policy-making process?

What is the goal of the problem definition step?

As with many models, the strength of the policy cycle lies in its power to guide; however, its weakness lies in its lack of flexibility. In other words, while such a model can never prescribe the specific action that the policy specialist should take in every situation, it informs the context within which the policy specialist should act in order to follow best practice. In addition, the true nature of policy-making is that each stage in the proposed six stage process has the potential to inform previous and following steps in the cycle, e.g., weighing your options to select the best policy option can often help to deepen and widen the problem definition stage.

It is also important to note the inherently collaborative and interactive nature of all stages of this process. Most effective policy research and analysis is carried out in teams and involves different levels of interaction with various stakeholders

	throughout the process. For example, such interactions can range from discussions with policy researchers in the problem definition stage, to researching the cost-benefit of policy options with the target groups, to meeting with representatives of government to promote policy recommendations. A brief look at the steps of the process follows to highlight the focus of each. STEP 1: PROBLEM DEFINITION/AGENDA SETTING As a starting point in the policy-making process, a problem is usually identified by a group of people in a particular society. If policy specialists, CSO members, a group of citizen or another group of people are interested in finding a solution to a certain problem, they should attempt to either get it onto the government's political agenda, i.e., turn the problem into an issue, or make it a higher priority issue if it is already on the agenda. In order to do this, it is necessary to convince both the relevant government agency and the broader policy community that a real problem exists which requires government action. In order to achieve this in the politicized world of public policy, it should be presented in a suitably persuasive and comprehensive argument which details the causes, effects and extent of the problem based on a wide variety of sources.
Who monitor an implement policy? How policy outcomes are evaluated? Why is the evaluation important? Who designs policy evaluation plans? At what step are the instruments/approaches for implementation of the policy chosen? Who is involved in the evaluation? What consist the evaluation process?	STEP 2: CONSTRUCTING THE POLICY ALTERNATIVES/POLICY FORMULATION Once the nature of the problem is sufficiently detailed and the issue is on the government agenda, the first step in attempting to address the issue is to elaborate the possible ways it can be solved, i.e., determine the policy option. It is often difficult to find the ideal alternative, so finding the most feasible and realistic policy alternatives for the context is a real challenge. STEP 3: CHOICE OF SOLUTION/SELECTION OF PREFERRED POLICY OPTION Following the elaboration of the alternatives, a preferred policy option to address the particular problem is then selected based on a set of evaluation criteria. The use of this criteria-based evaluation process not only allows choosing a suitable alternative, but it will also form the basis on which to authoritatively argue for the legitimacy of the proposed policy option. Although the issue in question and the context will determine the specifics of the evaluation criteria: effectiveness, efficiency, equity, feasibility and flexibility/improvability STEP 4: POLICY DESIGN Once the preferred policy option are selected and presented to the relevant government agency, and assuming that they also accepted it fully or modify the proposal, it now becomes public policy. The government agencies must now decide how they can most effectively implement the policy. In order to elaborate an effective policy design, the agency must choose a policy instrument mix (e.g., legal, organizational or network empowerment) and a delivery organization mix (e.g., governmental or non-governmental, public or private) to provide the services or products outlined in the policy (as described above in the Multi-stakeholder partnership section).

STEP 5: POLICY IMPLEMENTATION AND MONITORING

Next, the policy is implemented according to the policy design. A balance between good policy design and effective implementation usually leads to the most effective outcomes. Also, an on-going process of monitoring needs to be conducted which forms the basis of a comprehensive evaluation procedure relying on multiple sources of data.

STEP 6: EVALUATION

Within the framework of any good policy design and implementation plan, a comprehensive evaluation procedure is essential in determining the effectiveness of the implemented policy and in providing the basis for future decision-making. In designing a policy evaluation plan, government agencies and delivery organizations need to consider how the policy objectives can be accurately and effectively measured and how the evaluation data collected will be used as a basis for decision-making.

The evaluation process consists of looking at the particular public policy in practice, both in terms of objectives and means employed. It will involve a broad group of people including bureaucrats, politicians as well as CSOs and other stakeholders.

This unit introduces participants to ICT policy and its various aspects.

ICT POLICY

ICT policy exploits information and communication technologies to further national economic and social goals. It matches the economic and social environment in which it is to be implemented. ICT policies differ from country to country depending upon national priorities, the country's level of development, the extent of ICT infrastructure, geography and demographics and the extent of regional integration. Some common principles guide all good ICT policy.

What sectors/groups could benefit most from ICT applications? How?

Identify problems and barriers to the successful use of ICTs (provide brief information re local/national context).

ICT POLICY PRINCIPLES

What conditions justify investment in the local ICT industry?

Principle 1: The ICT policy will benefit all citizens (e-inclusion)

Why is e-inclusion crucial for making sustainable change in the society (using ICT)?

Unless an ICT policy has clear benefits for as many of the citizens of your country as possible, it is hard to argue that ICT can make major developmental changes. At a practical level, if it doesn't work from this principle, it will not get the political "wings" it requires to fly. The policy benefits may be economic (a more competitive economy will produce more taxes to spend on social needs) or social (citizens will get better healthcare using telemedicine). The skill is to blend these together to produce benefits that all will enjoy, including benefits that specifically target or are developed for women, youth, the elderly, disadvantaged groups, or rural and poor populations.

How to create an ICT enabling environment?

Principle 2: It will encourage wider ownership in all forms

Why is consultation of stakeholders significant when developing and implementing ICT policy?

An ICT policy needs to encourage as wide an ownership as possible - of the policy and the means for bringing it about. It needs to be against monopolies of ownership, whether through government or the private sector. It needs to

Which main areas are covered by ICT policy?	encourage equity involvement from national investors and employees so that everyone has a stake in owning the benefits of ICT. **Principle 3: It will be transparent and therefore decisions taken are open to scrutiny** The process of making decisions on ICT policy needs to be clear to outsiders and the process of taking key decisions needs to be able to be justified. In particular, decisions about changes in ownership need to be taken in a transparent manner. This would signal an end to cronyism, where decisions are made behind closed doors and benefit only a narrow set of interests. **Principle 4: Government will consult those most affected by the policy** Where governments are elected freely and fairly, they are accountable to their voters and this accountability covers ICT policy. However the government needs to consult those affected by its ICT policy for two reasons. Firstly, at the best of times the government cannot be knowledgeable about everything it's responsible for and it needs to draw on external knowledge to strengthen its plans. Secondly, it needs to check its conclusions and proposals with those most likely to be affected by them. Without consultation, the multi-stakeholder partnership between government, civil society (and the variety of organizations it consists of) and the private sector, is weakened. **Principle 5: Government will create an environment that allows people to do things** Unnecessary or over-burdensome rules lead to people flouting the law. Policy and regulation should be used as a way of encouraging people to do things, not as a defensive measure to prevent things from occurring. **Principle 6: ICT policy will be action-oriented and make things happen** ICT policy should not just end up in the form of a document. All too often with policy processes, large numbers of people put an enormous amount of time and energy into talking about what needs to be done. At the end of this, the policy is often triumphantly announced and then quietly forgotten. Cynicism sets in amongst those outside government that put energy into bringing the policy into being. Some countries have written two or three ICT policies without any clear outcomes from the process. An ICT policy needs to have a small number of "actions" that are clearly identified (as well as those responsible for carrying them out) and the resources needed to implement them. The policy should be inclusive and must consider the impacts on different groups of the population, specific geographic areas, etc. ## WHAT DOES ICT POLICY COVER? ICT policy guides actions in three main areas and ensures coherence among them: 1.Telecommunications, 2.Broadcasting, 3.The Internet.

Telecommunications is the transmission or reception of signs, signals, writing, images and sounds by wire, radio, optical or other electromagnetic systems. The telecommunications sector includes private businesses and public sector organizations that provide telecommunications services (telephone, Internet access), produce equipment (telephones, exchanges, modems etc), define and apply the rules that govern telecommunications operations (regulation), or use telecommunications services and products (consumer groups, interest groups, educators, health professionals etc).

Broadcasting is the use of radio technologies to send transmissions (programs: news, public services, entertainment, sports) intended for direct reception by the general public. Transmissions include radio and television. Like telecommunications, the broadcasting sector includes public enterprises such as national and community radio and television as well as private companies. While twenty years ago most broadcasters knew their audiences and targeted their services and programs locally or nationally, today's television and radio programming often has a regional or global reach.

The Internet is a collection of networks linked together using a common protocol - a global computer network achieved through the interconnection of smaller computer networks around the world. People, computers and information are linked together electronically by a common protocol or set of communication rules.

It should be evident now why telecommunications, broadcasting and the Internet all have to be dealt with not necessarily by a single policy but within a single policy framework. They all use the same infrastructure to transmit messages (copper cable, optical fibre, satellites) over the radio spectrum and they can all deliver the same content (voice, data, text, pictures, video etc) to the same users. The radio spectrum is a limited resource which needs to be managed in the national interest in a way that safeguards against the consolidation of ownership of content and the means to deliver it – with a consequent suppression of diversity and local voices. National development requires that communications infrastructure and services extend to the whole population wherever people are located within the country.

POLICY DIMENSIONS

If ICT policy is to stimulate broad-based development, it must address five inter-linked dimensions.

Getting the focus right: ICT as an enabler or as a sector? Countries need to make a basic decision with respect to their ICT policies: do they try to grow their own ICT sector to manufacture and market ICT products – which offer economic benefit that in the long term, can be used for social development? Or do they use ICTs to help progress on their development goals (poverty reduction, education, health etc) in the short term? While applying ICTs to speed development in other priority sectors is considered more likely to deliver development gains, most countries have opted for an approach that includes both enabling and ICT sector strategies but with different degrees of emphasis to respond to different national strengths and challenges.

Human capacity. If ICT programs are to be sustainable, a critical mass of people has to know not only how to use technologies and applications but also how to maintain them and generate from them innovative solutions to local problems. Countries need to focus on training a core of professionals who can provide access to and maintain the ICT infrastructure (computers, computer software, communications networks) and adapt them to local needs. Countries also need to think about how to retain skilled technical staff in the country once they have been trained. ICT policies can "start small" to take advantage of existing skills and become more ambitious as human capacity expands.

Policy issues include:

- where to concentrate resources – primary, secondary, tertiary levels;
- focus on high level technical skills or basic ICT literacy;
- funding options – for example a human resource levy on international investors.

ICT POLICY AND POLICY IN OTHER SECTORS

ICT policy cuts across all human endeavors and is closely linked to other areas of policy including education, health, trade, tourism and public administration.

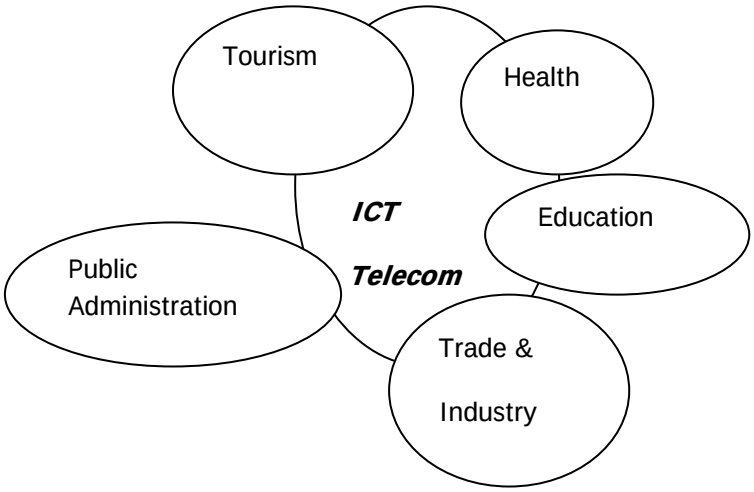


Figure 3. Policy overlap

To illustrate with a few examples:

Introducing computers into schools without ensuring – through education policy - both access and content that is attractive and localized as well as appropriate training, may worsen the education process.

Medical applications will only deliver benefit if health policies ensure that staff are trained in their use both in central hospitals and rural clinics.

E-commerce won't take off unless systems are in place to handle credit card payments and shipment of orders.

Maintaining high tariffs on computer and communications equipment may limit the use of ICTs, hamper plans to expand human capacity in the ICT sector and slow down the establishment of small businesses in all sectors.

Computerizing the operations of government departments in an uncoordinated fashion will slow down the delivery of government services through public Internet access points.

The fact that ICT policy and sectoral policies are inter-dependent argues in favor of the creation of a cross-sectoral body to manage ICT policy development where the views of all interested ministries will be heard and policies coming from different levels of government can be coordinated.

While ICT policy deals with many technical issues related to the structure of the telecommunications sector, the use of the radio spectrum and the linking of technologies, it also deals with broad social issues of equity and human rights, in particular the right to communicate in a private and secure environment.

In addition, there is a need for policies and strategies that will enable developing countries and countries in transition to shape and build up their national information infrastructures around an integrated ICT structure as suggested in figure 4

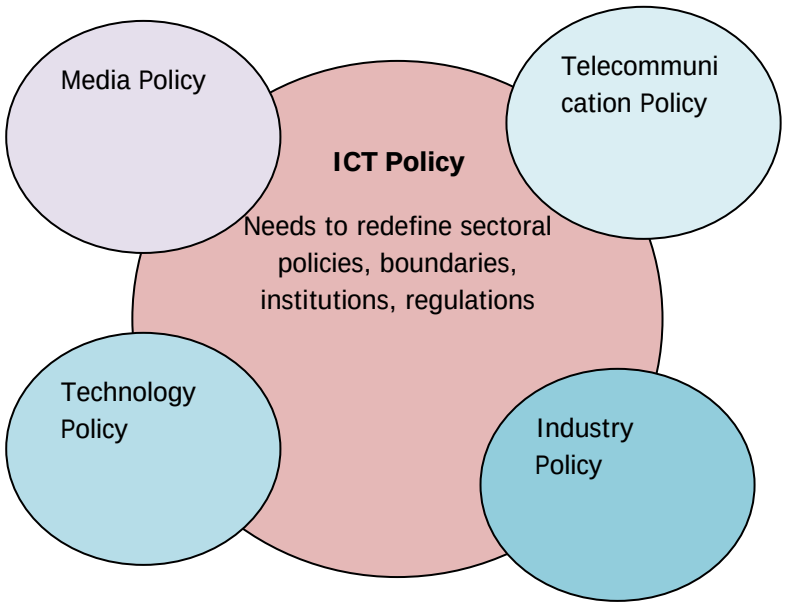


Figure 4. Integrated ICT structure

SUMMARY:

ICT increasingly penetrates all social and economic activity. It is a high stakes game that involves all sectors of society, comprising many stakeholders. It is complex and multifaceted. But ICT policy is often made as a result of concern for issues; so the starting point is a specific problem or situation faced by a any group of people aiming to improve any particular issue in the society, or else someone trying to start a business or a politician or civil servant looking for better ways to deliver service.

Although policies are formally put in place by governments, different stakeholders and in particular the private sector make inputs into the policy process and affect its out-comes. Thus, for example, in the International Telecommunications Union, an intergovernmental body for governments to coordinate rules and regulations in the field of telecommunications, the influence of multinationals has grown enormously. Privatization of state-owned companies has meant that governments can rarely control telecommunications directly. The privatized telecom companies, often partly controlled by foreign shareholders, look after their own interests. In the context of globalised markets, large and rich corporations are often more powerful than developing countries' governments, allowing them to shape the policy-making process. That is why **multi-stakeholder partnership** is vital for developing and implementing sustainable ICT policies. Furthermore, as can be seen from the circular and iterative nature of the policy cycle, following the evaluation stage any of the following may be reconsidered: the problem, the chosen policy option, the policy design or implementation. This means that the issue may be put back on the agenda, put back to another stage of the process or may continue to be implemented in the same way.

Most ICT policy is about creating ways of dealing with the rapid changes ICT will bring about whether or not there is a policy. Things that happen in the world outside government happen far more rapidly than within government itself. As noted, **policy processes** follow a particular **cycle**. In outline government or its partners gather evidence upon which to base policy, sometimes using external consultants. Government then drafts a policy document upon which it consults. After consultation, the policy document is put in place and any legislation needed enacted.

We-Go Academies : Train-the-Trainer program

D3.2.1. Lecture Notes

We-Go
Enhancing Western Balkan
eGovernment Expertise

Course M1/01

Lecture Notes

Contents:

This lecture note was worked out for We-Go WP3 by FH-Prof. MMag. Dr. Franziska Cecon - Carinthia University of Applied Sciences and Upper Austria University of Applied Sciences

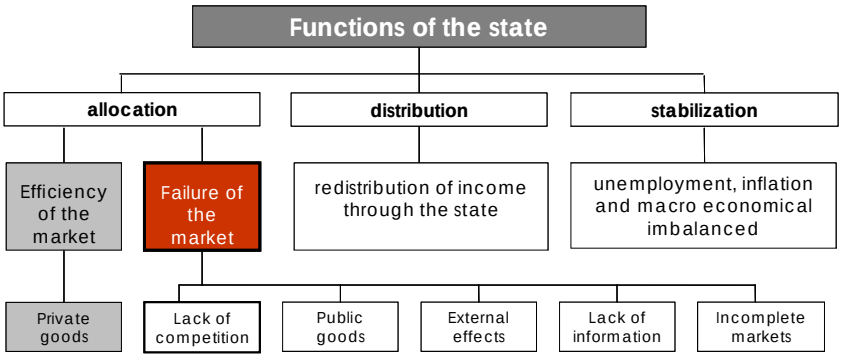
1. An Introduction to Public Management

1.1. Necessity of the State

Complex institution as an integral part of daily life

The public sector is a highly complex „concept", intertwined with politics, economics, society etc. It touches every part of our daily live and accompanies us literally from day one on when we are born up to the very last moment in our life. It is such an integral part that we hardly ever think about its functions and reasons.

Multiple functions of the state and its institutions



Source: See Straubhaar/Winz (1992), 53

Talking in economic terms of welfare then state's functions are threefold:

- allocation of resources and services such as water, health care, waste disposal, education etc.,
- redistribution of income to balance inequalities and to provide social security to a certain extent and a
- stabilization function in terms of the overall state such as unemployment, inflation and economic growth and further macro economic indicators.

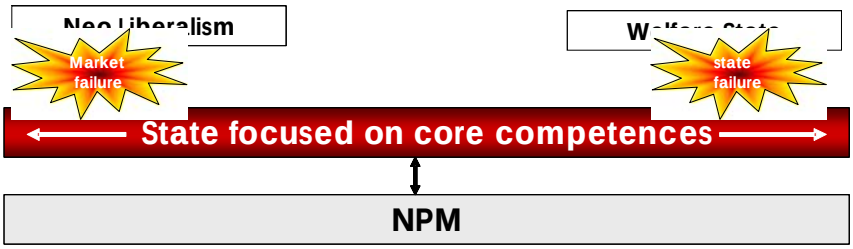
State activities balance market failure

Concerning the allocation function the state balances inefficiencies in the market. Whenever the market delivers services which are demanded in an efficient manner, the state is not necessary. But inefficiencies happen for example whenever there is a lack of competition in case of monopolies such as the infrastructure of communal services, railways, etc. (but it doesn't concern the service provision itself). Furthermore, called "public goods" such as air or peace which are characterized by non-rivalry and non-excludability in use cause undesired imbalances. External effects are due to economic decisions but are not "compensated" or paid for, such as pollution of air in one place may have damaging effects in another place. Also a lack of information and a lack of complete markets are further reasons for inefficiencies.

Beyond these facts a democratic legitimized state fulfils functions such as the solution of public demands, the sanctioning by legal norms or political decisions and its organisational and financial implementation of the proposed "solutions".

All these facts make clear that a state and its institutions are necessary. But the intensity of public influences depends on the societal agreement. There are two broad concepts about the role of the state. Along the line there are two extremes: A state that is kept as small as possible, almost non-existing with a dominating role of the free market forces on the one hand and a concept of a strong and regulating state on the other hand. Each of the two ideologies (neo liberalism vs. welfare state) has its pros and cons.

Role and intensity of the state depends on societal legitimization



Source: Cecon

Neo-liberalism vs. welfare state

The balance of the cons, namely state failure at the "welfare state" and market failure in case of a reduced role of the state. The balance is to find in the concept of a state limited to its core competences, executing only core services itself but still guaranteeing for (and/or financing) the provision of public services. It is a political decision what needs to be provided publicly, who is the provider and who is responsible for the services.

Balancing forces by a state focussing on its core competences

The answer to these questions and the concept itself link to chapter 3 and 4 where reforms and NPM as a reform framework are discussed.

1.2. Public Administration

Talking about the state, its functions and its role, it is also necessary to have a look at its institutions which can be summarized under the fast term of "public administration". For the average person it best "visible" at the local level – the town hall - because it is closest to the citizens. Often the common perceptions do not distinguish between politics and administration.

What is public administration all about?

First of all it is part of the executive branch of a government and the instrument to implement laws and politics. That is where the work gets done. In other words public administration consists of the institutions and organisations necessary to implement the political decisions enforced by law.

"...where the work gets done."

The fields of politics are very diverse and far reaching from education to social security, from health care to infrastructure, from internal and external security to taxing, and so on. Easy to understand that this diversity also promotes the complexity of the administrational system.

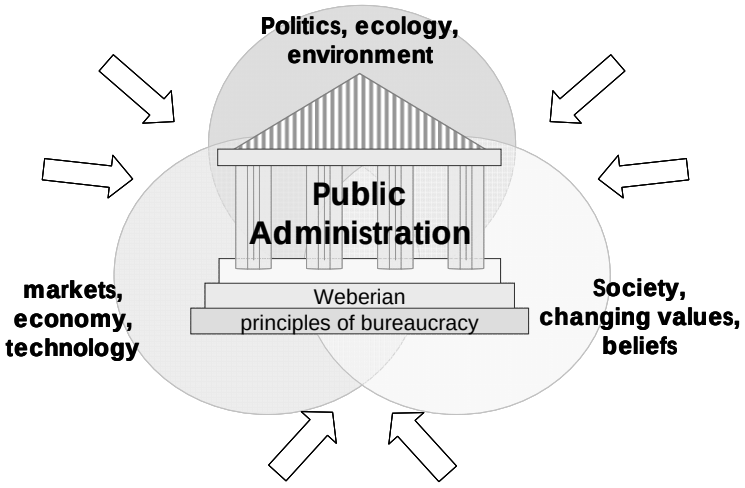
Numerous fields of politics mean diverse tasks in public administration

Furthermore, depending on the state structure there are several tiers of government where these tasks are fulfilled. In Austria for example there is a local, a provincial and a federal level which can be differentiated. They are mutually intertwined and related to each other by law and the fiscal equilibration system. Moreover, there are other institutions linked to the public sector - in the understanding of the European System of Economic Administration (ESVG 95) - such as certain associations, (pension) funds, social security institutions etc.

The complex system of the public sector with interrelated tiers of public administration and further institutions

But not only public institutions themselves are related to each other also different environments play a vital influential role. Public administration happens in the context of the globalisation. It has to deal with changes in society with its beliefs, values, or technological changes – for example by the means of mobile communications or the internet etc. But also the economy, the power of multi-national companies, or the shift of attitude towards climate and environmental issues in Europe are strong forces.

External influences on public administration



Source: See Schedler/Proeller (2003), 21

All these public administrations are in principle organised by the Weberian principles of bureaucracy, such as clear rules and a strong hierarchy which are the main steering elements. Among others formalism, written documents and life long tenure of civil servants with defined wage and career schemes are

Max Weber as the "father" of the traditional organisation of public sector institutions

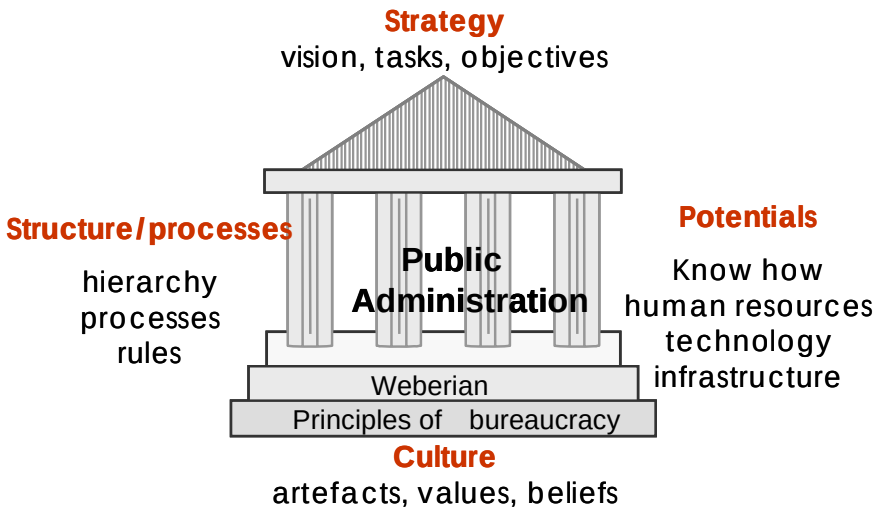
Parkinson's Law

Internal complexity

Differences between public and private sector

further elements (Weber (1972), 551-579) which had its positive intentions but made the system itself slow and cumbersome. The unique structure of incentives (there is no link to the actual performance) and the steering by yearly budgets lead to an accumulation of personnel independent of a real necessity by growing tasks. The so called "Parkinson's Law" (Cyril Northcote Parkinson, 1909-1993) deals with this aspect, defining a theorem of "work expands so as to fill the time available for its completion." These aspects are part of the critique and therefore, part of the reasons for changes and reforms, discussed later on.

Internally the organisation is strongly characterized by its culture, its strategies, its structures and processes and last but not least its potentials. Again, depending on the field of policy (defense, education, environment etc.), it varies a lot.



Source: See Schedler/Proller (2003), 35

Other than in the private sector, all actions in public administration need to be based on law. Further distinguishing features are

- the strong hierarchy in a monopolistic environment
- a rather static attitude towards changes in a rather dynamic environment
- the personnel system with tenure, fixed career and wage schemes
- the financial system with a strong focus of cash flow and liquidity but not on further information such as an accrual accounting,
- in most cases "customers" have no other choices

Even though there is some room for improvement, both the public sector and

the state are necessary. The upcoming questions are

- How shall they be organised?
- How do they suit the current and future challenges best?
- How do they need to be changed and reformed?

Public sector and the state are necessary

This is where the idea of management comes into the public sector. While "administration" is tending to show a rather reactive, passive behaviour (to do things that are said to be done in a defined manner), "management" is associated with a more active and even proactive, innovative way of doing things.

Administration vs. Management

1.3. Public Management

Management is like "...the art of getting things done through people," said Mary Parker Follet. Management has to do with people and it is not always straight forward to bring into reality what is planned to (= organizational goals). There is no such a thing like "one-recipe-that-works-for all". But still a lot of different tools and instruments can be identified to help attaining the organizational goals in an effective and efficient manner through

What is management all about?

- Planning
- Organizing
- Leading and
- Controlling

organizational resources. These four functions are forming a cycle linked with feed-back and feed-forward information and communication lines. Various input factors are transformed through management processes in the whole organisation to the desired output which should generate the intended effects in the society.

Management cycle

Source: Cecon

Public management

The concept of management originated in the private sector but is also applicable to public sector institutions. Bringing the idea of "management" to the public administration a shift of thinking and in the perception is needed. Public administration is no longer exclusively a "passive institution" but becomes then active, innovative and aware of its visions, goals, processes, customers and so on.

An example – student grants

For example student grants: money is provided to help students financially to go to university. The graduates are the desired outputs which are then powerful human resources for the whole economy. The whole system of grants needs to be "managed" in the public institutions starting from planning the organisation, the resources, the personnel etc. to actually implementing the plans which also needs empathic leadership and finally the control of activities. The latter one should not only include an ex-post control but also ex-ante information, forecasts etc. which will again be vital for further planning.

Changes lead the way to reforms

Even though management can be applied to the public administration, it is necessary to adapt the tools to its needs. Furthermore, as time changes the priorities, means and goals of public administration are changing too, leading to the necessity of change. Changes made in a concerted, intended manner yield to reforms.

1.4. Points of Discussions and Further Questions

- What picture do you have in mind about "public administration"?
- How is the public sector organized in your country?
- How did the public administration develop and change during the last couple of years?
- Who are important persons, think tanks, organisations etc. influencing the public administration?
- What picture do you have in mind about "management"?
- Do you have any experiences with public administrations?
- Do you have any experiences with management?

Summary:

State and public administration are vital institutions in our society. Public sector is highly complex with numerous institutions, actors, tasks. As part of the executive branch public administration is strongly law-based with various distinguishing features in comparison to private sector. Throughout its long history there are nowadays tendencies to include ideas of management.

We-Go
Enhancing Western Balkan
eGovernment Expertise

Course M1/O1 : "New Public Management"
Lecture Notes

2. Reform

2.1. Concept and Definitions

Change is the only constant in life.

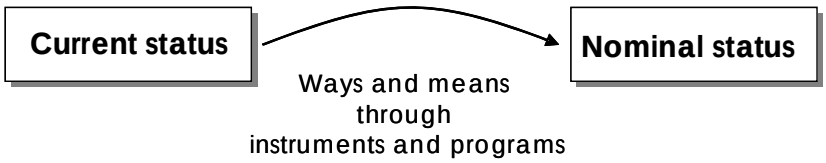
Changes are something normal in daily life. While some changes are happening gradually, slowly and remain almost unconsciously, others are dramatic and radical like an earthquake. Changes can be voluntary or mandated.

Reform: deliberate changes with the goal of improvement

The latin root of the word reform "reformare" means "to shape or form again". It indicates a transformation of something already in existence and it hat to do with active and deliberate changes. It is nothing that just happens accidentally but it is planned. The reasons why something needs to be reformed can be multiple; those for public administration are discussed in chapter 2.2. The overall goal is always an improvement of a current situation, a process, a result.

Move from a current status to a desired nominal status in the future

Changes are then needed if there is a gap between the current state and the future state or a desired state to be.



Source: Cecon

It is always easier to change if there is a valuable reason *and* a valuable goal!

If the current situation and its continuation will not lead to the aimed goals then there need to be a change of the current actions, organisation, processes etc. In order to reach the goals different instruments and programs will be of help. Their choice depends on the starting point and on the pursued goals. These three steps - **unfreeze – move – refreeze** - are also formulated by Lewin referring to organizational change.

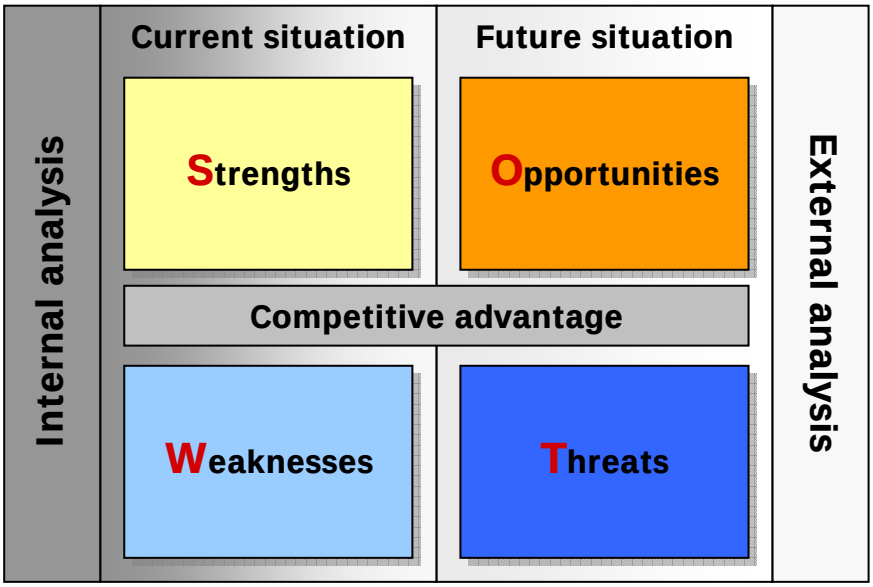
Lewin's 3-step-change model

Unfreeze the current state

To **unfreeze** a situation it is necessary to become aware of the ongoing processes, the existing structures, the working culture, influencing factors and so on. Therefore, first of all, a sorrow analysis is useful. A convenient instrument is the so called SWOT analysis identifying all current strengths and weaknesses as well as future opportunities and threats of an organisation. Together with a PEST analysis (political, economic, social and technical aspect)

of the environment it helps defining competitive advantages and setting priorities.

Getting to know the current picture of the situation with a SWOT analysis



Source: Cecon

Moving towards a desired state by the help of programs, instruments, tools

In some cases the pressure to change needs to be severe enough to actually **move**. It is comparable to changing habits, for example to quit smoking. For most people it is quite hard. The ways how to become a non-smoker are multiple, like a strong will borne by a careful and leading decision, external help by coaching, courses, or supporting substitutes like chewing gums, plasters etc. In any case the time of change is not very comfortable or pleasing but for the desired result it is still worthwhile.

Change can be painful – but it is worthwhile for the better

The same is also valid for an organisation or an institution, esp. when it is as complex as the public administration. Change is not enjoyable, causes pain, uncertainty, maybe fear or even resistance. The applied and supporting instruments may be different and sometimes also external advice is needed. Some selected instruments are presented in chapter 3.4. Despite of all the hassles change still worthwhile for the overall better condition aimed for in the future.

Refreezing means stabilization

The third step has to do with **refreezing** the new desired situation, organisation, process, culture and so on. Some possibilities might be for

after changes

example appropriate incentives, supporting structures or the role model of key persons. Overall, it helps to create stability after the time of changes and prevents from falling back to the so called “beaten tracks”, meaning the old routines.

Sustain a flexible mindset

Refreezing doesn’t mean that the new state will be carved in stone. On the contrary, in face of achieved goals and desired states a flexible mindset with the awareness for necessary changes should be sustained.

2.2. Reasons

The above mentioned model of change is always easier to follow, whenever there are at least two preconditions coming together:

Knowing why you want to change is a precondition for a successful change

- First of all, a good reason to reform helps to abandon the status quo.
- Second, a worthwhile goal motivates to keep going and overcome challenges on the way (chapter 2.3).
- It is even better when there are strong promoters for the reform.

A selected list of possible reasons especially valid for the public sector is summarized in the following chart.

Selected reasons enhancing change in public administration

Source: Cecon

Financial pressure and public debt restrained the scope of activities

The main reason for reform is a lack of finances. Starting with the oil crisis in the 70s and weak economic performances the financial situation of a lot of countries worsened. Huge deficits and growing public debts increased the pressure. The Maastricht Treaty (1992), defining the convergence criteria such as public deficit, debts, inflation and interest rates which became obligatory for members of the European Union adopting the Euro in a three step process during the 90s, again put pressure on the public administrations.

European Currency Union and Maastricht criteria

Technological changes open up new vistas

Technological changes, especially information and communication technology, opened a new way of doing business which is also true for the public sector. In most cases it is not sufficient to electrify the status quo. Moreover, new

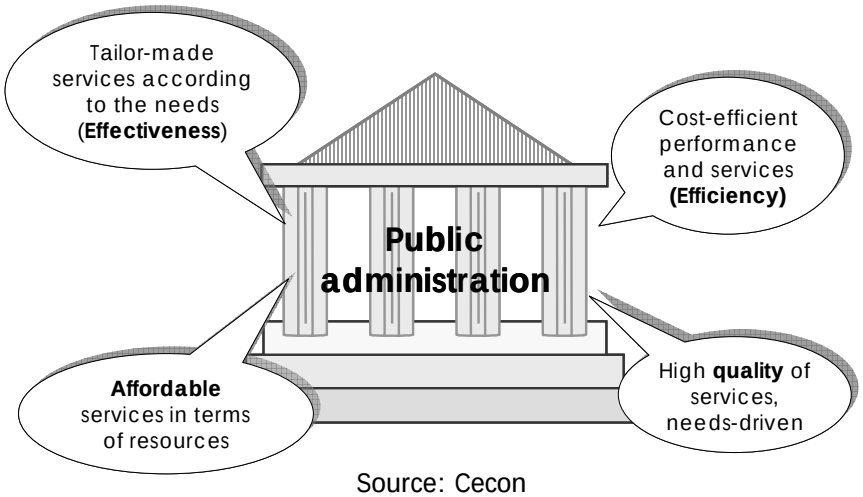
Transfer of know-how and theories to the public administration	qualifications are needed to handle new technologies. Not only technical changes are influential but also new methodologies and theories of management.
Economic changes and globalization challenges the role of the public sector	Together with the fast developments in business which become more and more globalized the dynamic and complexity rose dramatically. Whenever the pace of external changes fastens it leaves its traces also in the public sector, because an efficient public environment plays a vital role in (international) competition. Accompanied by economic developments the role of public administration in service delivery is in question. Private sector takes on certain tasks and provides former public services. These new relationships between public and private sector as well as non-profit organizations, forming a network which differs from the hierarchy-dominated steering model of public administration, are challenging as to find appropriate solutions for any upcoming issues.
Networks and communication with stakeholders are contrary to hierarchy	
Altered values reflect a change in life style and brings up the idea of "customers"	Throughout the last decades the society and its agreed beliefs and values altered based on a changed way of living with more leisure time, higher level of education and instant communications. A move towards individualism, mobility, flexibility, and more autonomy can be identified in most western countries. Public administrations are challenged to meet the new needs and to change their points of view towards a valuable "customer".
Politics and public administration struggle with mistrust and sullenness	In consideration of the fact of the rather poor image of public administration and politics, a lack of trust and a growing pessimistic attitude can be identified. Stereotypes of lazy civil servants and an outdated, bureaucratic public administration reinforce the sullenness. Further challenges are the political development, such as the expansion of the European Union.
Combination of reasons and weaknesses opened a window of opportunity for change	To sum up, the combination of all the above mentioned aspects, especially the criticized lack of performance, modernization and financing as well as further dysfunctionalities create a pressure to reform and opened a window of opportunity for change. In the western democracy these processes started in the 80s. For the Southern and Eastern European countries public management reforms started later after the breakdown of the communism.
	2.3. Objectives
Change for changes sake is not worthwhile.	Even though there might be a whole bundle of reasons to reform it is essential to have a clear goal. It is not only important to know where to come but also to know where to go. How should public administration and its services be alike? What is envisaged objective? The clearer the understanding about the future is the better for a sustainable lasting change. It is necessary to think the

impossible, to be open to new ways and results.

A new picture of the public administration

Part of this vision should be a modern, new type of public administration that provides its services in an efficient, effective, affordable manner and in the top quality, like its customers wish to be. This implies an administration that is open to management ideas and an anticipatory approach.

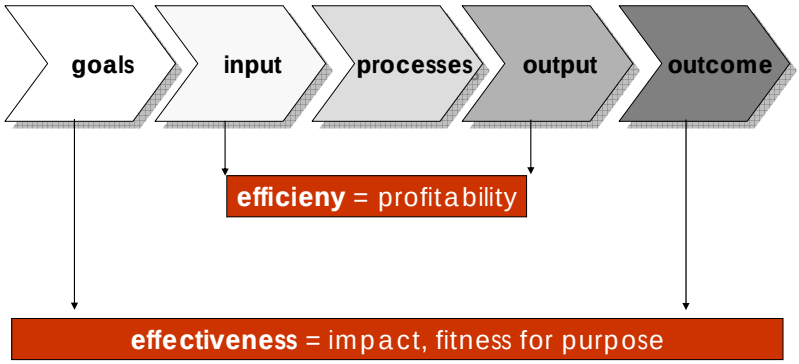
A new vision of a public administration meeting the expectations of effective, efficient, affordable and qualitative public service



Source: Cecon

Efficiency and Effectiveness as guiding measurements

While efficiency deals with the idea of "doing the things right" which is rather process-oriented and focuses on input and output relations, effectiveness is a step ahead defining the "right things to be done". It is a rather strategic approach, interested in the provoked outcomes and impacts in society.



Source: Cecon

Setting priorities and taking into account affordability

Both measurements reflect the importance to use resources (personnel, finances, infrastructure, know-how etc.) in the best possible way for the best purpose which is socially agreed on by democratic legitimisation. Setting priorities between rival interests must take into account the affordability.

Customers are kings – also in the

Contrary to traditional public administration is the view on customers. The concept of the customer in a private sector environment is linked to free choice, which is not the case (at least in most cases) in a public sector environment. But still the idea of fulfilling the needs of the customer's best can be applied. Therefore, it is necessary to know

public sector

- Who is the customer?
- What are the needs of the customers?
- What is the level of quality of services expected?

Answering these questions is the starting point to make efforts to meet the needs as good as possible. Already very easy and cheap measures help realizing the idea of a well treated customer, such as a friendly smile of the clerks.

Quality-orientation concerns the whole public administration

The vision of a customer-oriented public administration is closely linked to a qualitative service delivery. In order to do the whole organisation is in charge, people as well as processes, structures as well as strategies, soft facts as well as hard facts. It needs to be a common endeavour to achieve the set goals.

Is such a public administration a dream? There is still a long way ahead to fulfil this vision completely, but the most important point is the first step – courage to change.

2.4. Points of Discussions and Further Questions

- What is your experience with change in the professional environment?
- Who did initiate a reform (person, stakeholder, bottom-up or top-down, role of the media etc.)?
- Why was it done (reasons, objectives)?
- How was it done (instruments, measures, time frame etc.)?
- Why have these instruments been chosen (underlying theories, external and/or internal expertise/promoters, past experiences etc.)?
- Which problems appeared and how have they been solved?

Summary:

Reform is more than an accidental change; it is a deliberated process with the clear objective for improving the current situation. Efforts of change are most successful whenever there are some good reasons to reform, whenever there is a worthwhile, motivating goal and whenever there are strong promoters for these actions.

3. New Public Management as a Reform Framework

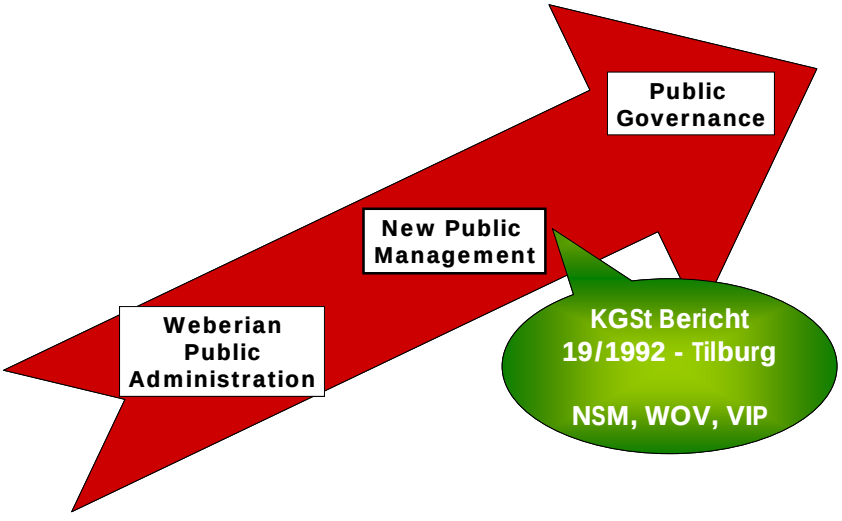
3.1. Concept and Definitions

In the 80s a new framework of reform evolves first in the anglo-sachsen world swapping to mainland Europe in the 90s

How public administration is reformed depends on the underlying ideas and values. In the early 80s the concept of "New Public Management" evolved internationally starting in New Zealand, Australia and the United Kingdom. Later main ideas spread also around to mainland Europe. For the Southern and Eastern European countries NPM became an important topic only after the breakdown of communism.

In Austria the evolution was strongly influenced by the experiences in Switzerland (Wirkungsorientierte Verwaltung, WOV) and Germany (New Steering Model, NSM) which themselves got influenced by the so called Tilburg model (Netherlands). The latter one became popular by a report published by the Kommunale Gemeinschaftsstelle (KGSt) situated in Cologne. Current tendencies include further principles which might be summarized by the concept of "public governance".

Main steps in the predominant view of the public administration



Source: Cecon

What is NPM all about?

What is New Public Management (NPM) all about? There are many definitions, many different focuses and therefore, it can be seen as a rather broad reform paradigm, establishing a new way of thinking. Public administration is seen as a „service-oriented enterprise". Change of public sector institutions aims at customer-oriented service units, focused on outcome instead of input. (Hablützel, 1995, 142)

A very general definition is provided by Pollitt/Bouckaert (2004, 8) with „... public management reform consists of deliberate changes to the structures and processes of public sector organizations with the objective of getting them (in some sense) to run better."

3.2. International NPM experiences

International reform framework allows different trajectories, paces and priorities

The vague definition is advantageous as it allows defining ones goals and priorities depending on the starting point. Means and measures vary and relate to the organisational characteristics. Neisser/Hammerschmid called it a sensitizing framework that is able to connect to other concepts and reform ideas as well as it is sensitive toward the internal and external realities.

Experiences can be classified in four categories

This type of openness explains different reform trajectories which can be identified internationally. Pollitt/Bouckaert, 2004, defined four categories of NPM reforms referring to used instruments and underlying point of views of the public administration and the state.

Maintainers

- Maintainers: The role of state and public administration is strong and not under discussion. Instruments of reforms are streamlining instead of radical restructuring, rationalisation and deregulation.

Modernizers

- Modernizers: An integrative, positive role of state is also predominant, but the focus lies on management tools used in financial management, human resource management, customer participation and quality management. Rather technocratic Southern European countries focused more on structures and processes whereas egalitarian Nordic countries stressed decentralisation, customers and quality issues.

Marketizers

- Marketizers: There is a pessimistic view on public sector and state. The idea of market and competition is highlighted, to enhance efficiency like in the private sector. Instruments are for example public-private-partnerships, outsourcing, benchmarking, internal markets and so on. It goes back to the origins of the idea of NPM.

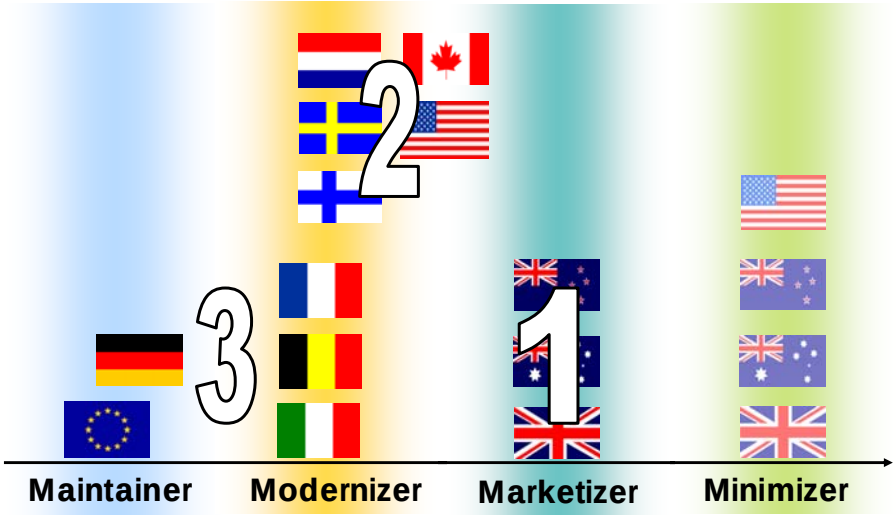
Minimizers

- Minimizers: follows the idea of an almost non-existing state, reduced to functions of security. It would strongly emphasis privatisation and competition. In reality is has not been implemented completely but tendencies can be find in the Anglo-Saxon countries.

Classification by time and reform category

The following chart summarised the different countries' approaches and the numbers are the chronological order when it happened. Canada and the US are hard to categorize, as there are both strong elements of market as well as management. Austria which is not included started on the maintainer's approach but focuses more and more on management tools and can be classified as a moderniser.

Austria started as maintainer but can be classified as a moderniser nowadays

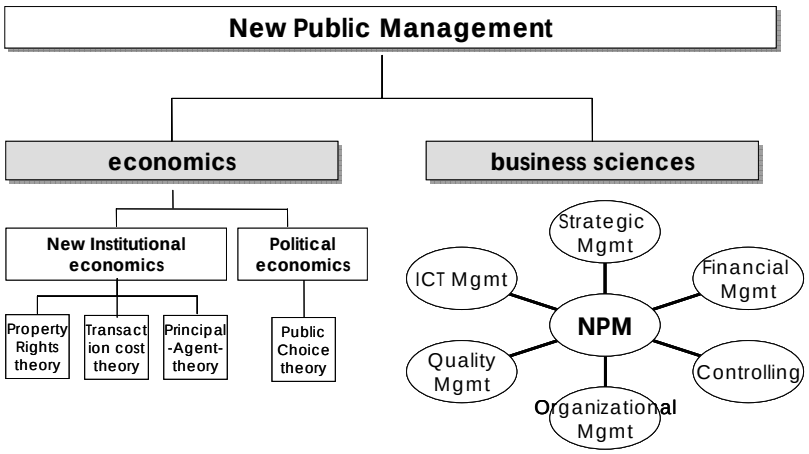


Source: Cecon

3.3. Underlying theories

Theories of business administration and economics influenced NPM

Internationally known to modernise the state and its institutions based on business sciences and economic know how in order to "getting things done better and for less". Besides all types of theories and instruments used in business administration (organizational theories, strategic management, change management, controlling, etc.) which need to be adapted to public sector needs, a strong influence comes from economics, especially the new institutional economic theories.



Source: Cecon, 2006

Property Rights	– Property Rights: The theory assumes that property rights offer incentives to efficient service provision. In practice it can be implemented by decentralisation of competences and resources on levels closer to the customers.
Transaction Cost Theory	– Transaction Cost Theory: The costs of control, coordination and preparation of a contract are called transaction costs, which are often not taken into account. They need to be added to the pure production costs. Coase and Williamson are the founders of the theory which is used for analysing contracts, decisions whether to produce services in-house or not. Strategic relevance, specialty and efficiency need to be taken into account. For NPM it is valuable in terms of creating a competitive environment.
Principal Agent Theory	– Principal Agent Theory: The problem between principal and agent arises due to information asymmetries and moral hazard. The agent acts opportunistically against the interest of the principal. Applied to the public administration the problem can be seen between politic and administration as well as top level administration and operative level. Reporting and controlling instruments as well as appropriate incentives shall help.
Public Choice Theory	– Public Choice Theory: Niskanen and others claim the inefficiency of the public sector due to missing choice, monopoly structures and huge organizations. Furthermore, civil servants are operating on individual interest instead of the public one. As remedy public choice suggests competition and market, smaller structures and performance measurement.
Orientations are reflecting the NPM objectives	## 3.4. Main Orientations and Instruments NPM aims at a qualitative, efficient, effective and customer-oriented service provision. These objectives are expressed by the main the orientations.
Output and outcome orientation	– Output and outcome orientation: instead of steering by budgets and other input factors, the reference point of decision making should be desired outputs and outcomes to the society. Starting the process with outcomes needs a clear conception of results, which should be described qualitatively and quantitatively by a set of indicators helping to evaluate the achieved performance. In order to do so, a profound task review is necessary. The then remaining tasks are bundled into services which are addressed to customers (so called products). Management by Objectives and performance agreements together with global budgeting are the means of choice to implement an output orientation. It also implies to free the public manager to manage,

Customer orientation

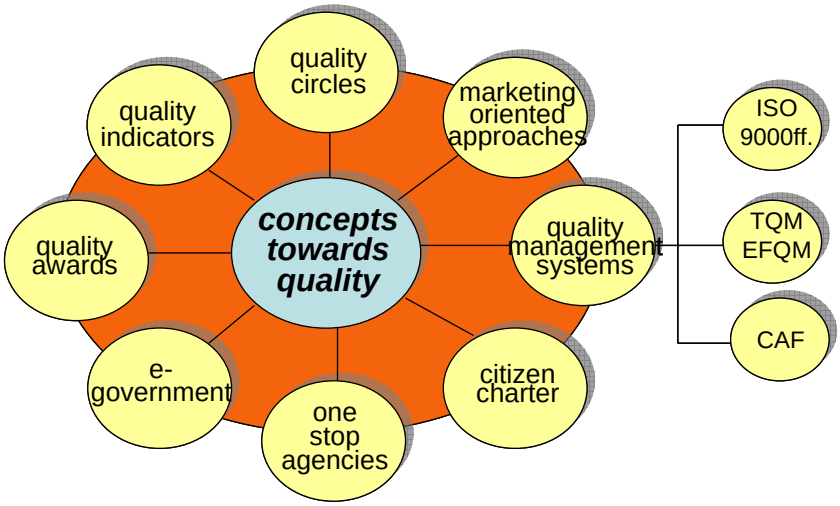
meaning that competences, tasks and responsibility for resources are given to the managers. This type of decentralisation needs to be combined with appropriate instruments of reporting and controlling. Important prerequisites are trained employees and a culture of trust.

- Customer orientation: There is a shift of focus from a mandatory solicitant, tax payer and so on to a customer who claims a service provision and treatment like a voluntary customer in private sector environment. It has to do with customer-oriented service provision, opening hours of offices that are convenient (instead of 9 to 5, for example also one "long evening" per week), a friendly atmosphere also meant in the architectonic sense. Regular surveys help to find out what customers really want.

Quality orientation

- Quality orientation: Quality is a broad concept relating to the fulfilment of expectations and needs, but it differs depending on the perspective. Therefore, it is necessary to clarify the point of reference.
  - Is it a customer?
  - Is it a process?
  - Is it a structure?

  Met expectations help to create a positive image and customer satisfaction. In some cases it might even cause excitement. Motivational theories (Maslow's needs pyramid, Herzberg's factor theory, McGregor's X-Y-theory, ice-berg theory etc.) can explain what happens in the individuals and groups. To name but a few instruments of quality the chart below is provided.



Source: Cecon

- Market orientation: "Competition is the oil that makes reforms run." It follows the idea that not everything needs to be done exclusively by the state. Private sector should do what they can do best or better than

Market orientation	the public sector. This means that competitive tendering, privatisation and outsourcing are common instruments. Furthermore, in areas where market competition is not possible surrogates such as benchmarking, internal markets or cost transparency may lead to the same results in the sense of creating a competitive environment and promote an entrepreneurial way of thinking.
Some hints that should be taken into consideration **Public Governance**	**3.5. Success Factors** In order to make NPM reforms successful experiences showed that every experience is unique. Nevertheless there are some general aspects which should be taken into consideration: – Involve people: As reforms always have an impact on people (their routines, habits, tasks, positions, responsibilities) it is necessary to create a feeling that "we are all in the same boat". Well done information and communication helps to motivate people, to win employees over the ideas of change, to defuse fears and so on. – Encourage people: change involves always some risks. It is necessary to encourage people to get active for a better future, process, organisation and so on. Taking their ideas seriously and letting them participate gives the possibility to grow with new tasks. – Support by the top management and key players: Having the support of politics and top level management creates a reform friendly environment. A tight information strategy promotes the necessary mutual trust. In most cases it implies that it is the politician who gains positive reputation with successful projects. Sometimes it is important to involve the media. – Strategic and holistic approach: Know about your vision, goals and objectives. – Celebrate successes: A sorrow project management with milestones gives some possibilities to celebrate small partly results. It helps to strengthen the motivation and to overcome times of problems. This type of piece-meal process towards the achievement of a long-run goal prevents to lose the sight. – Mutual learning: It prevents from "re-inventing the wheel" and makes reform efforts transparent. Mistakes do not need to be made again and successful programs can be a vital starting point.
Cooperation and mutual learning	**3.6. Future Developments** NPM is not the latest and only concept in the field of reforms but for sure the most widespread one. For instance the concept of "Public Governance" takes

into account some aspects that are not sufficiently covered from a practical point of view such as the complex relationship between politics and administration. There is even a stronger focus on customer and their involvement, meaning that there is not only an "orientation" towards customers but an active participation. More important than output are outcome and impact in the long-run to pay attention to sustainability (economical, social and environmental).

Moreover, the aspect of cooperation and mutual learning gained importance after years of a strong competitive focus. Best or good practice circles, innovation platforms and various awards aim to spread working models more effectively. Learning from each other needs a learning organisation with an adaptive culture and openness to exchange ideas.

3.7. Points of Discussions and Further Questions

- Is NPM known in your country?
- What advantages/disadvantages do you expect?
- What models of implementation do you think are appropriate?
- What are the new aspects compared to former reforms?

Summary:

NPM is an international reform framework which was followed on a different pace and with different priorities. It focuses on customer, quality, efficiency and effectiveness which are the main orientations. The underlying theories are private sector models and management theories as well as economic theories. Instruments vary a lot and are linked with the orientations.

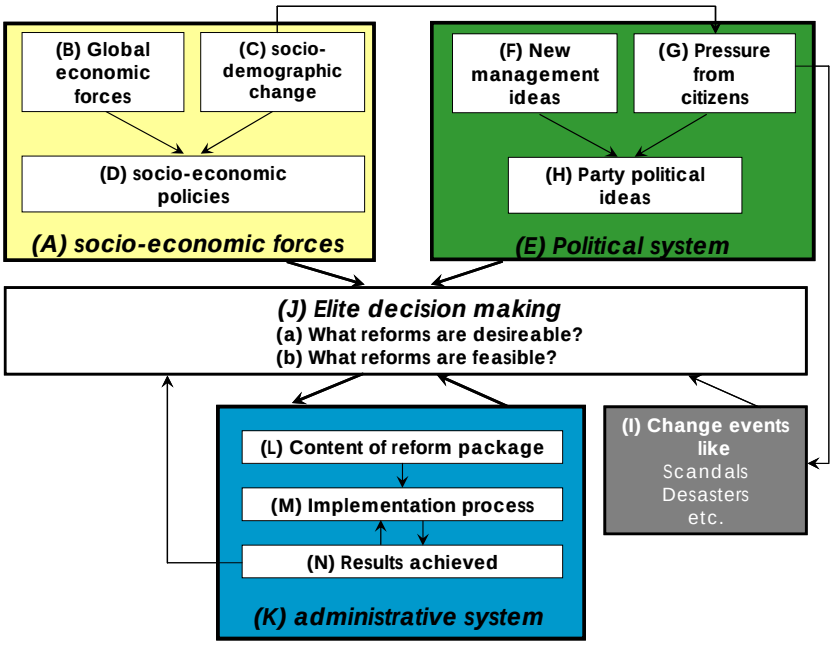
4. New Public Management in Austria

4.1. Austria at a glance

The NPM framework predominated reforms in the last decade

NPM is an international reform framework which also took place in Austria. In order to understand the reforms undertaken and still on the way it is important to know the country. For a more systematic introduction the model of public management of Pollitt/Bouckaert is used.

Austria analysed by the public management model of Pollitt/Bouckaert



Source: Pollitt/Bouckaert, 2004, 25

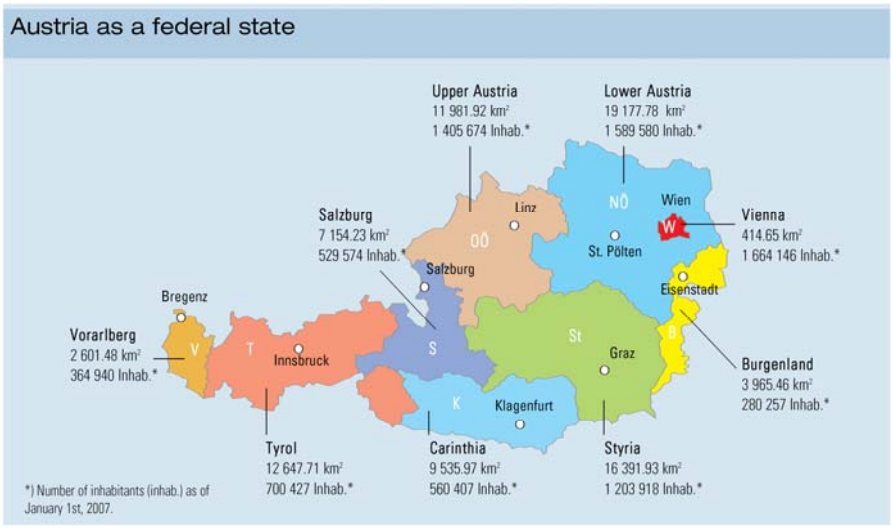
Small republic in the heart of Europe

Located in the middle of Europe, Austria has a land area of about 83.9 km² and almost 8.3 million inhabitants, bordering with Germany, Liechtenstein, Switzerland, Italy, Slovenia, Hungary, Slovakia and the Czech Republic. It is a federal republic and a representative parliamentary democracy. The administrative system is characterized by the separation of state powers between the federation (Bund) and the provincial governments (Länder). Including the local level, there are three tiers of government:

Three tiers of government form a decentralized administration

- 1 federal government (Bund);
- 9 provincial governments (so called Bundesländer): Vienna (which is both, province and municipality), Lower Austria, Upper Austria, Salzburg, Tyrol, Vorarlberg, Styria, Carinthia and Burgenland;
- 2,357 local authorities (Gemeinden) with an average size of 3 000 inhabitants.

Austria is a federal republic with nine diverse provinces



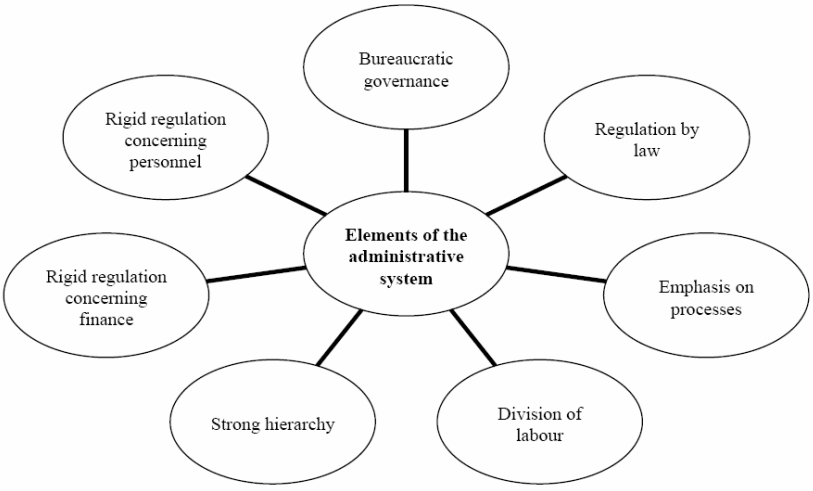
Source: Statistik Austria, 2007, URL: http://www.statistik.at/web_en/static/austria._data._figures._facts_029252.pdf, 9 [Download: 31.03.2008]

Constitution and law are playing an influential role for public administration

The Austrian administrative practice is characterized by a strong legalistic approach – the so called Rechtsstaat – with constitutional protection, both for all tiers of government as well as for civil servants. The particular features of the Weberian public administration are essential to the Austrian administration, such as bureaucratic governance, emphasizing input-oriented processes instead of output and outcomes. Moreover, it is dominated by a high degree of horizontal and vertical division of labour and by a strong hierarchy as well as rigid legislative regulations concerning finance and human resources. The latter is finding its expression in lifelong tenure, little or no workplace mobility and promotion mainly based on seniority. These features of the Austrian administrative system are depicted in the following figure.

Administrative system is strongly based on the management ideas of Max Weber

Characteristic features of the Austrian public administration



Source: See Promberger/Rauskala/Cecon, 2004, 4

Impressive size and importance of the public administration

Austria is characterized by a large public sector with up to 384 000 employees (full time equivalents, FTE) in total in the public administrations. Not included are employees of social security agencies which form part of the public sector. In the federal civil service, i.e., in the ministries and the authorities, offices and other administrative bodies subordinated to them, there were 133 287 civil servants (FTE) at the end of 2005. In all nine provinces 180 500 employees (FTE) were counted in total and the public service on the local level summed up to more than 70 000.

At the federal level the general administrative service is the largest professional category with more than a third (37%), followed by teachers (27%), law enforcement personnel (22%), and the military service (11%).

Number of employees in public services categorized according to their activities

Number of employees in public service

Federal public service	Employees	as %
General administrative service	49 310	37.0
Teachers	36 026	27.0
Law enforcement	29 244	21.9
Military service	14 841	11.1
Judges and public prosecutors	2 333	1.8
Civil servants in the health service	200	0.2
School and specialist inspectors	393	0.3
Others	939	0.7
Total	133 287	100.0

S: Federal Chancellery. Employees as of December 31st, 2005 (full time equivalents); rounding difference.

Public service total	Employees
Federal government	133 287
Länder	180 500
Municipalities	70 400
Total	384 187

S: Federal Chancellery. Employees (full time equivalents). Federal government: December 31st, 2005; Länder, municipalities (without Vienna): December 31st, 2004.

Source: Statistik Austria, 2007, URL: http://www.statistik.at/web_en/static/austria._data._figures._facts_029252.pdf, 97 [Download: 31.03.2008]

In Austria one out of eight employees is working in public administration

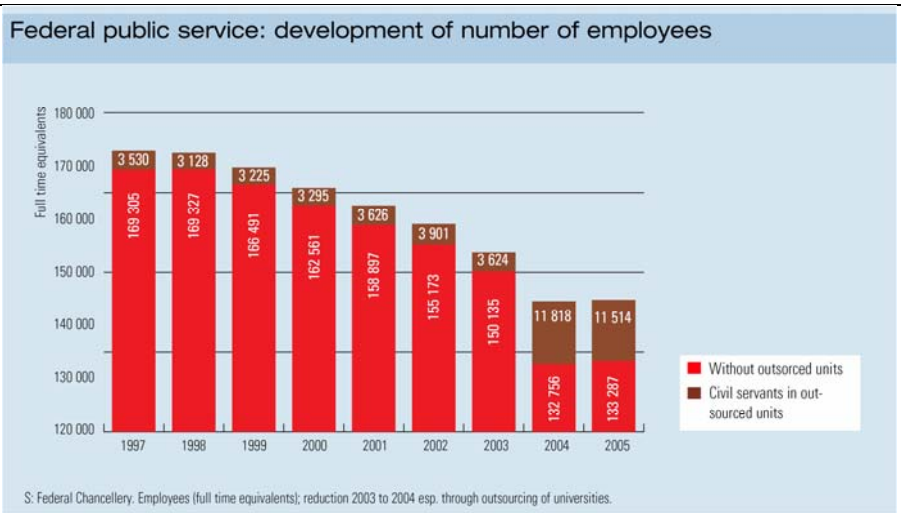
In addition to the 384 187 FTE, there were 11 514 federal public servants in outsourced units. In total the size of the Austrian public service sector counts for a fraction of 12.8 % of the total employment. This is below the average of the European OECD member state (16.9 % in 2004) (Federal Chancellery, 2006) but still considerable and a highly important economic factor.

Considerable reduction of civil servants during the last decade due to reforms and outsourcing

In the past decade the number of civil servants diminished considerably due to two main aspects:

- Firstly, because of governmental reforms (especially with the help of e-government) and a rigid policy to re-staff certain positions.
- Secondly, because since the mid 1990s there have been some tendencies to outsource certain units. In 2004 the universities became autonomous and therefore there is a steep increase from about 3 600 to close to 12 000 FTEs.

Efficiency gains and outsourcing made it possible to handle the workload even though with a rigid stop for new employees



Source: Statistik Austria, 2007, URL: http://www.statistik.at/web_en/static/austria._data._figures._facts_029252.pdf, 97 [Download: 31.03.2008]

Distinctive "Austrian" features of the political system

Traditionally, the Austrian political system has shown unique and in its intensity distinctive features, even though there have been some changes in the 90s:

Rather stable "grand coalition"

- An unusually stable two party government (centre-left, "grand coalition" between the conservative People's Party and the Social Democrats), which was interrupted with the government participation of the Freedom Party from 2000 to 2007.

Social Partnership – Austrian neo corporatism

- The overriding principle of the so called "Social Partnership" as a strong social and political stabilisation factor, known as neo-corporatism. It harmonizes differing interests of employers (industry, businesses) and employees and translates them into policies. It is supported by the party system as many of their leaders are also members of parliament and occupy important party functions.

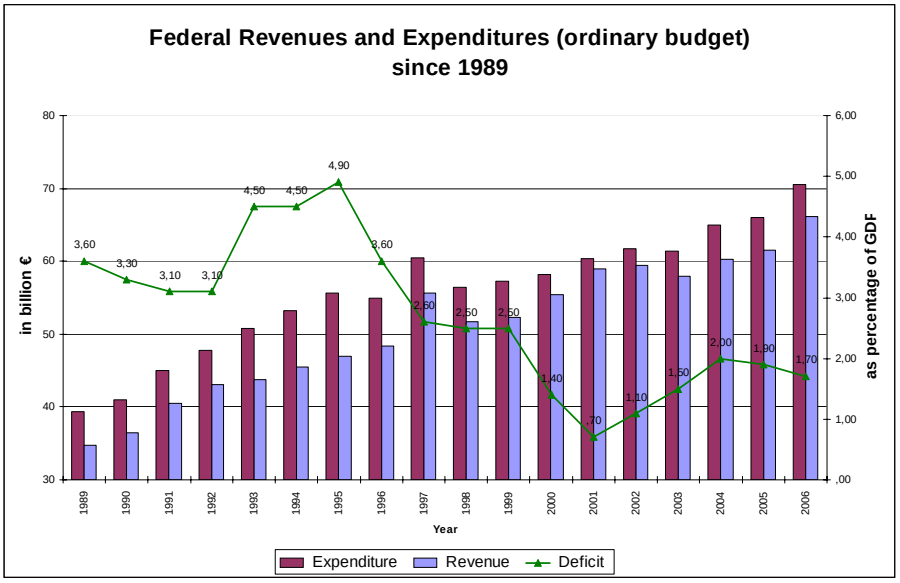
Proportionality system

- The so called "Proporz system", which means that the major political, administrative and economic functions are distributed proportionally according to political strengths of the parties. Most positive effect of this proportional representation has been the political stability and governability of the country. Compromise, mutual concessions and consensus among the elites have determined the political culture and influenced decisions concerning public management reforms.

Membership of the European Union in 1995

However, the joining of the European Union in 1995 had significant influence on the political and economic environment – though not resulting in major changes of organisational structures; it still put considerable pressure on the need for severe budget consolidation programmes and structural adjustments. This was and still is especially true for the federation, while provinces and most municipalities show small surpluses or balanced budgets. The development of public deficit at the federal level is shown below.

Public finances and debt development since 1989



Source: Statistik Austria, 2007, URL: http://www.statistik.at/web_en/wcmsprod/groups/zd/documents/statueb/027615.pdf, [Download: 31.03.2008].

Government deficits and debt have been a problem

The chart shows that Austria has a tradition of deficit spending, which slowed after the millennium. Not only government deficit and debt have been a problem in the past, also the tax ratio has been very high in the international context and in comparison to the EU average. For this reason, down-sizing programmes have been popular. The table below provides an overview of the development of the contribution of taxes to general government funding and other fiscal indicators from 1995 to 2007.

Development of fiscal indicators

Reference period	Gross value added	Taxes and soc. contrib. [1]	Revenue [2]	Ex-penditure [2]	Net lending / borrowing [3]	Deficit [4]	Debt [5]	Compen-sation of employees	Final con-sumption expenditure	Gross capital formation
	as percentage of gross domestic product (GDP) [6]							as percentage of the respective main aggregate of national accounts		
1995	14.9	41.3	50.2	56.1	-5.8	-5.7	67.9	23.4	26.4	12.9
1996	14.6	42.7	51.4	55.5	-4.1	-3.9	67.6	23.4	25.9	12.3
1997	12.4	44.1	51.3	53.3	-1.9	-1.8	63.8	21.9	25.1	8.5
1998	12.2	44.1	51.1	53.5	-2.5	-2.3	64.3	21.7	25.4	7.9
1999	12.1	43.7	50.8	53.2	-2.4	-2.2	66.5	21.7	26.0	7.3
2000	11.7	42.8	49.6	51.4	-1.8	-1.7	65.6	21.3	25.1	6.4
2001	11.1	44.7	50.7	50.8	-0.2	0.0	66.1	19.2	24.8	5.1
2002	10.9	43.7	49.7	50.5	-0.8	-0.6	65.9	18.9	24.8	6.1
2003	10.9	43.4	49.4	50.9	-1.5	-1.4	64.7	19.0	24.8	5.4
2004	10.6	42.9	48.8	52.7	-3.9	-3.7	63.8	18.9	24.7	5.1
2005	10.6	42.2	48.1	49.7	-1.6	-1.5	63.5	19.1	24.8	5.4
2006	10.6	41.8	47.6	49.2	-1.6	-1.5	61.8	19.2	25.0	4.7
2007	10.3	41.9	47.5	48.2	-0.7	-0.5	59.1	18.8	25.2	4.8

S: STATISTICS AUSTRIA. - 1) Taxes and actual social contributions (revenue of sector government and EU). - 2) Revenue and expenditure of sector government (federal, state and local government and social security funds) according to regulation (EC) No. 1500/2000. - 3) Revenue minus expenditure of sector government. - 4) Fiscal indicator in the context of the excessive deficit pProcedure, reference value 3% of GDP. - 5) Fiscal indicator in the context of the excessive deficit procedure, reference value 60% of GDP. - 6) As of 16 April 2008.

Source: Statistik Austria, 2008, URL: http://www.statistik.at/web_en/wcmsprod/groups/zd/documents/statueb/027609.pdf [Download: 23.4.2008]

Major changes of traditional political elements

Financial pressures as well as political change have been starting points for comprehensive reform. This can be documented with increasing competition between the political parties and diminishing role of the social partnership as a mediator. In 2000, these developments were further spurred by the incoming centre-right coalition which can be seen as a break with the politics of the past years. Being re-elected in 2003, there was a shift within the coalition from the right to the centre, but in fact there was no return to the former centre-left coalition in spite of greater political upheavals. Since 2007 the "new grand coalition" is in power under the lead of the social democrat chancellor Alfred Gusenbauer.

4.2. Reform History at the Federal Level

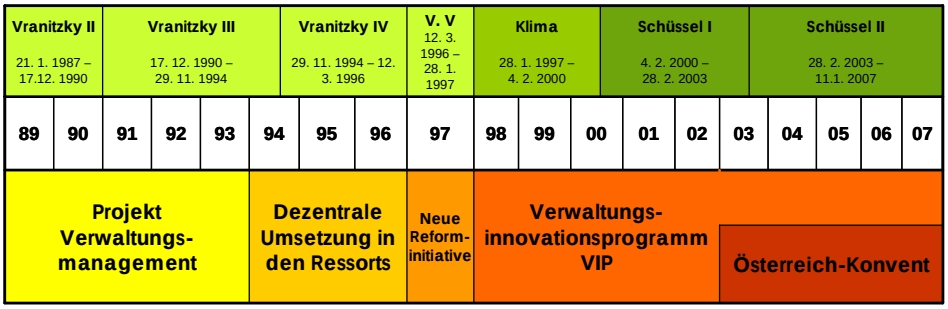
Following the Swiss model "Wirkungsorientierte Verwaltungsführung" became the Austrian version of NPM

Even though public administration reform is nothing new in Austria, the ideas of NPM have only slowly been adopted. Reasons may have been difficulties in transporting the complex concept together with its anglicism. Therefore, the Administrative Innovation Programme (Verwaltungsinnovationsprogramm) at the federal level used the term "Wirkungsorientierte Verwaltungsführung" (outcome-oriented government) of the Swiss public sector modernisation programme to overcome language barriers (Dearing, 2003, 83), though gearing the reform efforts on the themes of NPM (customer and citizen-orientation, output-orientation, quality-orientation and competition).

NPM started in the 90s, initially with a strong focus to maintain structures and processes

Talking with the reform categories of Pollitt/Bouckaert (2004, 98) Austria has been part of the "maintainers" in the meantime it developed further to "modernizers". Although Austria has been slow towards public management reforms and lagged behind the international new public management developments there are considerable initiatives, especially since the 1990s. The following table summarizes the main reform packages using ideas of NPM. It shows that all governing parties have been open for reforms.

Various reform packages in any government



Source: Updated: Promberger/Greil/Simon (2005), 20

Most important: two VIP programs

Since 1997, two main reform programmes have shaped the public administration at the federal level (Verwaltungsinnovationsprogramm, short: VIP):

	– the Administrative Innovation Programme I (December 3, 1997 – June 1999) with a rather strategic orientation and – the Administrative Innovation Programme II (2003 – 2006) with a more operative orientation. Both were based on a holistic approach, relying on the involvement of both politicians and as many staff members from the administration as possible, covering all ministerial departments. The aims outlined in the programme demonstrated that the theoretical and practical debate at the international level on "New Public Management" have influenced the reform objectives in Austria.
Content of the reform package VIP I **Customer in focus by one-stop-shops and e-supported solutions** **Quality orientation and focus on accrual accounting through cost accounting and performance measurement** **Output-orientation by decentralization, MbO and product catalogues as well as efforts to increase transparency** **Professional human resource management provides qualitative, well trained employees**	## 4.3. Reforms in Detail The main points of the first programme included: – Reorientation of the role of the state from a regulator to a modern service provider: Citizen-orientation should not be interpreted as an end in itself, but in the sense that the services needed or required are provided in a way which perfectly satisfies the citizen's needs. VIP was the first to initiate projects with direct benefit for the public at large. Examples are one-stop agencies (e.g. District Police in Liesing, Vienna) or the virtual guide on public authorities at www.help.gv.at. – Annual productivity gains of 2 – 3 % in the administration: In spite of the widening scope of services provided by the public administration and a steady decrease in staffing numbers, public servants have been able to maintain the quality and quantity of services. They have been supported by modern technology as well as by modern management tools such as cost accounting, performance indicators and management control. Federal staffing levels have significantly declined since 1996, as indicated above. – Gradual introduction of output-oriented governance: Output-oriented government includes management by objectives (MbO) - especially successful in incorporated units a - and performance agreements, product catalogues, transparency of costs and services, as well as decentralised accountability for resources. Starting to develop performance indicators has contributed significantly to make government services more transparent. As a result, the first performance report of the federal administration was published in October 1998. – Introduction of efficient human resource management: For the federal administration as a large-scale organisation it is crucial to handle employees professionally. In the course of administrative reform, a large number of measures and instruments have been implemented,

	like the need to change administrative culture and to move employees towards results-orientation. With the participation and contributions of ministries and public service unions, the "Mission Statement for the Austrian Federal Service" was developed within six months. Changes in the payment schemes followed. The ideas was to provide higher salaries at the start of a public service career to ensure fairer and more equitable pay scales (also in comparison to the private sector) and, eventually, lower the number of civil servants with permanent tenure.
Continuation due to successful experiences with the first program	For the objectives laid down by resolution of the Council of Ministers on December 3, 1997 the outcome was encouraging and advantageous for a continuation of the reform directions. Thus, subsequently to the Administrative Innovation Programme I, the Council of Ministers initiated a new phase of the Administration Innovation Programme (VIP II) on July 8, 2003. VIP II sought to realise around 80 projects. A database on the internet helped to evaluate the progress being made. (Dearing, 2003, 84) It aimed for more efficiency and citizen-orientation in conducting administrative action, securing Austria's position as a business location and achieving further spending cuts amounting to a total of € 1.3 billion by 2006 with an elimination of 10,000 full-time equivalents between 2003 and 2006.
Global budgeting, flexibility clause and further roll-out of cost accounting and performance management **Concerted e-government efforts** **Corporatisation and privatisation of selected units** **Quality management**	In pursuing these objectives, VIP II focuses on the following activities: – Combined responsibilities for resources and outcomes: Implementation of global budgets, development of a performance indicator system, and federal cost accounting. – E-government initiative: Expansion of e-government to new areas, drafting a bill on egovernment, ongoing external relations activities, etc. – Organisational reforms: Setting up a central accounting agency, merging the local and federal police, corporatisation of the state universities, etc. – Quality management: Enforcement of quality tests like "mystery shopping" for public authorities, more widespread use of the Common Assessment Framework (self-assessment system), etc. – Continuation of other administrative reform projects: Introduction of SAP and electronic files throughout the federal administration and Flexibility Clause (Experimentation Clause)
Current efforts of reforms – continue the successful way	The current status of federal reform effort continuous the way with a strong focus in quality management, especially the Common Assessment Framework, organisational reforms e.g. with the flexibility clause, e-government where Austria became for the second time in a row European E-government Champion

Successful projects are internationally awarded	(Cap Gemini, 2007). A strong focus is also benchlearning to promote good practice examples and learn from each other instead of re-inventing the wheel. To sum up the Austrian experiences with reforms throughout the last decades have been very successful. A lot of projects have been also awarded nationally as well as internationally for example by the United Nations Public Service Award (UNPSA) or the European Public Sector Award (EPSA), which substituted the International Speyerer Quality Award. Lately Austria is especially strong in e-government. For further details concerning public management reforms and its used measures please refer to Promberger/Rauskala/Cecon, 2004, URL: http://www.verwaltungsmanagement.at/602/uploads/public_management_reforms_in_austria_15-2004.pdf **4.4. Points of Discussions and Further Questions** – Which experiences with NPM reforms exist in your country? – Which elements of the Austrian experiences could be used as a role model (benchlearning)? – What are the starting points, priorities? – How are reforms organised? – Austria takes part in a lot of competitions and awards and is quite successful. What is your position to that possibility? – Are there "windows of opportunities" for improvements in public administration? – What about the people? – What makes reforms really successful? Who defines success? What about its measurability? – To what extent reforms depend on political party ideas?

Summary:

Austrian experiences with NPM started in the 90s and lagged initially behind international reform efforts. In the meantime certain reform packages such as the Administrative Innovation Programme I and II had implemented numerous projects in a concerted and successful way. Awards are confirming the Austrian way which was called "Wirkungsorientierte Verwaltungsführung". Even though there is still potential for further improvement, the federal public administration is nowadays more quality oriented, more out-put oriented, with more efficient structures and processes, supported by cost accounting and SAP solutions. Current and future priorities are strongly linked to (internal and external) customer orientation by the means of e-government.

We-Go Academies : Train-the-Trainer program

D3.2.1. Lecture Notes

We-Go
Enhancing Western Balkan
eGovernment Expertise

Course M2
Change Management

Lecture Notes

Metamorphosis Foundation

Contents:

Change management, citizen orientation, organisational change, e-government
What circumstances influence the development of a modern e-government idea? What happened to these "innovative concepts" during their implementation and their ultimate adoption in "everyday work"? Change management has often been neglected.

1. Introduction

The first wave of *e-government* projects have often failed to transform *government* business processes because they have focused on technology rather than *change management.* Most of the *e-Government* initiatives around the world have often been sporadic and unsystematic. "Technological thrust" rather than a "citizen orientation" has been the driving force for most of these initiatives.

Why is citizen orientation crucial in e-government initiatives?

E-Government is increasingly being viewed from a broader perspective of system reform and government process reengineering and its impact on governmental performance is being recognized. Despite the increasing importance of e-Government, there are relatively few nations across the world, which have been able to successfully implement and exploit Information and Communication Technologies (ICT) in governmental working.

Various developments both inside and outside governments (as organisations) increasingly lead to their being faced with a range of changes in the area of (e.g.) how to make the best use of information technology, the introduction of total quality management, the redesign of work processes (business process redesign), the flattening or horizontalization of the organizational structure or, in extreme cases, radical changes to the entire organization (business transformation).

Organisational Change
Why and when certain changes occur? How a better mastery of change processes can be attained?

To implement these kinds of organizational change process properly, it is no longer sufficient simply to copy the successes of other organizations/governments. Organizations have to increase the attention they pay to their own values, to the "core competences" they have developed over time.

Why organizational change cannot be treated as a one-off event?

E-government projects do not escape the common obstacles and stumbling stones of change management. Among the reasons for implementation failure, the inability of governments to manage large ICT projects seems to be particularly important. Technical and conceptual considerations are not yet matched by organizational ones to a sufficient extent.

	2. Understanding change
Capacity for change How to develop capacities for change? What should organisations take into consideration in order to successfully implement change initiatives?	ICT implementation is often seen from a technical viewpoint. Most studies concerning the development of technical systems in organizations focus on methods and procedures of software engineering. Such studies do not teach us anything about how an idea came into being. Nor do they tell us if the system once developed stood the test of daily practice. There are good reasons to assume that ICT has a high potential to transform organizations radically. Yet empirical studies clearly show that such potential only rarely materializes. Many examples worldwide had shown that just implementing ICT is not enough to modernize organizations. This calls for a deeper look at the practical side of change management in ICT projects. An increasing number of studies on information systems implementation draw attention to the changes which the original system concept undergoes during implementation. These can be summarized as follows: Firstly, organizational change associated with technology implementation cannot be fully anticipated, and it constitutes an *ongoing process* rather than an event. There is no final point after which the organization returns to a "steady state". Secondly, in information systems development projects, technological questions are interwoven with the political situation within the respective organization. So technical and organizational implementation merge in an interdependent *process of technology design and of structuration of business processes and of human activities*. Lastly the interplay of a multitude of actors within an organization, their attitudes, discussions and bargaining processes, is important for success or failure of a project. In the light of these results, a socio-technical approach towards information systems development is recommended. Concepts like "incremental decision-making" or "improvisational change management" are suggested to match with the results of each stage reached during the respective project. Hence unplanned change is not considered as disruptions, which have to be avoided, but as opportunities to improve the project results.
Change capacity: The allocation and development of change and operational capabilities that sustains long term performance.	The main causes for success or failure still remain a black box, and they seem to be different in every individual case. To advance our understanding of ICT-related changes processes, the so-called political dimension and socio-economical context of executing e-government projects should be conceptualized more in depth. A theoretical framework

	should combine an attention to the variety of rationalities of actors within a project with the process character of ICT development and implementation, as it unfolds over time. Within such a framework, organizational change can be explained by identifying forces both promoting change and impeding change, drawing attention especially to the early and the late stages of an e-government project.
How management can avoid crowding out daily operations when introducing new processes (change)?	**3. Developing Capacity for Change** Organizations need to develop their capacity for rapid adaptation, flexibility, and innovation. The ability to cope with dramatically altering contextual forces has become a key determinant of competitive advantage and organizational survival. Previous research has shown that while organizations may be faced with similar contextual forces for change, they opt for various different responses. This variation could be due to differences in terms of how organizations interpret signals and events in their environment, but it could also be based on different capacities within organizations to undertake change. Even if organizations make similar interpretations of their environments, and initiate strategic changes that seem similar in content, differences remain in terms of what they are actually able to do and the results they attain.
In reviewing different change process recommendations, we will focus on how recommendations contribute to developing change capacity and the likely effects on subsequent change processes. We turn to recommendations for developing the necessary capabilities and for ensuring sustainable change capacity.	These differences can be related to an organization's capacity for change. The change capacity is that organizations are capable of implementing large-scale changes without compromising daily operations or subsequent change processes. Large-scale changes tend to require extensive attention and take focus from other organizational matters. Organizations often experience opposing demands in terms of handling both continuity and change during the implementation process. Moreover, the successful implementation of one particular change initiative may harm subsequent change initiatives, suggesting that the focus should not be on change as isolated events, but as a series of interrelated changes.
Why is it important to appropriately communicate change?	
How does Participation of organization members contribute to the quality of change implementation and better management decision?	A number of general recommendations exist on how to manage change processes exist, such as communicating the need for change, involving employees in decision-making and implementation, and conscious attention to tempo and sequencing of changes. In order for organizations to build change capacity, it is not sufficient to look at the success of implementing single changes. If these changes have crowded out daily operations or have worn out the organization, thereby hindering new changes, then that particular change initiative has not contributed in building change capacity.
Why is timing important when starting a change process in the organization?	

	3.1. The concept of change capacity
What does Routinizing mean?	The concept of change capacity builds on the idea that in addition to coping with change, innovation, and renewal, organizations need to make the most of existing capabilities. Organizations have to attend to both change and stability, and need to balance exploration and exploitation as the long-term superior performance is likely to depend on the appropriate mix of exploratory and exploitative adaptations.
What is planned change? When does it start? How an e-government project should start?	The challenge between balancing change and stability is highly relevant also at a more operational level during implementation of change. The nature of the challenges at the operational level is different than it is at the strategic level and different solutions are required. At the operational level, change has to be implemented while daily operations are simultaneously maintained.
What are the basic activities in a planned change?	Large change processes, like fully introducing e-government, trigger a large number of internal decisions and activities. New organizational solutions have to be decided upon; positions must be reallocated; services and other programs must be adjusted; routines and policies must be revised; employees (civil servants) training programs need to be planned and implemented; and so on. Such internal activities risk crowding out activities related to daily operations such as paying attention to citizens needs and responding to changes in the environment. A key task for the leadership is, therefore, to find a balance between the resources deployed in change processes and in daily operations.
Why is entering and contracting important? How does it help management?	Organizations that have a capacity for change must not only have the ability (resources and capabilities) to change the organization successfully, they must also have capability to maintain daily operations and implement subsequent change processes. Change capacity can be defined as 'the allocation and development of change and operational capabilities that sustains long term performance.' This implies that the potential adverse effects on daily operations and subsequent change processes is outweighed by the positive effects on subsequent change processes and improvement in performance as a result of the change process. Hence, while implementation of change only can have adverse effects on daily operations, the particular change initiative can have negative or positive effects on the subsequent change processes.
	3.2. Recommendations for Developing Change Capacity

What is the focus of the diagnosis process? What are the central activities of diagnosis? How are data gathered? How interventions are designed? What are the criteria for designing an intervention? What are the major types of interventions? Once it is determined that a change has been implemented and is effective, attention is directed at institutionalizing changes-making them a permanent part of the organization's normal functioning.	Below we present some common change process recommendations grouped into the following categories: framing, participating, pacing and sequencing, routinizing, and recruiting. Most of the presented recommendations are widely accepted ways of increasing the probability of implementation success and we can therefore assume that these recommendations will serve to develop an organization's capabilities for change. **Framing** Framing refers to how changes are communicated, the reasons given for change and the rationale behind making a particular set of changes. In planned change processes, organizational members are likely to interpret the changes in various ways as they try to figure out the meaning of the proposed strategic change effort, its effect on them, and their role in it. **Participation** It is widely agreed that it is difficult to implement changes if the ones that are most affected are not involved. Participation, either in formulation or implementation of change or both, can contribute in a greater understanding for and commitment to the change. Involving organizational members from different divisions and different levels in the organization will also create an arena for discussion and meaning making. Participation in the decision-making process and/or the implementation process can contribute in facilitating change and lead to qualitatively better decisions. When organizational members perceive that their input through participation has an effect, then participation is more likely to result in change capabilities, but it is difficult to say whether any long-term capabilities are developed based on participation in decision-making or implementation. Pacing and sequencing In order to achieve change, the organization needs momentum and energy. Fast-paced changes will contribute in releasing more energy. On the other hand, changes that are made too quickly may constrain problem solving, and adaptation to the new situation. Slow-paced change facilitates learning and allows all organizational members time to understand what needs to be changed and how. **Routinizing** Organizations can establish or use existing routines for handling change. Routinizing change means to use structures and processes that are already in

Resistance Traditionally, resistance has been cast as adversarial – the enemy of change that must be defeated if change is to be successful. Management may greatly benefit from techniques that carefully manage resistance to change by looking for ways of utilising it rather than overcoming it. Definition of resistance? How can resistance be used to assist change? How does resistance influence the stability of organization? Influx of energy	place in the organization, or to try to institutionalize structures and processes that can be applied in multiple change processes. **Recruiting** A final recommendation for ensuring change involves recruiting personnel. Recruiting can be permanent or temporary, and both experts and more operational personnel can be recruited for the purpose of contributing in getting changes implemented. **4. Planed Change** The pace of global, economic, and technological development makes change an inevitable feature of organizational life. However, change that happens to an organization can be distinguished from change that is planned by its members. The planned change process generally starts when one or more key managers or administrators somehow sense a new vision or opportunity for their organization, department, or group or that the unit could be improved through organizational development. There are several theories or models of planned change (ex. Lewin's Change model, Action Research model, Positive model and other), each of them focus on how change can be implemented in organizations. They describe the activities that must take place to initiate and carry out successful organizational change. Based on existing models of planned change, and general model or framework encompassing the basic activities of a planned change can be suggested. **4.1. General Model of planned change** **Entering and Contracting** The first set of activities in planned change concerns entering and contracting. Those events help managers decide whether they want to engage further in a planned change program and commit resources to such a process. Entering and organization involves gathering initial data to understand the problems facing the organization or to determine the positive areas of inquiry. Once this information is collected, the problems or opportunities are discussed with managers and other organizational members to develop a contract or agreement to engage in planned change. The contract spells out future change activities, the resources that will be committed to the process and how organization members will be involved.

Source of innovation	**Diagnosing** In this stage of planned change, the system is carefully studied. Diagnosis can focus on understanding organizational problems, including their causes and consequences, or on collecting stories about the organization's positive attributes. The diagnosis process is one of the most important activities in organizational development. It included choosing an appropriate model for understanding the organization and gathering, analyzing and feedback information to managers and organization members about the problems or opportunities that exists. Gathering, analyzing and feedback data are the central change activities in diagnosis. Data can be gathered through interviews, observations, survey instruments, or such archival sources as meeting minutes and organization charts. **Planning and Implementing Change** In this stage, organization members plan and implement concrete interventions. They design interventions to achieve the organization's vision or goals and make action plans to implement them. There are several criteria for designing interventions, including the organization's readiness for change, it's current change capacities, its culture and power distributions and the change agent's skills and abilities. Depending on the outcomes of diagnosis there are four major types of interventions: 1. Human process interventions at the individual, group and total system levels 2. Interventions that modify an organization's structure and technology 3. Human Resource interventions that seek to improve member performance and wellness 4. Strategic interventions that involve managing the organization's relationship to its external environment and the internal structure and process necessary to support a (business) strategy. Having in mind the complexity of e-government project and the above mentioned types of intervention, it becomes obvious that in order to successfully realize an e-government project, a comprehensive and all-encompassing intervention is needed. **Evaluating and Institutionalizing Change** The final stage in planned change involves evaluating the effects of the intervention and managing the institutionalization of successful change programs so they persist. Feedback to organization members about the intervention's results provides information about whether the changes should be continued, modified or suspended. Institutionalizing successful changes involves reinforcing them through feedback, rewards, and training.

5. Resistance: a constructive tool for change management

Resistance to change has long been recognised as a critically important factor that can influence the success or otherwise of an organisational change effort. Some researches indicate that one-half to two-thirds of all major change efforts fail and resistance is the “little-recognised but critically important contributor” to that failure. Not that resistance is solely to blame for these statistics, there is a tendency amongst managers to approach change with a simple set of beliefs that end up exacerbating the problems that arise because they fail to understand them in any systematic manner. One such “simple belief ” is that a change process that occurs with only minimal resistance must have been a good change that was managed well. This assumption is somewhat naïve and belies a common perspective that casts resistance in a negative light. Resistance is often viewed by managers as the enemy of change, the foe which must be overcome if a change effort is to be successful. However, this adversarial approach has little theoretical support. Rather, a great deal of work found that there is in fact utility to be gained from resistance, therefore it should not be avoided or quashed as suggested by classical management theory.

Resistance, in an organisational setting, is an expression of reservation which normally arises as a response or reaction to change. This expression is normally witnessed by management as any employee actions perceived as attempting to stop, delay, or alter change. Thus resistance is most commonly linked with negative employee attitudes or with counter-productive behaviours.

5.1. The utility of resistance

Unfortunately, when the word resistance is mentioned, we tend to ascribe negative connotations to it. This is a misconception. Resistance is often a perfectly legitimate response of an employee and it should be used constructively.

That resistance can play a useful role in an organizational change effort certainly stands juxtaposed to a traditional mindset that would view it as an obstacle that is normally encountered on the way to a successful change process. Nevertheless, it is a conclusion reached by a variety of authors who suggest that there are a number of advantages of resistance. When managed carefully, these advantages can in fact be utilized by the organization to greatly assist change. First of all, resistance points out that it is a fallacy to consider

	change to be inherently good. Change can only be evaluated by its consequences, and these cannot be known with any certainty until the change effort has been completed and sufficient time has passed. To this end, resistance plays a crucial role in influencing the organization toward greater stability. While pressure from external and internal environments continues to encourage change, resistance is a factor that can balance these demands against the need for constancy and stability. Human systems remaining in a steady state encourage processes and specializations to stabilize, consolidate, and improve which allows the organization a level of predictability and control. Thus, the system is able to gain a certain momentum or rhythm that is also critical for organizational survival. A further advantage that resistance contributes to the change process is an influx of energy. Where a workplace is marked by apathy or passivity, implementing change is a very difficult task. With resistance and conflict comes the energy or motivation to seriously address the problem at hand. Where energy is lacking, change is often uncreative, sparsely implemented, and inadequately utilised. Where resistance is at play, there is a need to examine more closely the problems that exist and consider more deeply the changes proposed. Though, a balance must be maintained. In addition to injecting energy into a change process, resistance also encourages the search for alternative methods and outcomes in order to synthesise the conflicting opinions that may exist. Thus resistance becomes a critical source of innovation in a change process as more possibilities are considered and evaluated.

6. Summary

Change may be implemented in a variety of ways, depending on the needs and goals of the organization, the change agent's skills and values, and the organization's context. Thus change can vary enormously from one situation to another. Based on the assumption that organizations have different capacity to implement change, and that this capacity can be developed, we have defined change capacity and presented a number of ways in which change managers can contribute in developing change capacity. Change should not be treated as isolated events, thereby ignoring the adverse effects on daily operations and subsequent change processes. To build change capacity, organizations need to balance between the need to implement the changes, the need to maintain daily operations, and the need to implement changes in the future. Resistance management may improve significantly if the adversarial approach is replaced with one that retains the possibility of benefiting through the utilisation of resistance.

The feasibility of an e-government project can be assessed, by asking the following questions:

– Who are the relevant actors?
– What is the main problem?
– Who defines problems, and how consistent is this view amongst actors?
– Who is mainly affected by the problem, and which sources of power does this actor own?
– Who is the winner of the ongoing "routine rules", and who could have an interest in changing rules?
– Who can push or even prevent and resist changes?
– Does external pressure exist, e.g., new quality standards, altered customer/citizens expectations? How could actors react to this?
–how will possible e-government solutions be assessed by different actors?

The answers to these questions will depend on the policy field and on the project at stake. They might help to shape the design and the management of the respective project, e.g., ways of information, argumentation, project organization, choice of team members. A better mastery of change processes will contribute significantly to increasing the very low rate of success of e-government projects.

We-Go Academies : Train-the-Trainer program

D3.2.1. Lecture Notes

We-Go
Enhancing Western Balkan
eGovernment Expertise

Course
Introduction to Interoperability

Lecture Notes

Contents:

Definitions of interoperability

1. Introduction

interoperable *adj.*
able to operate in conjunction
interoperability *n.*
(Source: Concise Oxford Dictionary, 9th Edition)

interoperability
[...] is the ability of a system or a product to work with other systems or products without special effort on the part of the customer. Interoperability becomes a quality of increasing importance for information technology products as the concept that "The network is the computer" becomes a reality. For this reason, the term is widely used in product marketing descriptions.
(Source: whatis.com)

As today's digital world tends to interconnect various heterogeneous systems, interoperability has become as important as security and reliability for IT professionals. Heterogeneity of systems drives more complexity on IT infrastructures which leads to a greater demand for data and information integration as organizations seek to optimize process performance. IT vendors are also greatly affected, as they must ensure that their solutions are capable of successfully working in a mixed IT environment. To not underestimate this issue, we can recall the case of Microsoft vs. the European Commission, in which the European Commission found that Microsoft had abused its market power by deliberately restricting interoperability between Windows work group servers and non-Microsoft work group servers. Microsoft was ordered to disclose complete and accurate interface documentation.

To further clarify the interoperability itself, we'll take a look at some other sources for the definition of interoperability.

The EU defines interoperability as "the means by which the inter-linking of systems, information and ways of working, whether within or between administrations, nationally or across Europe, or with the enterprise sector, occurs. (Source: http://europa.eu.int/idabc/en/document/2036/5583)

According to the definition which can be found on Wikipedia pages, interoperability "is a property referring to the ability of diverse systems and

Various aspects of interoperability	organizations to work together (inter-operate). The term is often used in a technical systems engineering sense, or alternatively in a broad sense, taking into account social, political, and organizational factors that impact system to system performance." IEEE ("The world's leading professional association for the advancement of technology") defines interoperability as "the ability of two or more systems or components to exchange information and to use the information that has been exchanged." **1.2 Various aspects of interoperability** It is important to emphasize in this moment that there is far more to ensuring proper interoperability than using compatible software and hardware (which is most clearly described in Wikipedia definition of interoperability), although that is of course important. Assurance of effective interoperability will require often radical changes to the ways in which organizations work and, especially, in their attitudes towards information. Having such perspective in mind, we could further subdivide the notion of interoperability as follows: • Technical Interoperability • Semantic Interoperability • Political/ Human Interoperability • Inter-community Interoperability • Legal Interoperability • International Interoperability Another important subdivision can be found on http://ec.europa.eu pages: "Administrations that provide electronic services (eServices)… need to elaborate a set of agreements on a large number of issues, considering **organisational**, **semantic** and **technical** aspects. For example, when administrations exchange data, they must ensure that each party shares the same meaning of the data (semantic interoperability): for instance, when referring to 'price', do we mean the actual price or the price per item?" The same subdivision of interoperability aspects can be extrapolated from the e-croatia pages: "Interoperability must be secured at the **technical** (norms and standards for linking computer systems and services), **semantic** (meaning of data) and **process levels** (defining business aims, modeling business processes and actualizing cooperation between various management units). Interoperability

	can be achieved by adopting national and international technical norms."
What is Interoperability Framework?	When talking about interoperability, there is a concept named "**Interoperability Framework**" which needs to be mentioned; it is a set of norms, standards, and references which describe an accomplished or desired agreement of interested parties on ways of interconnectivity. This framework is a document which must keep up to date with the changes in technology, norms and business. According to ec.europa.eu pages, "an Interoperability Framework can be defined as the overarching set of policies, standards and guidelines which describe the way in which organisations have agreed, or should agree, to do business with each other. An Interoperability Framework is, therefore, not a static document and may have to be adapted over time as technologies, standards and administrative requirements change. … The European Interoperability Framework is based on the premise that each Member State has, or is in the process of developing, its national Government Interoperability Framework (GIF)."

Introduction to Open Standards

1.3 Open Standards

One of the "tools" used for successful implementation of interoperability is a concept named "open standards".

An open standard is a standard that is publicly available and has various rights to use associated with it. While standards accepted in organizations for standardization are protected by copyright and their unauthorized multiplication and distribution is prohibited, open standards are accessible to the public without a fee. There are many international professional associations which develop and maintain open standards; some of them are:

Organizations dedicated to open standards development and maintanence

- World Wide Web Consortium (**W3C**, www.w3.org; encompass standards for the creation of internet pages and establishment of internet services)
- Internet Engineering Task Force (**IETF**, www.ietf.org; deals with technical internet standards)
- Organization for Advancement of Structured Information Standards (**OASIS**, www.oasis-open.org; encompass standards for e-business)
- Open Archives Initiative (**OAI**, www.openarchives.org; deals with standards for interoperable distribution of digital contents)

Open standards and interoperability brings us to XML.

Summary

Chapter 1 defines and discusses interoperability from various aspects and emphasizes existence of other interoperability contexts besides pure technical (which consists of hardware and software levels). It also explains the need for interoperability and gives an insight of its rising importance. Furthermore, there is a brief intro on Open standards concept, which is shown to be of grave importance for interoperability itself. Also, some of the international professional associations which develop and maintain open standards are mentioned in this chapter.

Interoperability is:

a) the ability of two or more systems or components to exchange information and to use the information that has been exchanged.

b) application component.

c) the most used Internet protocol.

d) a software module used to read XML documents and provide access to their content and structure.

When dealing with interoperability, one must focus on:

a) hardware and software interoperability exclusively

b) hardware interoperability exclusively

c) software interoperability exclusively

d) wide range of interoperability, including technical, semantic, legal, etc, interoperability

Interoperability Framework is:

a) a set of norms, standards, and references which describe an accomplished or desired agreement of interested parties on ways of interconnectivity

b) software framework for programming interoperability applications

c) a document which describes an open source technology

d) none of the above

An open standards is:

a) standard that is publicly available, i.e. accessible to the public without a fee.

b) standard that is publicly available, but users need to pay certain fee before using it.

c) standard that is protected by copyright and their unauthorized multiplication and distribution is prohibited.

d) none of the above.

Some of the international professional associations which develop and maintain open standards are:

a) W3C, IETF, OASIS, OAI

b) SOAP, XML, UDDI

c) WSDL, RPC, BGD

d) There are no such associations

About XML

2. XML

XML (short for Extensible Markup Language) is a way of describing data. XML file can contain data, as database does. More specifically, it is a specification developed by the W3C and it was designed to transport and store data.

XML is a simplified subset of Standard Generalized Markup Language (SGML). Its primary purpose is to facilitate the sharing of data across different systems, particularly systems connected via the Internet.

XML key features

Some things to remember about XML:

- XML stands for EXtensible Markup Language
- XML is a markup language much like HTML
- XML was designed to carry data, not to display data
- XML tags are not predefined. You must define your own tags
- XML is designed to be self-descriptive
- XML is a W3C Recommendation

XML advantages

Some of the advantages of the XML are:

- It is human readable
- All computer systems can be modified to understand it
- It can contain not only raw data, but information about what the data means through embedded data-description tags

XML design goals

The design goals for XML are:

- XML shall be straightforwardly usable over the Internet.
- XML shall support a wide variety of applications.
- XML shall be compatible with SGML.
- It shall be easy to write programs which process XML documents.
- The number of optional features in XML is to be kept to the absolute minimum, ideally zero.
- XML documents should be human-legible and reasonably clear.
- The XML design should be prepared quickly.
- The design of XML shall be formal and concise.
- XML documents shall be easy to create.
- Terseness in XML markup is of minimal importance.

	Finally, XML is: • **Open**: it is not owned by any organization • **Transparent**: it can be read by any computer or person • **Responsive**: new tags can be added as necessary to describe new types of data
Main XML challenge	**The challenge** with XML is that different computer systems can use different tags to describe the same data. While there are many separate efforts to standardize data descriptions at industry, national and international levels, it is apparent that consensus will not be reached in the near future. Nevertheless, transforming tags of XML documents is far more easy in comparison to transforming entire data structures.
GovML	The Governmental Markup Language (**GovML**) will be specified as a recommendation for a new XML vocabulary within the public sector. It will define and support particular data structures, which are necessary to support the life-event approach towards the delivery of online public services.
XML example	To get a closer look at the XML itself, the following example is presented; it is a note to John from Jane, stored as XML: <**note**> <**to**>John</**to**> <**from**>Jane</**from**> <**heading**>Party Reminder</**heading**> <**body**>See ya this weekend!</**body**> </**note**>
HTML vs XML	XML documents (e.g. XML document with content presented in the example above) don't do anything by themselves, they are merely information "tag-wrappers". Tags are specified in bracets, e.g. **<some_tag>**. A piece of sofware is needed to send, receive or display xml data. It is crucial to mention that XML is **not** a replacement for HTML. XML and HTML were designed with different goals: • XML was designed to transport and store data, with focus on what data is. • HTML was designed to display data, with focus on how data looks. In conclusion, HTML is about displaying information, while XML is about

	carrying information.
XML Schema	**2.1 XML Schema** An XML schema describes the structure of an XML document. According to w3.org site, "XML Schemas express shared vocabularies and allow machines to carry out rules made by people. They provide a means for defining the structure, content and semantics of XML documents." (Source: http://www.w3.org/XML/Schema) **XML Schema defines:** • elements that can appear in a document • attributes that can appear in a document • which elements are child elements • the order of child elements • the number of child elements • whether an element is empty or can include text • data types for elements and attributes • default and fixed values for elements and attributes
XML Signatures	**2.2 XML Signatures** XML Signature (also called XMLDsig, XML-DSig, XML-Sig) is a W3C recommendation that defines an XML syntax for digital signatures. An XML signature can be applied to any digital content.
XML Canonicalization	**2.3 XML canonicalization** According to the W3C, "The term *canonical XML* refers to XML that is in canonical form. The *XML canonicalization method* is the algorithm defined by this specification that generates the canonical form of a given XML document or document subset. The term *XML canonicalization* refers to the process of applying the XML canonicalization method to an XML document or document subset." If two XML documents have the same canonical form, then the two documents are logically equivalent within the given application context.

XML in eGovernment	## 2.4 Benefits of XML in e-Government We can describe benefits of XML in e-Government in short, medium, or long termed benefits: **Short Term** • Define data messaging standards for the province's Common I & IT gateway. **Medium Term** • Provide an standards based means for capturing, classifying and transforming data • Establish application independent data • Establish device and platform independent solutions • Provide a standards based transformation engine for re-engineering. **Long Term** • Enable 'plug and play' where government transactions and information delivery can be dynamically assembled to meet the context of the client • Provide Customers choice in how, when and where they interact with government.
XML transformation	## 2.5 XSLT XSLT, which stands for eXtensible Stylesheet Language: Transformations, is a language which is primarily designed for transforming one XML document into another. Facts about XSLT are summarized in the following list: • XSLT is a language for transforming the structure of an XML document. • XSLT stands for XSL Transformations • XSLT is the most important part of XSL • XSLT transforms an XML document into another XML document • XSLT uses XPath to navigate in XML documents • XSLT is a W3C Recommendation. **Transforming XML** is essential in various cases. For instance, whether the XML data is used by people or by a software application, it will rarely be used

directly in the form it arrives; it first has to be transformed into some other form.

In order to communicate with a human reader, this “other form” might be a document that can be displayed or printed, e.g. it can be an HTML file, a PDF file, or even audible sound. Probably the most common application of XSLT today is converting an XML to HTML.

On the topxml site, a software-level need for XML transformation is described vividly: “In order to transfer data between different applications we need to be able to transform data from the data model used by one application to the model used in another. To load the data into an application, the required format might be a comma-separated-values file, a SQL script, an HTTP message, or a sequence of calls on a particular programming interface. Alternatively, it might be another XML file using a different vocabulary from the original. Just because everyone is using XML does not mean the need for data conversion will disappear.” (Source: http://www.topxml.com/)

Summary

Chapter 2 discusses XML and various technologies that goes with it. It starts by clearly define what XML is; what it can and can’t do; its advantages, features and design goals. Furthermore, it discusses the main XML challenge concerning its non standardized tags, an example xml content is presented, and XML is clearly distinguished from HTML. The following are definitions and descriptions of XML ‘surroundings’; specifically, XML Schema, XML signatures and canonicalization are discussed. Also, the benefits of XML in e-Government are presented. Chapter ends with description of XSLT, a mean used for XML transformation.

XML is:

- **a)** is a way of describing data.
- **b)** the ability of two or more systems or components to exchange information and to use the information that has been exchanged.
- **c)** application component.
- **d)** the most used Internet protocol.

_____ was designed to transport and store data, with focus on what data is. _____ was designed to display data, with focus on how data looks.

- **a)** XML, HTML
- **b)** HTML, XML
- **c)** XML, UDDI
- **d)** HTML, SOAP

Recognize the true fact about XML:

- **a)** XML tags are well defined and every party involved must comply to these specifications.
- **b)** XML tags are not predefined. You must define your own tags.
- **c)** XML was designed to display data, not to carry data.
- **d)** XML is impossible for humans to interpret it.

The main issue with XML is:

- **a)** Different computer systems can use different tags to describe the same data.
- **b)** XML tags are well defined and every party involved must comply to these specifications.
- **c)** It is not human readable.
- **d)** None of the above.

XML documents ... :

- **a)** ... don't do anything by themselves, they just store data.
- **b)** ... can be compiled into executable file.
- **c)** ... can be executed without compilation.
- **d)** ... are interactive with user.

XML Schema:

- **a)** describes the XML protocol.
- **b)** describes the structure of an XML document.
- **c)** describes XML file itself (file size, read permissions and other attributes).
- **d)** contains descriptive matrix of XML attributes.

What is XSLT?

a) Improved version of XML.

b) Improved version of XLS.

c) Language which is primarily designed for transforming one XML document into another.

d) Language which is primarily designed for transforming one XLS document into another.

Definition of a web service

3. Web Services

Web service is defined by the W3C as "a software system designed to support interoperable machine to machine interaction over a network." Quite often, web services are Web APIs that are accessible over a network (Internet, for instance) and executed on a remote system hosting the requested services.

Basic characteristics of web services

We can summarize the basic characteristics of web services as presented in the following list:

- Web services are application components
- Web services communicate using open protocols
- Web services are self-contained and self-describing
- Web services can be discovered using UDDI (described later in this document)
- Web services can be used by other applications
- XML is the basis for Web services

Web services platform elements

The basic Web services platform is XML + HTTP. The HTTP protocol is the most used Internet protocol, and XML provides a language which can be used between different platforms and programming languages and still express complex messages and functions.

Web services platform elements, which will be described shortly, are:

- **SOAP** (Simple Object Access Protocol)
- **UDDI** (Universal Description, Discovery and Integration)
- **WSDL** (Web Services Description Language).

3.1 SOAP

SOAP definition	SOAP (Simple Object Access Protocol) is a protocol for exchanging XML-based messages over computer networks (normally using HTTP, or a secure version, HTTPS). According to Wikipedia, "SOAP forms the foundation layer of the web services protocol stack providing a basic messaging framework upon which abstract layers can be built." In other words, SOAP provides a way to communicate between applications running on different operating systems, with different technologies and programming languages. Its framework facilitates exchanging XML messages in heterogeneous environments where interoperability has long been a challenge. Also, SOAP protocol provides reliability, robustness, readability, ease of use, seamless integration with existing computational code and interoperability.
What does "RPC" stands for?	**RPC** (Remote Procedure Call) is one of the messaging protocols in SOAP, which is by far the most common one. In RPC, a client (network node) sends a request message to the server (another network node), and the server immediately sends a response message to the client.
Basic SOAP characteristics	In the following list are some basic characteristics of SOAP: • SOAP stands for Simple Object Access Protocol • SOAP is a communication protocol • SOAP is for communication between applications • SOAP is a format for sending messages • SOAP is designed to communicate via Internet • SOAP is platform independent • SOAP is language independent • SOAP is based on XML • SOAP is simple and extensible • SOAP allows you to get around firewalls • SOAP will be developed as a W3C standard
	3.2 WSDL
WSDL definition	WSDL (Web Services Description Language) is an XML-based language for describing Web services and how to access them. "WSDL is often used in combination with SOAP and XML Schema to provide web services over the Internet. A client program connecting to a web service can read the WSDL to determine what functions are available on the server. Any special data types used are embedded in the WSDL file in the form of XML Schema. The client can then use SOAP to actually call one of the functions listed in the WSDL." (Source: Wikipedia)

Basic WSDL characteristics	More facts about WSDL are summarized in the following list: • WSDL stands for Web Services Description Language • WSDL is written in XML • WSDL is an XML document • WSDL is used to describe Web services • WSDL is also used to locate Web services • Only newer (current) WSDL version 2.0 is a W3C recommendation
UDDI definition	**3.3 UDDI** UDDI (Universal Description, Discovery and Integration) is a platform-independent framework for describing services, discovering businesses, and integrating business services by using the Internet. According to Wikipedia, "UDDI is an open industry initiative, sponsored by OASIS, enabling businesses to publish service listings and discover each other and define how the services or software applications interact over the Internet."
UDDI components	A UDDI business registration consists of 3 components: • **White Pages** — address, contact, and known identifiers; • **Yellow Pages** — industrial categorizations based on standard taxonomies; • **Green Pages** — technical information about services exposed by the business.
UDDI facts	More facts about UDDI are summarized in the following list (Source www.w3schools.com): • UDDI stands for Universal Description, Discovery and Integration • UDDI is a directory for storing information about web services • UDDI is a directory of web service interfaces described by WSDL • UDDI communicates via SOAP • UDDI is built into the Microsoft .NET platform. According to w3schools, "before UDDI, there was no Internet standard for businesses to reach their customers and partners with information about their products and services. Nor was there a method of how to integrate into each

Problems that UDDI could solve	other's systems and processes." Problems the UDDI specification can help to solve are described in the same source: • Making it possible to discover the right business from the millions currently online • Defining how to enable commerce once the preferred business is discovered • Reaching new customers and increasing access to current customers • Expanding offerings and extending market reach • Solving customer-driven need to remove barriers to allow for rapid participation in the global Internet economy • Describing services and business processes programmatically in a single, open, and secure environment.

Summary

Chapter 3 begins with a definition of web services, continued by summarization of some of their basic characteristics. Web services platform elements (SOAP, UDDI and WSDL) are described respectively afterwards. SOAP (Simple Object Access Protocol) is a protocol for exchanging XML-based messages over computer networks. WSDL (Web Services Description Language) is an XML-based language for describing Web services and how to access them. UDDI (Universal Description, Discovery and Integration) is a platform-independent framework for describing services, discovering businesses, and integrating business services by using the Internet. All of these elements are discussed in this chapter, providing their basic characteristics, facts, usability, etc.

Web service is...

a) ... a software system designed to support interoperable machine to machine interaction over a network.

b) ... an application which can be used for some nominal fee or within 30 days trial period.

c) ... the most common Internet protocol.

d) ... a service on witch user can connect to and chat directly with expert in chosen field.

Web services platform elements are:

a) RPC, XML, HTML

b) SOAP, UDDI, WSDL

c) SOAP, HTTP, HTML, CSS

d) Hardware, software, people

The most used Internet protocol is:

a) HTTP

b) UDDI

c) SOAP

d) SOAP RPC

SOAP is:

a) a physical layer networking protocol (ISO OSI).

b) a protocol for exchanging XML-based messages over computer networks.

c) a software module used to read XML documents and provide access to their content and structure.

d) an application component.

SOAP is based on:

a) XML

b) HTML

c) UDDI

d) SOAP RPC

WSDL...

a) is a platform-independent framework for describing services, discovering businesses, and integrating business services by using the Internet.

b) is an XML-based language for describing Web services and how to access them.

c) is a software module used to read XML documents and provide access to their content and structure.

d) is an open standard international professional association.

UDDI is:

a) a platform-independent framework for describing services, discovering businesses, and integrating business services by using the Internet.

b) the ability of two or more systems or components to exchange information and to use the information that has been exchanged.

c) application component.

d) a software module used to read XML documents and provide access to their content and structure.

An UDDI business registration consists of 3 components:

a) White, Yellow and Green pages.

b) White, Red and Blue pages.

c) Registers, protocols and application components.

d) None of the above.

Basic terms: character, character set,	**4. Unicode** Before we begin, we should discuss some of the basic terms that need to be clarified prior to reading this chapter.

Character encoding, Coded character sets	• **Character** – the smallest component of written language that has a semantic value. Examples of characters are letters, ideographs, punctuation marks, digits etc. • **Character set** – a group of characters. An example of a character set is the Latin alphabet or the Cyrillic alphabet. • **Character encoding** (from Wikipedia) – consists of a code that pairs a sequence of characters from a given character set (sometimes referred to as code page) with something else, such as a sequence of natural numbers, octets or electrical pulses, in order to facilitate the storage of text in computers and the transmission of text through telecommunication networks. Common examples include Morse code, which encodes letters of the Latin alphabet as series of long and short depressions of a telegraph key; and ASCII, which encodes letters, numerals, and other symbols, as integers. • **Coded character sets** – character sets in which each character is associated with a scalar value. For example, in ASCII, the uppercase letter "A" has the value 65. Examples for coded character sets are ASCII and Unicode.
Main issue with dealing with various encoding systems	Various encoding systems exists today which are in active use, and the main issue is that they conflict with one another. That is, two encodings can use the same number for two different characters, or use different numbers for the same character. As a consequence, any given computer (especially servers) needs to support many different encodings, and there is a real potential danger of corrupting data as it passes through different encoding systems and platforms.
UNICODE as a solution to problems which derive from using various encoding systems	From this major communication gap Unicode emerged as a solution, with its providing of a unique number for every character, no matter what the platform, no matter what the program, no matter what the language. The Unicode Standard has been adopted by such industry leaders as Apple, HP, IBM, JustSystem, Microsoft, Oracle, SAP, Sun, Sybase, Unisys and many others. Unicode is required by modern standards such as XML, Java, ECMAScript (JavaScript), LDAP, CORBA 3.0, WML, etc., and is the official way to implement ISO/IEC 10646. It is supported in many operating systems, all modern browsers, and many other products. In other words, Unicode standard allows data to be transported through many different systems without corruption.

Notions about UNICODE	Other notions about Unicode are presented in the following list: • The Unicode Standard provides the capacity to encode all of the characters used for the written languages of the world • The design of Unicode is based on the simplicity and consistency of ASCII • Unicode Standard assigns each character a unique numeric value and name • the Unicode Standard (Version 5.0, released in July 2006) provides codes for 99,089 characters from the world's alphabets, ideograph sets, and symbol collections • The Unicode Standard also reserves code points for private use. Vendors or end users can assign these internally for their own characters and symbols.
List of popular character encodings	In the following list we can see a number of available, popular character encodings (source: Wikipedia): • ISO 646 (ASCII) • EBCDIC (CP930) • ISO 8859 • CP437, CP737, CP850, CP852, CP855, CP857, CP858, CP860, CP861, CP863, CP865, CP866, CP869 • MS-Windows character sets • Mac OS Roman • KOI8-R, KOI8-U, KOI7 • MIK • Cork or T1 • ISCII • VISCII • Big5 (a more famous variant is Microsoft Code page 950) • Guobiao • Shift JIS for Japanese (Microsoft Code page 932) • EUC-KR for Korean (Microsoft Code page 949) • ISO-2022 and EUC for CJK character sets • Unicode (and subsets thereof, such as the 16-bit 'Basic Multilingual Plane'). See UTF-8 • ANSEL or ISO/IEC 6937 **UTF-8** is considered to be the most popular encoding scheme used today and is highly recommended for use. We can easily verify its popularity by checking

UNICODE in web pages	a page source of a random web page; in majority of cases we should find this kind of line: <html><head><meta http-equiv=content-type content="text/html; **charset=UTF-8**">, defining the UTF-8 charset. Concerning character encoding and Web, the character encoding associated with a Web page determines how the page renders in a Web browser. If a character encoding is not specified in a Web page (a Web page's character encoding is specified in the first line), the browser will guess at what encoding should be used to render Web page content, which could lead to a corrupted interpretation of a web page text content. Browsers also allow users to choose a default character encoding. This choice may also be wrong.

Summary

Chapter 4 begins with discussion of some of the basic terms that needs to be clarified prior to reading this chapter: character, character set, character encoding and coded character sets. It continues to discussion about various encoding systems that are in active use today and their conflict with one another, which leads to a potential danger of corrupting data. It introduces Unicode as a solution and continues on with Unicode description and characteristics. Then there is a list of available, popular character encodings summarized from Wikipedia pages. At the end of this chapter, some notes about encoding and web are marginally discussed.

Characters are:

- **a)** Letters exclusively.
- **b)** Digits exclusively.
- **c)** The smallest components of written language that has a semantic value.
- **d)** Binary digits.

Character set is:

- **a)** a set of dictionary words of some country.
- **b)** a group of characters (e.g. *Latin alphabet*).
- **c)** the smallest components of written language that has a semantic value.
- **d)** character sets in which each character is associated with a *scalar value*.

Character encoding... :

- **a)** ... consists of a code that pairs a sequence of characters from a given character set with something else, such as a sequence of natural numbers
- **b)** ... consists of a character transformation algorithm (into different characters).
- **c)** ... is a communication protocol for character transmission.
- **d)** ... is a term used for programming in some programming language.

Coded character sets are:

a) character sets in which each character is associated with a *scalar value*.

b) the smallest components of written language that has a semantic value.

c) source code written in some programming language.

d) characters transmitted over some digital medium.

Unicode... :

a) ... provides the capacity to encode all of the characters used for the written languages of the world.

b) ... provides the capacity to encode all of the characters used for the written languages of the major European countries.

c) ... is an universal programming language.

d) ... does not provide web browser support.

Which encoding scheme is considered to be the most popular encoding scheme used today?

a) ISCII

b) XML

c) UTF-8

d) ISO 8859

Summary of Estonian interoperability

Estonian IT Interoperability Framework

5. Estonian interoperability

The following is the summary presented on epractice Library pages for Interoperability topic:

"The Estonian IT interoperability framework is a set of standards and guidelines aimed at ensuring the integration of information systems in a single logical whole, so as to provide services for public administration institutions, enterprises and citizens both in the national and the European context. The second version of the Estonian IT interoperability framework gives a systematic overview of the positive trends in the development of the Estonian state information systems."

From this point further we'll be referencing **Estonian IT Interoperability Framework** document, which is available online on http://www.riso.ee pages.

The Estonian IT interoperability framework is a set of standards and guidelines aimed at ensuring the provision of services for public administration institutions, enterprises and citizens both in the national and the European context.

	It is important to keep in mind, as the document opens discussion, that the state has to be citizen oriented and its information systems must be service-based in order to implement the interoperability framework. Besides interoperability within, Estonia (as a member of European Union) has to ensure interoperability of its information systems with those of other member sates.
Aspects of obligatory nature of interoperability framework	The IT Interoperability Framework and the related documents cannot be regarded as legal acts. **Their obligatory nature is expressed through the following aspects:** • The framework and the related documents have undergone a consultation period during which central and local government agencies, the private sector, third sector organizations, as well as private persons had the opportunity to submit their proposals. Thus, the document serves as an agreement between different stakeholders. • Pursuant to the Government of the Republic Act, the Public Information Act and The Basic Principles of Estonian Information Policy, the co-ordination of the development of state information systems is assigned to the Ministry of Economic Affairs and Communications. The IT Interoperability Framework and the related documents constitute one of the tools for the development and co-ordination of the state information system.
Purpose of IT Interoperability Framework	**The Estonian IT Interoperability Framework serves as:** • a guide for those drafting national strategies and developing concepts for state information systems; • a guide for IT project managers in the public administration for the development of concepts for their internal information systems; • an aid for carrying out public procurements in the field of IT.
The aim of the IT interoperability framework	**The aim of the IT interoperability framework** is to increase public sector efficiency in Estonia by improving the quality of services provided to citizens and enterprises both at the Estonian and the EU level.
The specific objectives of the framework	**The specific objectives of the framework are the following:** • to facilitate and, consequently, implement the transformation of institution-based public administration into a service-centered one, where all citizens can communicate with the state without knowing anything about its hierarchical structure and division of roles;

Key principles of the state IT interoperability	• to reduce public sector IT expenses through a wide use of centrally developed solutions; • to improve the interoperability of new IT projects through a coordinated use of centrally developed infrastructure, middleware (public key infrastructure (PKI), data exchange layer X-Road, citizen's environment etc) and open standards; • to improve the coordination and management of state information systems and to accelerate the development of IT solutions; • to contribute to the co-development of the state information system; • to allow autonomous development for all systems within the principles of **organizational**, **semantic** and **technical** interoperability; • to ensure free competition in the area of public procurement. We can take a notice from these lines, as we discussed in the introductory chapter for interoperability, that this project is not only about technical interoperability, but also about semantic and organizational interoperability. **Key principles of the state IT interoperability are presented in the following list:** • The institution-based approach should be replaced by service-centered one; • public services (including nested services) are provided free of charge for public sector institutions; • the development of information systems is based on internet-centered approach; • XML-based technologies are used for the integration of information systems and the presentation of data; • information systems provide and use services via a data exchange layer based on multilateral agreements; • course will be taken towards wider use of open standards; • in developing information systems, open source based solutions are considered alongside proprietary ones; • access to public services should preferably be ensured via a web browser by different channels and devices; • all services requiring user authentication and authorization exploit the secure middleware X-Road for data transport; • the authentication and authorization procedures of civil servants are based on the use of the Estonian ID card; • as a temporary alternative, authentication mechanisms of internet banks can be used for citizen authentication;

The documents of the interoperability framework	• central and local government agencies co-operate in order to ensure the provision of information and services for citizens, officials or entrepreneurs from one place, without need to know anything about the subordinating system of the executive power or the division of roles therein. **The documents of the interoperability framework** The documents of the interoperability framework describe the main principles of the state IT interoperability. In the future, the framework will be complemented by several other documents dealing with matters concerning interoperability. All documents related to the state IT and interoperability framework will be elaborated in a co-ordinated manner and according to common principles. To this end, the following mechanism will be used: • The initiator of an interoperability document (any central or local government agency) draws up, with the help of experts, an outline of the document and organizes a public discussion to analyze it. • The document is published for discussion on the website of the Department of State Information Systems (hereafter: RISO) at http://www.riso.ee . Together with RISO, the document initiator informs network participants about the document. Comments made by participants are published on the web. A month later, the document initiator reviews all comments received and responds to them on the web. Depending on the type of the document, discussions can be open for participation to organizations representing the public, the private and the third sector, as well as individuals. • Based on the feedback received, the initiator then prepares a new version of the document, which is again published on the RISO website. In case no further substantial comments are made to it, the initiator draws up a final document and, after the document has been approved by RISO, it will be considered final. • All interoperability documents are open for comments all year round. At least once a year, the initiator is obliged to review the document and, if needed, to update it. Prior to the publication of a new version, an expert committee as well as other interested stakeholders are invited to submit comments on it within a period of one month. In the following chapters, document is describing interoperability in practice. In certain point, it is mentioned that the “standard-based interoperability has to be ensured between institutional/thematic portals and the citizen

	information portal http://www.eesti.ee and the eState portal http://www.riik.ee." Every public sector body has its own website. Also, in the context of interoperability of thematic and citizen-centered portals, it argues that "the websites of public sector institutions must include a thematic and a citizen-centered view", and "while the interoperability of institutional views is primarily ensured at the level of general information, thematic and citizen-centered portals require high interoperability and real information exchange."
Interoperable document management systems	**Interoperable document management systems** is another topic discussed in this document. It refers to the ability of these systems to mutually exchange and manage digital documents, and the responsibility for these systems is assigned to the State Chancellery together with the National Archives of Estonia. "Document management systems exchange information without any interim paper forms and regular post services. Into these systems have been integrated processes for the use of network services and for the processing of network services targeted at citizens and enterprises."
Interoperable geoinformation systems	**Interoperable geoinformation systems (GIS)** means that geoinformation services are easy to use and digital maps are accessible for all authorized users and other information systems. The interoperability of public sector geoinformation systems has to be based on principles of open standards. The objective of **Administration system for the state information system** (RIHA) is to ensure the interoperability of public sector information systems and the reuse of technical, organizational and semantic resources. **Support systems for the maintenance of state information systems** ensure their horizontal interoperability. There are currently five support systems: • the classification system • the system of security measures for information systems • the system of address details • the data exchange layer of information systems • the geodetic system
	5.1 Organizational interoperability In the context of information systems, organizational interoperability means the ability of organizations to provide, by using information systems, services to each other as well as to the wider public.

Principles of organizational interoperability	**Organizational interoperability is based on the following principles:** • All interoperable institutions are autonomous organizations with a specific technological architecture. • All connections between institutions are based on multilateral agreements; if possible, bilateral agreements are avoided. • Private sector bodies and non-governmental organizations participating in the state interoperability framework own the information and/or data they create or obtain. Data in the state information system is owned by the state. Responsibility for the structure and content of data lies with an organization administrating the respective data either as a chief or an authorized processor of data. • In data exchange, legal restrictions as well as organizational capacities are taken into account. • Interoperable institutions exchange information by user authorization. • Each institution determines access restrictions within its own information system. The use of nested services is agreed on between institutions.
Objectives of the state IT architecture	**5.2 Technical interoperability** The state IT architecture must meet the following objectives: **Preservation of data in one place** Data are preserved only in a database, where they serve as basic data. Availability requirements may lead to the copying of data, but in this case it has to be taken into account that data may be outdated. **Linking business processes via nested services** Information systems communicate with each other via nested services. If for the performance of a business process in one agency data is needed from or workflow has to be carried out in another agency, nested services are made use of. Agencies must ensure that the data and services it offers could be used as nested services. For instance, one should avoid a situation, where a document is printed out in one agency, delivered to another agency by post, and then once again scanned into the computer. **Ensuring the availability of nested services** In situations, where service user's requirements for the availability of a service are stricter than those of the service provider, the latter should increase service

availability. In case this proves impossible, other solutions can be considered while taking into account legal aspects.

Avoiding „single point of failure"

Solutions, where the break-down of one part of the system may disrupt the functioning of the whole system, are to be avoided.

Security

Solutions used in the state information system have to be secure and ensure confidentiality, authenticity, availability and provability of data.

Open standards

When choosing IT solutions, those based on open standards have to be given preference.

Person's right to access data about himself

Each person has the right to access data that has been collected about him to information systems. In addition, everybody should be entitled to obtain information about inquiries made by other persons about them unless this has been restricted by law.

Single-point entry to services

Central and local government agencies co-operate in order to ensure that citizens, officials and entrepreneurs could obtain all the information and services they need from the following state central portals: http://www.riik.ee, http://www.eesti.ee and https://www.eesti.ee.

5.3 Semantic interoperability

Semantic interoperability depends primarily on high-quality documentation of databases, services, applications and areas. The main objective of an organization ensuring semantic interoperability is to coordinate the development and regular updating of such documentation. Semantic interoperability can be improved by elaboration of standards, dictionaries, thesauri and nomenclatures. At the same time, references to these semantic assets can be made in the legislation; if necessary, their use can be made mandatory.

In planning the system architecture**, the following guidelines should be taken into account in order to facilitate semantic interoperability:**

Guidelines for semantic interoperability	• for data exchange, XML format is used over http or https protocol • the XML format used should be easy to understand and not to contain excessive noise: unnecessary tags and details • the XML format used must be documented in an easily understandable manner for developers • the presentation layer should be realized as a separate application that communicates with the main application via XML texts and generates the HTML necessary for the user or realizes the • interface in some other way (WAP, SMS, desktop applications etc) • direct generation of HTML text that does not support adaptable semantics from the main application has to be avoided.
About X-Road	**5.4 Short introduction to X-Road** On the http://www.riso.ee pages we can find thorough discussion about X-Road. According to that source, "no IT development project in Estonia can be realised without any connection to the technological solution of the X-Road. The X-Road enables secure access to nearly all Estonian national databases; ensures the necessary availability, integrity and confidentiality of electronic document exchange; serves as an environment through which Estonian information systems can be potentially joined with similar systems to be built in the EU, etc. All the above-mentioned characteristics have already successfully been put into practice. Hundreds of services provided by information systems of different institutions work over the X-Road on the 24/7 basis and all Estonian residents with the national ID card or a contract for the use of Internet banking codes can make use of its enquiry services targeted at citizens." It then continues on discussion about history, principles of X-Road, its structure, development projects, etc. For further details on this topic, reader can visit the web address http://www.riso.ee/en/pub/2006it/docs/2.4.htm.

Summary

Chapter 5 discusses interoperability in Estonia. It begins by defining The Estonian IT interoperability framework as presented on epractice Library pages, followed by reference to the publicly available document named Estonian IT Interoperability Framework.

Basic characteristics, key principles, objectives, etc, of the framework, are discussed in the next few pages.

After basic introductory lines, topics like Interoperable document management systems, Interoperable geoinformation systems, Administration system for the state information system are discussed in a few sentences respectively. Chapter then continues with 3 larger units: organizational interoperability, technical and semantic interoperability, and ends with short introduction to X-Road, which (among many things) enables secure access to nearly all Estonian national

databases.

"An ABC Guide to E-Government in Austria" document

Different point of views of approaching interoperability

The Communication Architecture working group and its activities

6. Interoperability in Austria

Notes from this chapter are extracted from publicly available document named "An ABC Guide to E-Government in Austria".

Within the scope of the Austrian eGovernment offensive, the main parts of eGovernment are developed with interoperable communication in mind. The main objective was to avoid incompatible solutions and divergent parallel developments. The implementation of different interfaces in eGovernment applications will result in enormous effort and bad quality if sub-functions are integrated.

Several working groups were set up with the task of adapting the different interface components between the Federal Administration, Federal States and municipalities. They approach interoperability from different point of views:

- From **organization** via **semantics** to **technical** interoperability.
- From the first contact of a customer, the online request, through electronic processing to electronic delivery and archiving.
- From the general solution to the specification for e.g., municipalities, federal states, federal administration.

The working group Communication Architecture is developing specifications for the interoperability of Austrian eGovernment based on existing and international standards (XML, web services, SOAP, etc.). These standards operate system-independent interfaces.

The Communication Architecture working group is assisted by other related working groups (Q-SKF, Q-ARCH, Form Style Guide, style guide conform forms, online dialog, programming standards, EDIAKT, Q-PV, LDAP, etc.).

The results of the various working groups will be published on the http://reference.eGovernment.gv.at/ pages. Target groups of these specifications are primarily the corresponding project managers of the authorities and IT service providers.

The following specifications have already been developed:

- MOA-ID (identification)

Already developed specifications	• MOA-SS/SP (electronic signature) • MOA-ZS (electronic delivery) • Internet Policies (domains, e-mail, signatures, certificates, etc.) • Closing dialog for online requests • XML specification for searching with Web services (XML-sw) • Entry protocol (XML entry protocol) • Consistent schema for the electronic exchange of records (EDIAKT) • Consistent schema for personal data and organizational data (XML-person data) • Electronic notification (XML notification) • Consistent description of errors and standardized error messages during SOAP transmissions (SOAP faults) • Form style guide for the consistent design of online forms • EPS2 standard for electronic online payment For further readings it is recommended to consult a document named "**An ABC Guide to E-Government in Austria**", which is available in pdf format for free download on http://www.digitales.oesterreich.gv.at/DocView.axd?CobId=19394.

Summary

Chapter 6 deals with interoperability in Austria. It references to the publicly available document named "An ABC Guide to E-Government in Austria" as a thorough source for Austrian e-government solutions.

After a few introductory lines, chapter discusses different points of view when approaching interoperability, explains activity of the working group Communication Architecture and reference to the location of their results. Chapter continues on listing the specifications that the group have already developed and ends with further readings recommendation.

We-Go Academies : Train-the-Trainer program

D3.2.1. Lecture Notes

We-Go
Enhancing Western Balkan
eGovernment Expertise

Course
Introduction to Security, PKI, eSig and eID

Lecture Notes

Contents:

Functional overview of security

1. Introduction

Security is more art than science, in the sense that buying paint and brushes does not make you an artist, just as much buying firewalls and various protection software, implementing security policies and so on, won't give you a special insight about what you must do with it and how to pull it all together into one cohesive and effective security system.

Data and information is perhaps the most significant organizational resource of today. It can be used many times and doesn't have a classical form like other products (like cars, milk, computers etc.); it is invisible. So, we must protect this "invisible" form and keep the value of data and information using today's sophisticated computer security models and solutions.

The recent increase in global terrorist activities reinforces the need to implement security in every part of our lives and business. Computer security is one part of this global security process. It is implemented in everyday activities. For example, if you want to use your mobile phone, or if you want to get some money from an ATM you must to know the PIN, if you want to use a computer you must to know the password. You can find this kind of an example all around you.

Why do we need computer security? Organizations depend on their computer systems and services as well as on the data that is the result of processing, and this dependence increases daily. This specifically means that organizations are increasingly sensitive and vulnerable to the security threats that may also compromise the security of computer systems. At this point it would be necessary to describe the scope of computer crime, which is the best way to analyze security. In the annual report CSI Survey 2007 we find the following data very alarming:

- The average annual loss amounts to $ 350.424 which is nearly $ 200.000 more, compared to 2004.
- Every fifth citizen (or organization) suffered one or more security attacks.
- Financial fraud seized primacy as the reason of financial losses.

The percentage of organizations that reported illegal entries in their computer systems has risen from 4% to 29%. According to the Gartner report, the revenue from security software sales amounted to about 7.4 billion US dollars in 2005., which is an increase of almost 15 % compared to 2004., when the

	turnover amounted to around 6.4 billion US dollars. Gartner report shows that there is an increase in the number of users who do not want to show (or give) details about financial loss that resulted from security vulnerabilities or failures. Protected data stolen from mobile devices incurred losses of about 2.354.000 US dollars while the cost of the equipment stolen was 3.881.150 US dollars. This fact is very interesting since it shows that the cost of losing the device is not negligible in comparison with the data stored on it.

Introduction to CIA model

2. C-I-A Model

What is computer security? *Computer security is a general term that covers a wide area of computing and information processing*. Computer security gives description based security attacks that may take place on the resources and basic guidelines to protect them. If we observe all facts in introduction part we can conclude that computer security includes the implementation of measures for the protection of data that are in the process of treatment, or are stored or is in progress, their transfers from the loss of confidentiality, integrity and availability, or to prevent loss or availability of the system. In accordance with these security measures are for the task discourage, prevent, detect and recover system or the fact of the influence of the incident, which operates on the confidentiality, integrity and availability of the same. In the first place, safety protects order to ensure business continuity and minimize damage that can cause damage to the data as well as maximum return on investment. When we are talking about computer security can only be observe through the system of data protection. The value of the data can be compromised in three ways, which in literature usually called CIA model of computer security. ***When we are talking about CIA model in computer security we think about what?*** CIA model is acronym for Confidentiality-Integrity-Availability

Data Confidentiality

2.1. Data Confidentiality

What is Confidentiality? Confidentiality has been defined by the *International Organization for Standardization (ISO)* as "ensuring that information is accessible only to those authorized to have access". Confidentiality is the concealment of information resources. The need for keeping information secret arises from the use of computers in sensitive fields (for example government or industry). Access control mechanisms support confidentiality (for example cryptography). One of the more important aspects of data confidentiality applies to hiding its existence. It is important to say that all the mechanisms that enforce confidentiality require supporting services form the system.

Data Integrity

2.2. Data Integrity

What is Integrity? Integrity is the second part of the CIA model and it refers to the trustworthiness of data or resources (in literature we can usually find

	the phrasing “preventing improper or unauthorized change”). Integrity includes: data integrity[1] and origin integrity[2]. We can divide integrity mechanisms in two classes: prevention mechanisms and detection mechanisms. Prevention mechanisms seek to maintain the integrity of the data by blocking any unauthorized attempts to change the data or any attempts to change the data in unauthorized ways. Detection mechanisms do not try to prevent influence to integrity; they only report that the data’s integrity is no longer trustworthy. These mechanisms may analyze all systems events to detect problems. They also may analyze data itself to see if required or expected constraints still hold. The main difference between confidentiality and integrity is that integrity includes accuracy and the trustworthiness of the data, and confidentiality on whether the data is compromised or not.
Data Availability	**2.3. Data Availability** ***What is Availability***? The last part of the CIA model is availability. Availability refers to the ability to use the desired information or resource. With availability we describe products and services that ensure that data continues to be available at a required level of performance in situations ranging from normal through specific (dangerous for business). Data availability is achieved through redundancy, which relates to where data is stored and how it can be reached or retrieved. The aspect of availability that is relevant to security is that someone may deliberately arrange to deny access to data or to a service making it unavailable. These attempts to block availability are known as denial of service attacks. These attacks are very difficult to detect because we must be able to determine the unusual access patterns and the intention to manipulate the resources or the environment.

[1] The contents of information
[2] Authentication

Attacks

3. Attacks

Today's era is definitely the time of the rule of computers. They are in our homes, workplaces, cars, literally at our every step. There is currently no organization successful in avoiding the interest of offenders who deal in computer crime. This interest can be defined as an attack, although very often terms such as burglary or intrusion are also used. It is difficult to draw a border that would determine when a particular act is a burglary and when it is an intrusion. These two terms maybe look like synonyms but they aren't. When an offender manages to break through computer security systems with the aim of achieving material used or the commission of damages it is possible to talk about burglary. In cases when it comes to the break through computer security without the objective of achieving a material benefit or damage the commission can talk about intrusion. From this point of view it is no matter distinguish between these two concepts. We can observe the attacks on computer systems from the aspect of a successful attack and an attempted attack. A successful attack is the kind of attack that has resulted in the end with breaking computer security systems while trying to attack.

In general, attacks can be classified and described in several groups. We will classify them according to the objectives or by damage that could cause offense and in the consequences that may arise:

- Computer systems owned by state institutions (ministry of defense, ministry of home affairs, etc.)
- Computer systems owned by large commercial entities (international corporations etc.)
- Computer systems owned by financial institutions (banks, stock exchanges, etc.)
- Computer systems owned by state institutions and organizations (government, different communal information systems, etc.)

Attacks on computer systems that are owned by the state institutions have the most tragic consequences. It is no secret that national security of almost every country in the world is in some ways "in the hands of a computer". We are witnesses of many tragedies that were caused by terrible handling by people who, with the help of computers, manage satellites, airplanes, strategic, as well as non-strategic weapons. The attacks on these systems are not only interesting to perpetrators who have become aware of the financial gains possible through such attacks. Agents of the various intelligence

	services learned long time before that the computers are where intelligence information is. The great East-West division of the past has lost its meaning with the advent of computers. Every day, intelligence agents attack goals on the other "side" in attempts to obtain intelligence information. The end of the Cold War opened the new economy, the economy of theft and competition between national's economies. The result of this new economy is competition in computer crime, and new types of attacks, especially attacks on computer systems owned by large companies that represent the national economy. This has become known as industrial espionage, and perpetrators of these acts in the area of computer crime are considered possibly the most harmful. The technological achievements are based on business secrets or confidential information, but the irony is that technological progress has been made more difficult with business secrets and confidential information. It is normal today to store and transfer large amounts of data using electronic media for data storage, without any great risk that the offender will be caught.
Threats	**3.1. Threats** When we talk about these acts, we cannot avoid threat as a basic concept that is located in each of these acts. We can describe threat as any means of force or reducing the effectiveness of the system, or prevent the fulfillment of the objective. Although there are different interpretations of "threat", we could say that threat is, essentially, a potential cause of unwanted events that ma y result in damage to the system or organization; or a potential source of hazards enabled (accidentally or intentionally) by system vulnerability. Threats can be divided according various criteria: • Way of doings (theft, loss, disclosure, interruption of services, information changes) • Place of origin (internal, external) • Place of "action" (human sources, information holders, devices, equipment) • Intent character (intentional, unintentional) • Source, etc. Threats can generally be divided into: • Natural threats (fire, flood, environmental pollution, earthquake, diseases, radiation, weather disasters, humidity, heat, etc.) • Intentional human actions (sabotage, espionage, war destruction, disclosure, theft, fraud, etc.) • Accidental human actions (inattention, ignorance, negligence, etc.)

- Technical threats (loss of electricity, failures and breakdowns of devices and equipment, technical accident, poor quality, statistic electricity, dust, etc.)
- Organizational threats (inadequate procedures, organization and structure, ergonomics, etc)

We can say that a threat is potential violation of security. The usually we can "find" next threats:

- Snooping - the unauthorized interception of information. It is passive suggesting simply that an entity is listening to (or reading) communications or browsing through files or system information.
- Modification or alteration - unauthorized change of data. The goal may be deception, in which an entity relies on the modified data to determine which action to take, or in which incorrect data is accepted as correct and is released.
- Masquerading or spoofing - impersonation of an entity by another is a form of both deception and usurpation. It lures a victim into believing that the entity with which it is communicating is a different entity.
- Repudiation of origin - a false denial that an entry sent something, is a form of deception.
- Denial of receipt - a false denial that an entity received some information or message, is a form of deception.
- Denial of service-a long-term inhibition of service, is a form of usurpation, although it is often used with other mechanisms to device.
- Delay - a temporary inhibition of a service, is a form of usurpation.

Vulnerability

3.2. Vulnerability

Vulnerability is closely linked to the threat, and it can be defined as the ability to use the threat of potential weaknesses of the media and/or devices to store data or devices end equipment. When we talk about vulnerabilities in the first place, we mean the imperfections of data carriers (such as a man, paper, magnetic or optical carriers etc.) and to their weakness to different influences. Apart from the media for data storage, on the vulnerability of information affecting the property and features of computer devices and other equipment and devices for storing and processing information, and for which the information in today's time, particularly related.

Weakness

3.3. Weakness

As we can see, there is a wide range of acts that are included in term computer security. This encompasses physical theft and destruction of

electronic equipment, sabotage and abalienation of data and money. Each computer system is attacked at the point considered weakest by the perpetrator. For further understanding it is important to give a short overview of basic weak spot in every computer system, hardware, software, communications and data.

Hardware

3.3.1. Hardware

Hardware is something that most people think of as the "computer". What it also includes are computer terminals and other components such as printer, modem, disc or other "mechanical" part. Hardware can be compromised in two ways. The first is by means of physical destruction, while the other way is accomplished through the use of software (usually for that purpose the perpetrator employs viruses or other malware). Of the perpetrators who physically destroy hardware the most known, as well as the most able and effective are terrorists. Employees who have received dismissal very often know to make damage of hardware. But, every time when hardware is destroyed, the company gets the new one. This new hardware is usually gathered from the old ones, but thus causing the company a additional cash expenses. However, the greatest problem isn't the money that needs to be invested in the acquisition of new hardware, but the loss of data, software and the period of time during which the company couldn't perform their daily tasks. Hardware is a very attractive target for thefts because hardware components are easily sold.

Software

3.3.2. Software

Regular users consider software as the everyday program support for doing their jobs. Software is "responsible" for causing instructions and information that appear on screen and is responsible to the computer works. The concept of software includes operating systems and application programs, and it is necessary to make a distinction between them. Most users don't have to worry about the operating system. The operating system usually comes with the computer. By running a computer, the user also runs the operating system. The operating system contains instructions which say that only the computer checks to him while working to respond to initial commands from the keyboard and to provide the system with necessary information for use at other levels of software. Unlike the operating system that users do not meet often, what they themselves are forced to do is install a more detailed study of application software such as MS Word, Corel, Visio, and various other application programs classified as graphic programs, games, as well as educational and scientific program. Application programs are usually bought from software suppliers (vendors), besides which a large number of organizations have also developed

their own software to perform tasks such as accounting, the list of goods, etc.

Computer software can be targeted for attack or theft, and can be a part of the attack or theft (may reside on the hard disk). Perpetrators can steal a floppy disk, CD, DVD or other storage media containing copies of commercial software development, but what is even more destructive, they might steal copies of software developed by the organization itself. If competitors are provided with a fully developed operating system, they may not need to invest time and money in developing their own. Computer software can be tempted and in a manner that will not immediately be beacon. This are primarily thinking of employees who copy commercial software support at work and use it at home for their own needs. Software that employees copy is protected (the Law on Copyright) and in most cases, only licensed for use on employers computer. When we talk about these acts is a key concept of licensing. Specifically, over the licenses is determined whether this is a violation of copyright or on organized crime distributing of illegal copies. The programmers who work on the development of software used different methods and techniques to prevent theft to copy their products, but software thieves still remain several million (U.S. $) international problem.

Communications

3.3.3. Communications

Communications certainly take the most important place on a computer network. To provide a simplified description of a computer network, we could say that it is a “wire” that connects two or more computers into a single unit. Today, communications have the greatest importance, and they can certainly be regarded as a carrier of humanity’s development. The term that is inevitable in any discussion about the Internet is communication. Internet is a global computer communications network made up of national computer networks. Connecting a computer with any computer network inevitably causes an increase in the degree of vulnerability of information stored on it. The Internet and other large international computer networks represent a special problem. Specifically, intruders can use a computer on a computer network to connect with another computer on a second computer network in order to mask their tracks. Depending on the number of computer networks linked, intruders who enter into a computer system have a golden opportunity to break another computer systems and computer networks at the same time. Computer networks also allow users access to many different services such as a BBBs. Bulletin boards are places where computer users can exchange information, leave messages or get new programs that are in the public domain. Computers control the information about national defense, transfer trillions of dollars a day to fund transfer networks, medical operations, air navigation problems, and virtually everything else today.

	"Someone who can establish control over these systems, can also commit amazing damage, according to the system and the people who work and depend on the system. These attacks may be visible such as physical exclusion but also invisible. One of the ways invisible attacks are performed are through the means of viruses. A virus is very easy to set up a in a business. Take such employee who is not suspected, nor in which respect, and who has access to certain services on the Internet from your home computer. At these services, employee finds new publicly available software and which thinks that he can facilitate the everyday job. Therefore, on software records to a floppy disk, and it applies to the computer records, which is located in company. What the employee did not know, the fact is that within that seemingly naive and useful software is a very dangerous computer virus. Viruses can extend to all computers that are in the local area network, potentially causing great losses in valuable data and software.
Data	**3.3.4. Data** The flow of information in an organization reflects, in importance as well as function, the circulation of blood in any living person. Hardware and software of the computer system can be replaced with another or can be reconstructed, which is very expensive, but unlike the data stored on the computer system with the purpose of job indispensable are financially invaluable. The data could be described as the fruit of the hard work the whole organization and all that it seems of management, documenting, performing material transactions or performing other very complex operation. When doers steal information they steal is something that money can't be measured and posing a collapse and destruction organization that is steeled. To prevent theft of data in organizations apply different ways of their storage. The data are stored on different types of magnetic media and optical media such as floppy disks or CD DVD, magnetic tape or on paper or on the media microfilm. But regardless of the method of data storage doers have solution, each of them, and it is necessary within each organization to devote special attention to data protection systems. In addition to the theft of data as one of most destructive attack on the data, it is the honor and attack, which is called the unauthorized use of data. Several different types of unauthorized use are known. The most common type is unauthorized use when the computer system used for a person who is not authorized to. For example, people who steal password or persons who manage circumvent protective computer systems. These people belong to this category. They can make the physical damage to the computer system, deleting messages and data with computers or can use it as a base to connect

Privacy	with other computers and computer systems with other computers or computer networks on the Internet. Maybe this will apparently free use of the system look simply, but there simplicity should observe in the light of multiply use the equipment and spending electrical power and wearing the equipment. Using a computers and other computer infrastructure in company for personal reasons is not necessarily "crime". Sometimes crime depends on the nature of the work, competence, the nature of use, business policies, and what the contract is signed with the employee organization. **4. Privacy** Privacy is the ability of an individual or group to seclude them or information about themselves and thereby reveal them selectively. The boundaries and content of what is considered private differ among cultures and individuals, but share basic common themes. Privacy is sometimes related to anonymity, the wish to remain unnoticed or unidentified in the public realm. When something is private to a person, it usually means there is something within them that is considered inherently special or personally sensitive.
Identity theft	Data privacy refers to the evolving relationship between technology and the legal right to, or public expectation of privacy in the collection and sharing of data about one's self. Privacy concerns exist wherever uniquely identifiable data relating to a person or persons are collected and stored, in digital form or otherwise. In some cases these concerns refer to how data is collected, stored, and associated. In other cases the issue is who is given access to information. Other issues includes whether an individual has any ownership rights to data about them, and/or the right to view, verify, and challenge that information. Various types of personal information often come under privacy concerns. For various reasons, individuals may not wish for personal information such as their religion, sexual orientation, political affiliations, or personal activities to be revealed. This may be to avoid discrimination, personal embarrassment, or damage to one's professional reputation. **4.1. Identity theft** Identity theft is a more popular crime. The usual scenarios where doers serve are: -- Dumpster diving, -- Mail theft, -- Personal property theft, -- Inside sources, -- Impostors,

PKI	-- Online activities. In the first scenario, as this incredibly sounds regular user, identity thieves dumpster diving seeking pieces of information that can be used or even sold. Documents containing information that can be used thefts the credit card accounts, telephone, electricity, etc., embolus incoming mail and documents about the membership of which contain personal information. During the delay such kind of information should explicitly take into account the fact that, before the delay in trash, such documents properly destroyed (shred). Search postal mailbox and stealing electronic mail message is a scenario in which steal information to come before the individual user. Any e-mail message that contains information on financial transactions, tax forms or similar information that can be use and enable identity theft interesting is this type of people. Theft of personal belongings is still one of the scenarios is easy to get to identity. The simplest example is stealing the wallet, normally also all identification documents, credit cards and even membership cards. However, thefts and portable computers, planers and bag can be a source of useful theft for information. Growing trend in identity theft is the mediation of information from the internal sources information. Dissatisfied or disloyal employee who has access to personal information, if decides on such a step, can sell information to those information and potentially interesting or helpful. Fake is another common form of identity theft, where the use of any fraud to the get a personal information of victims. Online activities greatly increase disclosure of personal information. Entering personal data through the form of web pages and other transactions that the online user leaves the possibility of identity theft. **5. PKI** PKI (Public Key Infrastructure), also known as X.509, a system that is based on strict hierarchical organization by publishing user certificates. PKI system makes the combination of encryption technologies and services that enable organizations secure reciprocal communication and business transactions. PKI is composed of several connected buildings, applications and services: tools for managing and monitoring system, CA (Certification Authority), which is responsible for issuing and validity of the certificate, distribution issued a certificate (usually uses LDAP directory service) CRL distribution list (Certification Revocation List); User Certificate; custom applications, servers, etc., using PKI authorization. PKI components work together and enable the secure distribution and

validity certificates issued.

The PKI system is the confidentiality of information ensures encrypting message that the use of secret (private key) and public (public key) key in the Association with a complex mathematical algorithm. Each member of the PKI system has its own public and secret key, updated certificate. The basic principle of the system is secure storage of secret key that must be available and known to only a user. Customer certificate, in which there is a public key, available to everyone and most often, is stored using LDAP directory service. Using a combination of public and secret keys while sending a message, the content of the message is thus made message becomes unreadable. By applying right secret key, that each person in the PKI system is kept for himself, decrypts the message, and again becomes readable.

The secret key is used, and with a digital signature and the message recipient using sender's public key can verify that the content of messages during delivery changed, or whether the original received HASH record.

Certificate or a digital signature (digital ID) is an addition that adds a digital document and serves as the authentication person or computer that uses a service, application or communicate with other users via the Internet or otherwise.

Validity of the certificate is a guarantee certificate higher level of hierarchy, the so-called root certificate or certificate signed by a CA (Certification Authority) operator who was signed from the root CA (Certification Authority).

User certificate identifies the user with several elements:

- The duration ("beliefs") certificate
- Extensions user certificates which define the services for which users can use your certificate
- The role that the user has organized on the basis of who gets the authentication of services that can be used
- Link on the list, which checks whether the certificate is lost on the validity
- A field in which the user is written public key
- Conspiracy certificate with the standard applications

After issuing the certificate, along with the standard cryptographic functions, there is different use in applications for authorization and authentication purpose.

eSig

5.1. eSig

Digital signatures allow the determination of the authenticity of

Principles of digital signatures	electronic document, for example, electronic letters, web pages or image files. The document is authentic if is known to its author, and if possible to prove that it is not unauthorized amended. Check credibility signed documents has enabled the use of encryption, where encryption is the process of encoding data before sending them to only authorized recipient can decode and understand. By using digital signature algorithm signatory creates a couple of keys, the private and public, but it is possible and that is to sign all messages using the same couple. The message was signed by the collapsing some hash algorithm - creates the impression of her. Digital signature algorithm from so informed summary messages and user private key creates a digital signature that is sent or published together with the signed message. The basis of security of digital signatures is in secret private key while the public key is available to everyone, and provides authentication messages. **5.1.1. The principles of digital signatures** Authentication author or data can be implemented using: • passwords - the most common method of proof is with the user name and the associated password, • sum of the exam (eng. checksum) - used primarily for Validation received data, but can be used for authentication because of bad checksum indicates any unauthorized changes to data, • CRC checks (eng. Cyclic Check Redundancy) - similar conceptual tested tallied, but sharing polynomial used to determine the correctness of data, • encryption with a private key, • encryption public key and • digital certificates. Encryption with a private key At a private encryption key, or every computer user has a secret key with which data, before sending computer network must be cryptic. The recipient needs to know senders secret key to decrypt could also received data. Therefore, prior to establishing the necessary communication know that the computer (ie customers) will exchange messages and on every computer to install private keys of the computer from which you expect the message. Encryption public key

Modern protecting techniques	When you create a digital signature is used, while the private key is for his benefit check public the key that corresponds to, but not the same, private key. Each user has their own private and public key. Public keys are publicly available and enable each user to check the signatures. Private keys are available only to their owners which disabled counterfeit signatures. The data that is marked by digital signature called abbreviated message. In the process of creating digital signature to obtain compressed versions of the message (eng. message digest) is used to secure one-way function, the so-called. SHA (Secure Hash Algorithm) algorithm. These are functions that are Mathematics easily calculated, but they were very difficult to find inverse function. From the concise versions of the messages digital signatures algorithm creates a digital signature. The message is, together with specific signature, which sends receiver using public key of sender, establishes credibility messages and the digital process. Digital certificates Digital certificates are used at more demanding implementation of encryption public key, for example, by Web server. It is a certificate issued by one or more certificate authority), which represent part of PKI systems. Mentioned body acting as an intermediary between the two computers or users, it confirms their identities and exchanges their public keys. Certificates of digital signatures are used to connect public keys to the data about the identity of the owner, such as the name of the person or organization, address, etc., and thus prevent unauthorized access to information publication fake public key. Web of trust is the alternative to centralized PKI systems, and is used with PGP (Pretty Good Privacy), GnuPGP and other systems compatible with the OpenPGP standard. It works so that users, using their own private keys, identification certificates signed other users. Mention identification certificates may contain information such as public keys, and data about their owners. For example, the user can accept the credibility of it if the certificate was signed by three or more users to mention that the user has partially trust, or one confirmed by a user. **6. Modern protecting techniques** The computer has only the power to allow access to legal users. To know that the legal computer user is usually aided username and some of the authentication methods. Usually there are three ways of authentication of identity:

- Something that people know
- Something that person possesses, and
- Something that person is.

These are three common ways called three postulates of authentication that can be used in combination, but also individually. How are these postulates daily use, it is necessary to say a couple words about each.

Something that people know

Science is a category as a very relative term. At knowledge verification system is considered to be all that people can remember in order to "prove" their identity. This may be a password, personal identification number (PIN), unique citizen number, some phrases or secret handshake. Passwords are today the most used and represent the simplest form of authentication: they are secrets that the user shares with the computer. Passwords are especially important with computers that are used by more people, or on computers that are connected to the computer network where multiple computers share a secure connection among themselves. Although the password is as one of the most important elements of security of computer systems, users still typically receive insufficient instruction on how their selections. Each user must be aware of the fact that selecting a bad password or providing its people distrust of insurance threatens the entire computer system. Poor password is any password that can be hit. Doers who are trying to discover the user password used their computers with lists of tens of thousands of the most frequently used passwords. Therefore, should mention that the password, which is still good for someone other than the individual user does not a good password. It is a bad choice for a password user name, his marital partner, child or parent. It is also a bad choice of the use of passwords written toward the end of the beginning, and the use of short passwords.

Something that person possesses

All that is unique and for that of user required to possess can be used as authentication label. This label is generally associated with a single user. The label is registered in the name of the user and when the present for authentication, verification of user identity. The label is typically used for verification with some of the data, such as identification numbers and the like. Labels usually share into two groups: classical and electronic.

The first group includes tags that each possesses a user are for fixed (or better is difficult to say changing parameter) such as identity cards, passports, driving permits, passes for entry into security space, etc. Electronic tags are slightly different but related only to devices that are called tokens.

Biometrics	Accordingly mode and the application of different tokens we know tokens for data storage and dynamic tokens. Something that person is It is well known fact that every trace that can be reliably measured can be used for authentication. Biometrics is on the market brought a new security approach and new ideas. Users constantly own the characteristics about it do not have to worry and user can't lose. **6.1. Biometrics** Biometrics in today represents a synonym for checking and identification of persons, using the behavioral characteristics and physical characteristics. Observed in this context, biometrics can be defined as a person identification model, based on psychological characteristics or behavioral characteristics, and refers to something that person possesses or that person knows how to perform personal identification. Some even give generally definition, and say how biometry deals with identification of individuals, based on their biological characteristics or behavioral characteristics, or to represent a sort of a methodology to resolve the identification by these criteria. The problem authentication and identity is very challenging. Technical approach to the problem of checking the identity of a person based on a reduction in verification of concrete problems associated with the characteristics of a person. Previous years (although even today still exists), this problem is solved combination of "something you know" and "something you possess" (such as credit card and PIN) in order to determine the identity. The problem with this approach, for which we can freely say that the traditional, lies in the fact that the property can steal, forget or lose. Similarly owned, and knowledge can be forgotten, and if this is a generally known fact, (such as date of birth, the child's name, etc.) can be a hit. This is just one example of how this approach is not able to distinguish legal from illegal users in the determination of identity. Although biometrics methods and techniques are not the drug itself against disease identification of all people, those, particularly in combination with traditional methods of ownership or knowledge of things, represent a very powerful tool for the needs of solving the problems of identity verification. Biometrics represents the intersection of several science within which dominated most information science and its description as well as the very definition of wised and vary to different applications and different authors. Biometrics the authors describe as "... psychological or behavioral pattern that

	can be measured and identify with the task of confirming the identity of a person". Another definition of biometrics "... refers to automatic identification of persons based on his or her physical or behavioral characteristic ". Specific definition of biometrics describes biometrics techniques and through them "... biometrics techniques are automated methods of verification of identity or recognition of living persons on the basis of psychological or behavioral characteristics ". Biometrics is possible to observe in a broader sense and in narrow sense. Biometry in a broader sense, represents a statistical study of biological phenomena, it is the application of mathematics and statistics in understanding the living beings. In narrow sense biometrics can be defined as the science which deals with research capabilities to identify people based on their physical and / or psychological characteristics. Although at first glance these definitions seem very variegated all have one common thread that can be expressed through: • Physical and behavioral biometrics characteristics: Biometry is based on measurement of physical characteristics, behavioral and psychological characteristics. Physical characteristics, such as facial image or fingerprint, are part of the biometrics characteristics that can be directly measured on the body of persons. Behavioral characteristics such as walking or keystroke dynamics can be directly measured but not on the body of people already through the conduct of persons. • Automatic use: Physical and behavioral characteristics we're using the "manual" identify persons. Specifically, we usually automatically (since this often do not even think) recognition or recognize people by their appearance, behavior, etc. Unlike the recognition of the way, biometrics technology is used automatic (with machinery) way of recognition to confirm the identity or specify. As the entire process is automated, biometrics authentication usually requires only a couple of seconds, and biometrics system is able to compare thousands of data per second. • Identification versus Verification: Identification vs. verification of identity is a basic difference in biometrics usage. With biometric identification system tries to answer the question "Who is the person." At the work of identification applications biometrics sensors read sample and compare it with each sample in the database. Identification is determining the identity of users who presented their biometrics characteristics. For this purpose, a database with a few samples of biometrics data be searched, and the user is identified as the owner of biometrics data most appropriate really present the data. The process of identification is also called a "one-to-many-comparison" or "1: N" - the comparison. Verification is a mode in which biometrics system asks

Security and Law	and tries to answer the question "Is it a person who represents?". In verification application, biometrics system requires input by the user (usually through a password, token or user name). Entering this information is linked to the template database. At the same time biometrics system by users take biometrics sample, after which the sample is compared with user-defined template. Verification of user is testing to confirm whether he / she really the person who you represent. Presented the data compared with reference data that were previously stored, in case of default the match within the borders of tolerance, the verification process is successful. The process of verification is also called a "one-to-one-comparison". **7. Security & Law** There is lot of Directives in European Union which are directly and indirectly associated with computer security. All this directive are implement in all countries in European Union, but countries have right to use own specific laws about computer security and other law who deal with similar problems (informatics, data, telecommunications). Maybe, the major act is Convention of cyber crime which deals whit all aspect of information security in general and leaves the lot of space to all countries to implement their own legislative and make a better information security.

SIXTH FRAMEWORK PROGRAMME

Call title: IST Call 6, Call identifier: FP6-2005-IST-6, Area: 2.6.5: International Cooperation
Instrument: Coordination Action (CA)

2.6.5.1. International cooperation for eGovernment and eParticipation
Target countries: Western Balkan

Contract for:

COORDINATION ACTION

We-Go
Enhancing Western Balkan eGovernment Expertise

Work Package 3 - eGovernment Academies Deliverable D.3.2.1. Courses and Curricula We-Go Cases

Version: 1.0, 08.07.2008.

Proposal/Contract no.: **Contract no 045472**
Start date of contract: **1st December 2006**

1. We-Go Cases

The following table gives an overview of Case Studies provided by We-Go partners. The cases will be used as good practice examples in the relevant lectures.

Case No.	Topic	Relevant for Course No.	Provided by
1	Electronic law making process in Austria - e-Law	O1/L1	BKA/DUK
2	National Strategy for Information Society Development in Macedonia (FYRoM)	O1/L1/O2/O3/ T1/T2	MTM
3	Human resource Management Information System in BiH	O2	MITC
4	e-Justice	O1	MITC
5	Slovenian State Portal for Business Entities e-VEM	O2/O3	SRC
6	e-Government Portal in Slovenia	O2/O3	SRC
7	e-Government Registries: document management in public administration in Slovenia	O2/O3	SRC
8	e-Voting	L1/O2/T1/T2	eGa
9	Enabling citizens' initiative to e-participate	L1/O2/T1/T2	eGa
10	e-Pay	L1/T1/T2	PEXIM
11	e-Budget	L1/O2 T1/T2	PEXIM

We-Go Academies : Train-the-Trainer program

D3.2.1. Case Study

We-Go
Enhancing Western Balkan
eGovernment Expertise

E-Government Case Study
eLaw
Electronic law making processes in Austria

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Friedrich Lachmayer

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Contents

"eLaw - Electronic law making processes in Austria"

1 Abstract and Synopsis

The Federal Chancellery is one of the first public authorities in Europe which has implemented a complete digital law making system. The eRecht/eLaw (Electronic law making processes) project is an important step towards the realisation of eGovernment and has changed legal culture in Austria in two directions:

1. to the public
by introducing electronic publication of legal texts, replacing print media and achieving the benefits of electronic distribution,

2. to the legal system
by reorganising and automating the workflow for the production of legal documents, achieving a common denominator for the co-operation between the different institutions involved in this production.

ad 1
The key achievements were the replacement (the total replacement) of paper for publication and free access to legal information. The previous paper based publication supported only a limited number of subscriptions (app. 5000 per year). Of those, app. 3000 copies were for internal use within the public sector of Austria (ministries, regional and local communities, courts etc.). The price for one subscription was considerable. Therefore even lawyers did not afford, they bought only copies of those legal texts most relevant for their work.

Today, using the Internet for accessing the electronic publication, distribution reaches a much wider audience, supporting more than 5 Million enquiries per month. Access to legal information is free, including free download. Legal information is not restricted to laws but it includes draft bills, government bills and other supporting materials in a given context. Therefore public access to all these information's is an important step in the direction of the participation of stakeholders and of e-democracy.

ad 2
The key achievement was the introduction of an electronic workflow system between all institutions involved in the law making process, bridging all interests.

Each institution agreed on a common format for the interchange of legal information (XML based). Therefore it is possible to automate the whole production process e.g. for laws. This process is innovative, supporting younger people in particular.

One of the specific advantages of the workflow system is that it allows to include metadata at the place where they are generated (ex ante approach), avoiding the drawbacks of the usual addition of metadata at the end of the production process (ex post approach).

The basic idea of the ELaw project is to have legal texts pass through a continuous electronic production channel, from the initial draft of a bill, via evaluation („Begutachtung"), to the government bill, to its debate in parliament and through to its authentic publication on the internet. Technical means ensure transparency with regard to the making of the text drafting throughout the entire process. The redesign of the law making process was implemented following a decision on this subject adopted by the Council of Ministers in May 2001. The system facilitates the individual work steps and, above all, clearly speeds up the law making and publication procedure. The implementation of the project also allows for financial savings which, in the case at hand, exceed the development costs incurred.

By virtue of the (Austrian) „Kundmachungsreformgesetz 2004" (Publication Reform Act 2004), Federal Law Gazette I No. 100/2003, legal texts which must be promulgated in the Austrian Federal Law Gazette are considered to be promulgated in a legally binding way exclusively if published on the Legal Information System of the Republic of Austria (www.ris.bka.gv.at).

The system allows the electronic involvement of all institutional stakeholders and interested parties during a law making process. It plays a vital role through the life cycle of a legislative act comprehending all stages of law making from the very beginning of the first draft to online publication of authenticated law texts (e.g. laws, regulations, treaties). The electronic law making system represents a fundamental cultural change. The original of the law is no longer paper based. It is published on the internet free of charge. The electronic signing of the legal texts warrants their authenticity and completeness.

eLaw supports the following types of bills:

+ Federal law
+ Regulation by minister
+ Regulation by cabinet
+ Governmental announcement
+ International treaty

The process is planned and realized as a whole, which allows processing transitions from one organization to the next to be kept frictionless; parallel processing by several organizations at once is made possible.

The main aims of the project are:
+ Continuous electronic support of legislation
+ Reduction of mistakes by elimination of duplicates
+ Recycling of data
+ Easier administration of different versions of documents
+ Implementing of a uniform layout
+ Support for legislative bodies
+ Official and authentic publication in an electronic Federal Law Gazette online

The legislative process is split into different sub-processes of a workflow. The main different procedures of the workflow are:
+ Preparation of a bill
+ Evaluation procedure
+ Presentation to the Council of Ministers
+ Government bill
+ Process in parliament (independent system)
+ Decision of Parliament
+ Authentication of the Act by the Federal President and counter-signature by the Federal Chancellor
+ Official electronic publication as a Federal Law Gazette via the Austrian Legal Information System (RIS, www.bka.gv.at)

In a database, called a document pool, all relevant documents are stored and can be easily accessed. The necessary metadata for documentation and searching has to be recorded also.

In the parliament an autonomous IT-system is used. Every bill has to be transferred from the Federal Chancellery (BKA) to parliament and - after parliament’s decision - back to BKA. This transfer is facilitated by an open, XML-based interface and a secure connection.
Following the parliamentary decision, the bill is further processed in the eLaw system and - in case of successful completion - published in RIS.

The eLaw users are only civil servants of the Federal ministries in Austria and not the general public which has an access to the draft bills, the government bills and the Federal Law Gazettes via RIS free of charge.

Keywords: E-Government Case Study, law making procedure, E-Recht/eLaw,

2 Basic outline

In the 1980 the Austrian administration had two revisions of all existing laws that failed. On this basis the eLaw project was initiated.

Before a electronic law making processes was introduced you had to work out the document, send the information to the printers, to check, print and reprint, send it to the other involved parties, where they wrote their parts and send the information to the printers, and check, print and reprint again bevor sending it back. It all took time and paper. Now law making is not only faster, you can also enable people to print out exactly what they want. It was a political initiative of the government in spring 1999; they were looking for possibilities to save money and economisation tasks. That was one of the reasons that the decision was made to introduce eLaw, the electronic production and authentic publication of legislative texts.

The traditional way of paper-based legislation is expensive so the basic idea was to provide an electronic workflow for producing legal texts beginning with the draft bill until to the e-Publication of the Federal Law Gazette. The simplification and speeding up of law making processes between the public administration, the parliament and the public were the core tasks. The process should become more efficient and transparent.

In the past the ministries had no electronic workflow which supports their work to create legal texts. The process of changes was very complicated and needed a long time. The simplification and speeding up of law making processes was one of the main goals.

It was a great challenge to train all the civil servants and to get the new kind of work across to the participants, but nowadays they have no serious problems to handle the eLaw system.

Also changes in the Parliament process have to be done. The Parliament has an independent IT-system and there is a data exchange between the Federal Chancellery and the Parliament by use of an XML interface and a secure connection.

3 Goal

The main purpose of eLaw was to enhance the G2C service. The aim of the project is to make the electronic version of the Federal Law Gazette the sole authentic version. Nowadays the public has an access to the draft bills, the government bills and the Federal Law Gazettes free of charge on the Internet. Because of this documentation it's possible to understand the changes of the documents during their life cycle. This is an important fact for more transparency.

The eLaw System is also very profitable for the administration in Austria because all participants use one and same system for the Electronic File System and the eLaw System.

The electronic Internet version of the Federal Law Gazettes counts about 95.000 accesses per month.

The new way of publication saves a lot of money (about EUR 400.000 printing costs per year).

4 Stakeholders

All parties that are contributing with content to the lawmaking process can be seen as stakeholders of eLaw. The project started in May 2001. A list of necessary requirements was drawn up by the Federal Chancellery facilitating the coordination process with public administrations involved.

5 Technology

In all 12 Austrian ministries the Microsoft Offices products are a main part of their daily work. Therefore also for the creation of the electronic law texts MS WinWord (version 97 and higher), supported by templates and macros, is used. This ensures a uniform layout based on legislative guidelines.
The quality is checked by macro functions which also allow a more comfortable editing of the legal texts.

+ Auto format recognition
+ eLaw conformity check (for conversion to XML)
+ Table of contents generation
+ Text comparison

The workflow of electronic law making depends on the type of the legal source. All ministries have to use the same workflow.

The eLaw workflow software includes:

+ web based user interface
+ handling of processes spanning several organizations
+ XML-based data transfer

+ conversion into several data formats (e.g. PDF)
+ digital signature of the final version (Federal Law Gazette)

The creation of electronic texts within the law making process follows the layout guidelines of the Executive Office for Constitutional Matters of the Federal Chancellery. Based on these guidelines, MS WinWord-based templates were developed which facilitate the structuring of texts and the layout design for the Federal Ministries.

The first stage of electronic law making was finalized in the middle of 2002. At this stage it was possible to process a legislative bill completely electronically from the first draft of the bill to the paper based publication of the Federal Law Gazette.

The second stage of eLaw was dedicated to the integration of the electronic signature in the process in order to permit the publication of authentic law on the Internet. The system is operational since the beginning of 2004.

Timeframe:
Provide key dates of activities relevant to the achievement(s).

2001
Start of a working group in the Federal Chancellery. The participants were representatives of the Federal Chancellery (IT-Department, The Constitutional Service and the department, which is responsible for the business of the Council of Ministers) and of the Parliament.

2002, 2003
Software development
Prototype of eLaw

2003
Trial operation

2004
eLaw became operational and no more legally binding Federal Law Gazettes are printed.

6 Administrative context

The project was coordinated by the Federal Chancellery responsible for the implementation together with the private companies Fabasoft, Metadat and T-Systems.

The first pilot started in March 2002 with the participation of six ministries involving employees of the constitutional service division of the Chancellery, members of cabinet of the ministers, legal specialists and members of the secretary's offices. After the training of users the functionality and usability of the system has been put to real test (see more under point 5: technology).

7 Success factors

Based on the web-based software for Electronic Files ("ELAK-System") which is used in all federal ministries, the requirements for the eLaw project were developed. The eLaw workflow is a centralized system where no specialized client software is needed and no additional licence fee has to be paid. Easy configuration allows role-based access and revocation of access rights. The XML standard is used to exchange data and support in process management between different organizations. The Online application modules (MOA) developed by the Federal Chancellery and the Federal Ministry of Finance are components for the use of electronic signature. The authentic version of the Federal Law Gazette is electronically signed to warrant authenticity and completeness. The creation of electronic texts within the law making process is based on MS WinWord and supported by macros and templates. The usage of these macros is decentralized.

Lessons learned:
First of all it was necessary that the Austrian ministries support the new way of creation and publication of Federal Law Gazettes. Therefore a formal decision of the Council of Ministers was required, which was made in June 2001. This decision was the formal start of the project.

Employees of the Federal Chancellery informed all departments of the ministries who are competent to create or to change legal texts. So there was a very intensive contact between the Federal Chancellery, who was and is responsible for the co-ordination and development of the eLaw project, and the other ministries.

One of the difficulties was that in former times the lawyers in the ministries were not responsible for the layout of a Federal Law Gazette; their field of responsibility was only the content. When they had finished their texts, a publishing company produced the layout.

With the start of eLaw the kind of work of the layers changed. They are now responsible for the content and the layout as well; there is no more publishing company available. Each document has to follow the layout

guidelines of the Executive Office for Constitutional Matters of the Federal Chancellery. Based on these guidelines macros and templates have been developed to support the users. A well structured document is necessary for the conversion to XML and the electronic signature.
It was necessary to train all participants. There were two different training sessions, one session for explanation and training of the workflow and in the other for the use of macros and templates. About 300 people were trained by the companies Fabasoft and T-Systems.

For the legal authenticity of electronic promulgation an amendment of the Austrian Federal Constitution, which has required a two-thirds majority in the first ("Nationalrat") and second chamber ("Bundesrat") of the Austrian Parliament, was necessary.
In October 2003 the "Nationalrat" adopted this bill (amendment of article 49 of the Federal Constitutional Act and amendment of the Federal Act on the Federal Law Gazette, Federal Law Gazette I No. 100/2003 of 21st November 2003).

Nowadays all Austrian ministries use the eLaw system and there are no serious problems. Of course it is necessary to offer additional trainings.

Summary:
The eRecht concept integrates the legislative workflow, the publication of legal information and the Austrian Legal Information System (RIS, www.ris.bka.gv.at). It is an integrated system including all steps from the drafting of a legal text up to its electronic publication.

Electronic publication is legally as well a technically authentic, based on an electronic signature. Authentic publication on paper was totally eliminated. Taking this strategic decision Austria was first in Europe. However, as a prerequisite to assure legal grounds for authentic publication it was necessary to modify the Austrian constitution.

As a result, eRecht is a radical approach for the production and publication of legal information, fully relying on a technical system, eliminating redundancies and inefficiencies. It directly saves time and money, in particular time and costs of paper handling. Indirectly, the organisational benefits (and resulting savings) of having achieved a bridging of interests between all institutions involved in the process, should be explicitly stressed.

Furthermore it is an innovative approach for redesigning legislative procedures and distributes legal knowledge worldwide and free of charge.

The eRecht system was a pioneer in Europe, as demonstrated in international conferences. Therefore it is well qualified for an international award e.g. from the United Nations.

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D3.2.1. Case Study

We-Go
Enhancing Western Balkan
eGovernment Expertise

E-Government Case Study
National Strategy for Information Society Development in Macedonia

Policymaking through Inclusion

Bardhyl Jashari

Filip Stojanovski

Contents

National Strategy for Information Society Development in Macedonia

1 Abstract and Synopsis

This case study describes the process of development of National Strategy for Information Society in Republic of Macedonia 2004-2005, which proved successful primarily due to the inclusive approach involving all relevant stakeholders. Instead of creating just an eGovernment strategy, the project by design provided a national policymaking process, involving experts from all relevant sectors (government, business, education, development, civil society), and enabling high level of citizen participation both through involvement of NGOs and individuals. The resulting documents were adopted unanimously by the President, the Central Government, and the Parliament, with full support by both the government and the opposition. They enabled Macedonia to fulfil numerous pending international obligations, and laid the groundwork for systematic development of information society in the country.

Keywords: E-Government Case Study, E-Inclusion, Refactoring, Re-Engineering, National Strategy, National Policy, Policymaking, Inclusive process, eInclusion, citizen participation

2 Basic outline

By 2004, it became clear to most stakeholders that inefficient and lacking legal and institutional framework has been hindering the development of information society (IS) on all levels in Republic of Macedonia (RM). In some cases, the existing legal framework was directly opposed to development of IS and especially e-commerce: for instance, the law required all legally binding documents to be signed by hand, not digitally. Moreover, Macedonia has accepted the obligation to develop IS policies and strategies based on indigenous demand (with the e-Declaration adopted by the Parliament in 2002), and based on international obligations within the framework of the Stability Pact for SEE, the systems of UN and Council of Europe, and as part of the process of accession to the European Union. However, before the project started, these obligations have not been met due to low level of initiative by elected political representatives. In 2004, the Foundation Open Society Institute Macedonia (FOSIM)[1] and United Nations Development Program (UNDP)[2] provided funds for creation of the National Strategy for Information Society Development, National Policy of IS Development,

[1] http://www.soros.org.mk
[2] http://www.undp.org.mk

and an Action Plan, under coordination of the Committee for IT of the Government of RM[3] through an inclusive process involving all relevant stakeholders. Metamorphosis Foundation[4] participated as implementing partner of FOSIM, providing both expertise and logistical aid to the process.

3 Goal

The primary goal of the project was development of policy documents based on best practices, to enable leapfrogging in the development of information society in Macedonia, in alignment with European Commission's Action Plans eEurope+2003, eEurope2005 and i2010.

Upon specific request by the donors and the implementing partner, the process of the creation of the NSISD had to rely on the principles of inclusiveness, impartiality and had to be brand and vendor free, in line with the principles guiding global policy creation efforts, including the World Summit on Information Society, and have been adopted by the development community worldwide.

4 Stakeholders

The stakeholders involved in the development of the NSISD included the following:

- Public administration, including public officials and ICT experts from relevant government bodies on national and local levels
- Representatives of all other societal sectors: business, education, and civil society, including both ICT experts and experts in other fields, as well as NGO activists
- Representatives of the international developmental sector (UNDP)
- Media representatives, including journalists and editors
- The general public: ordinary citizens whose participation was encouraged through open events

The Strategy and the related National Policy were drafted by an interdisciplinary Working Group (WG), composed of 33 members coming from the governmental, business, educational, developmental and the civic sector. The goal was to develop a national document, representing all stakeholders, as opposed to a state document based only on the input from the governmental administration. In line with this goal, the work was divided into seven categories, or pillars (infrastructure, e-business, e-government, e-education, e-health, e-citizens, and legislation), and seven compact teams of relevant WG members worked on preparing the initial drafts for each pillar, based on available data. In addition, the Strategy also contained a section on ensuring sustainability of all the pillars. The WG served as a platform for interaction ranging from discussions with policy researchers in the problem definition stage, to researching the cost-benefit of policy options with

[3] http://www.kit.gov.mk
[4] http://www.metamorphosis.org.mk

different target groups and representatives of the government. In addition, the WG also developed an Action Plan with concrete projects necessary for laying base for the IS development in Macedonia. The Action plan considered what was currently implemented in Macedonia, what options others (not being part of the WG) were suggesting as well as the suggestions of the WG itself. Efforts were made to make the different options mutually exclusive, i.e., avoid options and projects that are simply variations of the same idea.

To ensure proper representation of ethnic groups and political options—both from the government and the opposition—the WG included current and former MPs, one mayor, IT experts affiliated with the major political parties, and one counselor from the President's cabinet. Additional transfer of knowledge and good practices from the EU member Estonia was provided through cooperation with the eGovernance Academy,[5] including expert visits and opinions on the drafts, as well as a visit to the Academy by WG members.

Drafting of the NSISD was followed by a series of geographically dispersed public panel discussions, enabling citizen participation. Metamorphosis also organized opportunities for participation and for providing input in the process by all interested NGOs, through a mailing list and an online forum.

The final version of the NSISD received support from the President and the Government in the spring of 2005, and was adopted by the Parliament by consensus in September of the same year – one of the few political issues that both the Government and the opposition showed agreement on. In order to promote the Strategy and to emphasize the priority project from the Action Plan, an international conference was organized in September 2005[6]. The conference served as an opportunity to request support from the stakeholders and the international donor community in Macedonia for implementing priority projects.

The only political obstacle during this process came due to infighting within the ruling coalition. Namely, the president of CIT—responsible for including representatives of government bodies—omitted inviting high-ranking officials of the Ministry of Transport and Communications[7] into the WG, while inviting experts from relevant bodies who were under the Ministry's jurisdiction. However, this conflict was solved with the issuance of the new Law on electronic communications, which put the Ministry in charge of the initial implementation of the NSISD.

However, after its adoption, the NSISD was only partially implemented. With elections announced for June 2006 the powers that be focused their attention elsewhere and did not implement the sustainability clauses, especially the one on establishing a state Agency for IS, that would coordinate the implementation of the

[5] www.ega.ee
[6] http://www.metamorphosis.org.mk/content/view/534/lang,en_GB/
[7] http://www.mtc.gov.mk

projects from the Action Plan. When the new Government took over after the elections, they decided to establish a Ministry of IS instead of an Agency. This proved impossible, because they needed the consent of opposition MPs to change the structure of the government. As temporary solution, a cabinet of Minister without portfolio in charge of IS was established in late 2006, and a Secretariat for Information Society[8] in late 2007.

Participation in the project benefited its stakeholders in the following manner:

- The country gained a set of high quality working policy documents to be used as basis and guidelines for legislative and institutional reforms, and also contributed to fulfiling Macedonia's international obligations, providing positive reputation on regional and European level.
- The inclusive and joint approach also increased the internal networking of diverse stakeholders working on development of IS regardless of their background, contributing to the increase of internal cohesion of Macedonian society.
- All parties involved in the process—especially the public administration representatives—were able to claim credit for all the obviously positive developments resulting from the project.

5 Technology

Tools and methods used to achieve the goals of this project included:

- Teamwork within the framework of Working Group, based on collecting research data and analysis using multidisciplinary expert analysis, first in smaller groups (pillar-specific teams), and then within the whole WG. Work in this segment included meetings on both levels, and online communication of data and drafts. Relevant data based on all available surveys was gathered,[9] and supplemented with direct input of relevant experts in each field.
- Drafting process proceeded along the same lines, and for the purpose of assuring inclusion of all stakeholders the recommendations were designed to be brand-free and without favouritism towards any particular technology. The basic reason for this approach was the goal to make the Strategy adaptable to changing technological environments, the speedy and unpredictable development of new technologies, and help mainstreaming IS development. This also fit the principles of the UN ICT policymaking in general, and the World Summit on Information Society process in particular. The WSIS later served as one of the venues for presenting the NSISD to the international public by a multilateral Macedonian delegation, composed of WG members.

[8] http://www.sio.gov.mk
[9] Including the research "General data about the situation regarding the ICT in Macedonia, 2003-2004" conducted by Metamorphosis and FOSIM. Results available at URL: http://www.metamorphosis.org.mk/component/option,com_docman/task,doc_details/gid,2/Itemid,16/lang,en/

- Consultancy and lobbying meetings with key decision makers, including the Prime Minister and the President, attended by representative delegations of the WG composed of members representing diverse constituencies.
- Public debates and citizen participation aiming to enable maximum opportunities for all stakeholders to provide their input during the drafting process, using online (website, mailing lists) and offline methods (public hearings and debates).
- Media relations including a project newsletter, constant communication with interested journalists provided with free and open access to all events within the project, including the WG meetings.

6 Administrative context

The Committee on Information Technology (CIT) of the Government of Republic of Macedonia was responsible for implementation of the project. Since the CIT lacked resources to provide fully implement the project, and the current regulations prohibited hiring additional civil servants, the donors increased its capacity by providing human resources (project coordinator), equipment for the project office, and logistical support by implementing partner NGO. Some of the needs, including media relations and raising public awareness, were covered by outsourcing via a company specialized in that area.

7 Success factors

- The primary factor for success of this project was the insistence on inclusion of all stakeholders, which in turn created sense of ownership by their representatives. This resulted into widespread support for the policy documents by the decision makers, especially within the public administration, resulting in unanimous approval within the executive and legislative branches of the government.
- Another success factor was putting the effort in context of general development of the society in all the main spheres, represented by the seven pillars, making it impossible for political representatives on any level to declare open opposition to it. Given the public perception that ICT is key factor for development, such an act would brand the naysayers as opposing general progress and knowledge, resulting in public relations disaster for them.
- The third important success factor was the deliberate effort by implementers to put the project in context of the further international recognition of Macedonia: among the UN members and as vital part of the struggle to join the EU. This included constant stress on the facts that the project realises international obligations taken by the country, and that it raises the profile of Macedonia on regional level, especially in comparison with most other Western Balkan countries. This was confirmed by the high interest of the national public in the opinions of international experts who used the NSISD as

positive example of high quality policymaking at the World Summit of Information Society in Tunis 2005.

8 About the Authors

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D3.2.1. Case Study

We-Go
Enhancing Western Balkan
eGovernment Expertise

E-Government Case Study
Human Resource Management Information System

Mr. Kemal Bajramović

Contents

"Human Resource Management Information System"

1 Abstract and Synopsis

This project aims to introduce modern human resource management information systems that will give institutions new ways to plan for, acquire, and develop workforces comprised of efficient and productive individuals.
Keywords: E-Government Case Study, E-Inclusion, Refactoring, Re-Engineering, HRM, Information system.

2 Basic outline

The institutions of Bosnia and Herzegovina currently lack any information system that helps them:

- motivate and align human capital to the institution's mission;
- recruit, develop, and retain key people;
- deliver meaningful human resource information to HR managers; and
- control costs and demonstrate accountability.

The state and entity-level Civil Service Agencies have databases for storing the personnel files of civil servants, or Central Personnel Registries. The Registries contain consolidated data provided by the individual institutions and are kept in electronic format only (the paper documents remain with the relevant institutions). These Central Registries cannot at present be accessed or updated by users in individual institutions, which would increase the reliability and accuracy of data. Moreover, the individual institutions don't have their own information systems providing support to human resource management. The Civil Service Agencies' Central Personnel Registries are used for a limited number of operations only. The HRMIS software solution will include but not be limited to three major modules:

1. A database of employee personnel record files. The data now commonly stored in hardcopy will be entered in HRMIS, providing a solid basis for HR intelligence.
2. A HR intelligence module, which will respond HR manager's queries.
3. A third module that will automate common HR procedures. HR personnel will use this module to generate different kind of certificates, maintain job attendance records, job evaluation, leave,performance appraisal, expenses and allowances, alternative work arrangements (flexi-time, compressed work week, job sharing etc), contract workers & employment status, probation etc.

BH-HRMIS at the individual institutions will provide data to the central Civil Service Agency system. The CSA will therefore have an up-to-date database of employees in all institutions of Bosnia and Herzegovina. Beside a central module of employment in state-level institutions, BH-HRMIS will include, but not be limited to certain additional modules:

1. A first module, providing computerized recruitment procedures, including job applications, generation of lists of candidates, recording test results... This module will be a modern recruitment information system for the BH Civil Service Agency, with a web based front-end for use by the public and easy-to-use functionality for the job seeker. The CSA web site will become a modern job announcement, application and applicant communication system.
2. A second module will provide a database of questions for Public Examinations, with an exam generating capability, etc. In a computer network environment, this module would allow public testing on a computer in interactive mode.
3. A third module will support civil service training, through recording various data on trainings delivered, training needs assessments and so on. In this way the CSA web site will serve as a modern training management system.

3 Goal

The will of the BH civil service to join the EU is not sufficient in itself to complete demanding reforms and improve civil service responsiveness, productivity and efficiency. Government can achieve workforce optimization when its human capital is fully aligned with critical objectives and initiatives. This project will provide the tools to motivate and align human capital to their host institutions' mission, to recruit, develop and retain key people, to deliver meaningful human resource information, and to control costs and demonstrate accountability.

The BH-HRMIS project is directly linked with the Strategy and Actionplan for Public Administration Reform and is in tune with the tasks of improving governance and institution building, as well as with the priority of improving employment structures, recruitment mechanisms, and performance management.
Applying the rules of information system project management, CSA has divided BH-HRMIS project development into two separate components:

Component 1:
Specification of the functional and non-functional requirements of the planned information system and development of software requirement reports for BH-HRMIS development.

Component 2:
Development of an information system for human resource management in the public administration of Bosnia and Herzegovina, based on the functional and technical report (Software Requirements Specification - SRS) from Component 1.

Component 1 has been completed, with the output of a HRMIS SRS document fully describing the functional and non-functional user requirements and providing supplementary information.

4 Stakeholders

The project has been financed by the EC delegation in Bosnia and Herzegovina, in the amount of 600,000€. A call for tender to implement Component 2 was published in June 2007. The provisional date of invitation to tender is September 2007 and provisional commencement date is January 2008.

Stakeholders are governmental institutions of B&H.

5 Technology

1. HRMIS software as installation package on optical media, all 3rd party software (DBMS and similar)
2. System documentation:
   - Data model
   - UML diagrams
   - Reference manual
   - Installation manual
   - Comprehensive user guide
   - Administration guide
   - Maintenance procedure
3. Progress report following completion of system delivery

Installation of DBMS, necessary Installation, delivery (3 months) middleware applications (web Configuration, server, e-mail server, etc) and Data Migration, HRMIS components, User Training, Configuration of database, Acceptance Testing necessary middleware applications (web server, e-mail server, etc) and HRMIS components, Migration plan, Accepted migration results, Training plan, Training manual, Accepted training results, Issuing Provisional Acceptance.

6 Administrative context

The BH-HRMIS project is directly linked with the Strategy and Action plan for Public Administration Reform and is in tune with the tasks of improving governance and institution building, as well as with the priority of improving employment structures, recruitment mechanisms, and performance management.

7 Success factors

The project is a long-term investment in a better and more proficient civil service. The project is expected to deliver the technological capability to:

- strategically manage the human capital of the BH public administration,
- optimize and align the workforce in institutions,
- better workforce responsiveness, productivity and efficiency,
- centralize and personalize information, providing operational intelligence to every decision-maker, delivering intelligence to the desktop, and providing answers to complex questions.

8 About the Author

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D3.2.1. Case Study

We-Go
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E-Government Case Study
eJustice

Mr. Mirsad Kamber

Contents

"eJustice"

1 Abstract and Synopsis

eJudiciary as a leader in ICT Public Administration Reform in Bosnia and Herzegovina. HJPC ICT Project - Information and Communication Technology Project of the High Judicial and Prosecutorial Council of Bosnia and Herzegovina.
Keywords: E-Government Case Study, E-Inclusion, Refactoring, Re-Engineering, eJustice.

2 Basic outline

In accordance with Article 17, paragraph 24 of the HJPC Law, the HJPC is given the authority to oversee, in broad terms, the introduction of Information Communications Technology (ICT) in the BiH judiciary. This is an area where a common, standardised approach is essential - having different courts and prosecutors' offices implement their own strategies would inevitably lead to a waste of public funds and difficulties in relation to configuration and compatibility between systems.

The HJPC ICT Project is the most significant project in which the HJPC is currently involved and aims at assisting the HJPC in its established role as central policy and decision-making body for all ICT development in the judiciary and prosecution, and thus to improve the efficiency of the judicial system of BiH, with a purpose to bring BIH justice system, including its management, in line with European standards.

The core task of HJPC ICT Project is to introduce Information and Communications Technology (ICT) including hardware, software, court applications of the software, human resources and related business processes into the courts and prosecutors offices across BiH. The activities HJPC ICT Project are currently funded as an EC project but it is anticipated that they will become part of the operational budget of the HJPC in 2007 as ICT Department.

Through the establishment of a modern judicial information system that will serve the information and communications needs of the courts, prosecutorial offices and other sectors of the judiciary, ensure a significant improvement in the efficiency and transparency of the judiciary in BiH and thus a quality service to the public.

The overall objective of the project is to provide the judiciary of Bosnia and Herzegovina with the ability to efficiently and optimally utilize the information and communications technology which has been deployed to

courts and prosecutors offices thus far across Bosnia and Herzegovina by continuing the development and deployment of Case Management System and other ICT services.

3 Goal

The project aims at making courts and prosecutor's offices in Bosnia and Herzegovina more efficient and thereby better positioned to reduce the accumulated backlog of cases at courts as well as to handle incoming cases efficiently. The introduction of the Case Management System (CMS) will mean that all new cases entering the courts will be registered electronically. It will also mean that the workflow within the court will be better managed and that the activities of judges can be better monitored.

18 prosecutor's offices and 65 courts with total of 4500 persons employed or appointed will share unique information and communication space managed by HJPC ICT Department. ICT services such as e-mail, common address book, file sharing, intranet web portal or Case Management System for the judicial environment as well as public web portal will establish eJudiciary in BaH and make judicial system transparent to citizens.

A strategy for the introduction of ICT into courts and prosecutors' offices in Bosnia and Herzegovina was developed by the Independent Judicial Commission and was published in March 2004. This ICT Strategy was later updated and adopted by the HJPC. The objective of the ICT Strategy adopted by the HJPC was to significantly increase the efficiency of the BaH courts and prosecutors' offices by introducing:

- Simpler and standardised procedures for decision making (uniformity);
- Instant communication between everyone working in courts and prosecutors' offices;
- Instant access to key legal information for judges and prosecutors;
- A monitoring tool for managers at all levels and for the HJPC

4 Stakeholders

Implementation of the project means coordinating with a number of international and national organisations, as follows:

- The European Commission, which is financing a team of 10 national experts at the HJPC and providing funding for hardware, communication services software, WAN infrastructure and local area networks for all courts and prosecutors' offices.

- All above activities will be further financed until 2010 from SIDA and the Government of the Netherlands donations
- The Canadian International Development Agency (CIDA) which has seconded a Canadian ICT expert to the HJPC ICT team.
- ICITAP financed the deployment of hardware to a range of courts and prosecutorial offices. ICITAP and the EC are also involved in the further development of software for courts and prosecutorial offices, the Case Management System (CMS).
- USAID FILE which was involved in analysing the current work processes in courts and in proposing changes to these processes in order, ultimately, to map these processes onto a computerised system. USAID FILE had been also provided the HJPC with resources to develop specialised case management software to be tested in JSDP pilot courts and later to be implemented widely throughout the country.
- GTZ, SIDA and ADA are sponsoring the Land Registry Project.
- CIPS as the main beneficiary / partner of the secure broadband network infrastructure implemented through EC CARDS mechanism.

5 Success factors

The Project started on September 1, 2004, with its Phase II from March 1 to December 31, 2005. The Project continued with Phase III, from January 1, 2006 to December 31, 2007. Phase IV of the Project, will continue from January 1, 2008 to December 31, 2010. As opposed to the previous phases of this Project, which were financed through CARDS, Phase IV will be financed through EC IPA mechanism, as well through SIDA and the Government of the Netherlands.

6 About the Author

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D3.2.1. Case Study

We-Go
Enhancing Western Balkan
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E-Government Case Study
e-VEM
Slovenian State Portal for Business Entities

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Contents

"State Portal for Business Entities"

1 Abstract and Synopsis

The e-VEM state portal for business entities is intended for use by existing and future sole traders. Services can be performed electronically via the internet from home or at one of several entry points across Slovenia. E-VEM is a three-layer web solution, developed entirely in the J2EE environment and integrated with the Agency of the Republic of Slovenia for Public Legal Records and Related Services (AJPES), the Tax Administration of the Republic of Slovenia (TARS), the Health Insurance Institute of Slovenia (ZZZS), the Ministry of the Interior (MoI) and the Surveying and Mapping Authority of the Republic of Slovenia (GURS).

Keywords: E-Government Case Study, E-services, State Portal, State Registries

2 Basic outline

Before the implementation of the system the registration procedure was not supported electronically, therefore it required individual visits to all above mentioned institutions in order to provide all required information. After the initial request for registering the business, it took more than a month for a sole trader to be officially registered and formally start the business activities.

3 Goal

What is e-VEM?

The primary purpose of the e-VEM project is to provide appropriate support so that a future sole trader can begin performing its business activity in the shortest time possible. Information support provides uniform support, irrespective of the type of entry to the system. An electronic application for the registration of a sole trader can be submitted personally via the internet or by an advisor at one of the e-VEM entries points on behalf of a future sole trader. In addition to the entry of an entrepreneur in the Business Register of Slovenia, the basic functionality of the solution facilitates portal services such as entry into the tax register and submission of necessary data to the Tax Authority of the Republic of Slovenia, as well as the registration of an entrepreneur and his/her children up to 18 years of age for compulsory health insurance at the Health Insurance Institute of Slovenia. Data are also sent indirectly to the Pension and Disability Insurance Institute, the Employment Service of Slovenia and the Statistical Office. Through the portal, existing sole traders may, by themselves or with the help of an advisor, enter changes regarding a company in the Business Register of Slovenia or request the deletion of a company, and register children up to 18 years of age for compulsory health insurance at the Health Insurance Institute of Slovenia.

Work from home

The precondition for work from home is that a user must have a web certificate from a qualified authenticator (SIGOV-CA, SIGENCA, POŠTA®CA or AC-NLB). With a web certificate and tax number, a citizen logs in to the e-VEM system where the authenticity of data is verified. During his/her first log-in, a user selects an additional password. The e-VEM portal offers the possibility to perform the following services:

- entry of an entrepreneur in the Business Register of the Republic of Slovenia, managed by the Agency of the Republic of Slovenia for Public Legal Records and Related Services
- submission of tax data, which an entrepreneur is obliged to provide when establishing a sole trader, to the Tax Administration of the Republic of Slovenia
- registration of a sole trader for compulsory health insurance at the Health Insurance Institute of Slovenia
- registration of an entrepreneur's children up to 18 years of age for compulsory health insurance at the Health Insurance Institute of Slovenia
- entry of changes to data regarding a sole trader
- deletion of a sole trader from the Business Register of Slovenia
- ordering of a data print-out from the Business Register of the Republic of Slovenia for any sole trader.

Following the successful completion of applications, XML documents are produced from the collection of data. The citizen electronically signs each document with his/her web certificate. With this, the process for him/ her is complete. The citizen may then monitor the status of his/her applications and whether any amendments or corrections are necessary.

Registration of a sole trader via an e-VEM advisor

A citizen not wishing or unable to use the solution independently may do so with the help of an e-VEM advisor, who provides the necessary data verbally or the appropriate forms for carrying out the desired procedure. The procedure is the same for work from home, except that an authorised e-VEM advisor logs in to the system with his/her own web certificate.

When all data has been entered and the applications properly completed, the applications are printed. An authorisation is found at the bottom of the form, by which a citizen authorises an e-VEM advisor to carry out the procedure in his/her name. A citizen signs the form, which is then scanned and electronically signed by an e-VEM advisor using his/her web certificate and attached to the electronic application for registration. The original authorisation is saved locally at the body which carried out the registration. Each electronic document carries with it a scan of the document, including the authorisation. Attached to each document is a scan of the document, which includes a citizen's signature and his/her authorisation of an advisor.

An advisor may also monitor the progress of the application throughout the procedure.

When an application is submitted, the electronically signed documents are transmitted to AJPES, where entry or changes are made in the Business Register of Slovenia. When an electronic decision is issued by AJPES it is sent to the e-VEM system and the citizen. Only a citizen may receive a decision via an electronic delivery service.

If a citizen also completes forms for insuring an employee or family member or for the submission of tax data, these documents are transmitted to the appropriate bodies (ZZZS and/or TARS), where they are entered in the electronic insurance record system and/or the electronic tax system, and from there into the tax register.

4 Stakeholders

Ministry of Public Administration; including Business Register of Slovenia, Health Insurance Institute, Statistical Office, Employment Service

5 Technology

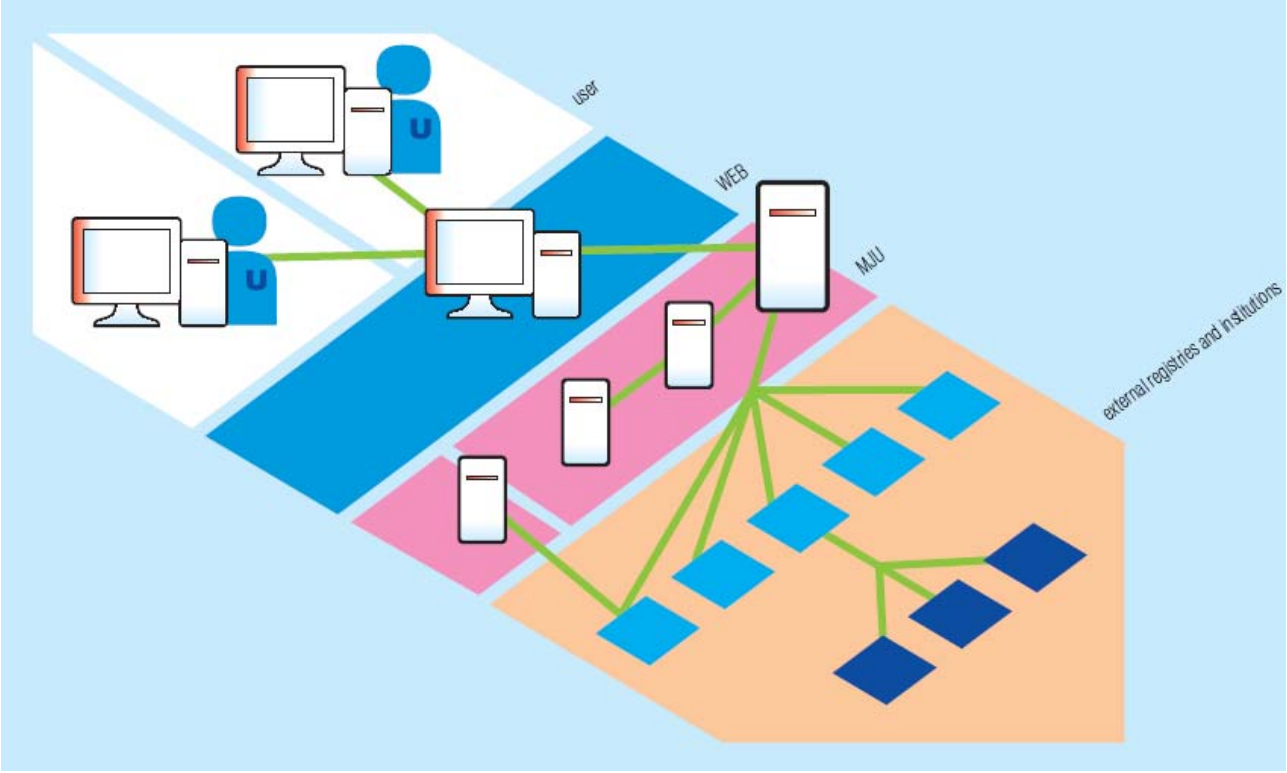

Figure 1: Architecture of e-Vem system

The application is comprised of two segments. The first segment represents the part of the e-VEM portal visible to a user. This is a multi-layered web application, developed in a Java environment with the help of additional open-source tools (Struts and Tiles). This enables us to control authorisation, track users and

create dynamic content more easily. In order to function properly, the portal requires access to external databases. Access methods vary, as they are dependent on the administrators of individual databases. Data from the Business Register of Slovenia are obtained by calling a web service and with the appropriate parsing of XML files received. Data from GURS and the Central Population Register are obtained with the help of JDBC calls. With regard to the presentation of the application, we made a good deal of our work easier by using advanced CSS technologies and JavaScript to make the application more user-friendly.

The e-VEM integrator, which is responsible for the correct flow of documents, represents the second segment of the application. Similar to the portal part of the application, the integrator was development using java technology. The integrator is connected to external systems with regard to their enterprise resource planning (ERP) systems (web services and PGP encrypted e-mail). The integrator records the status of an application, and thus coordinates the entire application process.

In both segments, we access our own databases exclusively via database procedures.

Security of the e-VEM portal The security of the e-VEM portal has been given a great deal of attention, since the portal manages data of a confidential and personal nature. Security mechanisms provide for protection against unauthorised access to the portal, attacks and the protection of users' personal data. All exchanges of sensitive data (such

as passwords and personal data) between users and the portal are carried out via secure connections, established using SSL protocol. In addition to a secure SSL session, the portal's ERP connections with registers and official records are protected by digital server certificates, verification of the IP addresses of servers and communication exclusively within the state HKOM network. Verification of a user's identity is carried out via a digital certificate, without which access to portal services is not possible. For an added level of security, a user must enter his/her personal password, which is created during the first visit to the portal. Besides the verification of identity, the rights of a user to individual portal services are also verified upon log-in. The verification of rights is of particular importance for users and advisors who, with regard to the institution from which they come and their level of rights, have varying possibilities for portal use. The portal functions in accordance with the Electronic Commerce and Electronic Signature Act. Therefore, despite the high level of user identification, every document must be signed electronically before being transmitted. An electronic signature of a document is supplemented by a time stamp, and can only be transferred via secure connections to the relevant body as such. It is also planned that the portal will be protected against harmful code. During the transfer of data to forms, when a potential attacker could insert harmful code, a basic check of the content entered is carried out by the client as well as an extended check by the server. If the structure of content is different from the expected content, the transfer is rejected, and the user is requested to re-check the data entered. By establishing security mechanisms, the possibility of unauthorised access, the insertion of harmful code, data theft and the falsification of documents is significantly reduced. This type of security policy facilitates the safer and more reliable functioning of the e-VEM portal. The e-VEM

portal has been in production since 4 July 2005, when access points (currently more than 200) and citizens (from home) began using the portal. In the first month of operations, more than 1,000 applications (entry, change and deletion) were submitted. During this time the e-VEM portal has undergone several minor changes. In the future, the portal will also be upgraded with new improvements, which are the result of user recommendations. New services to support sole traders (e.g. the acquisition of necessary authorisations to perform activities) are also planned. In the second phase of e-VEM portal development, support of procedures for registering limited liability companies and unlimited liability companies, registration/de-registration of employees for the aforementioned companies and the acquisition of approval to begin operations is planned.

6 Administrative context

Integration of solutions The e-VEM system connects several bodies and institutions, together with their databases and registers. For the most part, this is a two-way communication which provides for the appropriate transfer of data and a reconciliation of the status between bodies. Work in the system may be carried out from home or via an advisor at one of the entry points. The procedure is not limited by the selection of an advisor, as a citizen may carry out the procedure in several phases at different entry points, while the system saves the application's last status. If a citizen wishes to re-register a sole trader, he/she will start with a new application which will be completed step-by-step. Otherwise, the relevant data are transferred from the Business Register of Slovenia and do not require registration. During registration, personal data regarding an entrepreneur are transferred from the Central Population Register to the application, including the entrepreneur's permanent and temporary address, as applicable. All other addresses are collected from the Register of Spatial Units, managed by the Surveying and Mapping Authority of the Republic of Slovenia. Searching by street names and by postal codes is possible. The system provides assistance in the search for the right combinations of data. Searches by codes (NACE, professions, education) are simple: codes are displayed in hierarchical order for easier access to the desired data.

The transmission of scanned documents, together with an application, is supported by the system. Security and compliance with requirements regarding security and protection of electronic documents is ensured by a digital signature in accordance with the XAdES standard (XML advanced electronic signatures), together with a time stamp. A separate server is responsible for the signature, while a previously established TSA (time stamping authority) service is used for the time stamp.

7 Success factors

The response of e-VEM portal users has been positive, as evidenced by the number of applications submitted. In the first week alone following the establishment of the portal, more than 400 applications were submitted for entry into the Business Register of Slovenia. On a given working day, more than 50 applications, on average, are received and processed. Thus, more than 2,000 applications have been processed in the month and a half since the portal began operating.

Necessary data is transmitted to and processed by the ZZZS, the Employment Service of Slovenia (ZRSZ), the Pension and Disability Insurance Institute (ZPIZ) and the Statistical Office of the Republic of Slovenia (SORS) via previously established data links between the aforementioned institutions. The e-VEM system does not maintain its own database with data of a personal or confidential nature, and does not save data permanently. All necessary data is obtained via calls to web services and direct data links. Data is kept up to date for necessary code procedures. Data exchange is also carried out via encrypted email and FTP servers, where various methods of encryption are used. Communication is carried out within and outside the state HKOM network. Connections are appropriately protected.

A user requires approximately 15 minutes to complete an individual application. The user may find an electronic decision in his/her email inbox just a few hours following the submission of an application, during which time he/she may prepare and submit the remaining legally prescribed documents. This testifies to the fact that the integration of this type of system represents time savings.

All of this can be done from the user's living room!

8 About the Authors

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e-VEM portal: http://evem.gov.si

The state e-government portal: http://e-uprava.gov.si/

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D3.2.1. Case Study

We-Go
Enhancing Western Balkan
eGovernment Expertise

E-Government Case Study
e-Government Portal
in Slovenia

Contents

“Slovenian e-Government Portal”

1 Abstract and Synopsis

The portal is divided into three parts. Let’s begin by looking at the section for citizens, which currently has the highest amount of content, and is at the same time functionally practically the same as the subportal for legal entities and public administration. The principle for browsing the portal remains the same: everything happens through the perspective of life events, since this is the most user-friendly for residents.

The portal will gradually include information from every area of the public sector; currently government offices and the activities associated with them are predominant. We are waiting for a more active response from the individual municipalities (perhaps some form of competition could develop among them for which ones would offer the most), and someday it will be possible to government portal, since public health is a part of the public sector. And then there are schools, courts ... In short, the first step has been taken, and now all we have to do is follow the path that has been established.

Keywords: E-Government Case Study, Re-Engineering, Dynamic Services, Citizen Services

2 Basic outline

Before the start of the project, information of various services spread over web sites of different ministries and other public administration subjects. Services were available to citizens at administrative desks during official hours and web sites provided this with other information regarding the organisation of work at PA offices.

3 Goal

The goal is to minimize the share of static applications within the state portal which will not cause any major problems for the system, since the entire procedure for submitting applications is already completely adapted to the electronic method.

Currently the most interesting e-application is the possibility of renewing your car registration. The sequence of steps is practically the same as described above, and in this example you can get the chance to see how dealing with public administration will be in the (near?) future.

The basis is your car registration number (the registration renewal procedure is carried out anonymously and does not require registration – this makes it easier for the user in the following year, i.e. you have the possibility of reviewing your status).

This is already partially true, since if you have a car insurance policy, you simply have to enter the policy number and state the number of months you want to extend your car registration (it is set for 12 months if all of the preconditions are satisfied). Before making your payment you have the option of Saturday delivery of your car registration (if you are not at home during the week and do not want to go to the post office). All

that remains is simply checking the data. Registering when you fill out applications is therefore also important from the point of view of easier use of the portal and the functions which are available now or will be available in future. And there is another advantage to doing e-business with the public administration: the system has a builtin reminder which ensures that applications are processed on time.

Personalised Services

All of this together is a part of the subportal Moja euprava (My e-government), where information and data are collected which are interesting only for a specifically defined user. That user can log on in the usual manner – with a user name and password, or with an authorised digital certificate. Of course the portal recognises all authorised certificates in Slovenia, and this kind of logon makes it possible to personalise the appearance of the portal even further. All e-documents or applications which we submit non-anonymously are collected on these pages, and you have access to invoices for servicers performed (in PDF and signed XML), while selectors and short cuts are adapted to the user's work style and preferences. Also available is the possibility of changing your data, and anyone who has secure email (currently only available at Pošta Slovenije) can opt for electronic handover of decisions, which would otherwise come to your home address by regular post in a registered letter.

There are currently over thirty thousand registered users on the My e-government subportal. Of course there could be more; theoretically the contents should be of interest to all Slovenes (as well as foreign residents, for whom this English translation is provided).

What else?

If statistics and figures connected with public administration hold no interest for you, perhaps E-government has something else to offer. We should mention the subportal e-zaposlitev (e-employment), the goal of which is to connect all employers and people seeking work, whether they are graduating students or long-term unemployed. If you are looking for work, click on e-employment, and you can post an anonymous ad or even your CV. The abovementioned division according to life events will lead you to one of 18 different categories, and some links of course overlap. You will find a tree structure which is methodologically standardised, and therefore may sometimes appear excessively bureaucratic. But on the other hand such organisation makes it much more transparent, since it is obvious where you have to look for certain information regardless of the life event. You will also be able to find out about the legislation which lies behind various life events, review the applications connected with it and even submit applications electronically. The list of applications available is long, but there are still some areas where applications have to be submitted in written form. But you will at least be informed about any fees which have to be paid, and any documents which have to be enclosed with the applications. Admit it: there will be at least one less phone call, and without a doubt browsing these pages will save you a lot of time. We should add that citizens should address their questions directly to the authority which authored the content.

E-services

When you decide to fill out or even just print out an application, you will be entering a new territory E-services is a subportal of e-Government services, so a new window will open. Annoying? It could be, but the next time you will know that you can access this content directly. One of the great advantages of this subportal is its search engine. You can select a classical alphabetic search, search by application addressees, and most conveniently by key words, since this is sometimes the only way to find the information you need (which may be case-marked in the name of a law or other regulation). After you select the application you need, a new page will give you information on the addressees and the properties of the application, the life event it relates to, and you can also find out whether it is possible to submit the application electronically. This option does not depend on the applications themselves but on the (in)ability of the individual authorities to receive applications in electronic form or to demand electronic payment for it (if necessary). (We might hint that you can submit the application to other administrative units, since they will ensure that it gets to the proper address.)

After you have selected the application, the portal offers you the opportunity to register. Anyone who prefers to submit their application anonymously can select that option, while registering with a digital certificate offers further benefits: certain fields will be pre-filled on the basis of data from the certificate and you will be able to track your application (the applications’ statuses in the authorities’ support systems are also visible to registered users of e-government).

After that, everything continues in steps, and for certain applications some steps are skipped.

At the end you should review the application, and the system reminds you to do so by requiring you to click a button when the application is complete. If it can be submitted electronically, you then have to make the payment. You can use the most popular payment cards, vouchers or directly via Abanet. There are quite a few more than 5 payment methods!

True e-government

4 Stakeholders

Ministry of Public Administration and also strong support from other ministries affected by re-engineering of processes into life-situations

The interaction is continuous as the state portal became the entry point for overall services.

5 Technology

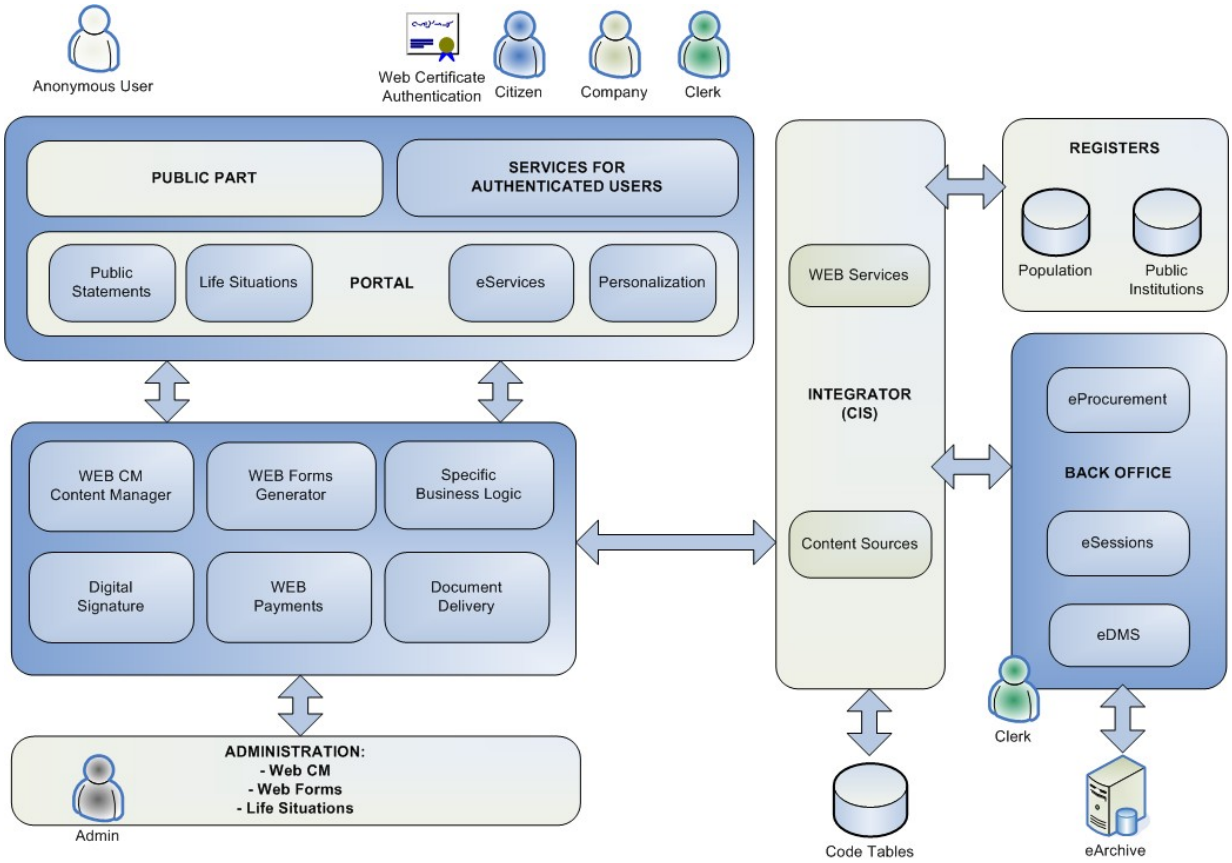

Figure 1: Architectural Framework of E-Government

Methods for modernizing e-Government with state portal services include:

- user friendly and high quality: better administrative framework for users (citizens, businesses),
- efficient use of resources and cutting expenses
- open and transparent approach: access to information of public nature, public participation in decision-making,
- E-government goes hand in hand with renewal of processes and removal of administrative burdens.

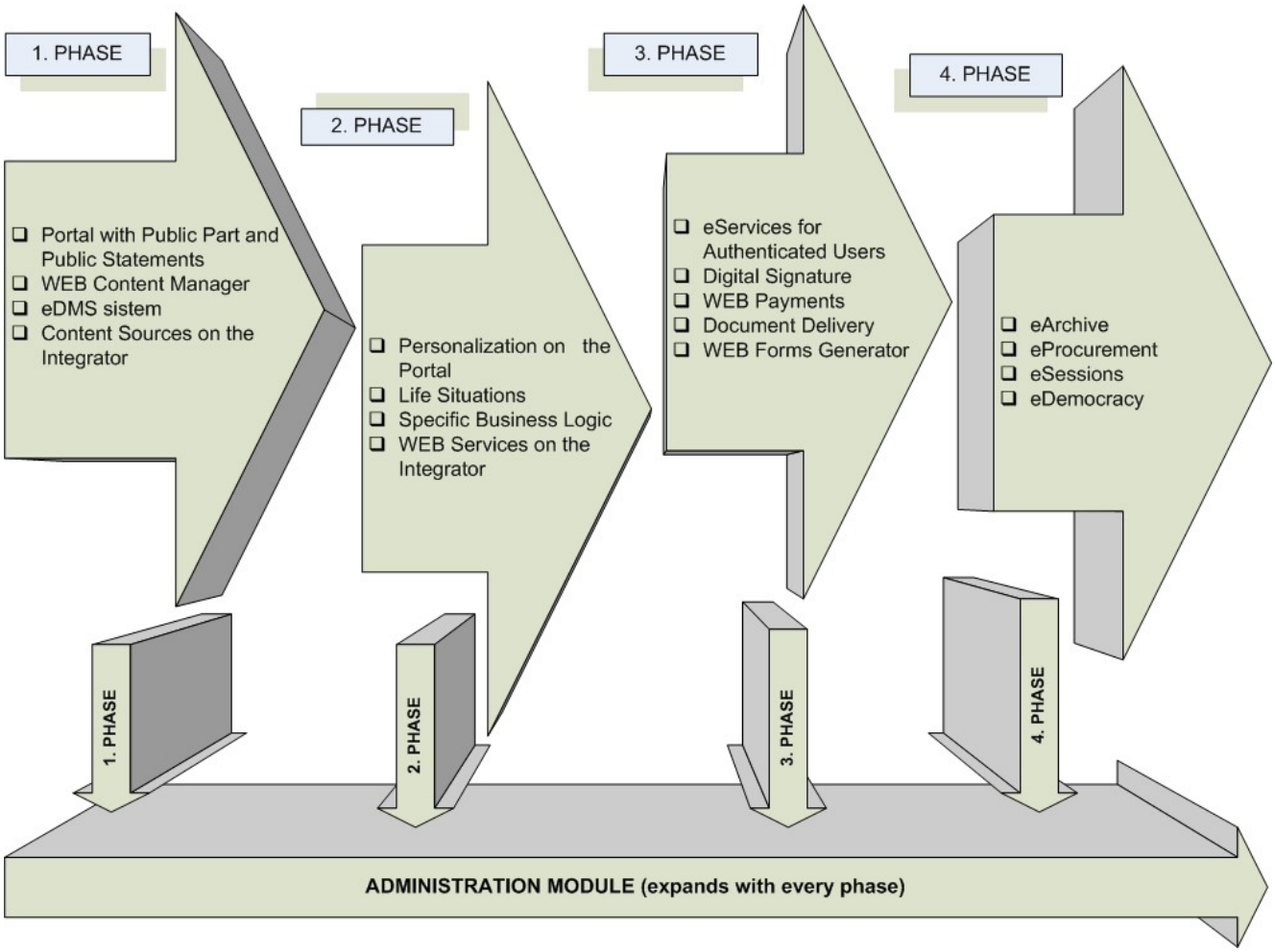

Figure 1: Architectural Framework of E-Government

6 Administrative context

The re-engineering and adaptation of services for state portal is aligned with the reduction of administrative burdens. Without the latter implementation of e-government services would be followed with difficulties if not even impossible. In 2005 Slovenian Government amended their Rules of Procedure of the Government of Slovenia and adopted the Methodology for fulfilling and monitoring the Declaration on the elimination of administrative barriers/reducing administrative burdens and cooperation of the interested public. This project is also a part of national Action plan for eGovernment. A special team at the Ministry of Public Administration reviews all new regulations and brings attention to unnecessary administrative obstacles which need to be eliminated.

7 Success factors

Success factor for implementing state portal services are:

- One-stop access to services
- Life situations approach
- Focus on high impact services
- Simplicity and user-friendliness
- Mutual recognition of all digital certificates
- Backoffice is at least as important as frontoffice.

8 About the Authors

This use case is based on an article published InfoSRC.SI, Special Edition 2008: “E-government: A portal for everything which the state offers” by Miha Velikonja.

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D3.2.1. Case Study

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Enhancing Western Balkan
eGovernment Expertise

E-Government Case Study eGovernment Registries: document management in public administration in Slovenia

Tatjana Ogrinc
Kristina Valenčič

Contents

"SPIS a comprehensive system for document management in public administration"

1 Abstract and Synopsis

In 2004, SPIS, the document management system for administrative procedures support, celebrated its 10th anniversary. The first steps were taken in August 1994, when SRC responded to a tender by the Government Centre for Informatics (CVI), which was looking for a system to manage and implement office operations. SRC, with its product APP – Automated Office Operations, was chosen because it was seen to have come up with the best solution. Even before this tender (in 1993), the Ministry of the Interior had formed a special project group, whose task was to choose a suitable system and technological solution to aid the management of documents in internal affairs bodies. The project group of the internal affairs bodies suggested that the functional testing of two of the most suitable tools (Lotus Notes and Con-Nect 3) should be conducted in order to choose the best solution.

Keywords: E-Government Case Study, G2G, Document management System

2 Basic outline

In the early nineties, there were a number of solutions on the market (e.g. EVDOK, SLED, DOKSIS …) meant for dealing with documents, but they were only able to keep track of incoming and outgoing mail. Public administration bodies already then felt the need for an integrated office information system, which besides keeping records would also enable certain more demanding functions in dealing with documents, such as: keeping track of the movement of documents, controlling work on individual tasks, evaluating completed work, offering information for help in decision-making (e.g. an overview of all the files dealt with, including level of difficulty), creating documents, exchanging documents between different sectors, exchanging documents electronically, the option of forming a unified documentation system in state administration.

The first such solution by SRC, which broke fresh ground in this field, was the APP application (Automated Office Operations), which is considered to be the first predecessor of today's SPIS system for archival support.

3 Goal

The primary goal of SPIS implementation is to create a highly efficient work environment, based on the most advanced information technologies and solutions, providing for effective and creative individual work in the organization. SPIS can be implemented for a single workplace or a network of several workplaces. The latter option also provides additional functions for collaboration between participants.

The introduction of an office information system is usually a step taken when organisations change their mode of operation to a greater or lesser extent. Users who have acted in accordance with the rules

governing the introduction of SPIS have gained new information support for their work. Introducing SPIS to environments where the administrative work has not been well organised introduces a new way of working and a change in current operations. How far-reaching the changes are depends on the level of preparedness of all employees for change, from the members of the project group who lead the project to the leadership which provides all the necessary resources for the project. A great obstacle can be the absence of or poor management of the project approach, which the introduction of information support demands. Project work in public administration is limited by a hierarchically organised structure, overburdened experts in the middle management sector, and the employees being too passive or poorly informed. Information technology opens up numerous opportunities for the renewal and optimisation of processes which SPIS can help support, thereby improving control and accelerating the flow of documents. We can help users achieve greater efficiency, greater productivity, make them more competitive and make their clients happier and reduce operating costs and human resources, and shorten the time needed for individual procedures. Proposals for the greatest success in the introduction of SPIS include: timely planning of the project, forming a project group, the preparation of project plan, determination of risks, determination of the project's output, good and constant information on the progress of the project and the evaluation of results.

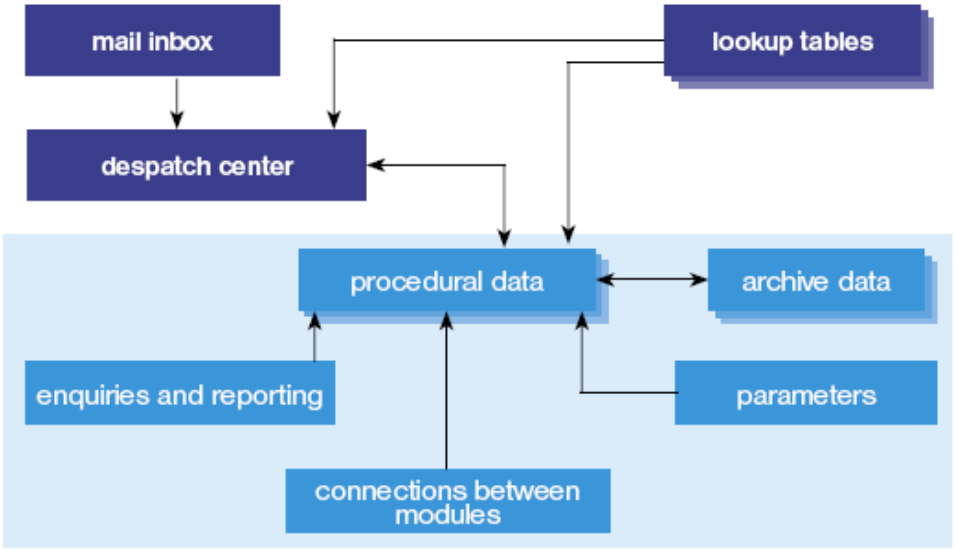
The benefits of implementing document management system (SPIS) are:

- faster document distribution
- high efficiency in document handling
- reduced quantity of paper in circulation
- optimizing human resources
- higher productivity
- centralized archiving - improved accessibility
- better control of documents
- time management of events
- lower business costs

4 Stakeholders

SPIS project group at the Ministry of the Interior, representatives of other ministries and public administration organisations acting primarily in the phase of user-requirements gathering and pilot testing. Through procurement process with the public tender development and deployment of the project was outsourced to the private company SRC.SI.

5 Technology



Picture 1: Modules of SPIS solution

Timely planning

The project must be correctly and timely planned. An applied solution must be integrated into the information system, activities must be planned in accordance with the annual plan and the financial means secured in the budget. Only with such an approach is the project assured the necessary material, financial and human resources. Problems which we have met with most often include: inadequate information infrastructure; failure to attend training courses, resulting in a longer introduction period and poorer quality; and poor cooperation with the leadership, resulting in the inactivity of the project group and greater difficulty in overcoming technical dilemmas.

Forming the Project Group

The success of a project depends on choosing the right collaborators. The methodology of directing state administration projects in the field of information technology determines the structure of the project group. The project council is at the head of the organising structure and consists of people who are responsible for the success of the project. The role of the project council is to take vital decisions: approve the beginning, continuation and end of the project and make sure that the project achieves its goals. The project group consists of the project group leader, the representative of the contracting body, the deputy project group leader, user representatives, a technical coordinator, technical experts and a quality manager. The leader of the project council approves the human and financial resources when setting up the project, and determines the limits and control points of the project. He cooperates with the project leader in harmonising the key elements of the founding document and chairs the meetings of the project council. He confirms the founding document and signs the approval to continue. At the concluding meeting, he checks and confirms the final mark given to the project and signs the takeover document. The leader of the project council solves

operational problems when the project's business goals are in jeopardy and ensures the necessary financial means needed for the undisturbed implementation of the project. The project leader is responsible for preparing the founding document. He or she prepares progress reports and evaluates the project at the end, prepares the takeover document and presents the course of the project at the final meeting. If the project surpasses its limits, then the project leader prepares a backup plan. During the course of the project he is responsible for keeping an eye on progress. He ensures the integrity of the documentation on leading the project and prepares propositions for organisational rules together with the contractors and the users. The technical coordinator prepares a schedule and evaluates the difficulty level of specific output and activities. He helps the project leader in choosing the appropriate technical strategy and gives advice on the use of technical standards in the project. He coordinates the project work, looks after the loading of appropriate datasets of documents and the issuing of authorisations for the use of document collections and prepares proposals for improvements. The technical assistant – the user's representative – looks after the functioning and integration of the environment (networks, servers, work stations), cooperates in planning and implementation, in testing and training users, and cares for the maintenance of the project's technical hardware. The technical assistant – the user's representative – is in charge of training the users and cooperates in the planning and implementation of SPIS. Users' representatives help prepare the founding document, suggest how the project could be improved and prepare the internal work guidelines. Experience in introducing SPIS shows that in a project group it is necessary to ensure the presence of members who are acquainted with work in the main office, expert workers who know how to lead procedures and the leadership which supervises and directs. The founding document of the project is the basic document of the project in which users, the contracting body and the contractor agree on all the important elements of the project, defining the output of the project. The document must make clear the goal which we are trying to achieve with the introduction of SPIS.

Risks and limitations

The project plan must include the limitations, either of human or financial resources or any other obstacles which can threaten the project, and the clearly presented risks bearing on successful completion of the project. Risks are reduced by having a backup plan, which slows down or reduces the number of activities.

Project output

In implementing SPIS, it is important to deal with existing records. The founding document for the project contains an overview of output which SPIS presents for new datasets. The signing plan has particular importance among the datasets and reflects the structure of the organisation. It is through the signing plan that the permissions of users to view datasets, cases and documents. The other auxiliary dataset is the classification plan, which represents the basis for classifying documents according to content.

Internal instructions

With internal instructions for the use of SPIS, we increase the use of all the functions of the application and enable rules to be followed more closely. The instructions include the condensed content instructions and

certain operational processes, procedures and the framework of these procedures. The instructions determine work with mail, how cases and documents are recorded, the electronic gathering of documents, how archival and permanent material is selected. An integral part of the instructions are the signing and classifying plan.

Informing users

To ensure a good quality setting up of the SPIS application, there must be good cooperation between users, contracting bodies and contractors. There are three important steps for sharing information. The first is meant for the leadership. If the introduction of SPIS is to succeed, the leadership must have been adequately informed and have firmly made a decision.

The next step is the training of all SPIS users. During courses they become acquainted with the particularities of the Lotus Notes environment and the SPIS application. They learn how to configure files, enter records and create various kinds of documents. They become acquainted with keeping records in the main office, with administrative and other procedures which are led by expert workers and with the procedures of control and inspection which the users need. The third step is the training of users. Skills and knowledge gained during training is supplemented by work in the actual environment where they can solve cases and carry out procedures at their work stations. However, it is very important that the training staff is highly professional and can give advice on content as well as on technical issues. When giving information, it is important that there is contact with the contracting body, that they are given details about the work, so that the representative of the contracting body is a member of the project group and plays an important role above all in clarifying financing and giving advice on how the application will be adapted to user needs.

Implementation of the application

Implementation consists of activities from an analysis of the suitability of the information infrastructure to the preparation of the SPIS application on the server, setting up the client's Lotus Notes and the transferral of old records of documents into the new system. If the office operations are supported by a system for optical scanning, it is necessary to set up programmes on the server and set up work stations for optical scanning and for the inspection of documents. The final stage in introducing SPIS involves adjusting the application to the users and giving advice on the most appropriate use.

Quality evaluation

To carry out the project, it is important that there is an internal evaluation of the quality of the output. This can be done by the head of quality control or members of the project group. In ensuring quality, standards are respected which are imposed by the project's contracting body and at the same time the quality control system of the contractor is respected.

6 Administrative context

SPIS – document management system is designed for the life-cycle of documents. Processes supported adhere to the valid bylaws for dealing with documents.

Changes to the regulations are up-dated to the system following rules of change-management.

7 Success factors

Success factors are primarily connected to adherence to the project plan and phases described above. Another issue assuring involvement of top decision makers assuming this decision maker can and will issue internal acts when needed: introduction of document management system in closely linked with re-engineering working procedures.

8 About the Author

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D3.2.1. Case Study

We-Go
Enhancing Western Balkan
eGovernment Expertise

E-Government Case Study
e-voting
Internet voting in Estonia

e-Governance Academy
Tallinn, Estonia

Steven Segaert

Nele Leosk

Contents

e-voting – Internet voting in Estonia

1 Abstract and Synopsis

Following a successful pilot project in Tallinn in January 2005, e-voting was introduced as an additional possibility to cast a vote in the municipal elections of the same year, and was further extended to the parliamentary elections in March 2007. E-voting in Estonia is now fully established and implemented.

E-voting in an Estonian context means voting over the Internet, using the existing infrastructure and the electronic ID-card as a tool for identification and authentication.

Despite the relatively low number of voters using the possibility, the project is seen as successful as it integrates several existing applications, and brings the concept of e-services to a new level. This case-study briefly explains the setting in which e-voting emerged. It explains the techniques used, and offers an answer to the question as to the real political impact of the project.

Keywords: E-Government Case Study, E-Inclusion

2 Basic outline

It is logical for government to not just use ICT in its administration and in the technical process of its law making, but also in areas that are about participation of the citizen. This idea is referred to as „e-democracy“, which can be defined as the use of ICT in the enhancement of political processes in our societies.

As expressing one's opinion on one's government by voting is the most classic and best-established way of participation in a democratic system, using ICT in the voting process is one of the first things that are thought of when discussing e-democracy. Using ICT in the voting process is certainly not new. Many countries use voting computers in the polling stations, and other countries prefer using optical reading devices to speed up the count of hand-filled ballots.

E-voting in an Estonian context, however, means voting over the Internet. This is relatively new and has only been attempted in a few countries as of now, and only in the form of limited pilot projects. The Estonian case is unique because it was the first time anywhere in the world that remote voting was introduced as a full channel, for a whole country and with a procedure that is very easy for the citizen.

3 Goal

Voting is only one part of the process of elections. This means that all other stages in the process (registering candidates, making voting lists, counting the votes, etcetera) have to take e-voting into account. For example, the lists of candidates has to be formatted in such a way that it is usable on a computer screen, but has no influence on the vote compared to the presentation on paper.

Being part of a larger process also means that the experience and guarantees of e-voting need to be as similar as possible to those of normal voting at the polling station. As is the case with normal voting, e-voting needs to be uniform and secret, only eligible persons can be allowed to vote, every voter should be able to cast only 1 valid vote, and the vote needs to be secret also to the voter (meaning that a voter must not be able to prove for whom he or she has voted).

4 Stakeholders

The introduction of e-voting in Estonia has opened up a whole new channel through which citizens can exercise the most visible and powerful of their democratic rights: voting. Voting over the Internet is to be seen as an additional possibility, aiding the integration in society of groups for whom physical voting at a polling station is cumbersome or even impossible.

The e-voting system adds yet another application through which citizens in Estonia are empowered to take better part in public life.

5 Technology

The procedure from the point of view of the administration (back office)

The concept of e-voting mimics the system that allows people to vote "per letter" from abroad. In that system, a citizen identifies himself to the polling commission and receives a ballot and two envelopes. The ballot, once filed out, is than placed in a blank envelope. That envelope then goes into another envelope on which the voters' identification details are written, and is sent to a polling station.

At the polling station, after eligibility is checked and confirmed, the envelope with the ballot (and on which no markers are written to identify the voter) is put into the ballot box together with the other envelopes. The result is that the verification of the fact that the person is allowed to vote (which would otherwise take place at the spot in the polling station) is done via one system, and the anonymous registration of the vote via another.

The e-voting system follows the same procedure. When the voter casts his or her vote, the vote is encrypted – which is similar to putting it into the inner envelope. Then the vote is sent in a message digitally signed by the voter, which, just as the outer envelope, tells who that person is and allows checking whether that person can vote or not.

Once sent, the authorities can verify the identity and the capacity of the sender and, once verified, can separate the vote from the identity of the voter.

Safeguards in the system ensure security and accountability, and allow electronic votes that are cancelled by subsequent electronic or paper votes to be taken out. All in all, the guarantees in place ensure that only one vote is cast per eligible voter, that all accepted votes are counted, that votes don't get lost or changed, and that nobody can ever get to know which voter has cast which vote.

The procedure from the point of view of the voter (service delivery)

A citizen wishing to vote over the Internet is required to have an electronic ID card and valid certificates and PIN-codes. Every card is accompanied by two PIN codes – one allows to securely identify (much like just showing your bank card is not enough to pay – you need to verify that it is actually you by using a secret PIN code), another that allows to put a digital signature. Internet access and a smart card reader are of course also required.

Entering the voting website, the citizen is prompted to insert the card into the reader and to identify by entering the first PIN code. The system then checks from the population register whether or not you have the right to vote. If not, you are directed to the services managing the population register to see what is wrong. If you are, the system reminds you if you have voted already or not.

The voter is presented with the list of candidates from his constituency, and can select the candidate of choice and cast and confirm a vote. This vote is automatically encrypted by the web-application, using the public key of another machine, namely the one that will count the votes. From now on only the machine that will count the votes can read it – nobody else. The vote is effectively sealed and made secret until the moment of the count – this is the inner envelope referred to earlier.

Now the voter needs to send away this encrypted vote. This is done by adding the voter's digital signature to it (the "outer envelope"), by entering the PIN used for putting digital signatures on messages.

6 Administrative context

Voting in Estonia - procedure

A list of eligible voters is compiled from the population register and sent to each polling station. Voters are sent an invitation to vote.

To be able to vote, voters of course have to identify themselves. At the polling station, a valid identity document can be used. E-voting is only open for people holding the electronic ID-card, which is the only means of identification that offers sufficient guarantees concerning distant authentication and identification. Other systems (e.g. using user-ID's and passwords) do not offer the same level of security and are not considered.

Several possibilities to vote exist. One can vote outside of the place of residence in polling places in every county, between 13 and 9 days before the election date; one can vote in one's assigned polling place between 6 and 4 days before the election date; and one can vote in one's assigned polling place on Election Day. For parliamentary elections and referendums one can vote from abroad, by letter or at representations.

E-voting is possible during the advance voting period, between 6 and 4 days before Election Day. As Election Day is always on a Sunday, this means from Monday 9am to Wednesday 8 pm.

One important characteristic of the system is that **the traditional paper vote takes priority over the electronic vote**.

The system that is now into place allows someone to change his vote. This is done to make sure that someone is not pressured into voting one way or another, something which cannot be assessed from a distance. A voter, pressured to cast a certain vote over the Internet, can cancel this electronic vote by presenting himself in a traditional polling station where all physical and traditional guarantees concerning secrecy and privacy are fully guaranteed.

When more than one electronic vote is cast, the last electronic vote counts. When there is both an electronic and a paper vote, the paper vote takes priority, irrespective of the time it was cast (before or after the last electronic vote).

7 Success factors

The key enabling factor for the introduction of e-voting is the existence of a working public key infrastructure and a system of electronic ID-cards. This allows not only to securely identify a person over the Internet, but also to be sure that signed messages are authentic and have not been changed along the way.

Other factors include the high Internet penetration in Estonia. One of the more telling statistics shows an Internet usage level of 63% amongst people aged 15 to 74 (spring 2007). More importantly though, the way people in Estonia use the Internet is somewhat different from what happens in the rest of Europe. Where citizens throughout the EU use the Internet mostly for –mail communication and for finding information about goods and services, using financial services (mainly Internet banking) and accessing online newspapers and news are relatively more popular in Estonia. Furthermore, a vast majority of people is used to submit tax declarations over the Internet, showing that citizens are used to dealing with government through electronic means.

Legal impediments to the introduction of the e-voting system were relatively easily solved, aided by the fact that all the legal texts that have to do with elections and voting were written in such a way as to take into account the possibility that there would be e-voting one day.

Analysis of the election results of 2005 shows that usage was not very impressive. Only 1 percent of all eligible voters (about 1.050.000) have used the opportunity to vote online. Combined with a very low general turnout of only 47%, that means that about 2% of those who actually voted, used this channel.

However, the use of the e-voting system requires that a citizen has a valid certificate and a valid set of PIN-codes. PIN codes remain only valid when they are effectively used, so the persons being able to use the e-voting system are the ones who are familiar with the full use of the electronic identity card. In 2005, the number of daily-life applications for which one required to be able to create a digital signature, were very limited. This means that few people had experience with this application. Of this limited audience, a vast majority made use of the e-voting system, which leads to the conclusion that, as more and more daily-life applications will require the full use of the electronic identity card, a steady rise of e-voters over the years can be expected.

There were also some significant non-results. The gender of the voters didn't seem to matter (45,7 % of the e-voters were women), and there was no clear division that could be contributed to age, income, education or even political preference. Politically speaking, e-voting is a neutral development – no party has clearly benefited or suffered from the system.

As expected, the trust in the system, and the ability to understand the procedure, are widely seen as important factors.

8 About the Authors

Mr. **Steven Segaert** is programme co-ordinator at the e-Governance Academy. After having been involved as an expert in the modernisation of Belgian social administration, he now participates in many projects concerning e-governance and social security. Combining a legal background with practical experience and insight, he is especially interested in e-government from a service delivery viewpoint.

Ms. **Nele Leosk** is programme director at the e-Governance Academy and leads the Academy's ICT in education programme. Her areas of expertise further include e-democracy and e-participation. She has been involved in the implementation of a number of researches concerning e-participation in local municipalities and e-voting.

The **e-Governance Academy (eGA)** is a non-profit organization founded for the creation and transfer of knowledge on e-governance and e-democracy. eGA was initiated as a foundation in 2002 by the United Nation Development Programme (UNDP), the Open Society Institute (OSI) and the Government of Estonian Republic. It was conceived as a platform for analysing and systematizing international and domestic experience, creating knowledge and know-how that can be transferred to interested parties both in Estonia and abroad.

The e-Governance Academy has extensive experience in research, training and consultancy, and actively advocates the use of ICT in government in over 30 different countries. While most of our efforts take place for and in the CIS countries and the Balkan region, the Academy is becoming increasingly active in the countries of the European Union.

Case description

Context

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Pilot project January 2005

To system that allows to cast votes over the Internet was first tested through a pilot project in the city of Tallinn. The question was put to the public where to erect a new "Freedom Monument", and citizens could suggest different venues. In a next phase, people were asked to vote in a referendum where to finally put the monument. This was the first time that people could not just go to the normal polling stations, but could use vote using a new channel, the Internet.

The test showed that the system was technically sound and secure, and that it was ready to be implemented on a larger scale.

Facilitating factors

The key enabling factor for the introduction of e-voting is the existence of a working public key infrastructure and a system of electronic ID-cards. This allows not only to securely identify a person over the Internet, but also to be sure that signed messages are authentic and have not been changed along the way.

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How does it work?

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Political assessment

Analysis of the election results of 2005 shows that usage was not very impressive. Only 1 percent of all eligible voters (about 1.050.000) have used the opportunity to vote online. Combined with a very low general turnout of only 47%, that means that about 2% of those who actually voted, used this channel.

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As expected, the trust in the system, and the ability to understand the procedure, are widely seen as important factors.

Further information

All official information can be found on the website of the Estonian National Electoral Commission (www.vvk.ee). A continued analysis of the e-voting system, and more information on e-democracy in general, can be found on the website of the e-Governance Academy (www.ega.ee).

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D3.2.1. Case Study

We-Go
Enhancing Western Balkan
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E-Government Case Study
TID+
Enabling citizens' intitiative to e-participation

e-Governance Academy
Tallinn, Estonia

Steven Segaert

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Contents

Enabling citizens' initiative to e-participation: TID+

1 Abstract and Synopsis

The TID+ project aims to develop a tool that allows citizens to initiate, discuss and vote upon ideas that influence policy and legislation, and to submit them to the entity (government) that makes it available.

The tool itself and the experiences with it are made available to interested parties in and beyond the EU. The project will re-evaluate and ameliorate the present solution, develop comprehensive documentation on how it can be used optimally, and make it available free for non-commercial use to all interested actors as a tool to increase citizens' participation. In this light, the main objectives of the project are:

1. to develop and disseminate an online tool, based on open source solutions, that allows for citizens' initiative and participation in the legislative decision-making process; this tool should be easy to use by the citizen, and should be easily adaptable by interested governments and institutions.
2. to develop and disseminate the necessary documentation and guidelines that allow a productive and effective use of the tool in the legislative decision-making process; this documentation should include past experiences, information on traps and pitfalls that could render the tool ineffective, and pointers on how to best use the outcomes of citizens' initiatives and participation.

Keywords: E-Government Case Study, E-Inclusion, E-participation

2 Basic outline

TID+ builds on the experience gained through the existence of an existing tool, TOM[1]. The TOM system has been in use in Estonia since June 25th, 2001. TOM enables effective opportunities for citizens to become involved in policymaking and legislation, providing a citizen-initiated process in which any Estonian citizen (or

[1] A further description of the TOM tool is attached as annex to this case study.

other users of TOM) can submit their own proposals for either amending existing laws or policies or passing new ones.

It is important to note that the TOM tool did not intend for the government to submit policy and new legislation to popular scrutiny. Rather it lets citizens come up with their own initiatives, allowing them to submit ideas, discuss them and – through a process of voting – submit them to the government. The government is then required to answer to the suggestions, which in a number of cases has effectively lead to new or adapted legislation.

The existence of the TOM tool has been the inspiration for the TID+ project[2]. A need for change was felt through the observation that, after its initial success, the use of and enthusiasm for the TOM system was rapidly declining. Exactly why, however, was scarcely assessed and therefore not known.

Moreover, at the time the TID+ project was conceived, the discussion on the faith and future of the TOM system in its original form was lively. Convinced of its potential, the project partners felt strongly that the system and the experience surrounding it held great importance for e-participation world-wide and could not go to waste, which formed the motivation to initiate the TID+ project.

3 Goal

The TID+ project aims to analyse, and learn from, the use and success of the original TOM tool, to offer improvements and modernisations that effectively lead to an increased take-up by citizens, and to make the tool – thus far a pure Estonian exercise - available to interested parties throughout Europe and beyond. This last goal is to be realised through making the software available under open license, in English, and adaptable to local conditions, and by developing a set of documentation that provides insight in how it can be used optimally.

4 Stakeholders

[2] This is also reflected in the acronym of the project. „TOM" stands for „Täna Otsustan Mina", Estonian for „Today I Decide". The acronym „TID+", or „Today I decide +" expresses the ambition to internationalise the system, and to add to it elements that both improve it and make it more effective.

The end result of the TID+ project (a software tool that can be adapted and used by any institution and that allows citizens to directly influence the creation of policy and legislation) is an asset for all involved in civil society. Its main beneficiaries are therefore governments and institutions, who are spared the development of their own system, and citizens, who are enabled to engage in participation over the Internet.

5 Technology

The TID+ software is based on a core application, which is a modernisation and update of the TOM system, and complemented by enhancements that on the one hand ensure take-up (enhanced integration in outside discussions, tagging, ...), and on the other hand are needed to make the tool internationally usable (translation possibilities, skinnability, scalability, ...).

The technology used has not been set from the beginning of the project. Rather, an analysis was made as to why people do or do not use an online e-participation tool (taking into account the experiences with the TOM tool). Based on this analysis, a set of functionalities was identified which should be included in the final software. Rather than determining which tools to use in order to address these issues, the developer is given the liberty to choose tools himself (the only limitation being that no proprietary software can be used, as this would contradict the Open License). This has the advantage that, in the end, the existence of the functionalities can be assessed, irrespective of the software used.

Technologies used are directed towards folksonomy engineering, identity management, RSS Syndication and social informatics. The tools to be deployed are collaborative environments, deliberative survey tools and search engines.

6 Administrative context

The TID+ project builds on the experiences with a previous tool named "TOM". The TOM system is a proprietary tool, licensed to be used in Estonia only. It is developed for use by the State Chancellery of the Republic of Estonia, which forms part of the central government. The development of the TID+ software will directly benefit the State Chancellery, as the core applications and elements of the tool will be incorporated in a larger e-participation portal, developed for the Chancellery. The State Chancellery will still be owner and manager of the e-participation portal in Estonia.

The TID+ project is however a larger project. In part funded by the European Commission, its output is by nature international – a system that can be used anywhere. In this context, the State Chancellery is a partner in the project, delivering important expertise and ensuring that the result is tested on the field.

The other partners in the project are the e-Governance Academy (eGA) and the European University Institute (EUI). eGA leads the project and is responsible for all subcontracting, while EUI’s primary role is to compile the necessary documentation and spearhead dissemination efforts.

This partnering between public and private institutions fits in an established tradition of Public-Private Partnership in Estonian. Indeed, this Public-Private Partnership is one of the main success factors for the development of real and relevant e-government in Estonia.

As the TID+ software is made available as a stand-alone system (and not as a supported online service, for instance), interested governments and stakeholders will need to set up the software within their own context (for example, by adding it to a website run by local government). The project gives them all information needed to do so, and further promotion and dissemination is being ensured by actions driven by the European Commission in the framework of the eParticipation Preparatory Action

7 Success factors

The TID+ project ends in June 2008, with the completion of the tool and the surrounding documentation. Whether the tool will effectively be put in use by other governments than the Estonian government is, of course, an open question. The setup of the project, however, offers all chances for effective use:

- The co-operation between the project partners is intended to result in a solution that answers to the issue of e-participation from more than one angle. Not only the interests of citizens are taken into account, but also – and perhaps more crucial – what the introduction of such a system means on the political and administrative level.
- By ensuring that the software is fully adaptable without further development and not hampered by license issues, everyone is free to use the system (be it to test it, to experiment with it, to adapt it or to implement it directly). The non-commercial nature of the project means that there is no cost aspect directly connected to obtaining the software.

- The project has, and continues to be, widely advocated. The involvement of all project partners ensures continuous visibility throughout different networks and interest groups (civil society, the academic world, government co-operation channels). Moreover, the efforts of the European Commission in this respect will continue to showcase the project as one of the outcomes of the eParticipation Preparatory Action, ensuring exposure beyond the current project horizon.

These efforts have led to a concrete interest expressed by officials of countries such as Georgia, Macedonia (FYROM) and Croatia.

8 About the Authors

Mr. **Steven Segaert** is programme co-ordinator at the e-Governance Academy. After having been involved as an expert in the modernisation of Belgian social administration, he now participates in many projects concerning e-governance and social security. Combining a legal background with practical experience and insight, he is especially interested in e-government from a service delivery viewpoint.

Ms. **Nele Leosk** is programme director at the e-Governance Academy and leads the Academy's ICT in education programme. Her areas of expertise further include e-democracy and e-participation. She has been involved in the implementation of a number of researches concerning e-participation in local municipalities and e-voting.

The **e-Governance Academy (eGA)** is a non-profit organization founded for the creation and transfer of knowledge on e-governance and e-democracy. eGA was initiated as a foundation in 2002 by the United Nation Development Programme (UNDP), the Open Society Institute (OSI) and the Government of Estonian Republic. It was conceived as a platform for analysing and systematizing international and domestic experience, creating knowledge and know-how that can be transferred to interested parties both in Estonia and abroad.

The e-Governance Academy has extensive experience in research, training and consultancy, and actively advocates the use of ICT in government in over 30 different countries. While most of our efforts take place for and in the CIS countries and the Balkan region, the Academy is becoming increasingly active in the countries of the European Union.

TOM

The Estonian Government launched its direct democracy portal, Täna Otsustan Mina, ***„Today I Decide"*** (TOM) in June 25, 2001 in response to the request of then Prime Minister Mart Laar to create a tool that would allow people to have an impact on the government work and provide them a possibility to speak up in all spheres of life.

The portal was introduced by the State Chancellery as a part of a larger e-government project under the www.riik.ee domain as the administration was keen to solve the problem of political disengagement in Estonia. The government needed to find new ways of promoting public debate and as by 2001, Internet penetration in Estonia was almost 90 percent among people aged between 15 and 35, an online portal was regarded as an effective way of engaging people in policy making process. TOM was devised with a view to bringing citizens closer to the government and making the operation of the government more transparent to citizens. Rather than a one-way, broadcasting model of information flow about the operation of government, TOM was designed to serve interaction between citizen and government as well as citizen-to-citizen communication.

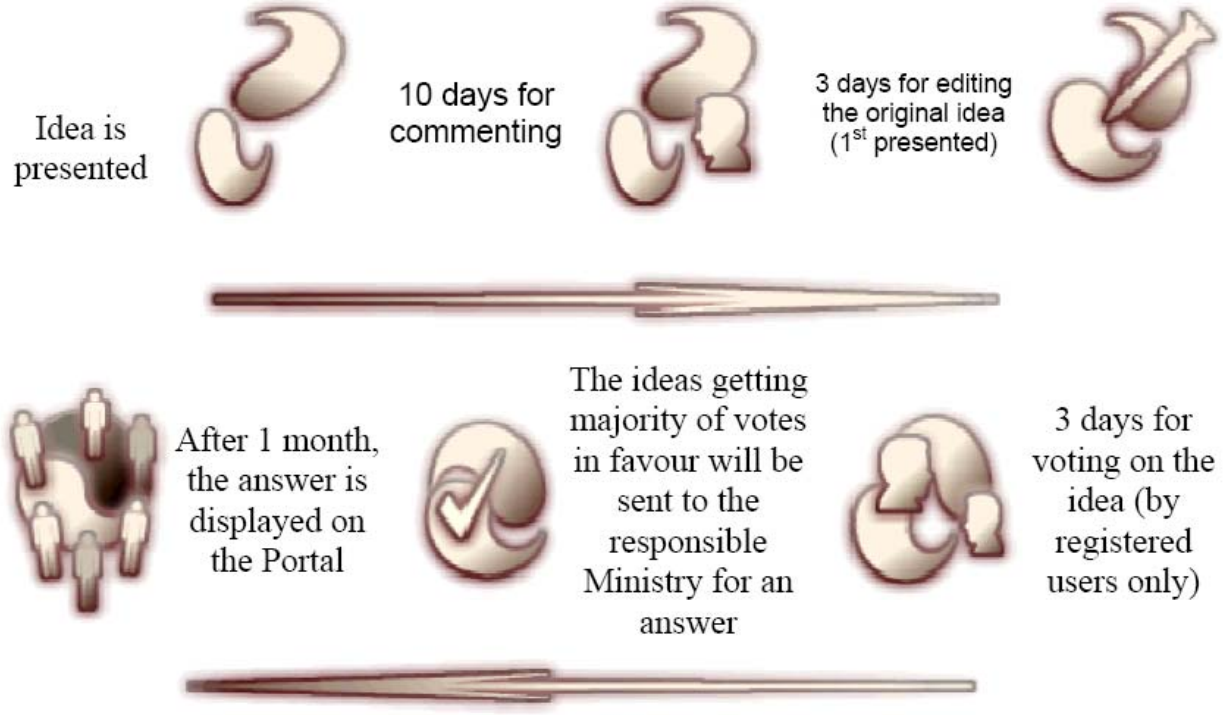
TOM is run by the Estonian Government and is under the auspices of the State Chancellery, a department which includes the Prime Minister's Office. The State Chancellery owns the software for TOM, and is responsible for the portal's management. One of its responsibilities is to coordinate cooperation between ministries and to keep the public informed and up to date about government activities.

How does TOM work?

TOM enables effectively opportunities for citizens to become involved in policy-making and legislation, providing a citizen-initiated process in which any Estonian citizen (or other users of TOM) can submit their own proposals for either amending existing laws or policies or passing new ones.

Once an idea is submitted to TOM, it is discussed by participants for ten days. The author then has three days to reconsider and revise the proposal in response to comments from the public. The ten-day time limit for discussion and the three days given to authors to rethink the original submission was thought to be enough for citizens to consider the different aspects of an issue. Proposers often make use of the suggestions they receive during the discussion and revise their proposals significantly before they are voted upon (though the latter has not been practised a lot). The idea is then voted on by users. A simple majority (50 percent plus one) of the votes is required for an idea to pass. If an idea receives majority support, it is forwarded to the appropriate government department for review. Once the suggestion is forwarded, its progress through the department can be monitored on TOM and government departments are expected to submit regular updates. The government department dealing with the submission has one month to respond to the proposal, including explanations and reasons why the proposal can or cannot be implemented. The official response is posted on the portal.

The following illustrates how citizens can submit their own proposals for laws or policies and how the latter is being processed:

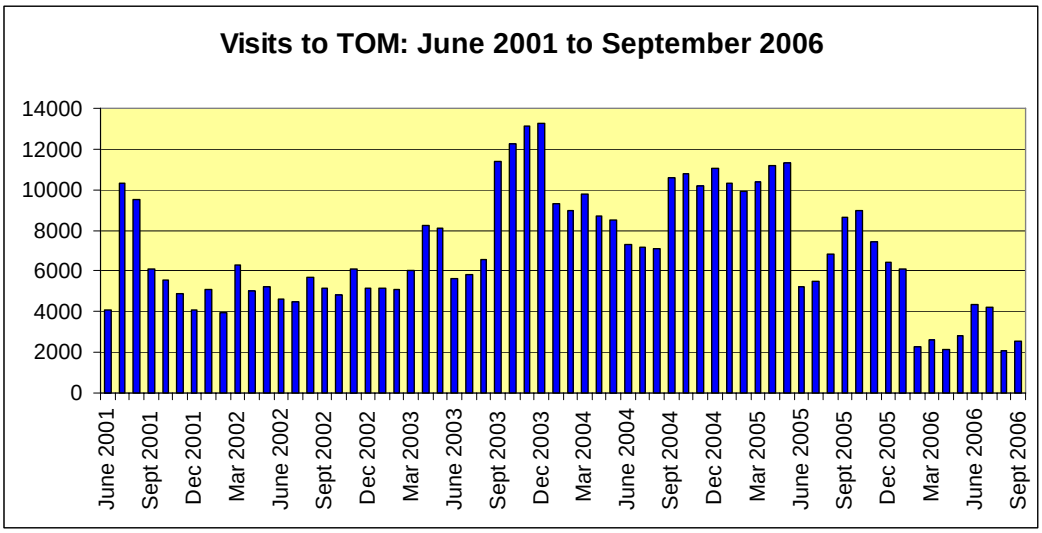


Users of TOM

There are no restrictions on who may use TOM. Anybody with access to Internet and desire to change things at all levels of governmental decision making can use the tool.

Primarily, its use has been in the Central Government but it will be developed in a way that it can be used by any local, regional as well as European governments and with some modifications in the procedure by separate state institutions (ministries, agencies etc.) and any other organisation, enterprise, interest group etc. The tool can be modified in order to be used in every country. Moreover, the potential is not limited to the public sector only, the tool could also be of use to smaller/local communities, the non-profit sector and (if the terms of use are followed) to the business sector.

By June 2006, 6646 people had registered themselves as TOM users but the number of visitors is higher. The following chart shows the number of visits to TOM in 2001-2006:



Impact of TOM

TOM has not been officially evaluated, but there are some strong indicators of its success. The portal has helped Estonia to gain international recognition for its e-democratic initiatives; the European Commission has presented the Estonian Prime Minister's Office with an award for implementing TOM and is also regularly listed among international best-practice initiatives in e-democracy.

There are 10 000-14 000 visits to the site per month and the number of registered users grew steadily from around 3,500 in 2002 to 6646 in June 2006.

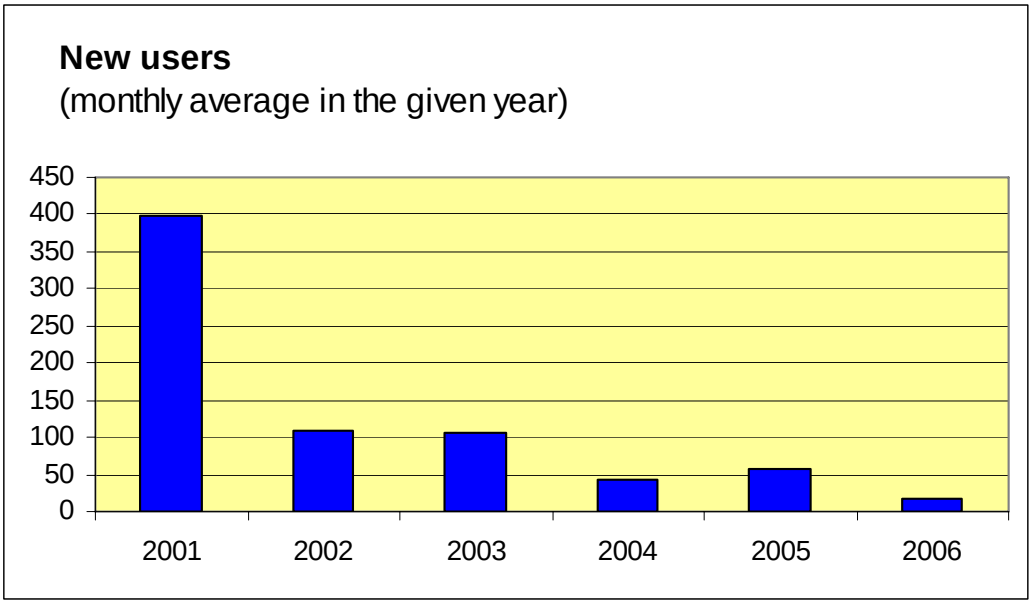
20-25% of all proposals submitted via TOM have qualified to be sent to ministries, of which approximately three percent have been either developed into legislation or acknowledged with a response that a similar proposal is already being considered by the relevant ministry. In January 2003, 371 proposals that had been submitted through TOM were processed by different government agencies; five Bills based on ideas submitted through TOM were already at the ratification stage; and 10 pieces of draft legislation were in progress in the relevant ministries. The above-listed could be considered a clear indication of the portal's influence.

Problems related to the current tool

The tool has been in use from the time of its introduction but after wide initial publicity and interest, the popularity of it has been decreasing considerably due to lack of political interest caused by changes of political leadership and due to mistakes in the initial design.

When the portal first opened, there were days when between 10 and 20 proposals were posted but this dropped to on average of just two or three per week and the number voting on proposals dropped to around 20, meaning that with only 11 votes a proposal can achieve the simple majority required for it to be referred to a ministry. Also, the number of active contributors to TOM has decreased and the quality of proposals is generally low, mainly because they are impractical or lack sufficient national support.

The number of TOM users (registered) has also been decreasing, especially so in 2006. Please see the following chart for new registered users of TOM in 2001-2006:



However, causes of the decrease of TOM's popularity have relatively little to do with the tool and software itself, though there is certainly improvement needed in terms of user-friendliness. In the initial enthusiasm and good intentions on enhancing e-democracy there seemed to be a lack of realism that resulted in non-dealing with the legal, institutional and especially politico-cultural aspects regarding the mechanisms and preconditions that are needed for a tool like TOM to actually work (to have a real impact on decision-making). Lack of well argumented and thorough ideas and proposals coming from TOM, lack of belief among the officials in the possibility of serious proposals coming out of TOM and general disappointment with it turned TOM into a place for a handful of regular users to visit.

In order to allow for citizens’ initiative and participation in the legislative decision-making process, TOM should be further developed so that it would be easily used by the citizens just as well as easily adaptable by interested governments and institutions.

Guidelines that allow a productive and effective use of the tool in the legislative decision-making process should be developed and dissemination to all interested parties. The guidelines include past experiences, information on traps and pitfalls that could render the tool ineffective, and pointer on how to best use the outcomes of citizens’ initiatives and participation.

We-Go Academies : Train-the-Trainer program

D3.2.1. Case Study

We-Go
Enhancing Western Balkan
eGovernment Expertise

E-Government Case Study
ePay
Case Study for PKI and Communication Architecture

Liljana Vodenicarska

Contents

“Title of the Case Study”

1 Abstract and Synopsis

In today’s fast paced world it is superfluous to waste extensive time on banks and post offices counters for paying one’s bills when majority of financial institutions and banks offer much more convenient way for electronic payment of goods and services. It is also benefit for bill providers to offer more efficient services for their customers making themselves more competitive.

2 Basic outline

At present average citizen spends extended amounts of time on routine tasks paying their bills, checking bank account information and waiting in long lines. Customer needs convenient way to automate routine tasks.

Typical needs on the bank and bill provider side would encompass range from providing their own customers with value added services to increasing performance and profitability on the business side by reducing costs.

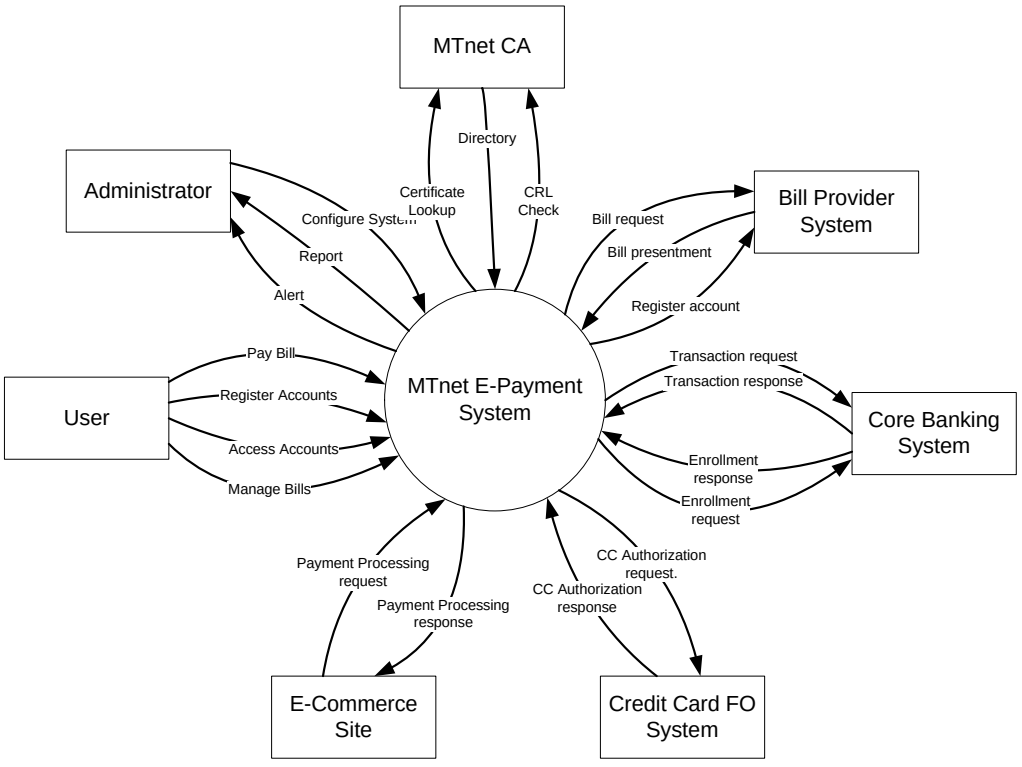
3 Goal

For customers who wish to be able to pay online for goods and services, the MTnet E-Payment System is an Internet-based application that will enable bill payment, banking account access, payments on e-commerce sites from the comfort of their homes and offices. Unlike partial e-banking and e-payment solutions our product will provide integrated access to banking and billing accounts of different banks and bill providers all at one place.

4 Stakeholders

Stakeholder	***Major Value***	***Attitudes***	***Major Interests***	***Constraints***
Customer	*Ability to*	*Views product as a*	*Easy operation, Rich*	*Low Technical*

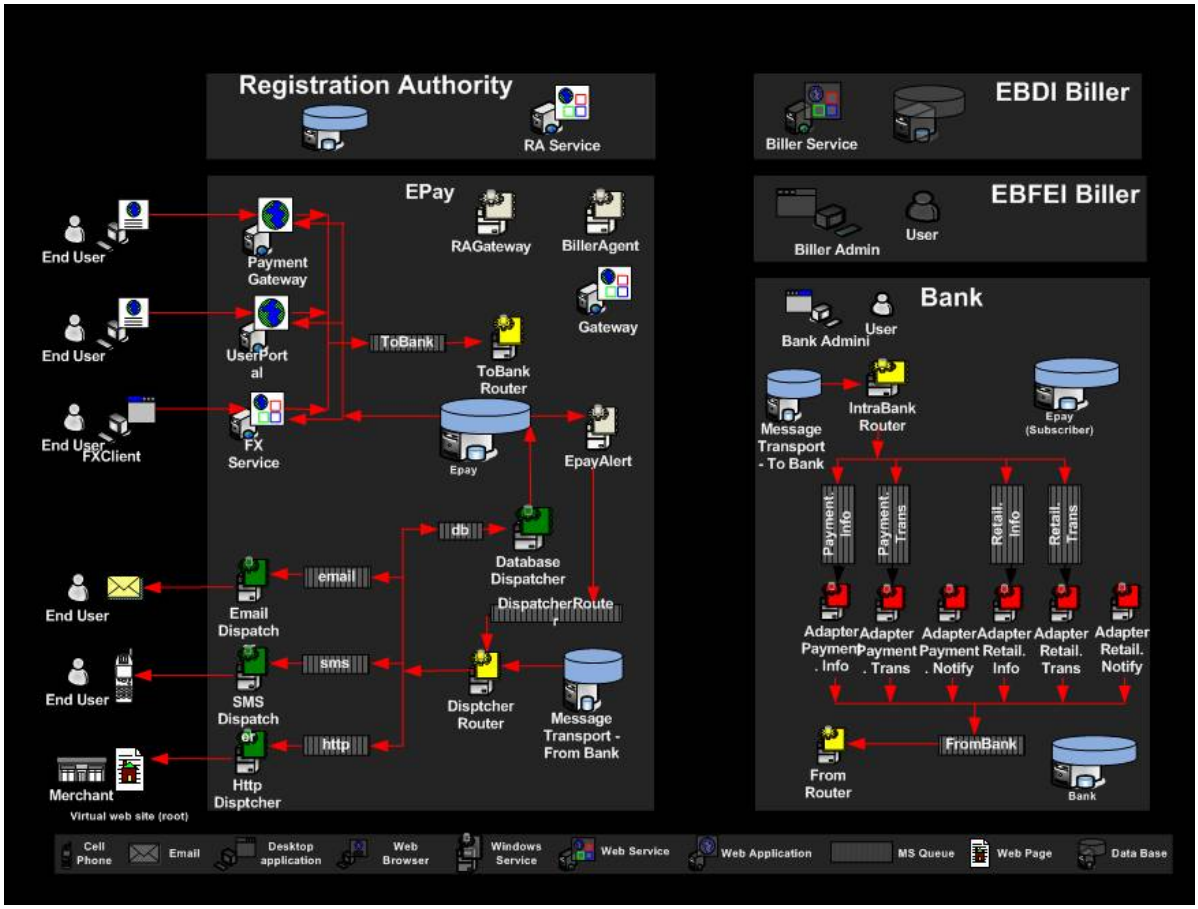
	perform online payments, convenience	*utility service*	*features*	*Knowledge, need for additional HW equipment*
MTnet Administrator	*Centralized management*	*Concern about potential operation problems*	*System reliability and manageability*	*Requires Training*
Bill provider	*Competitive services, lower cost of presentment*	*Not happy about software work needed, but recognizes the value*	*Marketing Exposure*	*Need for integration with legacy systems*
Bank	*Competitive services, lower cost of transaction*	*Not happy about software work needed, but recognizes the value*	*Marketing Exposure*	*Need for integration with legacy systems*
E-commerce shop	*Ability to close sales*	*Views product as a utility service*	*Streamlined sales process*	
MTnet Management, marketing exposure to generate new customers	*Generated revenue, explore new market*	*Receptive but cautious*		



5 Technology

ePay® solution is based on Microsoft® .NET Framework,

Microsoft® SQL Server™ 2000 and Microsoft® Windows Server™ 2003.



6 Administrative context

- Delivers e-bill where ever the customer is
- Improves services to customers
- Reduces invoicing costs
- Reduces customer expenses
- Provides bill history for customer analysis
- National leader in G2C, G2G, G2B, B2G, B2C e-business

Describe the administrative setting and supporting units.

7 Success factors

RI-1: User acceptance might be depleted due to PKI and relatively complex enrollment (Probability = 0.7, Impact = 3)

RI-2: System delivery may be affected by requirements volatility (Probability = 0.5, Impact = 2)

What do you think were the key factors to success and why?

8 About the Authors

Ms. **Liljana Vodenicarska** is Solution Architect at the Pexim Solution. Her main activities and responsibilities are developing, managing and maintaining customized software solution. She has been involved in development and implementation of a number of eGovernment projects.

We-Go Academies : Train-the-Trainer program

D3.2.1. Case Study

We-Go
Enhancing Western Balkan
eGovernment Expertise

E-Government Case Study
eBudget

Liljana Vodenicarska

Contents

"eBudget"

1 Abstract and Synopsis

The application shall cover the overall process of preparation of the Budget of the Republic of Macedonia and shall be compatible with the existing software and IT infrastructure within the MOF. The e-Budgeting application will communicate with the Treasury database and allow for the final budget to be uploaded into the Treasury database. It should allow Treasury budget execution data to be downloaded from the Treasury database and uploaded into the e-Budgeting application for analysis of the budget.
Keywords: E-Government Case Study, E-Inclusion, Refactoring, Re-Engineering, <your keywords here>

2 Basic outline

Sending and gathering not-standardized data in different formats. Slow and difficult data processing.

3 Goal

The e-Budgeting SW application should provide at least the following benefits:
- Simplify and improve the process of preparation of the Budget of the Republic of Macedonia;
- Improve transparency and communication between the Budget users and the Funds with the MOF
- Provide better analysis and planning of the Budget.

4 Stakeholders

1.1 Department of Budgets and Funds of the MOF

The Department of Budgets and Funds of the MOF (the Budget Analysts) plays one of the key roles in the process of preparation, submission and adoption of the Budget, and also in the process of monitoring of the Budget execution.

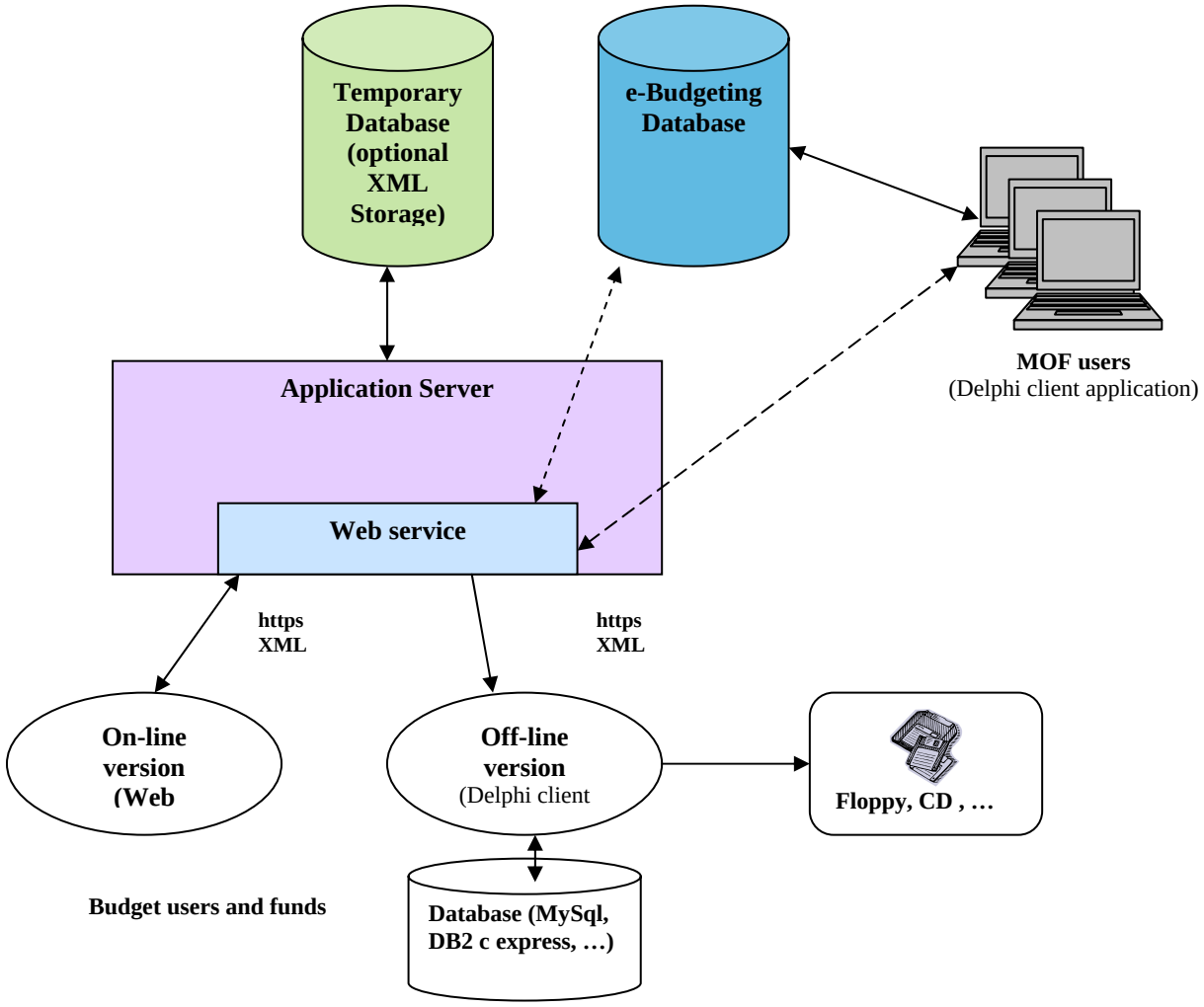
1.2 Treasury Department of the MOF and other individuals within the MOF

Treasury Department of the MOF is responsible for the actual execution of the Budget funds. A Treasury software is already in operation and the e-Budgeting software must consequently be fully integrated therewith. Besides the Department of Budgets and Funds and the Treasury Department also other individuals within the MOF shall be identified as users.

1.3 Users of the funds of the Budget of the Republic of Macedonia Budget

Users and their spending units use the funds of the Budget of the Republic of Macedonia (legislative, executive and judicial authorities). They receive budget circulars from the Department of Budgets and Funds of the MOF and prepare Budget requests according to the circular. The Budget requests are submitted to the Department of Budgets and Funds of the MOF. The Budget Users communicate with the Department of Budgets and Funds of the MOF and mutually discuss and make necessary adjustment in the Budget requests.

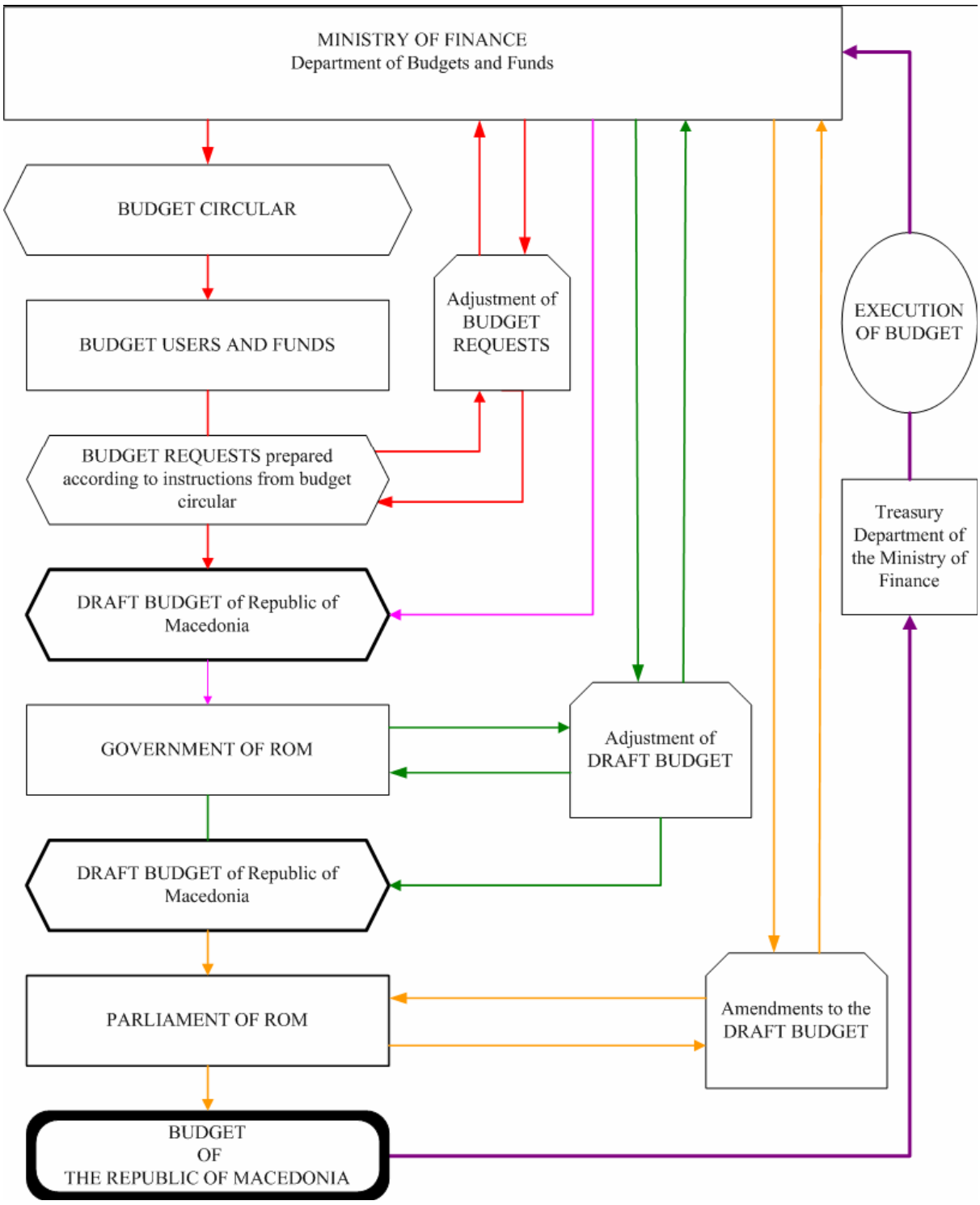
5 Technology



- **JSP pages**
- **Domino tags**
- **Applet / Servlet**

- **PKI implementation (Enterprise Java Certificate Authority)**
- **LDAP**
- **Delphi**

6 Administrative context



Ministry of Finance – Department of Budgets and Funds prepares a ***budget circular*** - instructions for preparation of budget requests. The budget circular is prepared according to previously adopted Fiscal strategy and maximum approved ceilings for spending. The deadline for submitting the budget circular to the budget users and the funds is June 15th. A **special budget circular for the municipalities** is prepared by the Department of Budgets and Funds of the MOF. The Minister of Finance sends the budget circular to the mayors of the municipalities by September 30th. The Budgets of the municipalities are adopted according to the Law on financing the municipalities and are independent from the Budget of the Republic of Macedonia in regards to the adoption. Each Budget user/fund prepares a ***budget request*** in accordance to the budget circular and submits it to the Department of Budgets and Funds of the MOF. If the budget users or the funds do not submit any budget request in the period prescribed by the Law on Budgets, the MOF prepares the request for them. The budget analysts within the Department of Budgets and Funds of the MOF revise, analyze and make adjustments to the Budget requests in accordance with directives of the MOF. After all requests are revised, the Department of Budgets and Funds creates **a draft Budget** which should be submitted to the Government by November 1st. The Government may request modifications to the draft, which thus are made by the Department of Budgets and Funds. The **final draft budget** is then submitted by the Government to the Parliament by November 15th. The budget should be adopted by the Parliament at the latest by December 31st.

7 Success factors

Awareness of the employees for the need of process automation and changing manual working process.

Support from high management through all phases of the project.

8 About the Authors

Ms. **Liljana Vodenicarska** is Solution Architect at the Pexim Solution. Her main activities and responsibilities are developing, managing and maintaining customized software solution. She has been involved in development and implementation of a number of eGovernment projects.