G2G E-Government: The Big Challenge for Europe

Master's Thesis

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"New conditions impose
new requirements
on government and
those who conduct
government." (F.D. Roosevelt)

Abstract

E-Government is a great opportunity for the European Union to improve the efficiency of public administrations and to gain a competitive edge. E-Government is the means to enable the creation of a united, homogeneous and strong Europe.

This thesis describes the Government-to-Government (G2G) interactions among European Member States. After an analysis of the present state of affairs and of the difficulties in introducing compatible G2G E-Government into the European Union, we will concentrate on future challenges and on the methodology that Europe has to pursue in order to achieve its objectives.

Zusammenfassung

E-Government stellt eine wichtige Chance für die europäische Union dar, die Effizienz und Wettbewerbsfähigkeit zu steigern. Durch angemessenen Einsatz von E-Government kann eine homogene, gemeinschaftliche und starke EU ermöglicht werden.

Diese Arbeit beschreibt die Government-to-Government (G2G) Interaktionen zwischen europäischen Mitgliedsstaaten. Nach einem Überblick über die aktuelle Situation und über die Schwierigkeiten, die für den Einsatz von kompatiblen G2G E-Government System existieren, wird der Fokus auf die künftigen europäischen Herausforderungen gelegt. Zum Abschluss dieser Arbeit wird eine gemeinsame Umsetzungsmethodologie vorgeschlagen.

Contents

List of Figures

List of Tables

Chapter 1

Introduction

The Information Society conference in Como on 7-8 July 2003 (during the Italian presidency semester) marked a turning point in European E-Government policies. All European representatives agreed on the necessity to change the existing bureaucratic organization in most public administrations into a more dynamic, efficient Government system through an eRevolution. E-Government is the means to put into effect the European eRevolution. E-Government will enable the boundless administration of the European Union.

In this scenario, Government-to-Government (G2G) E-Government is the starting point for the development of services intended for citizens and private organizations. By changing the back-office organization, public administrations will be able to offer their services to its costumers in a more efficient way. Moreover, European G2G will help to boost cooperation among European public administrations.

1.1 Purpose of this document

This master's thesis deals with G2G E-Government in The European Union. After a description of the future challenges of G2G E-Government, we will analyze the state of affairs of European E-Government. Starting with the European Union's E-Government objectives for the future, we will sketch a common European strategy and create a framework in which realization may be accomplished.

1.2 Structure of this thesis

This document is structured as follow (figure 1.1):

1. Chapter 2 includes a brief introduction to E-Government and G2G E-Government. In this chapter, we will see the future challenges of G2G E-Government and the difficulties of introducing eServices to current public administrations

2. In chapter 3, we will discuss important management practices that have to be engaged to realize G2G E-Government

3. The future challenges of the European Union in G2G matters will be covered in chapter 4

4. On the basis of the two preceding chapters, we will sketch a G2G E-Government realization framework that specifically fits European needs and respects its uniqueness

5. Finally, we will study E-Government in Switzerland. This is for two reasons: Switzerland didn't adhere to the European Union in spite of its geographical position and its commercial interests with other European countries. The Swiss federal system is very similar to the European organization. Switzerland can be an ideal pilot for the realization of bigger G2G E-Government projects

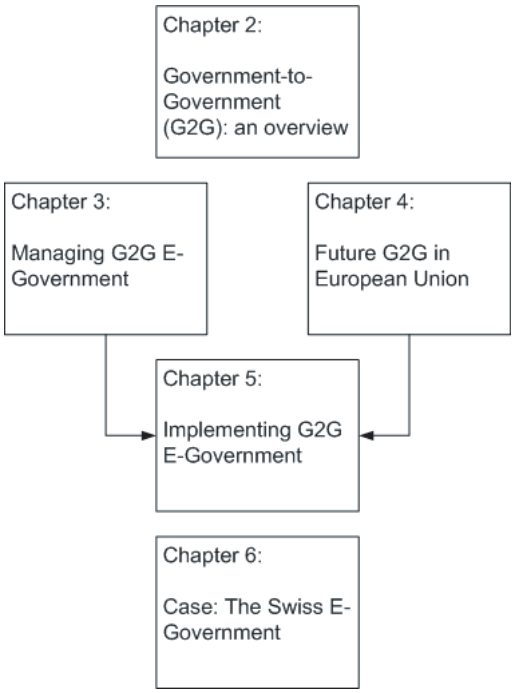


Figure 1.1: Structure of this master thesis

Chapter 2

Government-to-Government (G2G): an overview

This chapter introduces the principal concepts of G2G Electronic Government. After a general introduction on the different areas and on the evolutionary stages of E-Government, we will focus our attention on the integration of the inter and intragovernmental operations and analyze the chances and the difficulties related to the introduction of G2G solutions in public administration (PA). Finally we will analyze the major theories behind G2G realization.

2.1 The E-government (r)evolution

In the early years it was common belief that Electronic Government was only related with the simple publishing of public information on the net. After short time, the difficulties and the obstacles encountered in setting and implementing the online administrations revealed all the limits of the strategies that explicitly omitted many essential aspects for the successful modernization of public apparatus, for example re-organization public administrations and stakeholder analysis. *"The mere implementation of Internet-Technology in Public Administrations can't be considered E-government"* [1] ([78]). Successful E-government must include more factors than the only the technical aspect of IT: strategy, structure and culture of the organization have to be considered at the same level as hardware and software [2]. Like E-Business, E-Government is a new way to do "business". It covers all the aspects a government must consider to re-organize and to narrow itself to the always

[1] Freely translated from German.

[2] Cf. 3

more particular needs of its citizens.

It is common opinion that E-Business systems can be transferred one to one (without any adjustment to the public sector. Unfortunately, the simple use of E-business rules in regards to the Electronic Government isn't enough. Government has several aspects that differ from the business. The reorganization of public services and the introduction of different processes must consider some factors like politics, law, national security, citizens' privacy, etc. For all practical proposals E-government is a discipline that follows its own rules.

The strict and inflexible bureaucratic organization of public administrations is loosing its meaning in an always more dynamic market. The introduction of E-government follows a trend of modernization of ancient and slow public services. This change was sparked by the introduction of New Public Management (NPM). Like its predecessor, E-government tries to find a good way to re-organize many governmental areas. Differently from NPM, E-government exploits the benefit of IT in the PA. E-government can complete NPM and give it a way to implement its goals [75].

Actual facts show us not a one-step revolution of E-government, but a stepped evolution. To reach its main goal, i.e. a completely integrated and synergistic cooperation between all stakeholders, E-government has to follow some milestones with different levels of difficulty and completeness. Layne and Lee [48] identify four stages of E-Government development (see figure 2.1):

1. **Cataloguing**: at this stage government takes the plunge publishing information on the internet. Technology hasn't a tangible influence on the office organization. Because of its lack on expertise on the Internet, the government prefers to create small and short-time oriented projects [48]. The major task of the administration is the management of the content published on the web. Through the active access to selected information by the stakeholders over the net, PAs can save time, money and paper.

2. **Transaction**: bidirectional communication with the stakeholders (especially with citizens and business). The government websites evolve and citizens or organizations realize the value of the net *as another service channel* [3] *and want to exploit it* [48]. Online forms, Emails or

[3]Like telephone, fax or even the counter.

even Costumer Relationship Managers are sobstituted for traditional paperwork. A typical example of this stage is the online portal of land register.

3. **Vertical Integration** : the simple automating of existing government services isn't enough. Computerization forces the PAs to revolutionize of their processes and services. Vertical integration redefines the meaning of government. The target of this revolution is to integrate central agencies with regional and local offices within similar functionalities [48]. A practical example is the Swiss Zefix portal. This service groups the cantonal commercial registers in a single service accessible via web and allows a direct access to the register extract [4].

4. *"**Horizontal integration** refers to system integration across different functions in that a transaction in one agency can lead to automatic checks against data in other functional agencies"*([48]). This last development stage aims to integrate the different functions and services within the PA. The outcome of horizontal integration is an automated process oriented back-office organization able to interact within different offices in different regions and countries and to share resources. Pulling down the functional walls will create a one-stop government where customers [5] can have 24-hour access to public services from their home, their offices or even on the move [92]. Moreover, horizontal integration will not only help citizens or business realities, using Information Technologies, it will reduce plenty of time imposed by the current bureaucracy. This time reduction in the stages of processes results in a reduction of operative expenses and a more efficient and fluid administration. Technology integration is only one aspect of this stage. Horizontal integration involves managerial, organizational, cultural and politic issues too [6]

Figure 2.1 shows the different stages of E-Government development. For now, the first stage (cataloguing) is in all or most developed countries as a tangible reality. A lot of information is accessible thanks to good, organized, and easily accessible governmental portals, for instance www.admin.ch or www.europa.eu.int, the Swiss and the European government portals [7]. In many countries, communication has shifted from face-to-face and postal to

[4]http://www.zefix.ch/

[5]With costumer definition is intended every stakeholder that benefit from administrative service (for instance citizens, business, employees,).

[6]These aspects will be studied in depth in this document.

[7]These are only two of many examples.

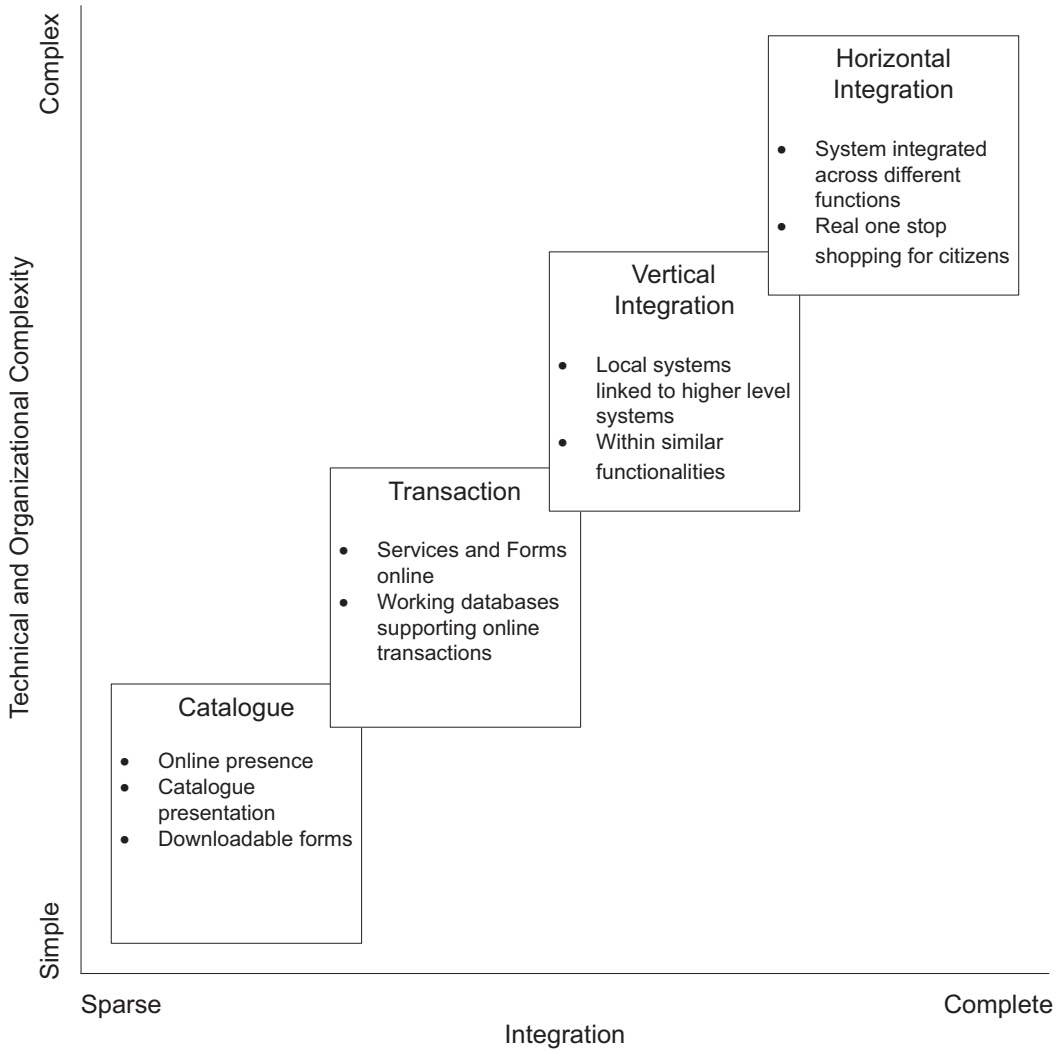


Figure 2.1: Dimensions and stage of E-Government development (source: [48])

an electronic way of communication, i.e. telephone, E-mail, CRM, Mobile etc. Countries like Germany, where a tangible E-government strategy exists, have good developed cataloguing and their transactions are constantly improving [78].

On the contrary, interactions (vertical and horizontal) are not developed yet. Systematic management of E-government's processes is a vision, a future goal that every public institution aspires to achieve. The simple publication of information online isn't enough.

E-Government will evolve the way government works. Leitner defines the evolution from a function-oriented and bureaucratic organization to a network-connected *"one-stop"*-front with back-offices of service providers as *E-Transformation* . The vision Leitner gives is of fully integrated process oriented offices. E-Government is the means PAs have to exploit in order to achieve their full potential [50].

2.2 E-government boundaries

The interactions among stakeholders are complicated and can not be treated as isolated factors. The implementation of good E-Government solutions implies an interaction through all levels and between all actors involved in E-Government.

Electronic Government defines more interactions between its principal actors, i.e. citizens, private organizations (business) and public institutions (government). The matrix represented in figure 2.1 show us the nine principle interactions. PAs actively provide their services in three of the nine relations:

- Government-to-Government (G2G) [8]: processes between and within the PAs [9]
- Government-to-Citizens (G2C): every interaction between PA and citizens
- Government-to-Business (G2B): relationship between PAs and private organizations

[8]Synonym of G2G is A2A (Administration-to-Administration).

[9]Sometimes the relationship within a single government is referred as G-I to give a more specific boundary.

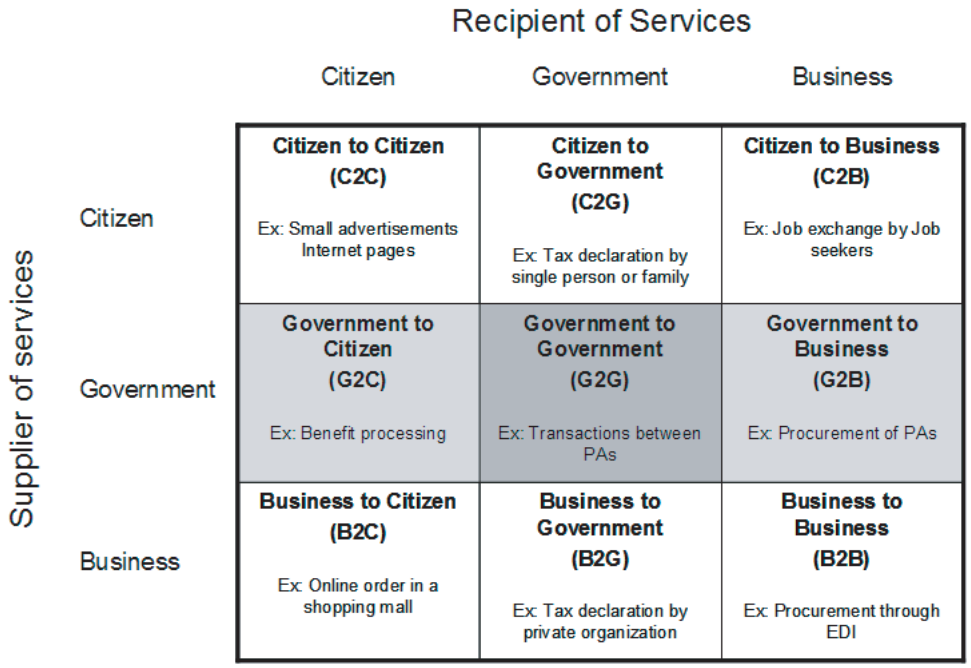


Figure 2.2: E-Government's interactions

This document focuses on the relationship between administrations, i.e. the G2G interaction (the dark grey square in figure 2.2).

A G2B or G2C application shows all its limitations if data offered to the actors can't be shared between PAs (G2G) [8]. We can consider G2G as the basis for a complete, efficient and effective E-government strategy. One of the most sought-after and ambitious wishes is to fully realize the capabilities of available information technology to transform an agency-centric government into an automated citizen-centric service organization, able to deliver services 24 hours a day seven days a week [83]. The citizen's duty to collect the document can be transformed into a governmental service by a central electronic agent located in a software driven workflow [52]. This future vision of government can be granted with a solid and well architected implementation of G2G national and transnational solution.

2.3 Government to Government (G2G)

Most of the literature and the publications on E-Government are focused on the spectacular (from the citizen's point of view) front office interactions

between Government and citizens or business (i.e. G2C or G2B). However, as we will demonstrate later in this chapter, the interaction and cooperation between administrations at the national and international level (i.e. G2G) are crucial for the success of E-Government projects.

2.3.1 Introduction

Government-to-Government is a young discipline. The short experience accumulated in these few years isn't enough for the responsibles to extrapolate widely accepted theories from the countless hypotheses made. Many theories are concerned only with the technical aspect of intergovernmental cooperation, others, on the contrary, try to give a broader vision including organizational and cultural issues. The different approaches to G2G come out of the heterogeneity to interpret the role of Government-to-Government. Up to now, a commonly accepted definition doesn't exist and the domain of G2G projects is still unclear.

The Swiss Federal Government bounds G2G as the vertical interaction between Federal Government, Cantons and local administrations. The internal relation between different offices is defined as Government internal (G-I) [41]. Similarly to the first, another "current of thought" explicitly divides the relationship between the people that are involved in PAs and the "towering above" organization: Government to Employee (G2E). Unfortunately, this distinction between external and internal interactions can't always be univocal and clearly defined. This creates the risk of bringing messed-up theories and difficulties into the integration of the different services. Furthermore, many challenges, rules, strategies and action maxims are often congruent [8]. For these reasons, we threat G2G E-Government in its wide meaning, including G2E (or G-I) aspects.

The US Electronic Government website gives a broader definition of Government-to-Government, including its benefits on the national security and a more trustworthy mean that can really help PAs to be more efficient: *"Many citizen services such as Homeland Security and verification of vital records require collaboration between Federal, State and Local governments. The goal of the Government to Government (G2G) portfolio is to forge new partnerships among levels of government. These partnerships will facilitate collaboration between levels of government, and empower State and Local governments to deliver citizen services more effectively"* [10] *(American eGov*

[10] http://www.whitehouse.gov/omb/egov/gtog.htm

portal)

The implementation of IT solutions between and inside PA can be considered G2G. But, as we saw before, not only pure technical cooperation can be considered in G2G. E-Government is the leverage from a pure bureaucratic and stovepipe organization to a true process-oriented and seamless Government. Intra and intergovernmental E-Government is and has to be much more than simply wires and computers. G2G Electronic Government has to be viewed as a coalition of many different aspects: from strategy to organization, from security to change in culture. G2G has the difficult task of completely redesigning the way government works and the way employees cooperate.

Recently, most of the developed countries have discovered the importance of G2G, especially as the basis to reach the integration's milestone (fig. 2.1). Despite an incremented concentration, G2G can still be considered at an adolescent stage and as we will see in this document, much has to be done before we can really exploit the IT benefits.

2.3.2 G2G E-Government: an interdisciplinary subject

As we will see later, G2G E-Government is not only related with information science and technology- Information Technology is only a part of the discipline. G2G E-Government is essentially an interdisciplinary subject. Figure 2.3 shows the three principle disciplines that constitute G2G activities.

Computer Supported Cooperative Work (CSCW), Data Mining, Distributed Systems or Software Engineering are examples of Information Technology research subjects involved in G2G E-Government activities.

To enable the eRevolution laws and internal rules must be modified. Political science and law are essential for the modernization of public institutions and for the introduction of G2G eServices.

In next chapters we will discuss the importance of use management principles in G2G E-Government. Moreover economic disciplines like change management, process management or even stakeholder analysis are fundamental for the running of E-Government activities.

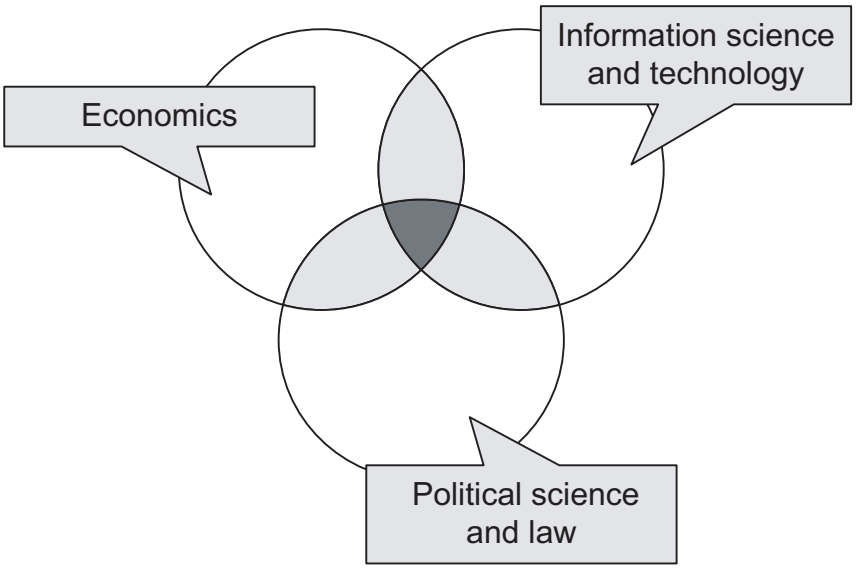


Figure 2.3: G2G E-Government disciplines

2.3.3 The black-box perspective of G2G E-Government

After the dot-com bubble burst, the opinion about technology and the strategic advantage it gives to business has changed. Many E-business projects have failed because of their superficiality and for the wrong idea of an IT not as an enabler, but as an end. This turned the way E-business was treated and revealed the need for strong strategies that considered all facets.

The experience accumulated from the failure of many E-Business projects is an important resource for the younger field of E-Government. In fact, some basic rules are not different. The introduction and use of Information Technology concerns many factors that have to be recognized and considered during the process of change. Moreover, many obstacles can come out. E-Government is more than using technologies like Databases, Web pages or Public Key Infrastructure (PKI). According to Leitner, E-Government implies major socio-economic innovations and politico-administrative institutional changes based on new IT. E-Government has to abandon its technological bias and focus on socio-cultural transformations [50].

Difficult and meticulous work must be done in order to integrate every single unit to create an organic whole. Involved is not only the most impressive front-office organization, but the process also requires a more difficult reorganization and integration of national and international back-offices. Public

Administrations' reorganization requires a whole-government effort and will be one of the most challenging areas for E-Government.

2.4 The role of the Government and G2G services

Describe the general competencies of the Governments is and hard task. The heterogeneity of the different governmental systems around the world (like monarchies, democracies or dictatorships) and the specific national differences prevent. Since most western countries (included European Member States) are democratic we have decided to introduce the role of the government in democratic countries [11]. After a brief introduction on the role of the democratic government we will analyze its competencies and functions from witch we will deduce the most required eServices and the requirements of the different stakeholders.

The word democracy is formed two Greek words "demos" (people) and "kratein" (power) that mean popular government. In democratic systems the give the citizens the full power of the national decisions: the community is sovereign. Jean-Jacques Rousseau has laid the foundations of the modern democratic theory. In his work "The Social Contract" Rousseau has outlined the importance of the protection and the preservation of citizens' freedom and the equality of rights by the state and the legitimation of the public power [73]. In fact the citizens have the right to elect their representatives who interpret and put into practice (through their decisions) the communities' needs. In democracy all the citizens have the same rights and wield the same power. The rules and the duties of democratic government are regulated by the national constitution.

All modern democracies have separated their powers in legislative, executive and judiciary power to grant to avoid the abuse of authority by a restricted group of people (2.6.1). Exploiting the notion of trias politica we have divided the function and the services depending on their administrative level (c.f. figure 2.4).

The legislative power has to adopt the laws proposed by the executive in

[11] It is not our intention to show favouritism to western countries, but since this document deals with G2G E-Government in EU we have decided to limit our analysis to those countries.

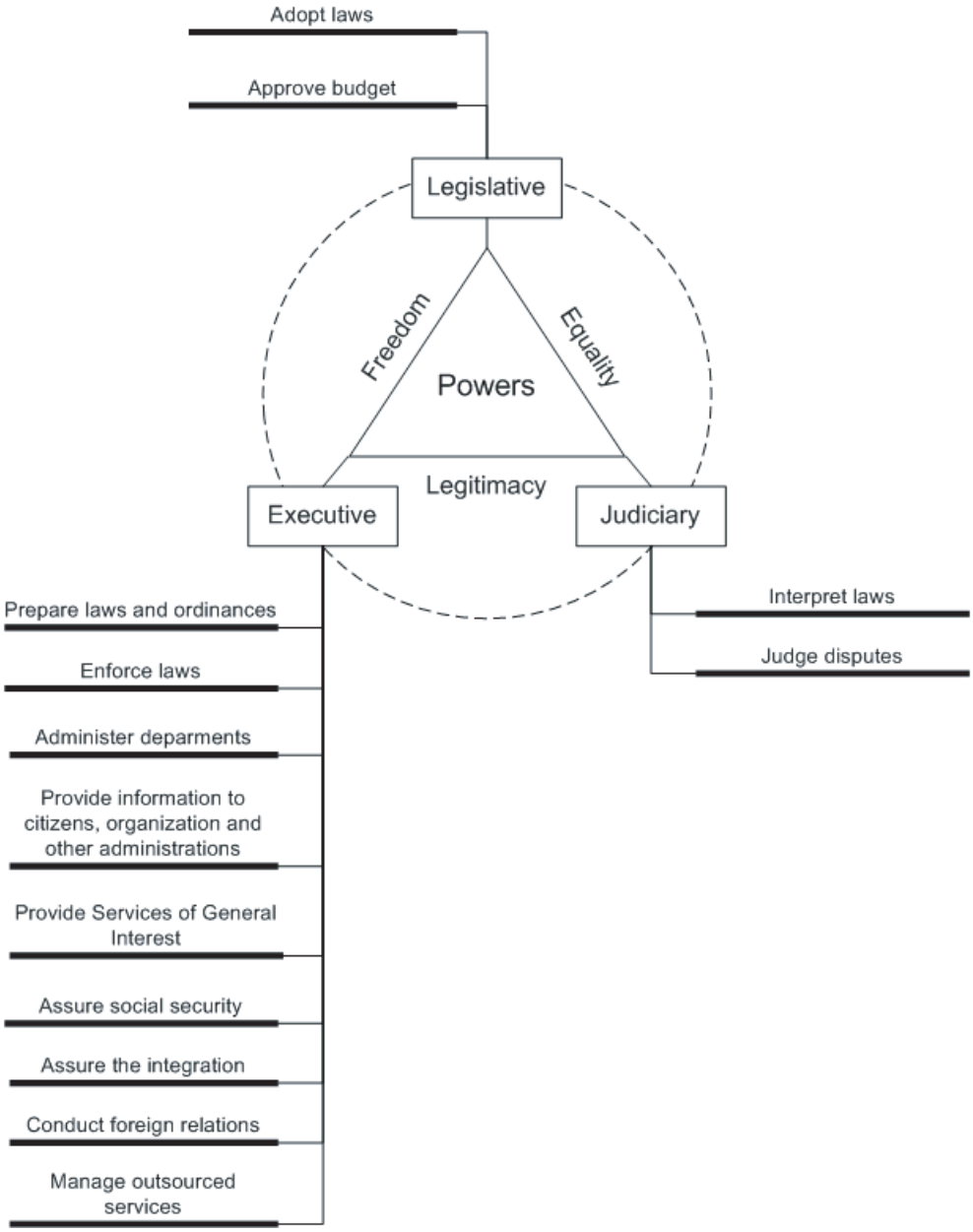


Figure 2.4: Functions and services of the Public Administration.

the citizens' interest. Moreover the legislative has to discuss and approve the budget for the current legislation.

The laws that the legislative power has passed must be enforced by the executive power that has the duty to bring them to effect. As administration the executive power has to coordinate and organize every department to manage and to provide to every citizen, organization or even to other organization information (like documents or certificates). The administration cover the role of service provider looking after the services of general interest, for example building public schools, creating reliable transport network or granting the welfare regulating the market and helping the less well-to-do.

Duty of the executive is to grant the social security, grant and preserve the fundamental rights of every citizen. The administration has to command the army (joining international coalitions as well) and other armed forces.

The snap growth of the immigration from the poor to the developed countries has forced the administration to intensify their efforts to help the immigrants giving them information on the country and helping them to integrate in the society. This task is particularly true in EU where the free circulation of people has boosted the number of people that move from one country to another. In fact nowadays every nation has residents (both citizens and immigrants) with different culture, language and religion. The administration has to motivate their integration and grant them the same rights [12].

The role of the executive power is not restricted to administer the internal affairs, it has to entertain international relationships as well. Create opportunities for the exports, discuss international alliances or join a supranational organization are only few tasks that the administration has to accomplish outside their borders.

The progress of Information Technology and the pressure due to the increase of public expenses have motivated many Public Administrations to outsource part of their activities, like waste disposal, draining of sewage, transports or telecommunication services. The administrations that recourse at external providers have the duty to look after their contracting to grant

[12] An example of such effort comes from the recent decision of the French government to abolish every religious symbol in the schools. France is a multiethnic society and its residents profess different religions that have to be respected. With this measure the government grants to every pupil the same rights without favouring anybody.

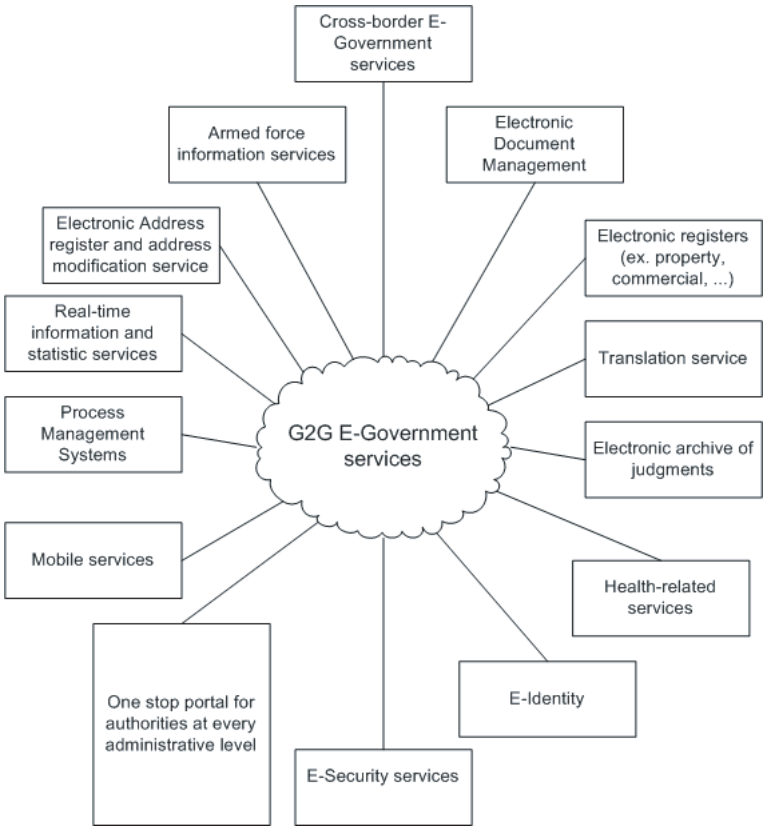


Figure 2.5: Examples of G2G E-Government services

their citizens reliable services.

The third power (judiciary) has to interpret the laws and judge disputes between different parties. Differently from other two organs, the judiciary is less involved state functions outside their ancestral competencies [36].

The introduction of G2G E-Government systems has the goal to improve the quality of these basic services and to strengthen the three basic values of the separation of powers (freedom, equality and legitimacy). Systems like Electronic Document Management or one stop portals will allow the creation of a more dynamic and democratic administrations. Some general G2G E-Government services is presented in figure 2.5[13].

[13]NB every single country has its own needs and its own political system.G2G E-Government services presented in figure 2.5 are only general example. Every nation has to develop its services coming out from its specific needs.

2.5 Future challenges of G2G

The introduction of Information and Communication Technologies (ICT) in governmental fields tries to achieve many more goals than the simple computerization of the PA. This chapter analyzes the targets of the eRevolution and the consequences it will have on its stakeholders and their activities.

2.5.1 Enable horizontal organization

Until now most Public Administrations have built their organization in a departmental way. The function-oriented division of responsibilities creates a vertical structure divided by different hierarchies and able to communicate with other departments in a formal and structural manner. This kind of structure is suited for small organizations, where the people involved have the opportunity to know each other personally and where every single employee knows the entire process [64]. Most PAs have an elevated number of employees who mostly communicate through impersonal report. Personal contact is very rare and most employees know only their specific part of the entire process. Moreover, the bureaucratic organization is characterized by a formal hierarchy. The relationships between different hierarchy levels is regulated through inflexible regulations, codes and laws that are a real obstacle to the fluidity of information and they create a real bottleneck.

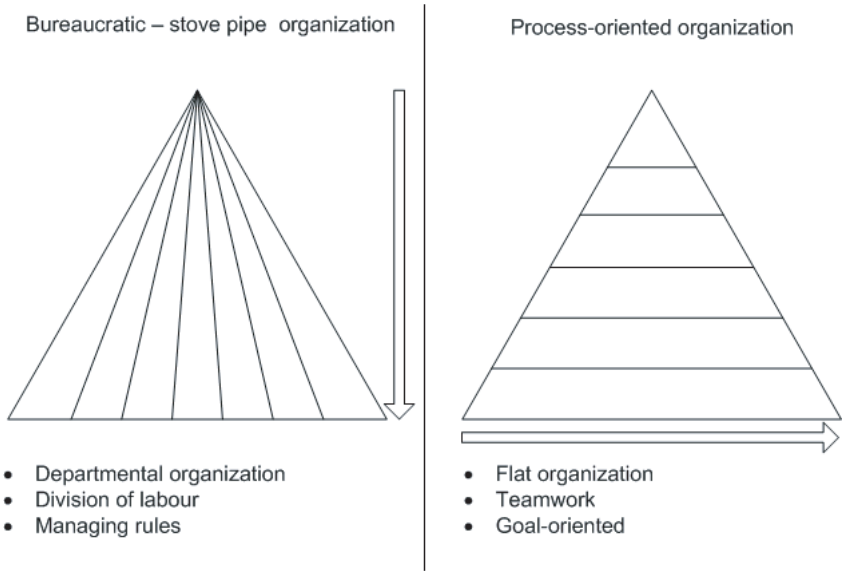


Figure 2.6: Bureaucratic organization vs. process-oriented organization

The bureaucratic organization is nowadays inefficient to an always more

dynamic market. The operative costs of function-oriented offices are high and not more justifiable. The need for a transition from an office-oriented to a customer-oriented system has increased with the insertion of IT, in PAs. To fully exploit the benefit of the insertion of IT PAs have to change their process organization: from a vertical to a flat structure (c.f. fig. 2.6). The process-oriented organization is concentrated on the processes and is not separated by functions (figure 2.7).

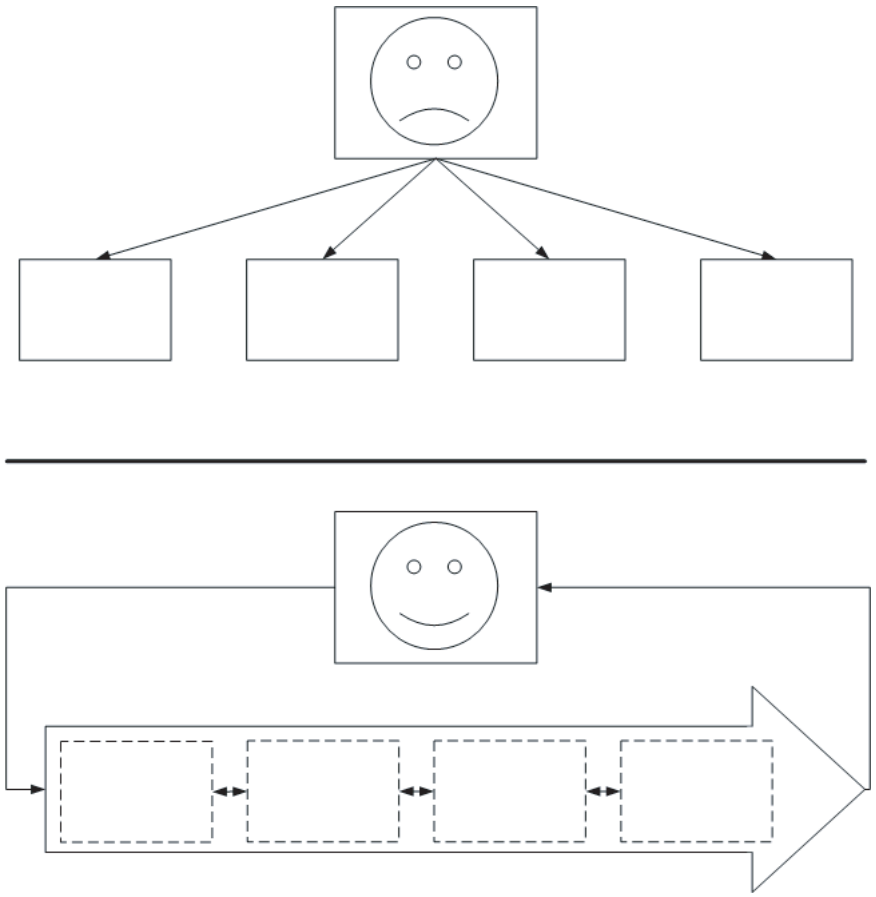


Figure 2.7: The activities of process-oriented organization have to change from fully office centered to citizens centric processes.

2.5.2 Free interchange of information and knowledge

One of the most ambitious tasks G2G tries to achieve is the national and international exchange of information between different public offices. The transmission of information involves many variables and many knotty problems to solve. The technical aspect, i.e. the transfer of digital data, is only

one aspect. Organization, culture, language and many others are the obstacles to overcome.

The reorganization of back-offices is the basis to enable a seamless government organization. For a strictly functional organization, IT can help transform back-offices to become process-oriented and more customer-centric. Moreover, the correct use and interchange of information can reduce the administration costs and the length of processes. A complete integrated and networked intra and intergovernmental organization is the basis for a fluid and boundless interchange of information and knowledge.

More often than not, we don't make any distinction between information and knowledge. Actually, there is a big difference. Information is data that has given structure and knowledge is information that has been given meaning [33]. Information and Knowledge have, at the same time, many relations [65]. Information without knowledge is not of use and knowledge is based on past information and perception.

In the following section, we'll give a definition for information and knowledge, describe differences and we'll analyze the difficulties to transfer knowledge.

2.5.2.1 Information

Information derives from Latin's word "informatio" which means idea, description, but also instruction and education. "Informatio" find its root in verb "informare" that is composed by "in" and "formare" and means "to shape" [14].

Information lies at the top of a hierarchy composed of data and character (fig. 2.8). At the lowest level of the hierarchy resides the character-set. A character can be a number, a letter or a sign. If we order the letters (character) alphabetically using syntax, we make a step forward in the hierarchy obtaining data. Ward et al. define data as *"the raw material of information, the raw facts or observations"* [65].

Information is the flow of context-oriented data. Seifert sees Information as "a past and related to practice communication of things that are for us important to know in a specific moment" [83]. For instance, the number 1.70

[14] http://www.educational.rai.it/lemma/testi/editoria/informazione.htm (accessed on June 2004)

has not an absolute meaning and can be interpreted by everybody in different ways. Adding a context to data, we obtain the information "exchange rate $1 = CHF 1.70". The information has to be related to a context always [47].

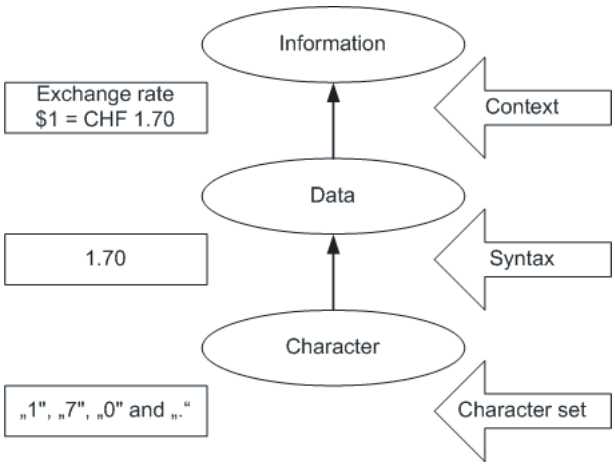


Figure 2.8: Information-hierarchy (source: [47], self translation)

The exchange of information between two or more offices implies new problems at technical and organizational level to clear. The "free circulation" of information on the PAs' electronic highways requires more attention in IT security. Important data about national security or citizens' personal information to be protected from ill-intentioned people like hackers or even worse like terrorists. Encrypted data transmission, secure passwords, employee training and secure data storage are a mandatory element of an affordable E-Government.

Not every civil servant needs to get the same information or has access rights to every citizen's personal data. Privacy is one of the most discussed points of E-Government that concerns citizens closely. Many of them see E-Government as a way to loose their privacy. Privacy has to be granted (2.6.3).

In these last years, the structure of information has changed from flows of raw strings of text to complicated multipart data. Information contains texts, images, graphics and multimedia. Many enterprises have discovered the value of the correct and aware management of information [65]. Everyday the importance of information as a key asset continues to grow. Information is a traverse production's factor. Information is important for production, procurement, marketing, services, etc. Often, the fast increasing request and the lack of expertise cause disequilibrium between demand and supply. Many

managers still don't recognize the fundamental role of Information in daily activities and deem it as secondary to production, creating poor information quality. This causes a dissatisfaction of customers [65]. Governments are not exempt from this phenomenon and have to be aware of the importance for orderly management information has. A lack of information quality means a worse public service and result in citizens and business disappointment. Moreover different languages are an obstacle to the quality of information (2.6.9).

Information is objective and can be simply transferred from an agent to another. The correct use of information is strictly connected with our knowledge. The interpretation of the information we get depends on our knowledge and is based on our experience.

2.5.2.2 Knowledge

Knowledge is not the simple addition of different information. Knowledge is something more: it is the perception of the reality of things based on personal experiences and accumulated past knowledge. *"Information becomes knowledge when it is interpreted by individuals and given a context and anchored in the beliefs and commitments of individuals"* [59]. Knowledge means "know-how" and is essentially related to human action [58]. This means that it (differently from information) has not an absolute truth. In fact, everybody is different because of biological, environmental and cultural factors. We live different experiences and growth in very different ways [59]. For these reasons, the transmission of knowledge from a person to another is difficult. We can not perceive the same truth of our friends or even of the members of our family.

We can distinguish two different type of knowledge: explicit and tacit knowledge [66]. Explicit knowledge can be coded in writing or symbols [63]. It can be expressed in formal and systematic language and shared in data form, scientific formulae, specifications, manuals and such [59]. But only a small part of our knowledge is explicit. In accordance with Polanyi, we define the "hidden cognition" as tacit knowledge [15][66]. Different from explicit knowledge, tacit knowledge is deeply rooted in actions, procedures, routines, commitment ideals, values and emotions [81]. The absence of numbers or graphics make it hard to transfer or trade tacit knowledge. The dynamicity of the knowledge makes it even more difficult to manage. To transfer tacit

[15]Polanyi explains the existence of tacit knowledge with the following sentence: "we do know more than we can tell" [66].

knowledge from an individual to another, face-to-face contact is indispensable. In SECI framework, Nonaka et al. set socialization as the means to give somebody tacit knowledge [59].

"We are now living in a knowledge-based society, where knowledge is the source of the highest quality power" ([89]). In the always more dynamic market, organizations have to deal with knowledge as a central point. The continuous knowledge creation is becoming essential for most organization. Knowledge must be managed as a key resource. Knowledge-based theory identifies that the creation and continuous improvement of knowledge is the key factor for competitive advantage [58]. More specifically, tacit knowledge is the crucial source for a durable competitive advantage because it is difficult for a competitor to imitate it [63]. A concrete knowledge policy can facilitate the deliverance of citizen oriented services can simplify and increase the communication and cooperation between administrations. Moreover it is necessary to support the complex administrative decision processes [7]. Successful knowledge management use technology to distribute the right information to the right person at the right place and at the right time [38].

Creating a network between offices, PAs can increase the value of their services [7] by exploiting and improving the synergies between the different level of administration.

2.5.3 One stop access

Every country cherishes the hope that they can create a unique virtual counter where citizens and enterprises can get information and communicate with civil servants. G2G E-Government is the means to enable this centralization of services. The reorganization of back-offices and the integration of the different services are the key to transition to a citizen centric set of activities.

2.5.4 Real-time E-Government

Real-time E-Government is the ability of public administration, using Information and Communication Technologies, to share updated information and to provide services at the moment they are required. From this definition two key elements of real-time E-Government emerge: information sharing and service providing.

Real-time information sharing means to deliver information at the same time it is stored to a targeted audience. Important is not only the temporal aspect, but also the quality of the information delivered. For example, real-time information sharing can result in managing emergencies, accelerating the coordination time of first aid and for the police and custom offices to identify fugitives. Another interesting use of real-time information sharing is the delivery of updated statistical results. With faster information delivery, the decisions made by the public administration reflect the situation at the moment they are taken. This means more reliability and higher quality decisions.

Real-time service providing refers to the possibility of getting a service at the same time it is required. A typical example can be the request of a copy of the judicial register.

The adoption by the government of real-time infrastructures will bring public service some relevant advantages, in terms of effectiveness, efficiency, transparency and quality of administration.

2.5.5 Less redundancy

Public offices are often notorious for confusing and redundant documents. The same information could frequently be managed in different ways by two or more offices. This redundancy of information is directly related to higher costs. Coordinating and modifing redundant information requires more time, a bigger cooperative effort and intensive communication between the people in charge.

The introduction of Information Technology into PAs gives the opportunity to create a common and central data repository in the form of databases and data warehouses. Every allowed employee will have the chance to access the data delivered from a central database or from a set of coordinated databases. With a central database and the consequent reduction of redundancy, the cost to update information will decrease. Being stored in a single storage the information will always be updated and consistent.

2.5.6 Increased transparency

Recent events have shown an increasing demand of transparency of public affairs coming from citizens. The sudden reversal of Spanish government

after the terrorist attack of March in Madrid is a typical example of an ever-increasing active citizen's role. Citizens don't want to be excluded from the big decisions. They ask for a greater involvement on public management and more clarity from the authorities.
Transparency doesn't only mean a more understandable administration for citizens and business, it also means a better and clearer definition of duties and rights for every single employee too. For instance a less confusing tasks' organization: "who is in charge to do something"

A greater flexibility between public offices allows a more understandable and a clearer administration with the consequent reduction of administrative costs.

E-Government solutions can help PAs to achieve a greater degree of internal and external transparency. The communication through Internet and the use of new applications can reorganize an often confusing administration.

2.5.7 Increase of flexibility

Flexibility means a lighter, faster and more dynamic administration.

Frequently, lack of flexibility, a distinguishing feature of old and bureaucratic government, is an obstacle for to the ever-growing dynamicity of markets and a necessity for citizens and business using public service. For instance an Italian citizen who lives and works in Spain would have to be able to deal directly with Spanish government. The offices of the two countries involved would have to exchange the required information. The interaction and collaboration between different offices and between different governments needs a greater degree of flexibility and a complete rearrangement of the way the governments work.

The pressure increased competition inside the public sector has forced cities and regions to adopt faster and more flexible management. IT can help PAs to become more flexible and to reduce administrative costs [8].

2.5.8 Adoption of common standards

According with Oesterle we define standards as *"objects that are shared and accepted within a specific community"* ([62]):

1. Objects of standardization: hardware or software
2. Communities can be divided by organization or geographic area. Standards can be accepted by one or more communities at many different geographic levels (local, regional, national or international)

The introduction of standards gives multiple advantages [68]:

1. Interoperability and cooperation between PAs
2. Increased transactions security
3. Exploitation of development and implementation synergies
4. Cost savings
5. User friendly applications
6. Unique ergonomics
7. Granted long term strategies
8. Production neutrality

Standards can be distinguished between proprietary (or closed) and open standards. Proprietary standards are owned by one or a closed group of organizations (i.e. Sole-Stewardship). A Sole-Stewardship holds the rights to use these standards. Examples of closed standards are Graphic Interchange Format (GIF), Rich Text Format (RTF) or Portable Document Format (PDF). Open standards, on the contrary, are the result of an open community working together collaboratively to develop solutions for addressing common requirements and goals. Often they work in famous open standards organizations like the Internet Engineering Task Force (IETF) [16], the World Wide Web Consortium (W3C)[17] or OASIS [18]. Open standards are not exclusive. As the name explicitly suggests they can be accessed by everyone interested. Examples of Open Standards are TCP/IP, XML and SQL.

The debate over the advantages to adopt an open vs. a proprietary model is still fresh. On one side, the benefits that open standards bring are evident

[16]http://www.ietf.org
[17]http://www.w3c.org
[18]http://www.oasis-open.org

and objectively proved. On the other side, the various right holders are reluctant to free their standards.

Past experiences teach us the importance of a common and open set of rules for Information Systems. The benefits of open standards are realized in terms of increased flexibility and interoperability of systems, which can reduce risk, in terms of preservation of choice [9].

Table 2.1 shows a comparison between the proprietary and open model. The costs of open standards can be shared between the community members with a reduction of the expenses to introduce and use a new standard. A bigger community and a more exhaustive discussion between the members raises the quality and reliability of the model. The interoperability of an open community is granted by meaning.

Based on past failures to interface different proprietary systems, most PAs have decided to implement their solutions based on open and commonly accepted standards. E-Government attaches high importance to open standards. The need for common compatibility between intra and interstate technologies has been widely and intensively studied. The common understanding of different technologies and the collective adoption of accepted standards is a fundamental requirement of a successful G2G. For instance, the introduction of XML for data format or ebXML for data transmission avoids the stress of having to translate the information in many different data transmission formats to achieve interoperability.

At the national level, many countries have instituted central organizations responsible for the study, discussion and introduction of common standards. These organizations are mostly composed of Government members, regional and local representatives and private organizations. The participation of such organizations is not coercive, but an adoption of standards can bring many more advantages that an "island solution". Examples of these organizations are SAGA [19] in Germany or eCH [20] in Switzerland. We will see eCH more in detail in chapter 6.

The use of standards at the national and regional level is not enough nowadays. Globalization and an opening of the international scene requires

[19] http://www.kbst.bund.de/E-Government/SAGA-,182.304210/Standardisierung-von-E-Governm.htm?global.home=1

[20] http://www.ech.ch

Characteristics	**Proprietary model**	**Open model**
Reliability	Closed process-high degree of Variability	Visible process-more likely to yield reliable results faster
Interoperability	At the discretion of single vendor	Assured by definition
Risk	One vendor as control point- if vendor loses interest in the project for any reason, user rarely has recourse or resources to self-maintain	Depends on the community developing the project- if it has value to users, those users know that in the worst case, they can support the resulting product themselves
Power (who has it)	Vendor	User
Speed of updates	May enter market based on vendor requirements	Enters market depending on member needs
Quality	Depends on single source	Best of breed
Costs	May be less expensive initially, loss of choice may raise expected future costs	May reduce cost

Table 2.1: The differences between Proprietary and Open standards (source: [9])

a worldwide accepted set of standards.

Preparation, design and implementation of common standards (both proprietary and free) requires more time and cost than a simple ad hoc implementation. These disadvantages can be balanced by the cost of integration and interoperability of a common committed solution. A standard solution avoids the expenses of the implementation of intercommunication's interfaces.

2.5.9 Economic benefit

The introduction of G2G E-Government will allow public administrations to cut many administrative costs, like coordination and exchange of information costs. The economic benefits have to be clear and PAs must develop systems to clearly demonstrate the real potentiality of the eRevolution (3.8).

2.6 Barriers to G2G

The interaction between public administrations presents many difficulties and barriers: both from an internal perspective and from indirect barriers. Internally, G2G projects have to handle many technological and organizational problems. Large scale projects involve many stakeholders and create many interactions among them. The coordination of a G2G solution is essential for the success of the project. In the same way, G2G E-Government is subject to indirect bounds and has to solve indirect problems that emerge when organizations start to exchange information across traditional organizational borders [39]. To avoid these problems, a radical change in an institution's morphology has to be considered. Although public service reorganization presents some similarities to change private sector it, implies more variables and problems, imposed by a rigid and complicated organization.

The following section shows direct and indirect barriers to G2G E-Government.

2.6.1 The separation of powers

The Constitution of a modern democracy has to grant the separation of powers. The three powers - legislative, executive and judiciary - must be divided into three independent and autonomous branches. The *trias politica* is the

core of the preservation of liberty [54].

One of the objectives of most G2G E-Governments is to integrate the information and services across different administrative functions in order to set up a unique virtual counter where the users can ask. This vertical and horizontal integration will simplify the relationships of administration-administration, administration-citizens and administration-business. To carry out this plan, the legislators have to adapt many current laws to fit the special requirements of the virtual government, jeopardizing the roots of our democracies. In fact, facilitating the sharing accessibility of information to every branch of the public administration could reduce the autonomy and independence of the three powers [43] and consequently, restrict individual liberty.

G2G E-Government legislators have to be aware of the importance that the separation of powers holds. The E-Government policies have to be planned with respect for the autonomy and individuality of the three branches at risk in order to downsize the integration of the information and services.

2.6.2 Legislative and regulatory

E-Government has the potential to improve and simplify collaboration across agencies and organizations [61]. The benefit is counterbalanced by the regulatory barriers like accountability rules or the authentication of digital documents.

Setting up E-Government solutions without changing the current legislation is a utopian way of thinking. A simple technological implementation can't supply a complete solution and is the prelude to a failure. *"The success of E-Government initiatives and processes are highly dependent on government's role in ensuring a proper legal framework for their operation."* ([61], p. 48). To exploit the chance coming from new technologies, public administrations need time to discuss and approve laws and rules to support the new way to manage PAs.

Different from private organization, public administration is strongly bureaucratic and engages long change processes due to the time it takes to assess legislation within and among the different governments. This lack of flexibility slows down the introduction of complete and uniform E-Government solutions. The slowness of regulation adaptation to new technologies creates a "two speed" situation.

A typical example of regulatory adaptation comes out of the long debated introduction of the digital signature. After many years, almost every developed country has adopted a digital signature code. Other countries are about to introduce new legislation, while most developing countries have not yet found a clear solution to digital signature [21].

The regulatory problem increases in an international environment. Compatibility between rules can come out only through bilateral or multilateral agreements. In the absence of common rules, the exchange of information has to be adapted according to the local law in force in a determined country. To achieve a boundless G2G, interstate rules and agreement have to be met.

At the local, regional, national or international level, the common prerequisite for a swift deployment of E-government is an appropriate legal and regulatory framework. *"An appropriate regulatory framework is necessary if E-Government is to become a key factor in facilitating the transition to a knowledge-driven economy"* ([50], p. 30).

2.6.3 Privacy and stakeholders security

Privacy is one of the fundamental rights of modern and democratic countries. Our private life is a sacred value that can't be violated.

One of the main suspicions against E-Government and the digitalization of personal data is the violation of citizens' privacy. In E-Government, privacy is defined as the *"credible government protection of the personal information of citizens"* ([49]). Citizens, organizations and employees are afraid to use E-Government services without a privacy and security guarantee [61].

In everyday transactions, all PAs receive, exchange and collect the personal information of many citizens, public organizations and other offices. The importance of data protection and a security increase with E-Government services involves information sharing among many different national and international level agencies. Through government networks flow much personal and secret data [22]. This information has to be protected in a legal way (creat-

[21] The low IT diffusion and the lack of instruction in most of these countries put the hurry to use Internet for legal acts in the background

[22] Just think about the complexity to grant the privacy to the citizens in E-Voting systems. Every citizen has to be recognized as eligible to vote, but at the same time her/his identity has to be secret to the scrutineers.

ing new and consolidating existing rules) and a technical way (using security protocols and technologies). Government has the responsibility to develop a culture of privacy protection and security [61].

As Gellman argues, privacy is not a singular trait: we have or we have not privacy [32]. Privacy policy has to counterbalance the benefit of a boundless exchange of information with the respect for citizens' fundamental rights. A strict policy can damage the advantages created by a networked society; on the contrary, a lewd regulation can cause misuse of personal information and the invasion of PAs into citizens' private life.

Reffat gives four basic recommendations to increase privacy [67]:

- Educate and train government officials on the importance of privacy
- Design applications that integrate privacy protections
- Follow "fair information practices" Minimize the collection and retention of personal information
- Limit access to personally identifiable information; do not automatically allow employees to tap into databases of personally identifiable information

Many countries and intergovernmental organizations have issued protection policies and have established working groups and commissions to grant and improve the fundamental right of privacy. In 1980 OECD was the first intergovernmental organization to issue an international policy for the protection of personal information [61]. The European Union has recognized the need to create a common set of rules for privacy in order to consolidate the information society and to simplify the exchange of information among different offices. Following the existing European and national data protection legislation (in particular Directive 2002/58/EC [88]), the European Commission for Interchange of Data between Administrations has elaborated privacy policies to uniform Pan-European E-Government [23]. At the national level, many countries have already normalized their privacy policies so they are in line with E-Government needs. For instance, in 1996 Italy had an independent authority (Garante per la protezione dei dati personali) composed by a panel of four people guarantee the safeguard of fundamental rights in personal data processing [24].

[23] http://europa.eu.int/ida

[24] To follow the garante's activities: http://www.garanteprivacy.it/garante/navig/jsp/index.jsp

2.6.4 National and global security

During the nineties, national surveillance and internal security diminished to the lowest level since the end of World War II. The fall of the Berlin Wall and the end of the Cold War reduced the alarm level and the security barriers. After 9/11 many things have changed. With the recent explosion of terrorism every government has intensified their national security policies. The boundless information interchange has been counterbalanced by securities' needs. After that event many American states have intensified the control of their information policies. Even though the Patriot Act passed after 9/11 has changed U.S.A privacy law in order to increase national security [32], protection of private life is a fundamental right of every American citizen. Worldwide, the question about what information can be exchanged and made public has been the center of many discussions and debates.

Many states have removed from their Web sites a lot of information considered dangerous like nuclear deposit locations, blueprints for public buildings, and the design structures of bridges and tunnels, as well as storage of chemical and hazardous materials [27]. In the early days after 9/11, many statutes with the goal of combating terrorism were been approved. These changes have directly affected information and data access. Since 9/11, a coherent information policy for the nation (what should be protected or not) has a different importance [27]. Security aspects must be well considered to design global E-Government solutions.

The other side of the coin presents Information Technology as an enabler of national and international security. A fast and streamlined transmission of data between and among government can fight terrorism and fill security holes. The European Union, for instance, has recently approved a central Database, available to all EU members, containing all the information of EU refugees. Through the fingerprint, every European immigration office has immediate access to personal information of a previously catalogued immigrant, even if he was previously expelled from another EU country [25].

2.6.5 Resource barriers

The coordination of human and financial resources is the Achilles' heel of many E-Government projects. The failure or the success of G2G projects

[25] `http://europa.eu.int/comm/justice_home/doc_centre/asylum/fingerprints/printer/doc_asylum_fingerprints_en.htm`(accessed on July 2004).

is strictly related to resource allocation. The provision of the required resources for the eRevolution can be one of the most problematic issues of the administration.

Having skilled staff to accomplish technical and organizational projects depends on the presence of educational institutes (like universities or technical high schools) in the region. The academic support of G2G E-Government with skilled people coupled with the installation of specific research centers gives public services an advantage. Unfortunately, not every region has its own educational institutes and the workers are often reluctant to change their living place [70], especially when they have to move to poorer or peripheral regions. Most penalized in this case are the rural and developing countries which have difficulty recruiting competent staff.

The lack of budget to finance governmental projects is a problem that concerns most public administrations. The difficulty to evaluate the expenses and the return of the investments make it harder for the E-Government responsibles the call for funds. The decrease of political and financial support for E-Government that we are witnessing in these years is proof of this difficulty. The budgetary problems increase in those regions with financial difficulties.

The resource allocation problem intensifies in G2G projects between two or more administrations or between offices based in two different countries. The vertical funding system used by most countries is a real obstacle to intergovernmental projects. The actual budgetary frameworks don't take into account specific needs of long-term intergovernmental projects [61].

The heterogeneity of resources between administrations create two speed E-Government implementations. This disparity has to be eliminated with the institution of independent organizations to control the pool of founding for E-Government projects.

2.6.6 Cultural

Culture makes a country unique, allowing it to be distinguished from the others. The cultural identity of a country comes from its history, religion and traditions. At the national level, the cultural differences are softened because of a common cultural denominator and due to the presence of central authorities able to mediate and enhance every cultural difference.

Culture is a great potential for every single country for economic creativity [70]. At the same time, these differences represent an obstacle to cross-border cooperation: the cultural gap between different administrations often means the failure of international co-operation.

The creation of a central organization to mediate cultural differences and to find a common denominator, while at the same time respecting and enhancing cultural differences, is a central necessity for the cooperation between different administrations.

2.6.7 Coordination obstacles

E-Government projects involve many stakeholders (c.f. 3.6). The coordination of everyone in G2G projects is a difficult task. The differences don't only come from different cultures or from the national pride, but particularly from the different points of view of the different categories of specialists involved in the implementation of Electronic Government systems, deriving partly from the egoism of the stakeholders and partly from their ignorance. For example, IT consultants have little idea about the Public sector while proponents of public governance reform continue to ignore much of potential of IT [51].

2.6.8 Technical obstacles

Information Systems integration and standardization in private business has become a widely discussed subject. Mergers and alliances within the public sector have engaged many IT experts to homogenize legacy systems and to develop interfaces able to join different data structures. As for the private sector, increased collaboration among many PAs has required an "integration policy". Technical aspects of E-Government become very important in horizontal and vertical integration of different offices [48]. Many difficulties and a lack of standards at the moment make difficult the implementation of a joined-up E-Government. In this section, we will discuss the key issues.

2.6.8.1 Standardization

From the paper format to the first digital information, every country (or even every region) has developed personal semantic formats. These differences, in the form of ad hoc developed and proprietary data representation, prevent the introduction of a widespread accepted semantic. In some cases, knowledge of employees can compensate for the lack of a well-defined semantic [69].

Many countries have now begun to cooperate at a local, regional and federal level to create a common statement in order to unify semantics and to facilitate document transmission. On the international scene (for instance in EU), common solutions are slow to materialize, for the lack of willingness of different governments to find a common denominator partly due to the national pride [26] [71], and the heterogeneity of the different solutions.

Standardization is a complex task and has not yet been completed (especially in international fields). To be comprehensive, E-Government projects must involve many stakeholders such as public agencies, software engineers, private companies (through Public Private Participation, PPP), citizens, as well as national and international institutions [50]. Many solutions nowadays use standard [27] already accepted by the majority of the private sector present on the market like ebXML [28].

2.6.8.2 Legacy systems

Although many public administrations have upgraded their applications during the Y2k crisis, many legacy systems still remain [50]. These systems are often inflexible and the incompatibility among them makes it hard to develop middleware applications. Legacy system can increase costs, for instance for data transfer [61], maintenance, development of new modules or functions upgrading and lack of common standards.

Those responsible for E-Government's implementation can't ignore the investments PAs have already made in Information Technology and consider including the existent systems in their architecture. How the modern Information System (IS) is integrated in the existing one has a tremendous impact on the success of the project. Brodie and Stonebraker define two different migration [29] strategies [10]:

[26] Riedl defines national pride in Europe as: "the ambition to teach the rest of Europe some lessons on E-Government.

[27] C.f. 2.5.8

[28] ebXML standard is an evolution of EDI (Electronic Data Interchange) based on the popular XML (Extended Markup language). ebXML enable enterprises around the world to conduct their business over the internet (thanks to commonly accepted standards). More information under: http://www.ebxml.org/.

[29] *"Legacy System migration involves starting with a legacy Information System (IS) and ending with a comparable IS. This target is significantly different from original but it contains substantial functionality and data from legacy IS"* [10].

	Cold Turkey	**Chicken Little**
Risk	Huge	Controllable
Failure	Entire project fails	Only one step fails
Benefits	Immediate, probably short-lived	Incremental, over time
Outlook	Unpredictable until deadline	Conservatively optimistic

Table 2.2: A comparison of Cold Turkey and Chicken Little (source: [10])

1. **Cold Turkey**
   Cold Turkey strategy tries to replace the original system with the target IS in one step without intermediate steps. During the development of the modern IS the legacy system is always in use until the cutover. The transition to the modern IS takes place in one single step.

2. **Chicken Little**
   The migration form the legacy system to the target system follows small and incremental steps until the desired objective is reached [30]. Evolutionary strategy means that the migration is accomplished within different iterations. Each module requires small resources and little time. During the transition, the legacy system and the target system are connected to a gateway that guarantees the total functionality of the entire system. The gateway prevents the IS from time-out and allows the PA to continue their regular activities without downtime [10].

A clean sweep of the old system and the substitution in one step with a brand new solution could be for mid-sized and big offices a hard challenge because of the high coordination costs and the greater risk of failure. An evolutionary approach to a legacy system's migration is the more appropriate solution for prominent systems.

2.6.9 Multilingualism

The introduction of G2G E-Government has to deal with the multilingualism at national and international level. In fact, many countries, like Switzerland, Belgium or Canada, have more than an official idiom. The collaboration of

[30] Brodie and Stonebraker use an amusing slogan to promote the evolutionary approach: *"Rome wasn't built in a day and neither was AT&T"* [10].

two or more civil servants can create linguistic incomprehension and slow down the working processes. This issue gets more complicated if we think at the introduction of cross-boundaries application. Both the national pride and the number of languages involved can cause many difficulties in the implementation of G2G architectures. For example, the enlarged European Union has twenty official languages that make complicated the management of multilingualism.

Multilingualism in G2G E-Government has fundamentally two aspects:

- Applications multilingualism: assure a multilingual User Interface (UI)
- Multilingualism of the data and documents

Every G2G application has to be developed with consideration for the different languages of the countries in wich it will be used. Developers have to implement solutions that can easily manage more than a language. The introduction of a new language has to be accomplished in a simple way, avoiding the change of the source code.

If the creation of multilingual applications involves a greater attention to the technology solutions, the adaptation of data involves organizational aspects too. In fact the provision of multilingual documents has to be accomplished setting new standards. The possible solutions are three (c.f. table 2.3).

A universally correct alternative doesn't exist. Every solution presents its own benefits counterbalanced by the disadvantages. The choice has to be taken upon the circumstances. Moreover, a combination of the three is also plausible.

The introduction of a single language to communicate between the different offices can be useful in those administrations, where the servants speak the same language or everyone has a good command of the language.

The definition of a single administrative language isn't simple, especially in those administrations that have to deal with more than a language. In this case, a multilingual solution can has to be found. Moreover, investigations reveal that people expect interactions to take place in their mother tongue [70]. This means that the implementation of E-Government solutions have to consider this aspect in order to avoid discriminations and isolation of the

	Single language	**Single document**	**Multiple documents**
Description	Agree upon a universal language	Document contains simultaneously every language	Simultaneous creation of different documents for every language
Benefits	•Simple storage organization •Absence of translation's costs •Unambiguous meaning	•Servants get documents in their own language •Translation in more language •Semantic meaning •Easier to control the correctness of a document	•Servants get information in their own language •Translation in more languages •Semantic meaning •Ideal when more than two languages
Disadv.	•Difficult to agree upon one language (national pride) •Language knowledge •Isolation risks	•Difficult with more than two languages •Documents can result confusing and difficult to read	•Difficult storage organization •Big volume of data •Complicated update

Table 2.3: Three different solutions for multilingualism

weakest portions of population.

The creation of single documents containing more languages or the production of more simultaneous documents is strongly dependent upon the number of languages that have to be published. A single document containing more than two languages can be difficult to create. In situations with tri-lingual data, translation the third solution can be more feasible.

The translation of the source language to the others can be a cause of misunderstanding or even semantic incompatibilities. The semantic interoperability takes care that the semantic meaning from one language to another doesn't change. Furthermore, the semantic meaning isn't the only condition to make the data understandable by different offices. The information reposted on the documents has to be agreed upon between the different offices. What for an administration can be important, can be omitted by another, or vice versa. The interoperability has to assure the complete compatibility between different public services [31].

In multiple language environments, an automatic translation of the information is nowadays unlikely because of the low feasibility translation tools presently offered on the market. The costs and time required to translate every administrative document and legal issue manually will be too impossible to bear. A reasonable solution can be a partially automated system. With man-machine cooperation PAs can save time and money of manually translated documents and be more precise than a completely automated system. Moreover the decentralization of translation's task to local and regional government can simplify and speed up the central government work.

2.6.10 Internal resistance to change

The eRevolution has to deal not only with external difficulties, but also with the internal resistance to change which can be an obstacle for the modernization of the public offices. In fact, many employees (especially the older) don't see E-Government revolution as an opportunity, but as a threat for their future: they are afraid to loose their jobs. The risk of such a resistance is the collapse of the new organization. The employees can refuse to adopt the new working methodologies or continue to work in the same manner they

[31] The European Union is currently studying the feasibility to create an automatic translation machine (IDA-MT) able to translate the European official languages to English. For more information: http://europa.eu.int/ida/en/document/2070/17 (accessed on August 2004)

worked before behind the administrators' backs.

An organized management of change has to be established. The organizational change has to be discussed with the people involved and they have to be well informed of what is going on.

2.7 Summary

1. E-Government is not only related with the simple publishing of public information on the net. E-Government is an interdisciplinary activity that aims at the modernization of the public administration
2. E-Government is not a one-step revolution, but four main stages can be identified: cataloguing, transaction, vertical integration and horizontal integration. The last two steps require a revolution of the actual organization of public administrations to be achieved
3. G2G E-Government is a subcategory of E-Government that concentrates on the development of services for communication between government agencies. G2G is not only related with technology but it is an interdisciplinary activity
4. G2G E-Government offers many opportunities to public administrations, for example: real-time exchange of information, one stop access counters or enable the free exchange of information
5. The integration of different public offices is not simple. Many difficulties have to be surmounted to introduce full functional G2G systems

Chapter 3

Managing G2G E-Government

The transformation of Public Governance isn't simple. Many factors complicate the reorganization of Public Administrations and the introduction of G2G solutions. The technological aspect is only the tip of the iceberg. As we will see later, factors like strategy, structure, culture or even innovation and leadership play a central role in the eRevolution. ICT offers a great potential enabling the transformation of the public infrastructures, changing the operative processes and affecting the traditional structures of the public organization [50].

The simple introduction of IT into the existent stove piped and bureaucratic system will only bring a computerized Government (as shown in figure 3.1). The transformation from the traditional Government to a networked (knowledge-based) system is anchored on two principles: the introduction of ICT and modernizing the apparatus of government. The conjunction of the new form of governance coordinated with the future developments in ICT lays the foundations of the new public society [50].

Several principles to manage the eRevolution are needed to avoid the chaos of an uncoordinated and uncontrolled set of activities. We have to understand what "really" works and what represents an obstacle to the networked society. The introduction of common rules to manage the E-Government implementation is important for intergovernmental coordination.

Inspired by a five-year research study conducted inside the private sector by Nohria, Joyce and Robertson (NJR) [57], we will introduce the fundamental management activities that insure to grant a successful conduction

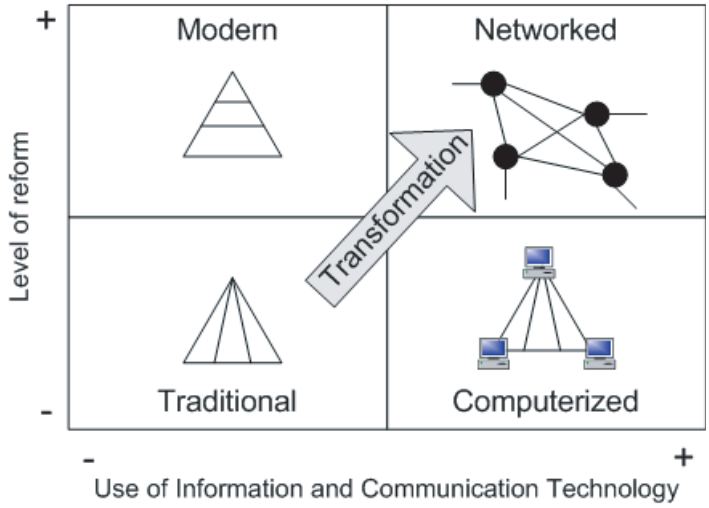


Figure 3.1: The E-Revolution needs more than the simple introduction of ICT, a radical reform of the PAs is essential(Mr Rolf Alter (OECD))

of the eRevolution[1]. We will adapt the management rules of [57] considering some specific public sector principles.

3.1 Management practices

The definition of generalized all-inclusive models for managing G2G E-Government is not obvious. Most E-Government blueprints cover only the technical aspects; they need to be adapted to the specific political culture of a given country [51]. Every situation presents many different variables that are strictly related to the people and the environment involved. These factors are impossible to be synthesized in a simple model without the cognition and skills of the administrators to understand and evaluate every single situation. Moreover, the simple adoption of private sector management theories is impossible for the differences that exist between the two disciplines. For example:

1. The political office has a fixed term. After a given period the citizens have the right (through the elections) to decide to confirm the existing Government or to change it

2. The competition within the public administration is different to that of the private sector. Different from the private companies, many public

[1]This is our personal opinion strengthens by the Nohria, Joyce and Robertson research and on other studies conducted both in the public and in the private sector.

services have established international conventions. The network of public administrations is from this point of view easier than that in the private sector

3. In a public company, the shareholders and the customers are often different people[2]. This facilitates the distinction of the roles and the claims of the two different stakeholder groups. In public administration, the "investing" and the customer are identified with the same person, i.e. the citizens. The risk of a "double identity" is enormous and the claims coming from the citizens are conflicting: the citizen as taxpayer requires a more sparing public expense, but as a customer expects to benefit from all public services. The civil service has more difficulty in dealing with its stakeholders because of their multiple roles

4. Different from private companies, the public sector doesn't follow profit maximization as its main goal. Welfare is the major care of the administrations

5. Every state activity is regulated through the law

In respect to these diversities, the introduction of management practices will be adapted to the particular needs presented by the public sector.

In few years, many theories have followed each other in the private and in the public sector to improve the efficiency of management. For example, TQM, Six Sigma, Balanced Scorecard or Business Reengineering are only a few examples of the multitude of new techniques that invades business today. During the Internet boom days, many managers twisted the rules of the so-called "old economy" inventing the buzzword new economy[3]. In a jungle of new theories, NJR tried to find out what business practices really work. Surveying 200 well-established companies for ten years, they got surprising results: a management tool or a technique or even the use of specific technologies (like java or C++) has only relative importance to the success of a project. NJR discovered that what still really matters is having a strong grasp of the business basics [51]. From this discovery, they developed the 4+2 formula (4+2). The 4+2 says that an institution has to cover all the fundamental management practices (what NJR call primary management practices), i.e. strategy, structure, culture and implementation, and concentrate on two of the four secondary management practices, i.e. leadership,

[2]An exception is represented by the cooperatives and the mutual funds

[3]We are sceptical to the real change brought by the new economy. The adjective new seems more a commercial move to attract the shareholders than a real revolution.

talent, innovation and mergers and partnerships, to be successful (figure 3.2). The 4+2 has reconciled the managers to the economic basis, to reevaluate the old theories.

In the following section, we will discuss the primary and secondary management practices of [57] in detail and we will try to adapt them to public administration management needs.

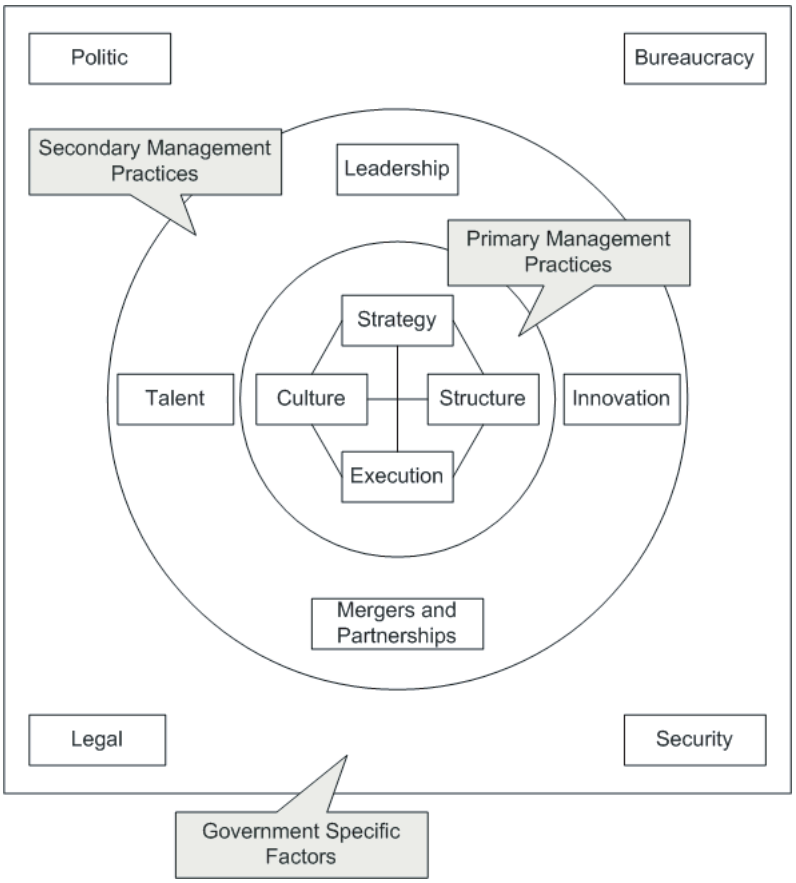


Figure 3.2: The primary and secondary management practices.

3.2 Primary Management Practices

Strategy, structure, culture and implementation represent the primary management practices for NJR. All these four discipline have to be pursued by the public services to grant a flawless introduction of eServices.

3.2.1 Strategy

The G2G E-Government implementation requires many coordinated activities among many actors creating a huge set of interactions. Setting up E-Government without a precise and commonly accepted strategy could mean additional costs of development and an increasing confusion between the stakeholders with the risk of a failure. Moreover, a strategy can help administrators to monitor the progress of E-Government implementation [61], to anticipate the problems (introducing changes during the implementation) and to understand and to measure the goals achieved (c.f. 3.5). A strategy doesn't replace an E-Government service, but it is its mirror.

Different from the private sector, Public Administrations have a more complicated decision-making body. Even if in these few years many PA have reduced their decision-paths, bureaucracy has a pace of change that is slower than that of the private sector. The difficulties increase when the decisions have to be taken out of the office, i.e. in a vertical integration, through cooperation between different countries or even between offices of different sectors (horizontal integration).

As said in section 3.1, the implementation of E-Government solutions isn't the simple installation of computers and networks, it involves people and comes out with a complete reorganization of PAs activities and interconnections between public officers. A simple IT strategy is not enough. An E-Government strategy has to envision a complete readjustment of the organization.

A strategy emerges from a common stakeholders' vision [45],[61],[50]. The vision must contain the future prospective, answering the question: "What will we achieve?". To ensure the coordination between agencies, a common vision as a means to achieve policy priorities [61] is essential. Every stakeholder has to participate in the definition of the vision. This facilitates the acceptance of the strategy between administrations and reduces the risks of an internal conflict. The support of the strategy at the political level is fundamental for the success.

A strategy has to be considered as a continuously mutable document. Once written it has not to be forgotten in a drawer, but it must to be adapted continuously to the environmental changes.

3.2.2 Structure

"Build and maintain a fast, flexible, flat organization" [57].

The strict Weberian watertight compartment organization has showed all its limits facing the dynamic market. The bureaucratic organization requires a high level of standardization in all its processes; even a sensible variation of the activities can cause a knock-on effect to all the administrations resulting in the freeze of activities. This incapacity to face the problems and changes of the always changing market makes bureaucracy inefficient. The bottle-neck structure impedes a fluid communication between the different hierarchies with a consequent slowness of the decision making process [82].

Our intent is not to demonize the use of procedures and protocols and to convince the adoption of no-rules structures. On the contrary, we find regulation useful to impede organizational chaos (especially within big organizations), but the exaggeration of red tape is harmful for the efficiency of public service.

Public administrations present stove-piped structures. The vertical organization and the office centered processes impede an integration of the intergovernmental activities [50] (c.f. 2.5.1). The reorganization of the public structures aims at the revolution of the offices to a process-oriented organization. Doing so, the public administrations could improve their interactions creating synergies that are able to reduce administrative costs and that could improve the quality and the speed of the services. The intelligent introduction of ICT can simplify governmental procedures.

3.2.3 Culture

"Culture is formed by values, beliefs, customs, conventions, habits and practices, which give rise to a particular identity that unites those who have been socialized within a particular society" ([35], p. 6).

During the 1970s, American industry saw a strong decay of its revenues. On the contrary, the so-called Asian Tigers economy was emerging in competitiveness, stealing markets from American and European companies. The Japan-Boom has doomed the traditional American way of management. The technocratic combination of strategy and structure and the denial of the culture as an important managing factor (coming from the Taylor's heritage) was over. In the early eighties, American and European industries revolu-

tionized their management structures getting closer to oriental management. Culture has been put together with strategy and structure, gaining a place with the primary management practices [37].

Twenty years after, culture is still considered in many sectors as a soft managing factor. Again NJR have demonstrated that culture matters. In their research NJR, have discovered that the most successful organizations were maintaining a performance-oriented culture [57]. The development of the right culture is an imperative for success. The organization has to inspire and motivate the administrators and civil servants to do their best. The simple extrinsic motivation (economic rewards and bonuses) have to be enhanced by the intrinsic interest of the activity and non-financial rewards (for example hopes of a career) [63]. Another important motivation factor is the empowerment to make independent decisions. In public services, motivation can be combined with national identity and the pride of the civil servant to improve in their activities.

Central for an organization is the creation of a challenging work environment [57]. The employees have to always face new objectives to master, not only at the national but also at the international level. The employee renew her/his stimuli and interests.

3.2.4 Execution

To succeed in services, an administration has to grant to its customers flawless execution of operations. All the processes have to function without interruptions or delays.

NJR declare that it is not important what you offer, but how you offer it. A complete automation of all public services is useless and implies insurmountable expenses. Politicians and administrators (from every office and at every level) have to agree the services that have to be integrated using ICT. The eServices have to be complete and functional. We will never be too tired to repeat that the simple introduction of ICT doesn't mean an increase of efficiency per se. *"A new technology will not automatically enhance business's performance any more than steroids can instantly turn ordinary athletes into gold medalists"* [57].

3.3 Secondary Management Practices

Different from the primary practices, only two of the four secondary practices have to be mastered.

3.3.1 Talent

Many organizations prefer to "buy" talent from the market than to create the right infrastructure to develop and to educate internally their "stars" [57]. The exploitation of the external labour market to find a workforce seems to be highly regarded particularly for the highest levels of the organization. Many managers of the private and public sector (CEOs, CFOs, COOs, CIOs,) that worked successfully for their enterprises receive golden job offers from other firms or administrations. Despite the differences, this can exist between two different organizations (structural, environmental or even cultural).

Talent alone doesn't make a person successful in his work. Talent must be cultivated and trained. Organizations have to create the right infrastructure to select its employees and to offer them continuous top-of-the line training and development programs.

An organization choosing talent as one of its secondary management practices has to develop its employees internally rather than to look about for the man of the moment.

3.3.2 Innovation

Continuously trying to find new and innovative products is the key of the organizations that decide to pursue the innovation target. The endless interest for innovation, the courage to cannibalize existing products [57] and the right R&D infrastructure are the fundamental requirements to innovative success[4].

R&D labs can also be shared between different organizations in the form of joint ventures or simple interorganization task forces[5].

[4]Sharp Inc. has developed a revolutionary organizational structure able to coordinate research-teams parallel with the normal production activities. With the introduction of the Hypertext structure Sharp has divided its organization in three layers (project-team, business and knowledge). Every project team member has a "golden card" that allows him to have the priority on everyone else in the organization. With its revolutionary organization Sharp has mastered in Innovation.

[5]The European Union has created a central E-government R&D program

3.3.3 Leadership

The support of the highest level of the public administration (i.e. politicians) is an essential requisite to implement successful E-Government. The executive and the legislative power of a country have to take unanimous decisions in favor of E-Government.

The coordination of the Electronic Government projects has to be given to people able to raise performance and to manage people in a way that stimulates the people involved in the project and convinces them to "embrace the cause".

The coordinators have to motivate the discussion between different levels (from the politicians to the civil servant) to find a common-denominator.

Leadership has to unite the stakeholders and to mediate among them.

3.3.4 Mergers and Partnerships

The public sector is not new to collaborations and to aggregations. European Union is a recent example of the need for Governments to join up. The effort to consolidate the G2G relationships through E-Government and back-office reorganization is a symptom of the importance to increase the synergies between different Public Administrations (at the national and the international level).

The collaboration is not limited to the public sector. Many public services have begun to join forces with the private sector. With the Private Public Partnerships (PPP) the public sector tries to exploit the experience of the private enterprises and to cut the costs of the modernization.

3.4 Government specific factors

It is evident that public services have similarities with the management of the private industry, but it presents also many differences. To extend the NJR theory to the public sector, we discuss in the following section some specific issues of public administration.

3.4.1 Legal aspects

Every action accomplished by a public service is regulated by a legal rule. The moment we interact with a civil servant a legally regulated information process starts. The process continues until the documents[6] (digital or paper-based) are archived.

To introduce G2G E-Government the actual regulation has to be revaluated. The actual stove pipe organization implies rules that can be hardly recycled in a one-stop front office connected to service back-office architecture. In a communication between administration and citizens/company of a typical office centered structure, for example, the civil servant who is responsible for the decision is the same person that communicates with the customer. In rare cases the decision is passed to another instance. Anyhow the receiving unit is always involved in the process [37]. The future perspectives to flatten the public service organization don't only imply a reengineering of the processes, but also a revaluation of the rules that regulate those processes.

Another issue is to legalize the digital documents. In the current administration many (or too many) official documents are still paper-based. The exchange of sheets slows down the process. The technical and the legal gap on the transition to a digital workflow is still huge[7]. Where technology can still give some valid solutions, the legal apparatus still lacks to take many decisions. The formulation of a new legal framework has to keep pace with the digitalization of the administration.

This latency to approve new regulative rules increases on the international level. Different countries have different procedures and laws [4] that are often incompatible. When many countries have to find a common-denominator often national egoisms and misunderstandings emerge harming the discussion for a common-denominator[8].

3.4.2 Bureaucracy

Public Institutions are often seen as the "hell of the bureaucracy". Indeed the term bureaucracy has not only a derogatory meaning. The use of procedures

[6] A cookie can be considered a document too [74].

[7] The approval of a law that ruled the validity of the digital signature has taken many years and not every country has passed a law for the officialization of digital documents yet.

[8] At European Union level many differences have already been smoothed with agreements signed by every Member State. This will facilitate the integration process.

and protocols is necessary for every organization. Bureaucracy has to be well calibrated. Without a clear definition of roles and of rules it would be impossible to manage big and dispersive institutions. On the contrary, the abuse of the bureaucracy has a bad influence causing delays, stack of papers, and acts impossible to digest. The introduction of IT and the reorganization of processes can dilute the bureaucracy and at the same time guarantee a faultless organization.

3.4.3 Political support

The reorganization and the integration (vertical and horizontal) of public services needs the support of the politics. The refusal of the highest power means a cul-de-sac for the eRevolution.

After an extraordinary beginning and the uncontested support from politics to E-Government projects, now many politicians have set apart E-Government. Beyond the end of the initial euphoria the reasons lie in the unrealistic promises that the promoters of the E-Government have made and in the difficulty to evaluate the success of the results obtained. Too often leaders long for tangible results within their mandates trying not to engage long term projects. This political survival way of managing leads to fragmented if not backwards processes [50].

E-Government responsibles have to cooperate more and better with the political class and they have to create a framework to evaluate and to prove the effectiveness and the efficiency of the projects.

3.4.4 Security

The share of information between administrations has increased security issues. Importance has to be given to the network and to the application security. Public Administrations are often the perfect target for hackers and spammers. The IT security has to be an important task in the management of E-Government.

The privacy of data and the targeted publication of information is another important issue with which administrations have to be concerned. During a file processing, for instance, at every stage civil servants need only to receive precise information to accomplish a task and not all personal information of the citizen or of the enterprise. The coordination of processes and the management of information have to supply only the useful information.

Controlling type	Strategic Controlling	Operational Controlling
Orientation	Environment and enterprise: adaptation	Enterprise: efficiency of the processes
Layer	Strategic	Tactical and operative
Dimensions	Chance/Risks, Strengths/Weaknesses	Cost/Profit
Goal	Effectiveness	Efficiency

Table 3.1: Strategic vs. operative controlling

3.5 Controlling

Nowadays controlling is a widespread activity in the private sector. In few words, controlling helps managers to support and coordinate their activities inside the enterprise: from the strategic plan to the implementation. Controlling links all the planning levels: strategic, tactical and operational. In essence, controlling has to answer the following two questions "Are we doing the right thing?" (i.e. effectiveness, strategic level) and "Are we doing the things right?" (efficiency, tactical and operational level).

Controlling can be divided into strategic controlling and operative controlling (table 3.1). Strategic controlling supports the strategic management of the organization. It has to assure the effectiveness of the strategic plans. Operational controlling has the goal of assuring the efficiency of the tactical and operative layer. These two aspects are indivisible.

3.5.1 The Balanced Scorecard

The Balanced Scorecard (BSC) is a management system. BSC implements the vision and the strategy of an organization operationalizing the qualitative and quantitative goals. Essentially, BSC fills the gap between the strategic development and its implementation in the operative processes. It links a company's long-term vision to its short-term actions [44].

We have decided to adopt the BSC as management tool principally for the following two reasons: it is a widely accepted theory[9] in public and private sector and it gives a complete overview on the key aspects of the organization.

[9]The BSC has been referred as one of the most important innovation of the 20th century [85].

BSC isn't limited to the simple financial perspective of the organization, but, aware of the importance of intangible assets in the current management, it extends the analysis with other three perspectives giving a complete picture of the strategy execution.

Controlling in the public sector has different goals from that of the private industry. For this reason, rather than simply introduce the BSC, we will adapt it to the specific requirements of public administration, modifying the original theory of Norton and Kaplan.

At the center of BSC, there is the political vision. The political vision represents the strategy of one or a group of public services (at the international, central, regional or local level). Different from the private sector, public administrations have to grant all their services indiscriminately to every citizen. Every policy contained in the strategy has to be drawn in accordance with the welfare duty [79].

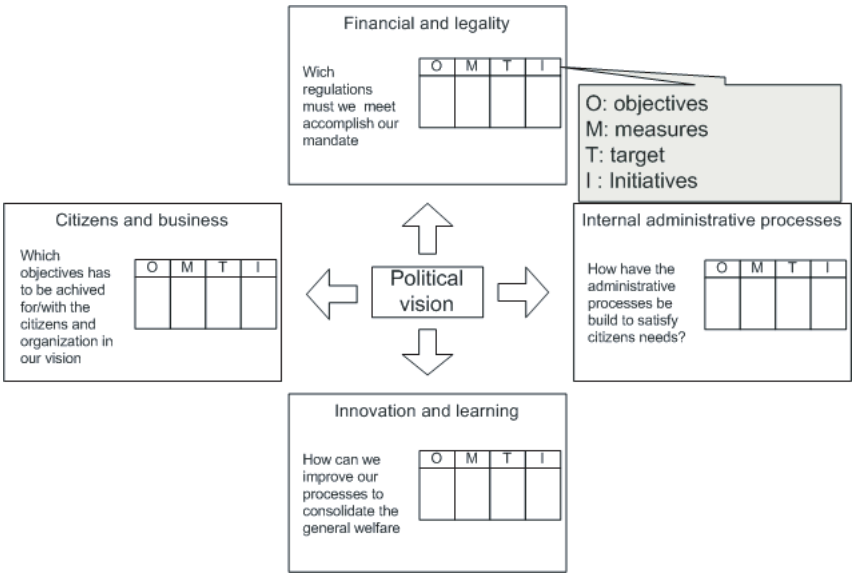


Figure 3.3: Balanced Scorecard in public service

BSC analyzes organization's activities with four different perspectives (c.f. figure 3.3). Every perspective is related to the others through an end-means relation [79]. The four perspectives are[10]:

[10]Remember that the four perspectives have been adapted to fit for public services.

1. **Financial perspective and legality**
   A strategy has to bring an improvement of the financial results. Typical measurement measures are profitability and growth-ratio. Different from the private sector, public services have to balance the financial benefits with the welfare principle. Often the provision of an indiscriminate service is damaging to financial advantages. Beyond the financial aspect of the administration, the public administrations have to respect and launch the laws. The legal perspective is an important perspective of the administration. The political vision and the foreseen activities have to pay attention to the legal aspects.

2. **Internal administration's processes**
   This perspective analyzes the administrative processes that have to be set in order to provide services that can satisfy the citizens and to improve the governmental activities.

3. **Innovation and learning**
   The innovation perspective deals with the research of new solutions and the introduction of new technologies to improve the services.

4. **Citizens and Business perspective**
   Public Administrations are not "islands", they have to respect and to consider the necessity of their "customers". The perspective of the citizens and business is an important feedback in determining their requirements.

Every perspective contains objectives, measures, targets and initiatives.

3.5.2 Implement the strategy with the Balanced Scorecard

In this section, we describe the use of Balanced Scorecard in strategy implementation. Traditionally developed to complete the performance measurement of intangible assets [44] BSC is now used in a more general way. BSC is used to link the long-term strategy with today's goals, covering this traditional management deficiency. BSC helps the translation of the strategy into operative plans.

For this purpose, Norton and Kaplan, have developed a four processes framework to manage the strategy. Indeed, these four processes have been developed especially for private enterprises. As we have seen before, private and public services present remarkable differences that prevent a simple

transfer of the framework to the public sector. Presenting the four processes, we will give some suggestions how to adapt the activities to the public sector (c.f. figure 3.4).

1. **Translating the vision**
   The Balanced Scorecard is developed to facilitate the translation of a generic vision into a strategy. This process helps to gain the consensus and commitment of the elaborated strategy

2. **Communicating and Linking**
   Balanced Scorecard facilitates the communication inside the organization. In public services this is particularly appreciated because of the strong hierarchical and pyramidal structure of the offices. The BSC communicates to every stakeholder what the organization is trying to achieve making the goals transparent and unambiguous. The communication of the strategy helps to educate those who have to execute it. The communication of BSC promotes commitment and accountability in the strategy [44] and an intrinsic motivation to the responsibles of the execution. Setting the objectives to achieve, the strategy can be simply communicated and can be objectively understood. Balanced Scorecard contains performance information that can be linked to compensation systems to facilitate the rewards.

3. **Business planning**
   Balanced Scorecard helps to determine the targets to be pursued. The creation of a BSC forces the organization responsibles to align their strategic initiatives and to allocate the resources to support the strategy. Setting milestones the implementation progression can be estimated and the deviations can be anticipated.

4. **Feedback and Learning**
   This process is important for the improvement of future projects and for the learning process of the organization's members. Norton and Kaplan consider this last step of the cycle very important [79]. Meanwhile the first three steps form a single-loop-learning, feedback and learning operates on the double-loop-learning (see figure 3.2). This means that at this stage the responsibles understand and proof the validity of a strategy. Whereas the first three steps consider the strategy as given and the objectives constant, feedback and learning analyze and reexamines the strategy and the techniques to implement it in light of present conditions [44]. The scorecard supplies three essential elements: the articulation of the company's shared vision, it supplies the essential

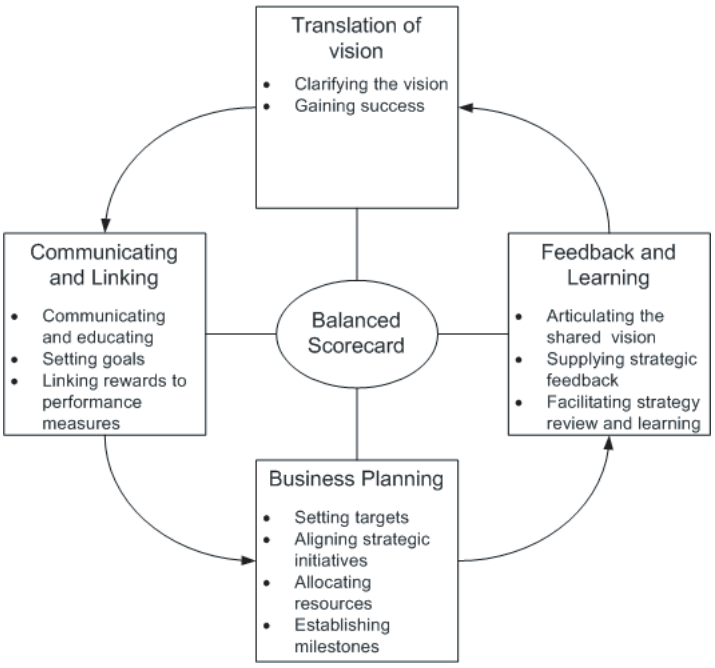


Figure 3.4: Managing Strategy: four processes

strategic feedback (to test, validate and modify the hypotheses embedded in the business unit's strategy) and facilitate the strategy review.

3.6 Stakeholder analysis

The public service doesn't operate isolated. Internally and externally every public administration deals continuously with people and organizations that influence (directly or indirectly) its activities: the stakeholders. A stakeholder is every person or institution that has a stake in what the entity does. In other words, a stakeholder is *"any group or individual who can affect or is affected by the achievement of the organization's objectives"* ([29], p. 46). An effective E-Government vision has to include all the inputs coming from the stakeholders in the organization [61]. The vision cannot be drawn in a top-down way, but it has to be conceived of through the discussion with stakeholders.

Stakeholder analysis is a structured examination of the different stakeholders to identify their roles, their necessities and their relationships. It helps to evaluate the project in its final environment and to forecast its im-

pact on the people and organizations involved. The stakeholder analysis has to answer the following two questions: "Who affects or is affected by the organization?" (definition of the stakeholders) and "What are its requirements?" (needs of the stakeholders).

The stakeholder analysis of the development of E-Government solutions has the following benefits:

1. Identify the potential users and understand their characteristics
2. Have an all-inclusive analysis of the environment
3. Anticipate potential conflicts and risks of the projects
4. Examining the impact of decisions on stakeholders
5. Improve the G2G solution and remove negative or inutile features
6. Identify and rank priority features
7. Predicting potential results

Stakeholder analysis isn't important only for early stages of development, but it has to be undertaken continuously (from the planning phase to the release). Using a framework, the project responsibles can identify and analyze the different stakeholder requirements at every development phase. Figure 3.5 shows a five steps framework.

The stakeholder analysis starts with the identification of the different stakeholders. The determination of who is a stakeholder and who is not is a difficult task that can easily cause conflicts. The identification of stakeholders is an iterative process that has to be undertaken regularly until it determines the definition of all stakeholders. The responsibles have to agree analysis criteria for the identification and distinction between stakeholders. Moreover, a discussion with the already identified stakeholders can help to discover new stakeholders.

After stakeholders have been identified, they have to be grouped depending on their specific characteristics (second step). A stakeholder can have more roles and can be identified with different groups (for example a citizen can be a civil servant). The conflicts have to be cleared by the responsibles of the stakeholder analysis before the analysis starts. Every stakeholder has to clarify its role and its group's belonging during the analysis.

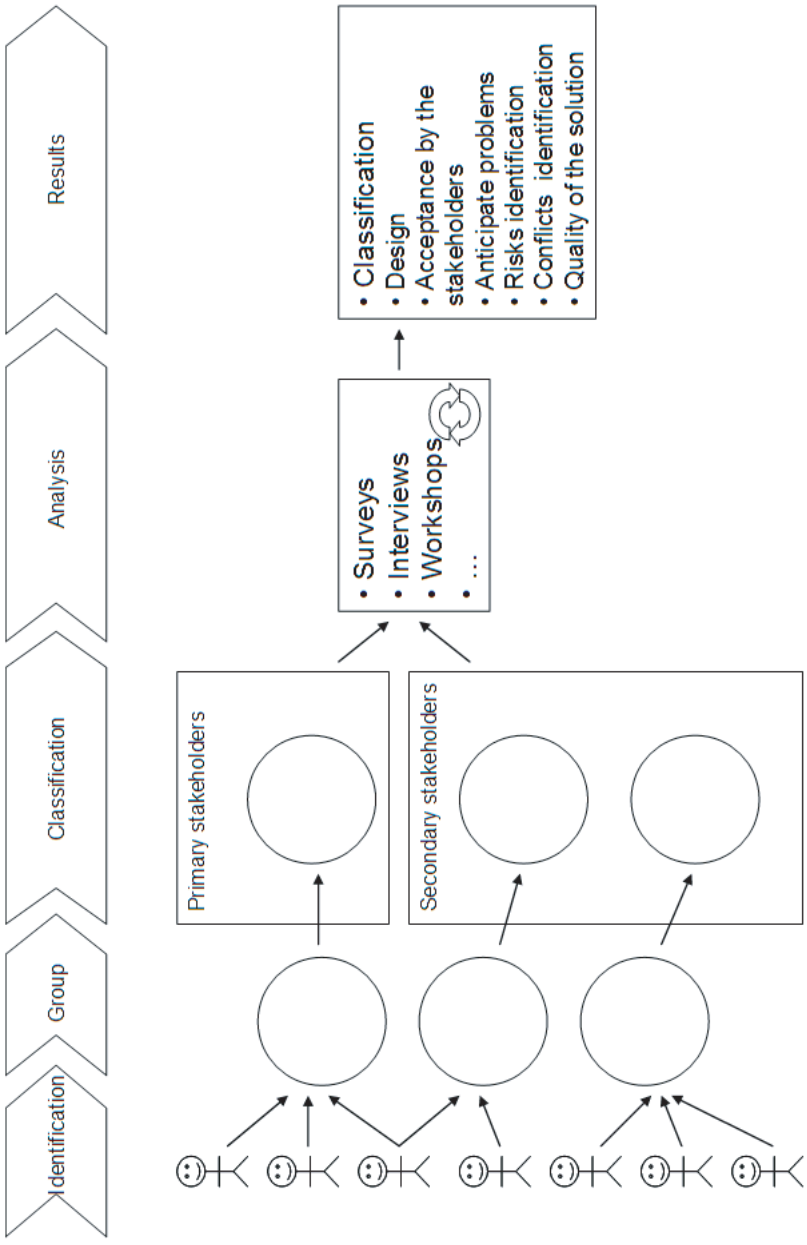


Figure 3.5: Stakeholder analysis framework

Every group has to be classified (third step) in primary and secondary stakeholders on the basis of their role in the project:

- Primary stakeholders are those stakeholders who directly participate in the organizational activities. Without the partecipation of primary stakeholders, the service cannot survive
- Secondary stakeholders are those stakeholders who are not actively involved in G2G activities, but are touched by the services supplied by the public administrations

To understand the stakeholders' needs (fourth step) different methods can be undertaken (or a combination):

- **Interviews** give the opportunity to have a direct contact with the stakeholders or with the stakeholders' group representative. The analysis is enriched by the discussion with the stakeholder. This method can be difficult to exploit in big projects with many stakeholders
- **Surveys** are the right method to get information in big projects involving many stakeholders. The answers can be analyzed, grouped and ranked. Unfortunately, surveys lack of confutation factor and the risk of a privileged group of stakeholders can emerge
- Widely accepted and widely used in stakeholder analysis are the **workshops**. In many cases, workshops have demonstrated to be a successful means to get information from the stakeholders. Workshops assume that stakeholder representatives can be brought together in one space at the same time to face each other and to discuss possible solutions. Like interviews, workshops can be difficult to undertake in big projects with many stakeholders. In this case, the responsibles have to select the legitimate stakeholders

The last step of stakeholder analysis includes the classification and the evaluation of the results obtained in the preceding step. The information can be classified by their importance while risks and conflicts can be identified and solved.

3.7 Managing Change

Public institutions are stable structures with strong synergies between offices and employees. The insertion of new Information Systems can undermine the

existing equilibriums. Making a clear sweep of what already exists in order to replace the old organization is neither practical nor imaginable. The transformation has to be gradual to avoid splits between the stakeholders that could mean a failure of the entire strategy.

It is important for leadership to remember that the transformation of public services doesn't finish with the sketch of a vision; the ideas have to congeal into actions and projects. The politicians and the administrators have to support the eRevolution from the beginning to the end, assuring to the projects their direct attention and the availability of necessary resources. Beyond financial needs, the reorganization means a change in the strategies, structures and culture of an organization.

Managing change in a public institution is more difficult than in the private sector [50]. The bureaucracy and the complexity of the hierarchical order prevent a smooth reorganization of the existing strategy, structure and culture of the agencies. The responsibles for the revolution have to be aware of the importance of managing the change. They have to wipe out the incomprehension, the clouds and the misunderstandings of the people involved. The stakeholders have to take part in the change process and not to undergo it. The incomprehension behind the motivation of the change can enable resistance from employees [86]. Forcing the innovation could intensify distrust in leadership creating a vicious circle that could bring failure.

To avoid a failure of the revolution, two issues have to be accurately evaluated:

- Communication
- Participation

Lack of communication within the organizations is one of the most dangerous reasons of failure. Many times magnificent reorganizations commissioned by management (or leadership) without knowing its feasibility [46].

Most governmental organizations present a deep pyramidal structure. The vertical relationship between different management levels is strictly formal. The working processes are standardized [64] and a very small change of the routine can bring the entire organization to chaos. Decisions are made at the higher level of the organization and communicated to the employees without their participation in the decision process. The cooperation between different management levels is very seldom. The communication in these

kinds of organizations tends to get jammed up bringing a harmful confusion. The presence of many different hierarchical relationships represents an inhibitor to a fluid and fast exchange of information. Often, communication can block before it can reach every recipient. The result is an incomplete and distorted communication. The leaders have to take care of the communication of the vision. They have to make sure that the employees have understand "what is changing" and especially "why we are changing".

The rumours that traditionally accompany the change can be fought only through open discussion. The responsibles of the new strategy implementation have to explain the situation and answer the various question employees have. Moreover, the discussion has a confutation role: the leadership can, with communication, understand the feasibility of a vision. The experience of the employees on the practical field can enrich the goals.

The participation of the stakeholders in the decision-making process is another issue of a successful transformation. Participation means a common consent and a complete vision of the situation and of the future. The cooperation of the stakeholder to find a common vision can decrease their resistance to organizational change.

The constitution of Transition Management Teams (TMT) has worked well in many companies in the private sector. TMT is neither a new bureaucracy layer nor a steering committee [23]. Essentially TMT is a temporary group of 8 to 12 talented leaders that must make sure that the change initiatives fit together. The heterogeneity of the team members is fundamental to grant an exhaustive knowledge. The TMT is responsible for every activity during the change process. At the end of the transition TMT disbands. Duck identifies eight major activities of the TMT [23]:

1. Assure that everyone in the organization shares a common understanding of the vision
2. Coordinate and align the change projects
3. Anticipate the problems
4. Assure the congruence of policies, activities and behaviors
5. Stimulate the conversation across the organization and assure an unimpeded exchange of information
6. Provide and allocate the appropriate resources

7. Facilitate and stimulate the interorganization activities

8. Prepare the critical mass

TMT is the hub of the eRevolution. It is a point of reference for every stakeholder involved in the transformation. Moreover TMT can facilitate the inter-organizational cooperation.

In a study conducted during 2002, Murphy [56] has revealed the importance of adopting a flexible labour market, legal frameworks and the necessity to reduce the barriers to initiative and innovation in order for the firms to use ICT. To achieve the organizational change, public administrations have to improve the public governance frameworks [61]. While the frameworks differ across countries, OECD experts have identified three key aspects:

1. **Human resource management policies**: create more flexibility in the working hours and in the working conditions

2. **Legal frameworks**: clear and appropriate rules for the use of ICT in public services is required

3. **Privacy and data protection**: framework has to make clear the legislation that rules the data sharing between agencies, the responsibility of the officials and the rights of the citizens

3.8 Control the expenses and demonstrate the success of E-Government

At the very beginning of the E-Government era most Government had pioneered it in a very amateur way. Many politicians saw E-Government as a simple means of electioneering and to raise more votes. Many countries considered E-Government as a weapon to show the international scene how advanced they were, allocating colossal funds to uncoordinated projects that came to nothing. The lack of communication between offices and the absence of tangible strategies (as well as measurement tools of the benefit of E-Government) were at the basis of most of the projects failures. The belief in a "self-deploying" E-Government was common in many Public Administrations.

Now it seems that many E-Governments responsible are awaking to the need to find measures to calculate what E-Government really brings. To put

it simply, we must know if E-Government gives a real benefit to the services it is applied to and we must try to define the parameters that analyze the efficiency. At the moment, there is a lack of information. A better understanding of the benefits that E-Government brings will not only contribute to the definition of the valuable services, but it will give a tangible perspective for the request of funds to develop E-Government solutions. Often the responsibles for budget allocation (i.e. Minister of Finance) find it difficult to understand the trade-off between productivity increase, Information Technology and reorganization of processes. Being intangible, information is difficult to measure and the real benefits of Information Systems are often difficult to separate from the service itself.

In the private sector, the success of an enterprise is measured by the competitive advantage it creates and the return to the shareholders it brings. On the contrary, successful public administration can't be deducted by a simple cost-benefits ratio: PAs balances rarely present profits on operative activities. The reason is that Governments can't rationalize their services; they have to treat all their citizens indiscriminately. Moreover, the time-lag between the investments and the benefits achieved by the users can be relatively long, making difficult every analysis. PAs have to develop specialized frameworks able to reveal the effectiveness ("doing the right thing") and the efficiency ("doing the things right") of a strategy. Public services have to develop frameworks to understand the effectiveness and the efficiency of E-Government projects. Indeed, it is more difficult to understand the benefit of an intangible object such as knowledge than a tangible product, but an objective method has to be found to understand the success of E-Government, for the responsibles to understand if the project has been successful or if it has to be modified. This is also necessary so that the finance office can decide the funds on the basis of tangible data.

3.9 Summary

1. In this chapter, we have analyzed some of the most important management issues. Getting the idea from the Nohria, Joyce and Robertson we have adapted the 4+2 formula to the public administration. Mastering all the four primary management practices and two of the four secondary practices a Public Administration could be able to manage its change processes
2. Differently from private companies, public services have some special factors, like bureaucracy or law that influence the management of the E-

Government

3. During the realization of G2G E-Government projects some continuous managerial activities have to be undertaken, like controlling or stakeholder analisys
4. E-Government systems have to be introduced in already existent structures. The change and the adoption of those systems have to be controlled and have to be shared by all stakeholders
5. G2G E-Government responsibles have to develop analysis systems to demonstrate the real effectiveness of their solutions

Chapter 4

Future G2G in European Union

This chapter gives an overview on G2G situation within European Union and its future challenges. After a brief introduction on the importance E-Government covers for the Union, in the second part, we shall discuss the projects and the policies of EU to create a seamless Pan-European administration and to enable cross-border collaboration among different state members.

4.1 Introduction

"The European Union (EU) is a family of democratic European countries, committed to working together for peace and prosperity"
(http://europa.eu.int/abc/index_en.htm).

European Union (EU) is a "unicum" as intergovernmental organization. In fact EU is neither a simple international cooperation, like UN or NATO, nor a confederation of states, like United States or Switzerland, but it is more a coalition among many countries (Member States) that have freely joined up to pursue collective aims. Member States being part of the Union preserve their own national identity and their nature of sovereign and independent countries. What distinguishes European Union from other international realities is its unique organization. In facts, although maintaining their independence, Member States delegate some of their power to decide to the European Institutions, composed by representatives coming from every Member State, that have to take their decisions on common topics. With its new formula EU creates synergies among every Member State, allowing them to exploit many opportunities and achieve many objectives, hardly attainable by every single State alone. Moreover EU gives every Member State a

bigger international importance and an increased visibility. After 50 years of its constitution European Union is at present composed by 25 Nations that cooperate together in peace and harmony.

Information and Communication Technologies (ICT) have dramatically changed our lives. With the always faster communication technologies, like cellular phones, computers, handhelds or even televisions, the world has become smaller and the old logistic boundaries are always lower. ICT has the benefit to get people closer and create the preconditions for the market globalization. For public institutions ICT is a new opportunity to improve their services, democratic processes and public policies [16]. With the motto "better online than in line" the European Union has decided to attach very importance to its E-Government policies with the declared purpose to be the world leaders in offering Electronic Services.

Identifying the potentiality of the introduction of ICT combined with a reorganization of the institutional infrastructure, the European representatives have decided to take up the challenge to become a world leader in E-Government. Before with eEurope2002 and after with eEurope2005 action plan, launched at the Seville European Council in June 2002, European Community has draw a policies to create efficient public services and improve the relationship between citizens and their governments.

Although E-Government offers a great opportunity for European countries, the intergovernmental integration is not as easy as it could appear. The creation of one stop service and the transformation from a stove piped back-office organization to a more fluid horizontal organization is not a only technological matter, but it also involves political, organizational and administrative factors at inter and intra-European level.

Government-to-Government has for European representatives a central role, being the basis for the success and the consistency of G2C and G2B services. Moreover a reorganisation of Europeans administrations and the introduction of interoperable offices can help administrations to cut their operative costs and to increase their international competitiveness.

In the following sections we will analyze in detail the actual European situation as regards G2G E-Government and the future challenges.

4.2 Government to Government and the European Union

The European Union representative commission is aware of the importance administrative interoperability has to grant the achievement of Lisbon goals of an Information and Knowledge society. Moreover the potential IT offers to overcome geographical, political, cultural and legislative obstacles is well known by the national authorities of every Member State, that focus their attention on the realization of local, regional and national Information Systems and trust in a cross-boarder infrastructure able connect every single administration to a whole and homogenous organization.

The central role of European Union has, can simplify and speed up the development of a pan-European System. Developing standards and enabling E-Government strategies EU can be seen as a central agent, able to grant common and compatible implementations both vertically and horizontally. EU plays a key role in the "modernization game" of the Public Administration.

4.2.1 The importance of G2G for Europe

European Union has revolutionized the relationship among European countries and has radically modified their foreign policies principles. In the following section we will see some of the most important changes occurred with the constitutions of European Union and the advantages of a serious and well designed E-Government policy can bring.

In July 2003 at the conference on E-Government in Como (Italy) headed by Italian Minister for Innovation and Technologies Lucio Stanca, the Ministers of the 15 Member States and the delegates of the candidates states (at that time) discussed for the first time on the importance of the integration of ICT around the old continent. The goal of that conference was to find a common path to integrate every PA in European Union. In his closing remark on the conference Minister Stanca underlined the importance of the cooperation among local and central administrations for the success of E-Government and for the competitiveness of EU [84].

Currently strengthen the cooperation between administrations at national, regional and local level has the top priority in EU. The integration of the different offices will grant efficient services between administrations, to

citizens and to business. The potential to modernize administrations at every governmental level G2G E-government offers is the engine of recent administrative reorganizations and E-Government strategies. A typical example of a successful integration at regional level in Spain is the service Agencia Tributaria[1] that, through a cooperation network between different administrations, grants a faster and a simpler provision of tax certificates to the citizens.

Europe is a new reality without similar examples in the history. ICT (Information and Communication Technologies) covers a central role for the old continent. To centrally manage and to create the right synergies among member states E-Government is an important resource. The following list presents some of the most important changes occurred in Europe since the constitution of the EU:

- Free movement of people
- Free movement of goods and services for enterprises operating in different member states
- Increased collaboration among member states (free flow of information between offices)

The correct introduction of E-Government can improve the efficiency of the administration at national and communitarian level and speed up the decisional process.

The free movement of people in Europe has been one of the core objectives of the EU since it was constituted. The Schengen[2] agreement signed in 1985 and followed in 1990 by the Schengen Convention that came into force in 1995 allows people that are legally present in Europe to freely move and work within the Union[3]. The free movement of people among the countries taking part to Schengen agreement is granted, in particular, by Articles 28, 29 and 30 of the EC Treaty.

The creation of a European wide Information System can help the various institutions to harmonize every national administration process in Europe. More specifically it can:

[1] www.agenciatributaria.es

[2]Schengen is the name of the little town in Luxemburg where the agreement was signed in 1985.

[3]Internal boundaries are intended the national borders of Member States

- Homogenize the services among different countries and offer a common European standardized service
- Create an European digital identity
- Facilitate the process to find and acquire work
- Increase the control to fight against cross-border organized crime in EU
- Improve the collaboration between different foreign offices to avoid the circulation of illegal non-EU immigrants trying to fake national controls moving from one Member State to another

The creation of a central one-stop pan-European service will remove the barriers of people mobility within EU. Offer information in 20 languages through a website will hep the immigrants to simplify their economic and social integration. Unfortunately a centralized system of Information in Europe to allow citizens to move freely inside the Union's borders is necessary as it is difficult to achieve. In fact, as revealed by a study done for the FASME project[4], most European countries present different legal, cultural and administrative procedures that make difficult a complete integration without a change in administration of state member to find a common denominator [4]. Moreover the incompatibility between different legacy systems is another obstacle to a complete cooperation between different nations (see 2.6.8.2).

Within European Union every residing enterprise can export or import without having to pay any duty. The open-market means that every European concern can build an office and operate within different member states. A central point of access for information and requirements shall be provided by E-Government [16]. Typical examples of services are the integration of European customs, of the different taxation[5] systems or of the registration

[4]Facilitating Administrative Services for Mobile Europeans (FASME) project aimed at simplifying the administrative immigration's tasks with a JavaCard based system. For more information: www.fasme.org

[5]The European Commission planning to develop a one-stop shop system to allow businesses to submit different countries declarations of Value Added Tax (VAT) through a single point of access. The project follows the VAT strategy of October 2003. Through a radical change of the VAT system this new service should simplify the procedure of cross-border VAT removing the legislative and linguistic problem a supplier has to face to declare the VAT in another member state. This allows the increase of Europe wide B2C supply. For more information: http://europa.eu.int/ISPO/ida/jsps/index.jsp?fuseAction=showDocument&documentID=2554&parent=chapter&
140-194 (accessed on August 2004).

system for the enterprises.

The freedom provided by the creation of a European single market must be granted through an interconnection between national E-Government and the creation of cross-border solutions. The integration between the national administrations can't be limited to a simple exchange of data, ontology incomprehension has to be limited through a reorganization of back-offices and the definition of common working standards.

A survey commissioned by the European Commission to the Cap Gemini Ernst & Young on February 2003 reveals a tendency of the Union to concentrate on G2B services [14]. In fact in accordance with the research the progress on sophistication made by G2B services in EU is grater than that for G2C.

As we will discuss later one of the most important goals member states try to achieve is an increased cooperation between their offices. The tendency is a consolidation of back-offices in order to facilitate the setting up of a European wide shared free flow of information [50].

4.2.2 The central role of EU

Every member state in Europe has already planned and is developing its own E-Government strategy. Moreover in the last years the consciousness of the benefit of the integration of different offices at national, regional and local level convinced every member state on the need to consolidate their strategies on government-to-government aspects. Close and continuous cooperation between stakeholders are fundamental to ensure that E-Government services developed in a country (at national, regional and local level) are interoperable in other countries [50].

To create a common framework of interaction every administration within or outside the national borders has to agree with other authorities on the standards employed. This means a series of negotiation among all actors. Without a central entity able to coordinate the different agreement, every single authority had to negotiate bilaterally the architecture of the framework. The decentralized coordination lays every actor involved to two important risks: the financial and human cost to close the bilateral agreement between them and the failure not to find a common denominator. These risks growth proportionally with the number of the parties involved. The adoption by every state of different solutions or the lack of compatibility

among them creates a real obstacle to the total integration of back-offices. On the contrary the centralization of the coordination will help to find a common interoperable solution. We can simplify this concept using a simple mathematical demonstration: if every single European state had to establish agreements of interoperability there will be 300^6, on the contrary exploiting EU centrality as a broker of discussion the member states will agree to a single multilateral agreement. The adoption by every actor of multilaterally accepted agreements will assure the implementation of common interoperable solutions [40]. A multilateral agreement has following benefits:

- Reduce the cost of negotiation
- Avoid the cost of implementation of interfaces to communicate between different platforms
- Reduce the implementation costs through a division of costs on more administrations (creation of one solution that fits all) [40]
- Enrich the knowledge
- Enlarge the discussion and grant the pluralism

As figure 4.1 shows, the multilateral agreement needs a central unit for the coordination of all parties involved. We will call this unit the "hub". The hub must have specific characteristics:

- The central unit has to be recognized by every party involved
- Every party has the right to name a representative taking part to the negotiation
- Impartiality must be granted and favouritism have to be avoided
- Must find the best solution through the discussion

European Union is the hub for its member states. In facts setting up a framework based on bilateral agreement in Europe would be impossible for the number of the central, regional and local administrations involved. In fact if every single member state had to close bilateral deals with every other member of the Union the number of interactions would be impossible to manage and coordinate. To the 25 central governments we must add every regional and local administration in the European Union. A central "agent" is needed. As central coordinator European Union can simplify the development of a pan-European E-Government for example through:

[6] At the moment Europe has 25 member states.

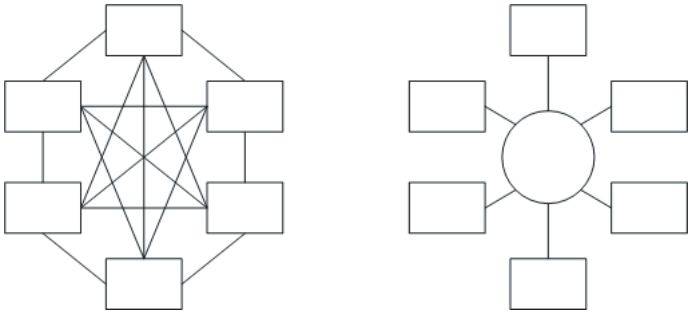


Figure 4.1: Bilateral vs. centralized multilateral agreements structure

- A centralized program for best practices exchange (c.f. 4.5.5)
- Offer its mediation to establish new standards and interoperability frameworks
- Stimulate the discussion and cooperation between member states
- Avoid meaningless expenses
- A central control of the projects at European level (assuring the singleness of the project)
- Grant impartiality to every member state and control the politics

As we will see later Europe doesn't intend to create a central authority to centralize the E-Government projects under a unique roof, but it want co-ordinate every single State program stimulating the cooperation between member states to find a common path in order to enable the interoperability at European level. The subsidiarity principle in force in European Union and the respect of national identities and regional (or local) requirements have to be assured by a decentralization of the implementation of specific solutions. For EU decentralization is an effective management tool [61].

European Union has redraw its confines and has to carve out a niche for itself on the international political scene[7]. To better coordinate the interoperability with non-EU states it is necessary to define supranational measures [28]. European Union has the chance to negotiate bilateral agreements with non-European countries (like Switzerland, USA or China) as delegate for its

[7]Sometimes the role of EU is a uncertain and national egoism oppress a common decision within European Union.

member states, simplifying the cooperation at international level and creating the condition to develop cross-border services (c.f. 4.6)[8].

4.2.3 State of affairs

"There can be no shadow of doubt that technical progress will inevitably put an end to European dismemberment before this century has expired" ([20], p. 139). Since the dawning of Electronic Government European Union has recognized the importance of the use of ICT as enabler for renewal of public governance. The Union and most of its member states have been pioneers in the institution of working groups and central organizations to study and to create a strategy to reorganize their institutions. Already in 1995, recognizing the need to enhance the synergies between European and national Information Systems, the Community established the IDA Programme[9]. With IDA European Union pioneered worldwide the introduction of Information Technology to facilitate the transition from paper-based to electronic exchange. In these few years many things have been done in EU and many first challenges have been achieved.

Generally speaking all European member states (even the recently annexed nations) have been developing their own E-Government strategies [16],[18]. Although benchmarking shows an increase in E-Government services around Europe, there are still evident gaps between single member states, meaning heterogeneity among Electronic Government solutions.

Despite the enormous number of E-Government projects delving under the surface of success stories we notice a lack in users (official and clients) satisfaction. Usability of existing application is still at an elementary level and often limited in the services it offers. This discomfort is partly explained by the euphoric illusion of a faster and simpler implementation of the services. Forgetful of the mistake that brought to the dotcom bubble burst many suppliers have promised (helped by the media) solutions impracticable because of the technical difficulties as well for the legislative and bureaucratic slowness to crate an implementation framework. Most government have avoided tackling the thorniest aspects of E-Government, preferring to concentrate on the "easy" things. As shown by figure 2.1 the greater part of projects concentrated on the cataloguing stage, with a simple technical involvement and avoiding the need of a real integration between offices [90]. Moreover

[8]With cross-border with intend the services between EU and non-EU countries.

[9]A complete description of IDA Programme will be given later 4.5.4

the eEurope strategy has gives only general information on the target EU will achieve, unfortunately it gives not precise and complete plans to fully integrated administration (in particular cross-border solutions). This can be deduced from the essence of the European Union as a simple supranational organization. The absence of a common constitution bounds the authority of the Union to impose its policies. EU directives (from our point of view) are partly ignored by member states that try to preserve their national authorities and are sometimes in competition among them to impose their ideas. Positive collaborations can be seen only in fields where a there is an urgent need[10]. The cooperation among member states is still under the expectative: regional and local projects of cooperation between European administrations are more frequent than those between national governments.

As widely explained, the interactions of G2G solutions can be of internal use (exchange of information between different officers or between different offices at local, regional, national (federal) or European level) or the cooperation between different offices to offer a one-stop counter. Because of the lack of an univocal definition of Government-to-Government activities and because of the difficulty to separate the G2G projects from those dedicated to citizens and business, we will try to interpret the existing surveys to extrapolate the actual state of interoperability between PAs. At national level European countries present an increase of 2003 of sophistication of services of 7%. In comparison with previous year this represents a decrease in the evolution trend. Many member countries have (in accordance with a survey developed by Accenture) reached their plateau in innovation [1]. Anyway a wide gap between Member States persists in online sophistication of services (from 87% to 47%) and of the completeness of the services (form 72% to 15%) [14].

The presence of legislative facilitations (for example the presence of digital signature legislation) and policies realize vertical collaboration between national PAs means that all member states have had a strong political support. The importance of the Information Society is recognized by every member as essential to improve competitiveness. If the integration at national level is slow, in many cases the cross-border and the European coordination is at the beginning. While many countries have developed integration and standardization strategies (for example eGIF in United Kingdom or MOA in Austria) a deficit in the adopting European-wide standardization can be noticed, due

[10]For example the new European central database to store immigrants personal information

to the national pride to be the top of the European class and to the heterogeneity within Europe [71].

Even if some challenges have been achieved inside member states and at the European level, many other have still to be started. Italian Minister Stanca in an interview has declared that in Europe there is still much to do to complete the eEurope strategy and now is time to speed up [28]. In general the interaction between different countries (horizontal integration) doesn't seem to be a priority of most member states, despite the importance demonstrated by Brussels authorities [51]. The governments have to concentrate on the important (even if less spectacular) of a European horizontal and vertical integration. To create a Knowledge-based community cultural, structural, organizational, technological and ontological heterogeneity have to be analyzed [72]. By now the integration effort at continental level are insufficient.

As demonstrated by a research conducted by Institut für Informationsmanagement Bremen in collaboration with Danish technological institute, there is an evident need for more collaboration among administrations to create more ICT solutions and interoperability and a major effort to link front-office with back-office is a "need to have" [53].

In last section we discussed the central role EU covers in order to create a standard solution able to grant interoperability for cross-border Information Systems and to lower the implementation costs at national and European level. The necessity of a coral strategy at for Europe to exploit the possibilities of IT was clear to the European Council of Lisbon (2000) [26]. Drawing the stages of the modernization path, the council recognized the central role of E-Government as enabler for the socio-economic revolution of the European countries and its central role in the achievement of the international competitiveness [26]. *"E-Government is the means to achieve a more productive, inclusive, and open public sector in Europe"* ([18], p. 4). As we will see later the European Commission elaborated a plan to (eEurope2005) to "create a favourable environment to make the European Union the most competitive and dynamic knowledge-based economy with improved employment and social cohesion" [17].

In the conference of Information Society in Como (during the Italian presidency semester) the goal to create a tangible separation between front-office and back-office and seamless connection between different organizations has been identified as a new architecture emerging around European Union. The

achievement of such a level of organization needs joint actions by several levels of E-Government and horizontally among many offices [50]. In January 2004 the European Commission has delivered a first version of an interoperability framework for the development of a pan-European E-Government accessible by every European citizen through multi-platform access[11] [40].

4.3 The road to a competitive Knowledge society

This section concentrate on the strategy elaborated by European Commission to modernize the European administration to better face the future challenges: Lisbon strategy. As written in the strategy, the use of Information Technology as a mean to enable the modernization of the institution has an important role.

After an introduction on the future challenges designed by the Lisbon strategy we shall concentrate on the E-Government strategy (contained in eEurope2005), in particular on the projects regarding the interaction between administrations.

4.3.1 Lisbon strategy

In March 2000 the Lisbon European Council released the first draft of the "Agenda of Economic and Social Renewal for Europe", i.e. Lisbon Strategy. The Lisbon strategy is the answer to the socio-economical revolution started during the end of the'90: the globalisation, the advent of Internet and the new knowledge economy. Since many years European growth is almost flat and the competitiveness against other countries was loosing positions. A revolution in the institution has been for Europe a matter of survival. European Council recognized the need for Europe to reorient existing policies and elaborate new ones to capture the benefit offered by the new environmental conditions. By 2010 Lisbon strategy aims at making EU the world's most dynamic and competitive economy.

Among others the objective to create a knowledge based economy has an important meaning for the competitiveness of the Union. In order to achieve following objective European Commission has identified six main priorities:

[11] We shall describe Interoperability in details later in chapter 4.5

- eEurope
- The Internal Market
- Financial Services
- Enterprise
- A European Research Area
- A Review of Financial Instruments

eEurope and the creation of the Information Society is an important element of the Lisbon strategy.

4.3.2 eEurope 2005: An information society for all

eEurope 2005 strategy as been released by the Council of Ministers in June 2002 in accordance with the Lisbon strategy.

The eEurope 2005 action plan contains the policies to review and adapt the European legislation (at national and at community level) to ensure a legislation framework to make the implementation of new services easier, specially to strengthen competition, improve interoperability and complete the broadband networks.

The exchange of good practices and information between different working groups and different projects has to been reinforced. The institution of a steering group to evaluate and develop policies and ensure good collaboration and coordination of the existing policies and to facilitate the exchange of information is a fundamental point of the strategy.

eEurope 2005 will expire in 31 December 2005 and will be replaced by a new strategy in line with the Lisbon strategy objectives. Aim of the new strategy in the development of European eServices on a secure broadband network[12].

[12] A first presentation of the new eEurope strategy has been held by European Commission delegate Frans De Brun on July 2004 (Appendix C).

4.4 Main European challenges and future vision

Although many plans on E-Government have been issued, the implementation of a government without boundaries is still far to be reality. Moreover many governments after few years of excessive euphoria have reduced their budget for E-Government development[13]. Of the multitude of pilot studies subsidized by member states or European Union none has been continued to the implementation step. The hostility coming from the suspicious of stakeholders to the modernization and a less concerted planning for the future can be two of the more quoted theories that explain the lack of tangible solutions in E-Government.

Before we start to discuss the future challenges European Union faces to create a pan-European knowledge society, we want to make clear an important point that has been often forgotten in past E-Government projects. The man is at the centre and has to be at the centre of every structural change. Information Technology is not the end, but the mean that allows facilitating the revolution and the transition from a stove piped and office centred organization to a process oriented and costumer centred organization. Computers are only a set of wires, circuits, silicon and data useless if applied without the consciousness of the environment and of the needs and the feelings of the people using these means. We have to learn from past errors made by many dotcom and technology firms that believed of the "technology god" putting back the man at the centre of our discussion.

The idea of a borderless integration of European countries has always been at the centre of the European discussion, since formulation of the Rome treaty in 1957. The founders of European Union were convinced of the necessity of a united continent after the WWII. In last ten years we have assisted to one of the most sensational revolution of the last century: the Information technology has invaded forcefully our life. Nowadays with the intelligent use of the new technologies can reinforce and help the dream of a European open society to come true.

Public Administrations are subject to radical changes to meet the costumers' needs. A new organization is raising and is trying to replace the old and ancient Weber's bureaucratic system. The emerging new structure

[13] A recent example are the Swiss Cantons that have allocated only 1/3 of the previewed budget for ch.ch portal (c.f. 6).

of public services will change the relationship between front and back-office. The tendency is to create:

- Front-office: deliver a service to its user [51]
- Back-office: reception and processing of information submitted by the user, produce [51] and deliver the service to front office [53]
- Integration between back-offices to create a one-counter service

Customer (citizen, business or employee) is the new heart of the processes. As for the private sector, for the PAs too the restructuring means a better service, a remarkable saving in the administration's accounts and an effective use of information. Advantage of the revolution that is taking place will give sure advantages both to the service provider and to the customer [53]:

- Back-office: reduce operational costs, improve productivity and flexibility using simpler and lighter organizations, greater interoperability, improve staff working condition, allow cooperation between public and private sector
- Front-office: better usability, single and simple access point to service deliver (reduce the number of counters to visit) and simpler control of user

To create the condition for the new organization, the institutions have to work hardly during the next years. G2G future challenges facing Europe are:

1. Improve the pan-European **interoperability between administrations** at technical, semantic and organisational level
2. Increase the **best-practices** exchange
3. Boost **cross-border** services
4. **Reorganize** institutions from the actual stove piped to process oriented organization
5. Create **compatible laws** to facilitate the use of IT
6. Implement intergovernmental interaction in a **cost-benefit** interest
7. Enable **real-time exchange of information** between different administrations

In the next pages we will analyze every single task at European level, not only at technical aspect but at strategic, structural and cultural aspect.

4.5 Pan-European Interoperability

During the European E-Government conference held in Como on 7-8 July 2003, the participants agreed on the need to reinforce the delivery of eServices at a pan-European level.

The European Union is one of the pioneers in interoperability. Since 1994, the member states have grouped together to create the Interchange of Data between Administrations (IDA) programme. IDA has the goal to facilitate the exchange of data between administrations[14].

National autonomy and pride, the heterogeneity between member states and the principle of subsidiarity supported by the European Union are the reasons for a fragmented E-Government in member states. The emerging "island" solutions make difficult interoperability between different administrations. The problem gets worse when the administrations reside in different countries [71]. The provision of international eServices is at the moment unreal. To provide a "single market" of information at the European level, we have to push the development across national and organizational boundaries [19].

Interoperability doesn't only mean the collaboration between offices to simplify transactions with citizens or to improve relationships with business. Besides these there is the willingness to create more efficient cross-country processes to lower administrative costs, to consolidate the alliance between the member states and to avoid the time-consuming redundancies of data between administrative offices.

Interoperability is more than a simple connection between different computers on a wired or wireless network to transport digital data. It means the ability to share data, information and knowledge between different administrations, involving machine-machine, man-machine and human interactions. It also means a reorganization of working processes, semantic compatibility and sharing of information in order to enable the seamless delivery of eServices [19]. The customer (citizen or business) doesn't have to know the different departments involved in his request process.

To understand interoperability we must analyze its three layers (c.f. figure 4.2):

[14]Up to 2005 a new program IDABC will start. C.f. 4.5.4 and B

1. Technical interoperability
2. Semantic interoperability
3. Organisational, legal and cultural interoperability

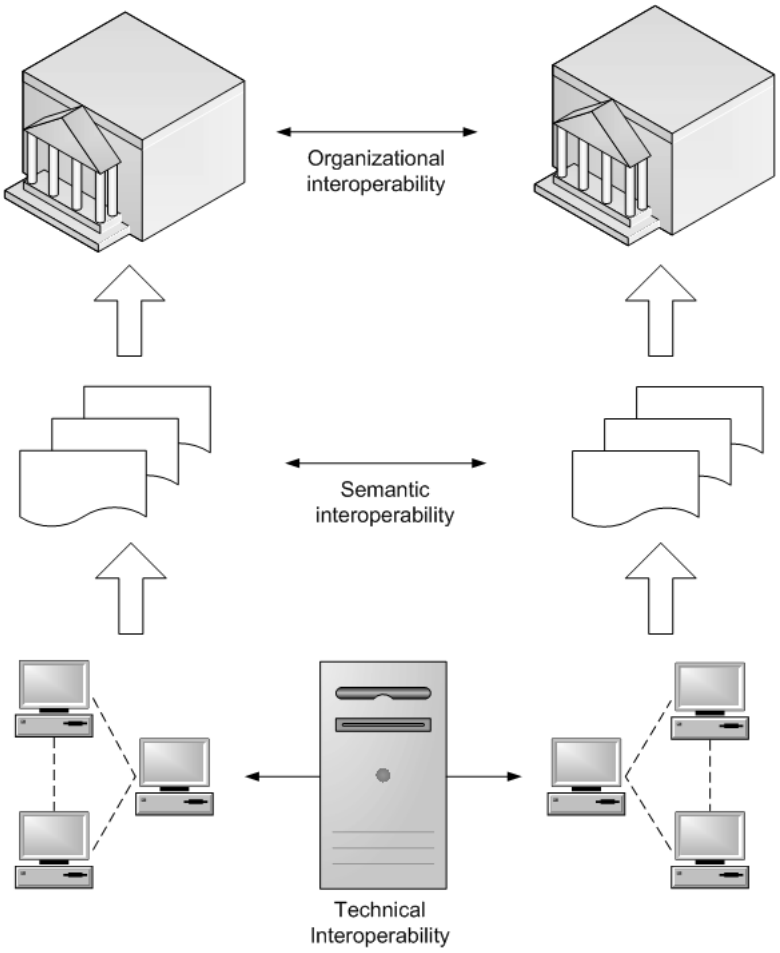


Figure 4.2: Different interoperability levels

4.5.1 Technical interoperability

Technical interoperability is concerned with the connection and compatibility of computer systems over local and remote networks. The technical layer is the simplest to realize [71] and can be done in a relatively short amount of time.

The development of common standards and the introduction of interfaces to connect legacy systems and the old non-standard implementations are already widely used in private industry. These standards can be translated for public the sector.

The lower costs and the compression of development processes using standard systems have compelled the IT industry to release common and interoperable systems[15]. The introduction of universally known open standards allows the achievement of a higher degree of technical interoperability (c.f. 2.5.8). The normalization of the IT market has an enormous effect on PAs too. Exploiting the advantages of buying the software and hardware, administrations don't have an economic advantage, but they can also benefit from the included standard.

Many administrations have begun to look at the advantages of Open Source software development[16]. Open Source is more than free achievable code, it grants costs advantages, independence from a single supplier and it allows the administrations to "play with the same cards" thus facilitating the cooperation between administrations. Through central working groups administrations can adapt Open Source to their common necessities while always respecting the personal requirement of every single administration. Using Open Source administrations makes a step forward in the technical interoperability.

Technical interoperability has to deal with the legacy systems of different administrations. These can hardly communicate together without specific interfaces (see 2.6.8.2).

4.5.2 Semantic interoperability

The exchange of information between Information Systems can't be bound to the simple transfer of data from a system to another. Semantic interoperability takes care that the information is understandable to all applications, even those that were created separately and not initially developed for this

[15] A simple example of this trend of standardization is Apple. At the beginning Apple have developed its own communication standard (i.e. AppleTalk), in these last years the Jobs' guys have changed to the industry standard TCP/IP understanding the importance of standards.

[16] Munich city has been one of the first administrations to decide to introduce Open Source software, breaking the Microsoft hegemony. In 2003 city council voted the purchase of 14'000 computers with Linux.

purpose (for instance legacy systems). The semantic compatibility between different systems facilitate the automation of information.

Semantic interoperability requires agreement on the format in which information is transmitted, represented by and on which is the meaningful information required by a system. To enable the translation of information between the systems, a single language to describe the structure and the underlying data, i.e. a mark-up language, must be defined. At the current stand of things, the more plausible universal language to be used is XML[17].

Through international representation standards [18] the exchange of information can be simplified. Ultimately, independent associations are trying to develop common information "dictionaries" to be adopted by every administration. An important example is Oasis[19] that has developed is ebXML, a set of rules to unify the exchange of information.

4.5.3 Organizational interoperability

"United in the diversity" was the slogan of the enlargement of the European Union to underline the consciousness of the uniqueness of every member state. The European Union has a relatively young identity and pools states that have well rooted rules and policies. Every member state has its own history, language, religion and culture. Every citizen feels a national identity stronger than a European identity [87]. Together, they share the will to create a free community and to increase the synergies around the old-continent. The role of the European Union is still the subject of debate surrounding the draft of the constitution. Member states like France or Germany aspire for a centralization of power and a strong pan-European government. The Italian government tends to take a more conservative position recognizing the European Union as a central pole of discussion and a commercial opportunity. It is sure that every state wants to preserve its own national identity. Different from "classic" countries, the European Union has to find its own way (made of compromises and respect for every country) to allow collaboration between its members.

Organizational interoperability means the reshaping of different administrative processes to increase cooperation and to facilitate the introduction of a global Information System. Organizational compatibility allows the sharing

[17]XML stands for Extended Mark up Language.
[18]example Dublin Core Metadata Interoperability: www.dublincore.org.
[19]More information under http://www.oasis.org.

of information stored in different data storages and the ability to understand the meaning of the information contained. To enable this interoperability, an effort has to be made to get the national rules closer.

Even if Schengen agreement has modified the geographical boundaries allowing free circulation, there are still strong organizational, legal and cultural barriers among member states that prevent the EU from a complete integration. This doesn't require a complete unification of Europe, but the willingness of every member state to cooperate[20]. At this stage, integration is more difficult and requires more time than at the technical and semantic level.

One of the first steps to create the preconditions for integration at the European level is the definition of the services that have to be provided centrally at the pan-European level. For each of these services requirements and priorities have to be defined following a demand driven approach [16]. With a common agreement, the member states will be more stimulated to operate than if the decision had been taken centrally by a commission.

The principle of subsidiarity adopted by European authorities gives every member state plenty of leeway to decide the processes that better fit their local, regional or even national needs. A process executed in three steps in a country could require a step more in another country. Every single country in Europe has its own administrative processes which are hardly compatible with the other members' administrations[21]. Moreover, many services are delegated at the local level causing an enormous difference from city to city [70].

Being an exception, the European Union has to find a compromise to grant the pan-European interoperability. It will be unlikely to think that the member states should renounce to their own processes to adopt new ones. A standardization of processes to constitute a global pan-European solution will not respect the previously mentioned subsidiarity principle[22] and the specialization of the different national needs will be thwarted. On the contrary, national processes have to be respected and have to be stimulated by the European Union. Trying to centrally redesign the European processes would be like trying to tilt windmills. Therefore, the creation of a modular

[20]The European database for immigration control has demonstrated that in presence of the willingness every barrier can be brought down.

[21]A research conducted by the FASME working group has studied the different approaches of registration offices in Germany, Italy and UK. The research has revealed a complete fragmentation of the systems [4].

[22]Subsidiarity principle is one of the fundamental rights of the EU.

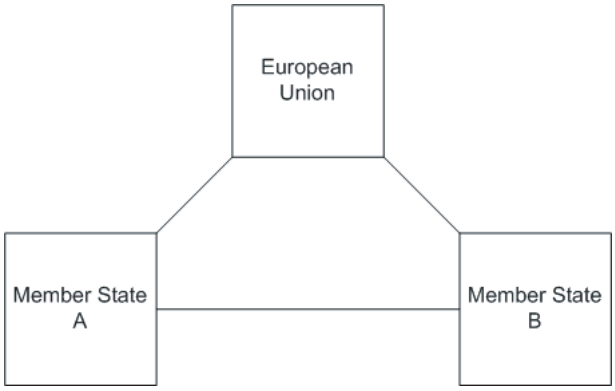


Figure 4.3: Modular architecture (a)

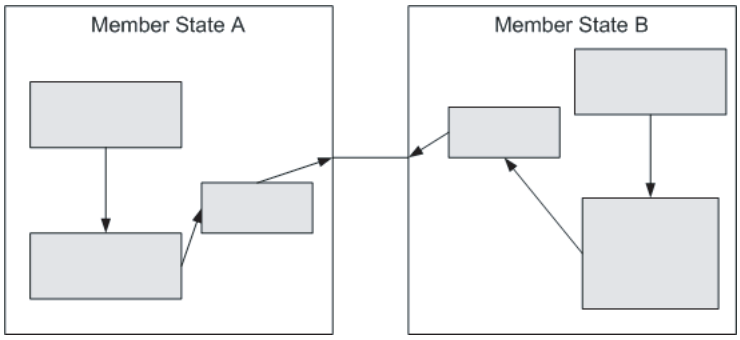


Figure 4.4: Modular architecture (b)

architecture would be the most feasible idea (figures 4.3 and 4.4).

Based on common legal framework the European countries have to define interfaces to deliver and receive information. This architecture facilitates the integration of new admitted countries.

European countries have to assure their interoperability at the organizational, legal and cultural level in order to provide a transparent and seamless access to pan-European eServices. The integration must allow the interaction between different administrative bodies, the sharing of information stored in different formats and the management and use of that information at different stages in the process [61].

This integration of organization, law, policies and culture between different countries requires a lot of time and can be considered the most complicated of the three interoperability, involving many different socio-emotional

factors. Moreover, administrations have to deal with many different facets like differences in values, languages, religions, relationships between administrations, privacy and rules.

Different from the national situation in most member states, it doesn't seem that the European Union is progressing in achieving a real standardization framework. Privileging the subsidiary principle, the European Community reinforces the decentralized responsibility of member states to create the organizational process that better suites the national level.

4.5.4 Interchange of Data between Administrations (IDA)

Interchange of Data between Administrations (IDA) is the European Commission's strategic initiative with the objective to coordinate different member state administrations to exchange data using Information and Communication Technology and to enable information and knowledge sharing. IDA should not be considered a goal, but as a means to achieve fully integrated pan-European Electronic services (C.f. B). Started as a program to develop a pan-European network, IDA is nowadays one of the most important activities at the European level to promote, coordinate and develop pan-European E-Government services. In particular, the program has the following mission[23]:

1. Developing interoperability measures
2. Promoting implementation of sectoral networks in priority areas
3. Extending the benefits of the networks to Community industry and citizens
4. Co-operating with national authorities
5. Co-operating with other EU services

IDA doesn't operate isolated. Instead it cooperates with national, regional and local authorities of member states as well with other EU services to better coordinate and to assure the interoperability. Participation in the IDA program is also open to countries of the European Economic Area and to the candidate countries that can anticipate the integration of their services before they join the European Union.

[23]http://europa.eu.int/ida/

Launched in 1995[24] the IDA program is currently at the second phase (started in 1997). The main elements of the second phase of the IDA program are:

1. Projects of common interest: the member states shall implement horizontal pan-European E-Government and infrastructure services of common interests, enabling the inter-institutional interoperability for European Agencies and bodies

2. Horizontal actions and measures: in support of projects of common interest the Community can undertake specific actions and measures

The second phase of the IDA program will finish at the end of 2004 and yield to the new IDABC program. By building upon the achievement made by the two former IDA programs, IDABC will continue to promote pan-European E-Government services until December 2009, to help the transformation of the European Union to be the most *competitive, dynamic and boundless knowledge society.* The program will be coordinated by member states, the EU Commission and by a committee called Pan-European E-Government Services Committee (PEGSCO). IDABC, differently from its previous program, will pay more attention to the all stakeholders (including citizens and business organizations) in order to understand their requirements and their priorities (Appendix B).

Member states have to consider the IDABC decision and include them in their national E-Government to line up with European standards. The integration of pan-European services needs cooperation between the community, the member states and the stakeholders.

To ensure the necessary budget to the IDABC program, the European Parliament together with the European Council have allocated to the program EUR 148,7 million, of which EUR 59,1 is designated until 2006. From this, subsidies of the non-EU countries and the organizations taking part at the IDABC are excluded.

4.5.5 Learning from shared experience

Experience accumulated through practice is an important resource to facilitate the implementation of new projects. This effect is defined as the learning

[24]European Union is a pioneer in interoperability initiatives.

curve effect. *"Learning curve refers to the advantages that flow from accumulating experience and know-how"* ([6], p. 95). Sharing experience between actors can bring many benefits:

- Cost savings
- Improve quality of E-Government solutions
- Avoid errors or cul-de-sac implementations
- Reduce the project timeline
- Create a learning environment

Interoperability at the European level means the exchange of experiences and knowledge between all E-Government responsibles too. Experience from failed or successful projects, or even from developed prototypes, is an important resource to improve future development. These past experiences and the related lessons can be a surplus for the community, especially for the other administrations that are trying to solve similar problems. Because of the cooperation agreement and less concurrency among member states the European Union is the ideal structure able to share best practices between member states. Transferring the learning experience at local, regional, national, European and international levels boosts the implementation of E-Government reducing the costs and the likelihood of making mistakes.

The European Union (in cooperation with the member states) has developed a common program to allow the exchange of best practices. Using a common cataloguing framework, every project developed within the European Union (inside a member state or between different countries) can be evaluated in a comparative way and benchmark jobs can be deployed. The best practices framework defines a standard in information exchanged thereby simplifying their comprehension. The homogenization of knowledge permits the comparison among all projects helping the transfer of learning. We can define the best practices program as the common European memory. Every case is catalogued and can be accessed by useful criteria: by country, by theme, by levels of E-Government or even by type of integration.

Through the selection of best experiences a common standard (warranted by the practice) to develop E-Government solutions can be defined.

It is clear that a solution that works in a specific case can't be duplicated one-to-one to another environment successfully. Many conditions can change

and many new requirements have to be respected. Using their knowledge and intelligence, E-Government responsibles can capture the essence of certain practices and try to adapt the successful experience to their specific case.

4.6 Cross-border services

If we consider the European Union as a unique entity able to establish international cooperation and to seal agreements with other countries, we can easily deduce that the geographical asset of Europe has changed and has evolved since the end of the Cold War. The constitution of a united European community has completely changed the European borders. Seen from a broader point of view, we can consider European borders as the confines that EU traces and that include all member states. In this case, cross-borders can be defined as the relationships between the European Union and non-EU countries.

In their daily activities, the European Union and its member states have to deal with neighboring countries (like Switzerland, Turkey or Russia) and with other non adjacent nations (like the United States, China or Australia). With many of those countries, the EU has commercial and political agreements. The number of goods and people passing between EU states and these countries is huge and continues to increase. For this reason, the EU (and many of its member states) signed commercial agreements with non-EU countries.

The European Union has to cooperate with non-EU governments (especially with its business partners) to horizontally join up their services. The cross-border integration and the consequent reduction of the geographical, cultural, and organizational differences will boost the commercial opportunities of both the countries participating.

Cross-border E-Government is also a great opportunity to increase national and international security. In fact, the recent national and the international security problems are growing even more intertwined. The escalation of international terrorism, cyber criminality and the scourge of spamming requires even more an international collaboration and a real-time exchange of information. Because of legislative, cultural, linguistic and tradition differences as well as for the lack of a strong central identity the integration of cross-border agreements are very rare. Some extemporary try has been made in the recent years, but many projects have failed.

In the next section, we will analyze non-EU countries to better understand the actual state of affairs, the actual plans between these and the EU and the possible future scenarios. The two countries represent two important partners for the European Union. They have different geographical conditions.

4.6.1 EU and Switzerland (an island in a European sea)

Geographically Switzerland is in the middle of the European Union hence it borders only with member states. Following the people's will, Switzerland has not adhered to the European Treaty. This means that Switzerland is an island in a European sea.

Most of the products and services that Switzerland imports (almost 80%[25]) arrive from one of the member states. On the other hand, 60% of the Swiss products and services are exported to the EU. Moreover, the majority of the permanent foreign resident population in Switzerland is a citizen of one of the member states. This means that the EU represents for Switzerland the most important political and commercial partner.

To avoid complete exclusion from European affairs, in 1998 Swiss authorities started a series of negotiations with European representatives to find a common agreement of cooperation. In 1999, the Swiss Federal Council, the European Commission and the Member States representatives signed the bilateral agreements. After one year, the Swiss population and the European Union Council have ratified the seven agreements and in 2002 they came into force. The bilateral agreements cover seven areas: civil aviation, overland transport, free movement of persons, research, public procurement markets, agriculture and the elimination of technical barriers to trade[26]. Furthermore, the Swiss authorities and the EU are discussing the continuation and the extension of the agreements in subjects like cooperation in fields of justice, police, asylum and migration (to align Switzerland to Schengen Treaty), taxation of savings or the fight against fraud.

[25]All the facts and figures about Switzerland and EU are accessible in CH-EU bilateral agreements site: http://www.europa.admin.ch/e/

[26]We have cited the bilateral agreements only to explain the Swiss political and economical situation, we are not interested to discuss them in detail. For more information of the content of the agreements we suggest you to visit http://www.europa.admin.ch/e/

G2G E-Government services between EU and Switzerland are an important means to consolidate their cooperation and to put into practice the bilateral agreements. The creation of a common set of eServices will allow the free movement of people and boost the commercial opportunity for both Swiss and European enterprises. Moreover, the introduction of CH-EU systems will improve the political cooperation between the Swiss authorities and the member states.

By now Switzerland and EU cooperation in the G2G field is not far. Swiss authorities still cooperate occasionally with the PAs of neighboring member states (like Germany or France) to develop cross-border eServices. The only concrete European project in witch Switzerland participates (as far as we know) is the development of a common European database that includes the personal information and the fingerprint of refugees to increase European cooperation in fighting asylum abuse. Other cooperation between Switzerland and European member states comes from Universities and private organizations (both in the form of exchange of best practices and as of pilot projects), for example eMayor project to interconnect the European municipalities[27].

At present, Switzerland doesn't cooperate with EU to accomplish E-Government action plan eEurope 2005 (see 4.3.2) and doesn't participate in IDA program (see 4.5.4) to interconnect the European administrations[28].

4.6.2 EU and USA

Even if the EU and the USA do not border each other geographically, they have a strong political and economic relationship. USA and the EU have the biggest bilateral trade and investment relationship. In fact, the trade from EU to USA amounts to almost 242 billion EUR, while the investment comes to almost 650 billion EUR. On the other hand, the EU imports from USA nearly 175 billion EUR and the European investments addressed to USA are close to 890 billion EUR [25]. Both USA and EU have interest to reinforce their political and economic cooperation. Currently, representatives of the US Congress and the European Parliament have increased the frequency of their meetings. Their reciprocal interests lie on economical, social and environmental subjects, like peace and stability in the world, boosting the expansion of world trade or the reduction of global poverty and degradation

[27] http://www.emayor.org.

[28] However IDA program web site includes Swiss E-Government news and factsheets in its eGovernment Observatory.

of the environment.

For EU and USA the introduction of cross-border G2G E-Government solutions will help to boost the economical and political cooperation between the old and the new continent. The introduction of transatlantic eServices could be an opportunity for American and European citizens and private organizations too. A strong transatlantic cooperation could increase the trading chances of the enterprises and lower the trading barriers (commercial and geographic), helping the global market to grow.

Another important cooperation field is international security. The development of transatlantic G2G eServices will help EU and USA to share information and to be more efficient in the fight against international terrorism and cyber criminality. For example, the introduction of a real-time Information System to share information between European and American police and military units will reduce reaction time and produce stronger security.

By now, EU and USA are already cooperating in many fields, but the development of G2G eServices is still far. For example, a recently agreement (14 May 2004) between the US National Science Foundation's (NFS) Information Technology Research (ITR) Programme and the EU 6th Framework Programme (FP6) has defined specific areas of common interests like security, embedded systems or dependability, that can be the subject of a transatlantic research cooperation [42].

4.7 Back-offices reorganization

"E-Government is not only technology but more than everything else an organization change" [29] ([84], p. 3). The Italian Presidency has highlighted the importance of E-Government not only as a new communication means but as a driver for the modernisation of public institutions. E-Government has for the European Union to reduce the bureaucracy and to revolutionize their back-office organization increasing the work flexibility of employees and enabling a more efficient collaboration between the offices. Significant is also the reduction of operational costs that technology and organizational revolution will bring to the public services through a reduction of human resources and through the automation of routine processes.

[29] "E-Government non è solo tecnologia, ma è soprattutto cambiamento organizzativo" ([84], p. 3).

4.8 Stakeholders

In the following section, we will analyze the different European G2G E-Government stakeholders. For every stakeholder group involved we will discuss their requirements and needs, as well as their worries. Because of the elevated number of people and organization generally involved in G2G projects, we will study only the major groups of primary and secondary stakeholders. Moreover, the information used in this analysis was gained through personal interviews or from surveys, a real workshop system wasn't possible to establish due to the limited time frame and resources at our disposal. Although limited, this analysis is significant to understand what the Europeans expect from G2G E-Government and can be a starting point for future analysis. In fact a complete stakeholder analysis of European E-Government stakeholders doesn't exist yet.

We have identified seven major stakeholder groups (five primary and three secondary stakeholders) involved in European G2G E-Government strategy. These are (figure 4.5): member states, non-EU states, politicians, and employees, Public Private Partnership members, citizens, Non Profit Organizations (NPO) and private business. Moreover, every member state can be further shared vertically in national, regional and local administrations. The three levels have an influence on the decisions of the member state and have to be included in the European analysis.

4.8.1 Primary stakeholders

Primary stakeholder groups that cooperate in European G2G-Egovernment are the employees, the member state representatives, the private partners involved in Public Private Partnerships and politicians (c.f. figure 4.5).

4.8.1.1 Politicians

Successful organizational changes in the private sector are supported by the highest managerial positions. Without the CEO's willingness, the change will always remain a marginal activity instead of being at the center. The public sector follows the same rules. The change in the institutions has to be strongly supported by the political leaders and administrative managers. The politicians have not only to guarantee the funds and the required resources to engage the eRevolution, but they have to give carte blanche to the changing activities. This past year has witnessed a tailing-off of interest in E-Government by the politicians. The initial euphoria has recently turned

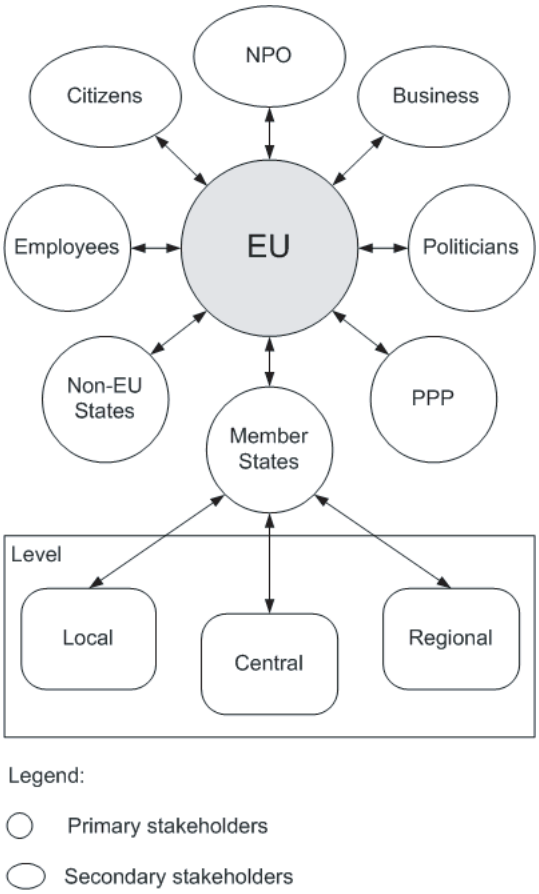


Figure 4.5: The G2G E-Government stakeholders

to skepticism because of the apparent slowness of E-Government implementation.

Politicians, as top management, have to support the G2G E-Government projects with compatible policies and proper funds.

4.8.1.2 Employees

Public Administrations' employees are often reluctant to changes and worry about the consequences that changes could have. The main fear of the employees is that the eRevolution and IT could put their jobs at risk. Another source of resistance to change comes from the oldest employees of the PAs. Their lack of knowledge in IT is the cause for their unwillingness to embrace changes. Moreover, many employees have assisted with hundreds of changes that theoretically were to improve the administrative apparatus but have only increased the bureaucracy instead.

To enable the eRevolution the E-Government responsibles have to engage in discussions with employees and with the unions. Through the discussions the responsibles have the opportunity to understand the requirements of the employees and explain the future goals.

4.8.1.3 Member states

Member states are interested in improvement of reciprocal cooperation. For member states (especially for the poorer) eRevolution can be the means to better their competitiveness and to increase their attractiveness to private organizations and European citizens. Moreover, the introduction of pan-European eService is an opportunity to reduce the administrative costs and to make the PA more effective.

4.8.1.4 Non-EU states

Non-EU states are interested in improving their relationships with the European Union and its member states. Two examples of non-EU states are given in 4.6.1 and 4.6.2.

4.8.1.5 Public Private Partnerships (PPP)

The creation of G2G E-Government involves many private enterprises. Those supply to the Public Administrations technical, logistic and managerial support. The creation of a partnership with a PA to realize G2G E-Government

systems represents for private organizations an economical opportunity and a chance to strengthen their corporate image.

4.8.2 Secondary stakeholders

Secondary stakeholders are the final client of E-Government. Their requirements are important to define the right architecture.

4.8.2.1 Business

More efficient Public Administration for business means lower transaction costs in dealing with the administrations that help the enterprises to improve their competitiveness. Moreover, creating a European G2G network will improve the free exchange of good and services across EU, thus eliminating the barriers among the member states and extending the market in which enterprises can operate. In this case, G2G E-Government is a great opportunity to improve private business and to reduce transaction costs.

The implementation of the European G2G E-Government will offer a great chance to all EU private business in the future. Not only the internal competitiveness, but also the international competitiveness and exports of the continental industry will benefit. G2G is the means for the creation of the European single market.

As citizens, private businesses ask for a major transparency of the public administration.

4.8.2.2 Non Profit Organizations (NPO)

In the last few years many public administrations have decided to outsource many services to private organizations. This decentralization of the competencies has allowed the PAs significantly to reduce their expenses and to make many services more efficient. Most of these "satellite" organizations are non profit organizations (NPO).

The NPOs that are directly related to public administrations are interested in having an efficient network of cooperation. The eRevolution means for NPOs, a reduction of the expenses to manage the relationship with the public administrations and a clearer and a faster exchange of information.

The introduction of G2G E-Government will simplify the outsourcing of many public services. This means a major likelihood for the NPOs to get new mandates.

For those NPOs that are not directly related to the public sector, the requirements are nearly the same as those of the profit organizations (c.f. 4.8.2.1).

4.8.2.3 Citizens

Citizens have a double role in their relationship with public services: they are at the same time "shareholder" and customers. Different from public organizations, the separation of the two identities is not clear. This factor creates general confusion between the requirements of the citizen as "sponsor" and the citizen as "customer". For example, a citizen could ask for more efficient and effective services while complaining about a tax raise. The public service has to balance both the citizen's identities.

The citizens in G2G Government are considered indirect stakeholders. They don't participate in the implementation process and they aren't involved in G2G activities. The citizens aren't totally excluded from the benefits that Government-to-Government creates. A more efficient public service means less cost and a better service for them.

On the other hand, they see E-Government projects as dubious. Sometimes they don't understand all the benefits and sometimes they contribute to the failures of E-Government projects. After the dotcom bubble burst, suspection around IT has grown. Moreover, the fear of the misuse of technologies and the loss of privacy creates prejudices against E-Government. Most of the worries of the citizens come from a lack in the information (or better said, distorted and incomprehensible information) of E-Government.

To awaken public opinion to what has been done and what are the future projects public administrations have to increase their marketing efforts. The customer has to be better informed about what E-Government brings. The information to citizens has to be simple and understandable.

4.9 Summary

1. European Union is a unicum as intergovernmental organization: member states delegate some of their power to EU preserving their national independence and sovereignty
2. European Union has a central role in the development of European G2G E-Government. The Union can help to find a common denominator among all European countries
3. A pan-European G2G E-Government is still far to be reality. Culture, ontology, different politic systems and national egoisms are obstacles to the European integration
4. EU authorities have already developed E-Government strategies and many member states are adapting their strategies to align to Lisbon and eEurope 2005 strategies
5. Pan-European interoperability can be divided in three layers: technical, semantic and organizational interoperability. Another important way to cooperate between different public administrations is through the exchange of best practices
6. The creation of eServices has to be undertaken in cooperation with all European stakeholders (direct and indirect)

Chapter 5

Implementing G2G E-Government

This chapter presents a framework for the implementation of E-Government visions. Inspired by the existing theories and by our analysis of the various E-Government projects, we will analyze the better way to face the difficulties of E-Government projects and to reduce the risks. After a general presentation of the future objectives of European G2G E-Government, we will sketch a strategy and an implementation environment. This study is especially based on European Union and Swiss characteristics, but can be adapted to regions too.

5.1 Introduction

Although every European country has already developed a national E-Government strategy, many of them still refrain from including a pan-European point of view in their plans. The creation of G2G E-Government systems at the European level is far from being reality. Beyond the numerous barriers (c.f. 2.6), the reasons for the failure are: the complexity of the systems to be implemented, the time required to change public institutions, the financial gap between between European countries, the ontological differences between European citizens and inefficiency the governments to coordinate their national strategies with a common defined European implementation.

Coordination at the European level is not simple. European and national organizational units have on one the hand, to balance their national, regional and local identity and their autonomy, on the other hand, they have to strive to face the central challenge of a homogenous knowledge society. European

countries have to bet together on the winning strategy. Moreover, their strategies at the national, local and regional level have not only to homogenize within the borders, but they must include the European directives.

5.2 EU objectives

The following section presents the goals that the European Union tries to achieve within the next five years.

5.2.1 European level

The European E-Government objectives are not strictly related to the Information and Communication Technology. They are embedded in a more general framework that includes economic, organizational and legal measures. As mentioned, in the preceding chapter technology is only a mean to follow a more general vision. Since the E-Government Conference held in Como, Italy in 2003, the European Authorities have realized the importance of E-Government as an enabler for social and organizational reforms that aims at improving public services and accelerating the democratic process [16]. The European Union is giving way to the pressure of Asiatic countries that (headed by China and India) are becoming always more important in the world economy. The risk for Europe to loose in competitiveness with the consequent move of enterprises and financial institutes to other non-EU countries is high. The European Union is conscious of the necessity of a revolution.

Since its constitution, the European Union has had to deal with the ontological differences and the heterogeneity between Europeans. For the moment, national identity is more important that being European. The defense of national identity (not only as a historical and cultural heir) and the national pride prevails on the advantage of the communitarian consciousness. The disjoined European society is an obstacle for European leadership. Moreover, the bureaucracy present in most European countries, and often transferred to European institutions and administrations too, creates an intricate organization unable to quickly adapt to market changes. If the gap between different national identities will be filled within the next generations, the dilution of bureaucracy can be obtained only through an organizational change within the Union. For this reason, the EU has created the Lisbon strategy (c.f. 4.3.1) that aims at revolutionizing the European Institutions to transform by the 2010 EU in the world's most dynamic and competitive

economy. G2G E-Government covers a key role in the achievement of the Lisbon strategy's objective.

To achieve the G2G targets presented in 4.4, the European Parliament and the European Council have accepted the new IDABC guidelines that will coordinate the IDA program (4.5.4) activities for the period 2005-2009 (c.f. Appendix B). These guidelines have tries to boost the delivery of pan-European E-Services. Moreover, (to confirm this trend of the Union) the European Commission will elaborate during 2005 a new eEurope strategy in substitution with the current eEurope 2005. Based on the results achieved in the previous years eEurope 2005+[1] will concentrate on the development of European eServices. The new strategy will become effective on January 2006 as declared by senior DG Information Society official Frans de Brune (Appendix C). Following these two documents we will now sketch the major G2G objectives the European Union will pursue within the next five years.

The following objectives are the result of an analysis of the decision 2004/387/EC of the European Parliament and of the Council of 21 April 2004 on interoperable delivery of pan-European E-Government services to public administrations, businesses and citizens (IDABC,Appendix B) and of the document presented by Commissioner de Brune (Appendix C):

1. Create pan-European eServices and the European network
2. Interchange of effective and efficient information at all administrative level
3. Accelerate the decision-making process and facilitate the communication between Community institutions
4. Improve the reliability, security and efficiency of services
5. Promote and encourage the spread of best practices
6. Organizational innovation and Knowledge-enhanced organization

5.2.2 National, regional and local level

Most member states have developed their own national E-Government strategy to develop their national E-Government projects (c.f. Appendix A). The level of "maturity" of every strategy is strictly related to specific national

[1] eEurope2005+ is only a temporary name of the new strategy

factors, like the financial resources, the internet penetration, the eLiteracy of the population, the organizational form or even their constitutional morphology. This heterogeneity between the European strategies creates a different speed of progress of national E-Government development and risks the increase of the technological gap between European countries. In this case, the European Union has the duty to intervene to help those countries that have more difficulties to realize the eRevolution.

If we look at the goals of every single European country, we can see many common objectives. This can be deduced by the fact that many European countries share the same problems and have the same necessities. Moreover, many strategies have been developed following the European guidelines of the Information Society. This means that the legislators have tried to combine their national exigencies with the European integration.

The number of strategies in the European countries that explicitly include G2G activities is low (Appendix A). Some countries have set as objectives many G2G goals, but concretely they have done very few. Until now, many E-Government projects are constituted only of Internet portals with unidirectional communication.

The situation at the regional and local level differs significantly from state to state. The constitutional form of the country is one of the most important factors of differentiation. In federal states, regional and local autonomy is an important obstacle to the integration, on the contrary in countries with a marked centralized power the implementation of a central strategy is possible. The centralization or decentralization of G2G strategies depends on the constitution of the country.

5.2.3 Cross-border (international)

The European objectives that we have seen before are concentrated on the development of G2G E-Government within the European Union. The activities at the international level are very sporadic and seem not to be a European priority, although the decision 2004/387/EC of the European Parliament and of the Council of 21 April 2004 on IDABC believes it is important to encourage the cooperation with non-EU countries (Appendix B).

5.3 G2G implementation pyramid

Before we start to analyze the European E-Government strategy and the implementation plans, we have to make some general considerations. We have clearly seen that E-Government is not only old Government and IT. It is a revolution of the way Governments manage their activities and of the way they interact with their customers. Moreover, G2G E-Government offers the opportunity to the PAs to increase their cooperation. In other words, G2G E-Government activities exist at an interdisciplinary level. They are not only a matter for the IT divisions, but they involve all administrative layers. In the following analysis, we have decided voluntarily not to concentrate only on the technical side of E-Government but to create an all-inclusive framework for the implementation of European G2G E-Government.

Figure 5.1 shows the G2G implementation pyramid for the European Union. To simplify our analysis, we will divide the pyramid into single "bricks". For every brick we will give an overview of the structure, the political and geographical situation and the cultural characteristics. On the basis of these results, we will suggest a realization program.

5.3.1 Knowledge Agora

Undoubtedly, we are now living in a knowledge-based society, where knowledge is at the basis of every economic and social activity. Knowledge is nowadays the most important means to achieve and maintain competitive advantage [22]. In this scenario, the *raison d'tre* of many organizations is the creation and management of knowledge [59], in fact many managers pay more attention to creating and sharing knowledge (intangible asset) than to managing their tangible assets. The problem with knowledge is that it is an immaterial commodity. Not only is difficult to determine the level of knowledge created by an organization, but an organization has to create the condition to share and reuse the created knowledge –a "site"– where stakeholders can spontaneously or in an organized way discuss, exchange opinions or even creating prototypes: the Knowledge Agora (KA)[2]. KA is neither a physical place nor a new organizational structure or position, it is the concept that contains all the organizational forms that create knowledge. KA is

[2]The name Agora comes from ancient Greece. Originally the Agora was the central place of the Greek cities. The Agora was the heart of the Polis, where, beyond the market, many decisions where taken and where the knowledge of the ancient Greeks took shape and were shared through the discussion. Differently from the Greek Agora, KA is an abstract place.

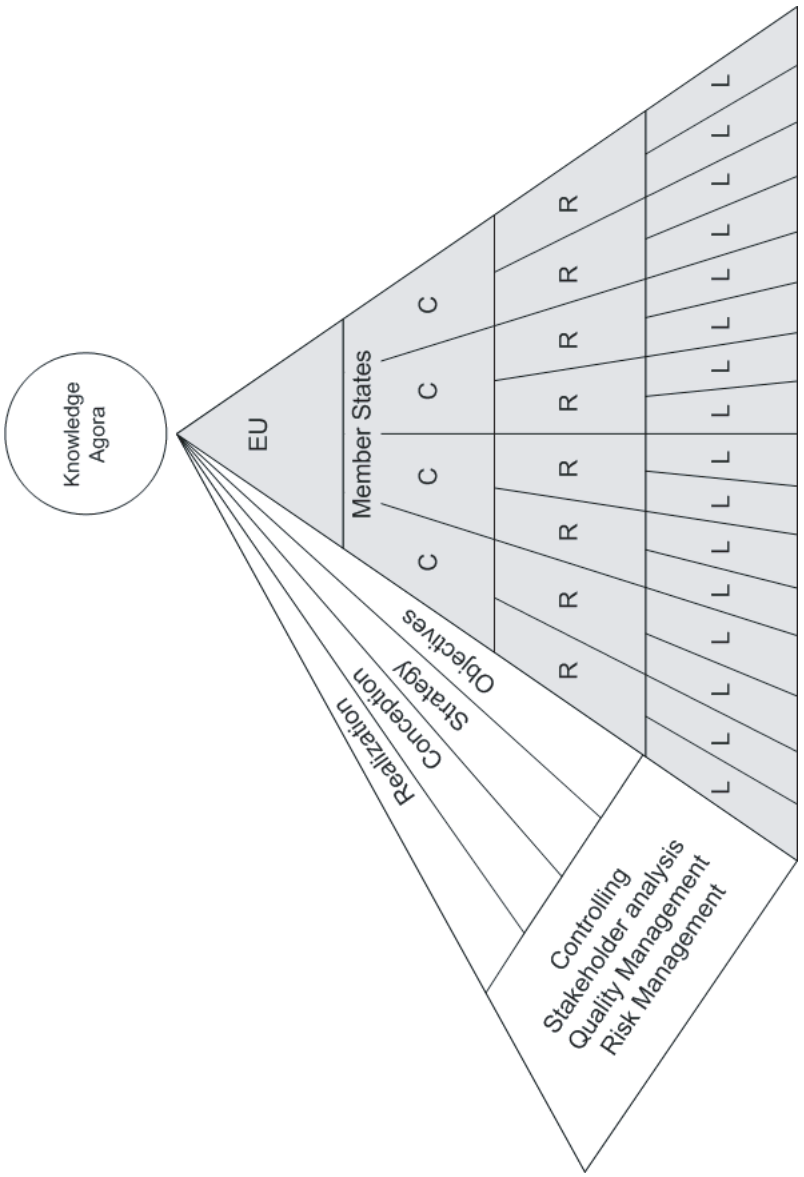


Figure 5.1: G2G implementation pyramid

the place where all knowledge activities concentrate.

The KA can be constituted by spontaneous or organized collaboration forms between people who voluntarily or involuntarily create a common knowledge repository. Examples are: community of practices [91], Quality circles, pilot projects, study commissions, private organizations (like IT enterprises or NPOs) or even R&D centers. All organizational forms included in the agora have the task to: create knowledge, share knowledge and place their knowledge at others' disposal.

Knowledge stored within the agora is the fruit of personal experiences, practical trials, studies and discussions. All this information inserted into the context of G2G E-Government represents a great opportunity to learn experience from each other. A common European "memory" is not only a great opportunity for the acceleration of the eRevolution, but it represents an enormous financial advantage for a large and common research labor and a great chance to create homogenous and compatible systems within the Union. E-Government developers have no historical heritage to learn from, hence they need to share their short experience in order to avoid costly failures. An example of agora is the exchange of best practices between European countries described in chapter 4.5.5. Through the creation of a common framework, the European Union has created a precious repository where the information of every continental project can be shared. Every person can access the Best Practices Database to achieve information about specific topics.

Shared knowledge has to be achievable by every stakeholder in a simple way. The introduction of technologies and means of communication, like databases, web portals, forums or video conferences, grants a reliability in the service accessible to every person within the EU. As we have seen in section 2.5.2.2, the explicit is only a little part of our knowledge. What we are not aware of is much. Implicit knowledge can't be explicitly transferred through a written document or delivered via Internet. The only way to teach someone our implicit knowledge is through socialization [59],[60]. The agora can also be a conference, a workshop or even a debate.

The task of the Knowledge Agora is to assure necessary knowledge to all European institutions so they can plan and develop reliable E-Government systems. A common repository can also help the weakest countries and the little local administrations giving them an important R&D resource that they could hardly afford alone. The distribution of knowledge is a means to achieving the homogenization of eServices and a major possibility to integrate

the services at the horizontal and vertical level. The KA is the "sun" of European E-Government research.

5.3.2 Organization

The organization in the EU is an important factor for a smooth introduction of G2G E-Government solutions. The organizational structure of every administration at every level has to be defined. All the primary (strategy, structure, culture and execution) and part of the secondary management practices (as we have thoroughly seen in chapter 3) must be granted.

The European Union is constituted by sovereign member states. In fact, every EU country presents autonomous Public Administrations at national, regional and local level. The development and optimization of the primary and secondary management principles has to be given, following the subsidiarity principle in force in EU, to the single authorities themselves (c.f. figure 5.2).

The single administration has to be coordinated by a central authority. In chapter 4.2.2 we have discussed the central role of the European Union as an ideal broker. In the following section, we will analyze the possibility to create a multidisciplinary group that is able to centralize the discussion, to distribute the information, to control the correct implementation of European decisions and to harmonize the different European E-Government solutions.

5.3.3 Central coordination

There is not a shadow of doubt that to coordinate the European G2G E-Government a central unit is necessary. Remember only what we have demonstrated in 4.2.2: if every European had to agree to single bilateral agreements we would have around 300 agreements! To this number, we have to add the risk that every European country could fail to achieve an agreeable negotiation because of national pride or due to incompatibile solutions. Defining a central broker is essential to granting the development of homogeneous standards and rules that will be adopted by every member state simultaneously.

The European Union is the ideal broker for the development of G2G E-Government solutions and to create the preconditions to integrate the member states' administrations. In fact the European Union has:

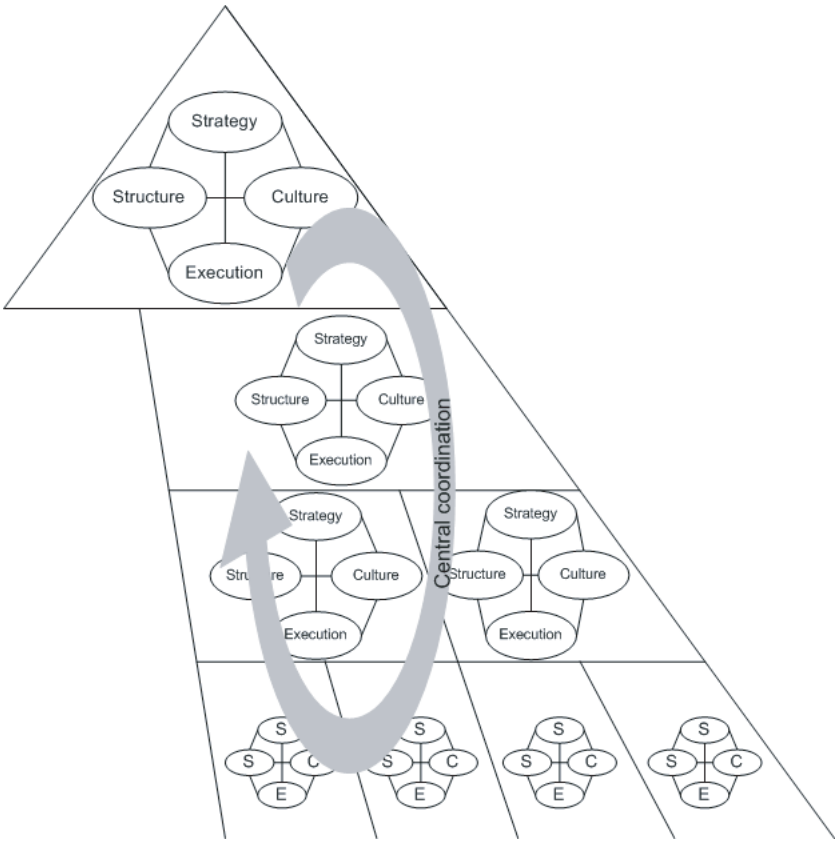


Figure 5.2: Internal structure of the administrations

- An autonomous and independent structure
- Is composed by representatives of all member states
- It is based on a common agreement of cooperation between the state members
- Has the resource and competencies to plan, coordinate and control the E-Government projects of common interest

Even if the European Union authorities haven't a real administrative power over the public administrations of the member states in respect to the autonomy of the governments, the European Constitutional Treaty that has been agreed to by every member state rules the competencies of the Union and regulates relationships among the member states and between the European Union and member states. The Treaty decrees (Art. 14 par. 2) the creation of an internal market without frontiers where people, goods, capital and services can move freely and Article 94 invests the European Council with the power to issue directives for the approximation of laws, regulations or administrative provision of the member states that have effect on the free market. Title XV rules the development of a trans-European network to facilitate free circulation. Moreover, the draft of the European Constitution legislates the cooperation between the member states in many fields where G2G E-Government is an important means (like customs, police, or even public health). The actual Treaty and the future European Constitution give, in our opinion, competency to the EU to coordinate European G2G E-Government.

Being difficult for the EU Commission to control every member state (because of the intangible nature of the E-Government and because of the number of interactions involved in E-Government projects) it is possible to enable a peer control system and allow a reciprocal regulation of European administrations.

By now at the EU level the responsibilities to develop European G2G E-Government services isn't clear. As we will see later, more than a unit is involved and the responsibilities are not clearly defined. This creates ambiguities and uncertainties on the role in the different units.

The organization and coordination of eEurope is still chaotic and often ineffective. The task to develop eEurope is assigned to the European Commission. The definition and implementation of E-Government and the

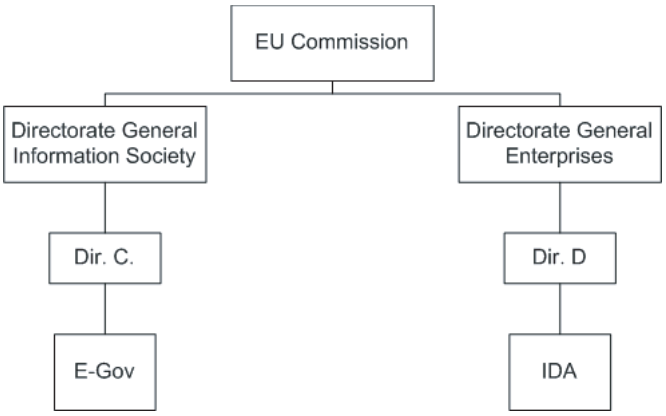


Figure 5.3: The E-Government organization in European Commission

interconnection of the administration policies and the control of the correct adoption is the competence of two different Directorate General of the Commission: Directorate General Information Society and Directorate General Enterprise. Figure 5.3 presents a small scheme to understand the competencies of the two directorates.

5.3.3.1 Directorate General Information Society

The Directorate General Information Society (DG INSFO) has the following: tasks[3]

- Stimulate the research of IS technologies
- Support initiatives towards the development of the European Information Society
- Develop and maintain a regulation framework to generate competition and stimulate the development of applications and content

DG INSFO plays a key role in the realization of the eEurope 2005 action plan. All E-Government activities, like exchange of best practices, the E-Government or the development of eServices are concentrated in Unit C6 of DG INSFO under Directorate C. Being part of the eEurope action plan interoperability between Administrations seems to be the responsability of the DG INSFO. As we will see in next section this is only partially true.

[3]http://europa.eu.int/comm/dgs/information_society/mission/index_en.htm

5.3.3.2 Directorate General Enterprises

The Directorate General Enterprise (DG E) is responsible for creating policies to enhance the competitiveness of European enterprises. Under Directorate D (service, tourism, new technologies and design industries) DG E coordinates the activities of IDA program (4.5.4). Since its establishment, IDA has undergone what Alabau defines as a metamorphosis [2]. In fact, recently IDA has revalued and revolutionized its targets to cover the interoperability of the European Administrations to achieve the eEurope 2005 goals. In 2003, IDA program released a document entitled *Linking up Europe: the importance of the interoperability for E-Government services* [19] to underline the importance of G2G for the other E-Government activities. Moreover, IDA has enlarged its competences including an eGovernment Observatory[4]. The observatory includes news and surveys on pan-European E-Government services and activities, benchmarks of the E-Government situation and progress in different European countries and various publications (studies, surveys) on E-Government. The new IDABC program that will come into force in 2006 takes a step further in the integration of IDA program in eEurope. IDABC extends its activities to the development of pan-European eServices.

5.3.3.3 Considerations

In our point of view the DG INSFO is the ideal organizational unit to coordinate the European E-Government projects. In fact, being part of the European Commission DG INFSO has the authority (appointed by the European Treaty) to coordinate the European E-Government policies, control their correct adoption and help the member states to realize their E-Government services.

On the other hand, after its metamorphosis and with the adoption of IDABC, IDA program is the ideal unit for the development of European G2G E-Government services. The fact that IDA isn't coordinated by DG INSFO but by DG E creates conflicts and incomprehension both to the EU employees and to the member state responsibles. DG E responsibilities cover only a part of the goals of IDA programs and it is an inappropriate coordination unit. Moreover, beginning from November because of the change of the Commission, the two Directorates-Generals (Information Society and Enterprises) will not be under the same Commissioner but they will be separated and assigned to two different Commissioners making harder the coordination of the DGs. Our opinion is that the IDA program has to be moved from DG

[4]http://europa.eu.int/ida/en/chapter/140

E to the DG INFSO to be more coherent with eEurope 2005 action plan. Moving IDA from DG E to DG INSFO will allow a better coordination of every E-Government activity (G2G, G2C and G2O) engaged by the EU. The creation of a single unit for E-Government has also the benefit to reduce coordination and development costs and avoid redundant projects. This will accelerate the process of modernization of the European PA. A unique unit for E-Government will create a clearer and stronger point of reference for the member states.

5.3.4 Vertical and horizontal activities

To simplify the analysis we have decided to divide the European G2G E-Government activities into the vertical and the horizontal. Vertical activities are those activities that involve different administrative levels (i.e. European, central, local and regional administration), whereas horizontal activities involve administrative units at the same level, for example projects that involve two or more regional administrations or two or more offices within a central government.

Tables 5.1 and 5.2 give a general overview of the four realization phases for both the vertical and horizontal activities.

5.3.5 The 4 implementation phases

The horizontal activities (between different offices on at the same level) and the vertical activities (projects that involve two or more different administrative levels) are divided in different implementation phases: objectives, strategy, conception and realization. In the following sections, we will give a short introduction of every phase. Tables 5.1 and 5.2 summarize the most important tasks of every phase.

5.3.5.1 Objectives

The starting point of the realization is the destination. Starting form the analysis of the current situation, "we are here now", E-Government responsibles have to formulate their objectives, "we want to arrive here". The analysis of the situation has two aspects: the internal and the external situation [65]. The first aspect checks the weaknesses and strengths of the internal organization, for instance the skills of the employees, the available resources, or the financial health. On the other hand, the external analysis has to verify the risks and the chances that the market offers, for example: the technical

opportunities (like new hardware and software solutions), the citizens' requests or even the strategies of other countries. Knowing the present, we can think about the future.

Objectives are a key element of the realization. They are the mirror of the future organization. In fact, objectives reflect the values of the stakeholders expressed in terms of vision, translating it into concrete and specific targets. The formulation of objectives has to consider the real potentiality of the organization while setting achievable goals.

The conception of the objectives can't be reserved to the European political elite. Every stakeholder involved in G2G realization must participate in the decisions. Through workshops, surveys and discussion boards, the stakeholders can discuss and reveal their requirements. It is obvious that not every stakeholder will have the same needs and often the requirements are conflicting. In those, cases the E-Government responsibles have to find a trade-off.

Objectives are not only the present representation of the future, but also they represent an important coordination means between the different administrative levels. Following the subsidiarity principle, every European administration, at the national, regional and local level, has to set its own objectives. These have to be aligned with the above authority to allow a homogenization of the different goals. In fact, many member states have already built their objectives following the eEurope 2005 strategy (c.f. 4.3.2 and Appendix A).

5.3.5.2 Strategy

As mentioned in 3.2.1, E-Government needs a strategy to be successful. This is particularly true for the European Union. The huge number of people involved and the EU morphology[5] makes the coordination of G2G E-Government projects difficult. For this reason, public administrations have to chart a long-run strategic map to legitimize their intentions.

A strategic plan is useless if it is not understandable by all in the organization. The creation of the plans needs a common standard for interpretation. How can employees follow strategies, if they can't understand them? How

[5]Remember that EU is a supranational authority with extended competences. It has not a legislative framework and has not a direct administrative power on the public administrations (c.f. 4).

can the different levels of administration align with the above strategy if they have different standards? To allow a wide comprehension and an adoption of strategies, we have to sketch a common framework to describe the strategy in the EU. In chapter 3, we have presented the Balanced Scorecard (BSC). BSC is a valid and widely used management tool. As described in 3.5.2, the BSC is an ideal methodology to implement the strategy. Adopting the BSC, European administrations will create a common standard for strategy formulation. This will simplify communication inside the organization, comprehension of the plans and acceptance of the strategy.

As we have seen in chapters 4.2.2 and in 5.3.3, the European Union has a central role in the coordination of the national, regional and local administrations. The EU is the pivot point of European integration. It can define the European objectives and, through the discussion, help to eliminate the conflicting objectives of the European stakeholders. Moreover, the EU is responsible for planning the strategy within its offices and for sketching a general strategy that could be adopted and adapted by every member state (see tables 5.1 and 5.2).

At the European level, the creation of a unique strategy that could be adopted by every member states is impossible. The creation of a strategic plan has to follow in a modular way. This means that every single authority is responsible for the creation of its own strategy. Using the common framework described above will grant the compatibility of different strategies. Every administration has to plan its own G2G strategy in accordance with the strategy of the above authorities. For example, a city like Milan will develop its strategy based on its specifics needs, but it will have to follow the policies contained in Lombardy, Italian and European strategies. On the other hand, the above authorities will draw their plans while staying aware of the differences.

5.3.5.3 Conception

In the conception phase, the strategy is translated into specific plans for the realization of E-Government solutions. Every single plan will be embedded in different realization projects. The goals set in the strategic phase will be specified and translated in short, middle and long-run projects.

Like strategy, the conception phase takes place at the European, national, regional and local level. Every administration is responsible for the conception of its own strategy.

For every project planned, the authority creates specific project teams that will be coordinated by a responsible. Many G2G E-Government projects are not strictly related to IT or IT is only a small part of the project while, the composition of the team has an interdisciplinary trait. Moreover, the funds to support every project must be allocated. For interadministrative activities (vertical or horizontal) the division of funds has to be established.

In this phase, the introduction of common standards is essential (c.f. 2.6.8.1). The sharing of the same standards will help the realization of homogeneous and compatible systems. To better understand the feasibility of projects, it is possible to develop expendable prototypes (c.f. 5.4).

5.3.5.4 Realization

In the realization phase, different projects take form and the vision becomes reality. The goals of this phase are the realization of the planned systems, the creation of the new organizational structure and the integration of services.

Within the realization, every project has to be divided into different development phases. Every phase has to deliver functional modules (deliverables). The deliverables will be connected through a set of interfaces and together will constitute the finished system.

The modular approach allows the separation of roles and the parallel progression of the project. Moreover, every deliverable will represent an incentive both for the developers and for the administrators and politicians. Seeing tangible functional modules, the developers will be convinced of the functionality of the project while administrators will obtain visible results of the projects and will not think to have wasted the taxpayers' money. Obviously, the creation of modular architecture needs more attention to interfaces. The compatibility of the different modules has to be granted.

Since most G2G E-Government projects forecast the development of complex systems, the creation of prototypes (expendable or evolutionary, c.f. 5.4) will facilitate the decision of the development approach before investing a considerable sum of money.

Starting with the realization of the pilot project, it is possible to reduce risks to implement a G2G E-Government system on a large scale. The development and the introduction of the system on targeted set of administrations

will simplify the analysis of the requirements.

	Objectives	**Strategy**	**Conception**	**Realization**
EU	•Set the general objectives for Member States •Set objectives aware of the diversities within EU •Create continuous interdisciplinary discussion teams (experts from private and public sector) •Include Member States in the discussion and decision of objectives (bottom-up) •Control the progress of the European projects	•Create a general European strategy in line with the objectives •Align the strategy with the European policies •Define objectively verifiable goals •Discuss with the State Member the services to provide electronically •Define the budget for the vertical E-Government activities and the cost division (European or member states)	•Specify the different vertical G2G projects •Define the responsibilities •Feasibility studies •Plan resources	•Phase •Modules •Pilot projects •Prototype
		Member States authorities		

	Objectives	**Strategy**	**Conception**	**Realization**
Central administration	•Set the national objectives (for every administrative level) •Align the national objectives with European Union •Create continuous interdisciplinary discussion teams (experts from private and public sector) •Discuss with regional and local authorities	•Plan the vertical activities •Respect and include the European strategy •Define objectively verifiable goals •Define the budget for national E-Government	•Specify the different vertical G2G projects •Define the responsibilities •Feasibility studies •Expendable prototypes	•Phase •Modules •Pilot projects •Prototype
Regional administration	•Align with the central objectives •Adapt the objectives to specific regional needs •Create continuous interdisciplinary discussion teams (experts from private and public sector)	•Create regional strategies (or use national) •Include national strategy •Define objectively verifiable goals •Define the budget for regional development	•Specify the different vertical G2G projects •Define the responsibilities •Plan resources •Feasibility studies •Expendable prototypes	•Phase •Modules •Pilot projects •Prototype

	Objectives	**Strategy**	**Conception**	**Realization**
Local administration	•Align with regional objectives •Create continuous interdisciplinary discussion teams (experts from private and public sector)	•Define local strategy •Include regional strategy •Define objectively verifiable goals •Define the budget for local development	•Specify the different vertical G2G projects •Define the responsibilities •Plan resources •Feasibility studies •Expendable prototypes	•Phase •Modules •Pilot projects •Prototype

Table 5.1: Vertical activities

	Objectives	**Strategy**	**Conception**	**Realization**
EU	•Set the general objectives for European Union administrations •Discuss objectives at international level •Create continuous interdisciplinary discussion teams (experts from private and public sector) •Involve politicians, administrators and employees	•Create a general European strategy in line with the objectives •Align the strategy with the European policies •Define objectively verifiable goals •Involve the highest level of decisional power •Discuss with the administrators the services to provide electronically •Define the budget for the horizontal E-Government activities	•Specify the different horizontal G2G projects and measures •Define the responsibilities •Feasibility studies •Expendable prototypes	•Phase •Modules •Pilot projects •Prototype
		Member States authorities		

	Objectives	**Strategy**	**Conception**	**Realization**
Central administration	•Set the horizontal objectives •Create continuous interdisciplinary discussion teams (experts from private and public sector) •Discuss with the responsibles of every office	•Create an horizontal strategy to join up the administrative offices •Align the strategy with the national policies •Define objectively verifiable goals •Define the budget for national E-Government	•Specify the different horizontal G2G projects •Define the responsibilities •Feasibility studies •Expendable prototypes	•Phase •Modules •Pilot projects •Prototype
Regional administration	•Set the horizontal objectives •Create continuous interdisciplinary discussion teams (experts from private and public sector) •Discuss with the responsibles of every office	•Create an horizontal strategy to join up the administrative offices •Align the strategy with the national policies •Define objectively verifiable goals •Define the budget for regional E-Government	•Specify the different horizontal G2G projects •Define the responsibilities •Plan resources •Feasibility studies •Expendable prototypes	•Phase •Modules •Pilot projects •Prototype

	Objectives	**Strategy**	**Conception**	**Realization**
Local administration	•Set the horizontal objectives •Create continuous interdisciplinary discussion teams (experts from private and public sector) •Discuss with the responsibles of every office •Cooperate with other local administrations for common projects	•Create an horizontal strategy to join up the administrative offices •Align the strategy with the national policies •Define objectively verifiable goals •Define the budget for local E-Government	•Specify the different horizontal G2G projects •Define the responsibilities •Plan resources •Feasibility studies •Expendable prototypes	•Phase •Modules •Pilot projects •Prototype

Table 5.2: Horizontal activities

5.3.6 The cross-phases

The following section analyzes the activities that the administrations have to grant through the four phases presented before. These activities are controlling, stakeholder analysis, quality management and risk management.

5.3.6.1 Controlling

The analysis of the effectiveness and efficiency of the implemented solutions has to be verified during all the activities (see 3.5).

5.3.6.2 Stakeholders analysis

Continuous contact with the different European stakeholders (at every administrative level) can help the responsibles to understand if the planned solutions match with the requirements of the final users. The stakeholders' analysis is explained in detail in chapter 3.6 and a short analysis of European stakeholders is given in chapter 4.8.

5.3.6.3 Quality management

Quality is *"the degree to which a set of inherent characteristics fulfils a need or expectation that is stated, generally implied or obligatory"* (ISO 9000:2000).

The subject of quality can pertain to a product, a service, a process, a system, a person, an organization, or an action, etc. In fact, traditionally quality can be divided into four different dimensions [55],[80]:

1. Product-based dimension: the quality is defined by the product itself
2. Process-oriented dimension: the grade of compliance of the product's requirements. In this dimension the security and the optimization of the processes are included [80]. Process-oriented is independent from the product specification. Two products can achieve the same level of process quality even if they do not have the same requirements [55]
3. Customer/user-based dimension: is related to the capacity of the product to satisfy the costumers' needs
4. Value-based dimension: this dimension is a composite between process and customer/user dimension. The value-based aspect of quality tries to define whether or not what the customer wants at a fair price has an acceptable cost

The above dimensions lack distinction between manufacturing and services. As we have seen in the definition, quality is not only related to tangible goods, but also to services, activities or even to people. This means that quality isn't a prerogative of manufacturing but it can be used in many other fields. As we will see later, services and manufacturing have substantial differences that prevent the simple use of manufacturing quality systems for services. Moreover, most of public administration's activities are related to the production and the delivery of services. For an exhaustive definition of quality in governmental services, we have to broaden the above concept of quality including services and eServices for E-Government.

Manufacturing and services are different in their essence presenting different characteristics: intangibility, heterogeneity and inseparability.

Being intangible goods, most services can't be measured, counted or even inventoried. This means that it is difficult to find a way to objectively measure the good quality of the services. Furthermore, services can't be stored and the final quality check can't be done as it can for manufacturing [55].

The satisfaction of the service consumer is strictly related with her/his subjective of the fulfilments of her/his needs. Because it is difficult to objectively determine quality and because the priorities of costumers are very heterogeneous, the definition of a common denominator of quality is very difficult. To complicate the definition of a common quality is the nature of public administration to serve all the citizens and organization indiscriminately. The public services can't be provided only to a precise target with the same needs but it has to satisfy everyone.

Different from product, services are inseparable goods. This means that they have to be produced at the same time they are consumed. Quality of service is related to the quality to create and to deliver the service (process quality) and with the ability of the supplier to identify the customers' needs before the service is delivered. In few words, the suitability of the service can be determined by two related factors: by the service itself and by the process to create and to deliver the service. Quality Management (QM) in public service has to take care to both and be able to predetermine the reliability of a service from its process of production.

Beyond the quality of public services, G2G E-Government responsibles have to care about the quality of the delivery of services, i.e. the quality of the Information Systems. The quality of the infrastructure is an important

aspect of the quality of eServices. The consistency of data, the design of secure systems, reliable networks and applications' quality are examples of quality requirements to the eServices (figure 5.4).

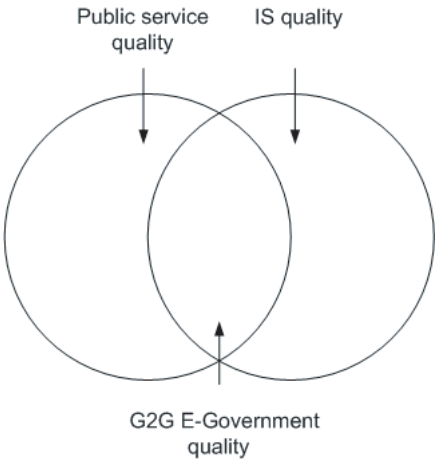


Figure 5.4: G2G E-Government quality depends on both the public service quality and the IS quality

To grant the quality of its services public administrations have to setup a Quality Management System (QMS). *"A Quality Management System is the organizational structure, responsibilities, procedures, activities, capabilities and resources that together aim to ensure that product, processes or services will satisfy stated or implied needs"* (ISO 8402). QMS contains all the essential elements of QM. A typical QMS infrastructure is represented in figure 5.5.

First of all the organization has to define its QM policies.

In the quality planning phase, the responsibles have (in cooperation with the stakeholders) to define the quality goals, and weight and classify them. The goals have to be unambiguous and quantitatively testable to allow an objective inspection. Every activity to achieve the desired objective as well as the required budget has to be included in the quality plan. The result of the planning phase is the outline of quality management. The quality plan has to be known and accepted by all the stakeholders involved.

Quality control is based on the results of the planning phase. The control has a monitor (analytical approach) and a correction (constructive character) function within the realization phase to assure the achievement of the

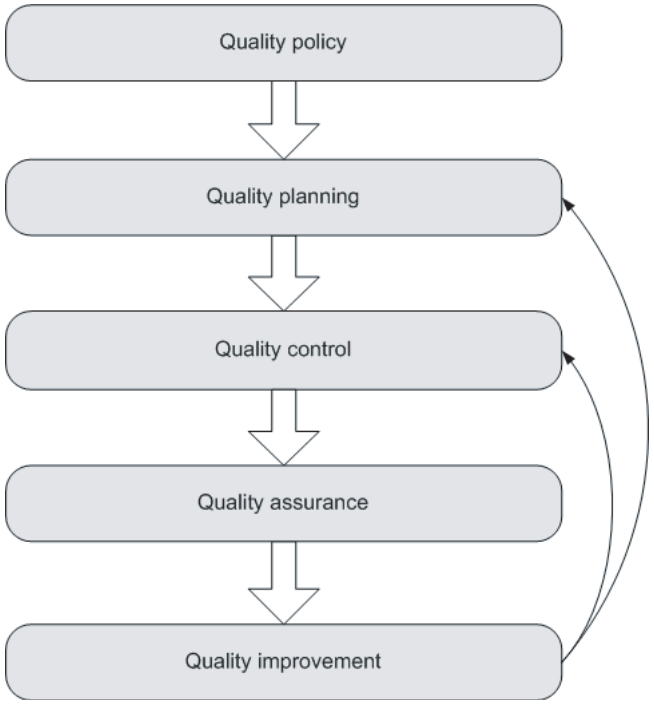


Figure 5.5: Quality Management System (QMS)

required quality objectives.

Quality assurance grants the fulfilment of the quality requirements. It is concentrated on the smooth running of QMS processes. These are possible measures that can be undertaken to grant Quality assurance:

- Audits of the QMS
- Certification of the QMS
- Action plans to improve the QMS

Quality improvement activity aims at the improvement of the QM processes through the correction of the quality gaps found in quality control activity and the adaptation of the QMS [34].

5.3.6.4 Risk management

Nobody can predict the future with certainty. Changes in the environment, the market, the structure and culture of the organization can upset the starting conditions. Everything we plan (strategies or projects) and realize is

strictly related to future uncertainty and is prone to risks.

Risks are: *"an expression of the danger that the effective future outcome will deviate from the expected or planned outcome in a negative way"* ([30], p. 556). Organizations haven't to suffer the risk as if it was an uncontrollable fatality. This risk-averse attitude could have more tragic consequences than a "just do it" approach coming from the total indifference to risks. Managers and administrators in such a condition don't trust their gut instinct and suffer from decision paralysis [31]. Neither of these two extreme attitudes (risk-averse or just do it) are suitable to deal with risks. On the contrary, an active and close management of risks and of the caution that can be adopted to reduce them can reduce the uncertainty and allow a better reaction to negative deviations which transforms risks into opportunities. Fundamentally, risk management is the practice of analyzing, quantifying and controling risks in order to diminish their potential negative effects. Managers and administrators have to include the management of risks in every phase of the realization.

What follows is a framework to determine, catalogue, prevent and diminish risks (figure 5.6). This approach is valid at every level of the organization and at every realization phase. What changes is the nature and consequences of risks: many strategic risks are different from those of a project or of the realization process. After the presentation of the methodology to manage risks we will sketch a list of general risks that can intervene in E-Government realization.

The future consequences of the decisions made today can't always be anticipated. Beyond the knowable factors that could be discovered through the right analysis there remains a certain level of residual uncertainty that has to be considered. Before the risks can be discovered and analyzed, it is important to understand the different degrees of uncertainty and the possible scenarios. According to Courtney, Kirkland and Viguerie we define four different types of future uncertainties (figure 5.7) [21]:

1. Clear result: it is possible to define a forecast precise enough using typical analysis tools. The residual uncertainty at this level is irrelevant. The risks are unambiguous and their entity is simple to determine

2. Alternate results: the future can have more than one alternative. Few discrete outcomes can be envisioned and the analysis can't forecast with precision which of them will occur. All the risks for every alternative scenario have to be identified and analyzed. At this stage, the future

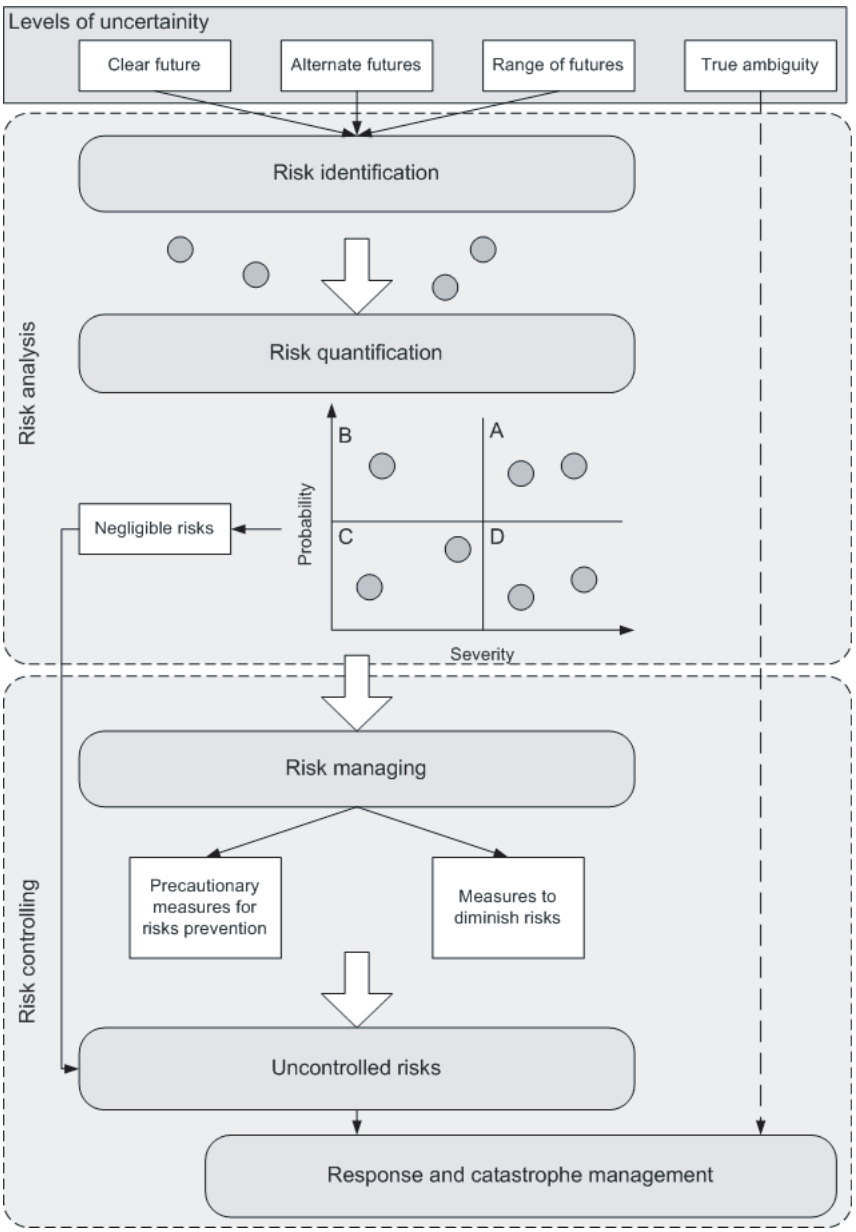


Figure 5.6: The risk management framework

is not only dependent on our decisions, but also it can be affected by external decisions or events

3. Range of results: the future can be envisioned in a range of alternatives. Different from level two, these alternatives can't be defined with precision and the identification of risks can be accomplished only with a statistical precision

4. True ambiguity: at this stage it is not possible to forecast the future. The level of certainty is too low and the risks are impossible to envision. Generally this category includes events that can be rarely controlled by organizations and that are unexpected (like earthquakes, storms, political assassinations, wars or even terrorists attacks). Because of the impossibility to forecast the future, all the risks at this level can't be defined and their consequences can only be softened with a well-organized management of catastrophes and an efficient incident response

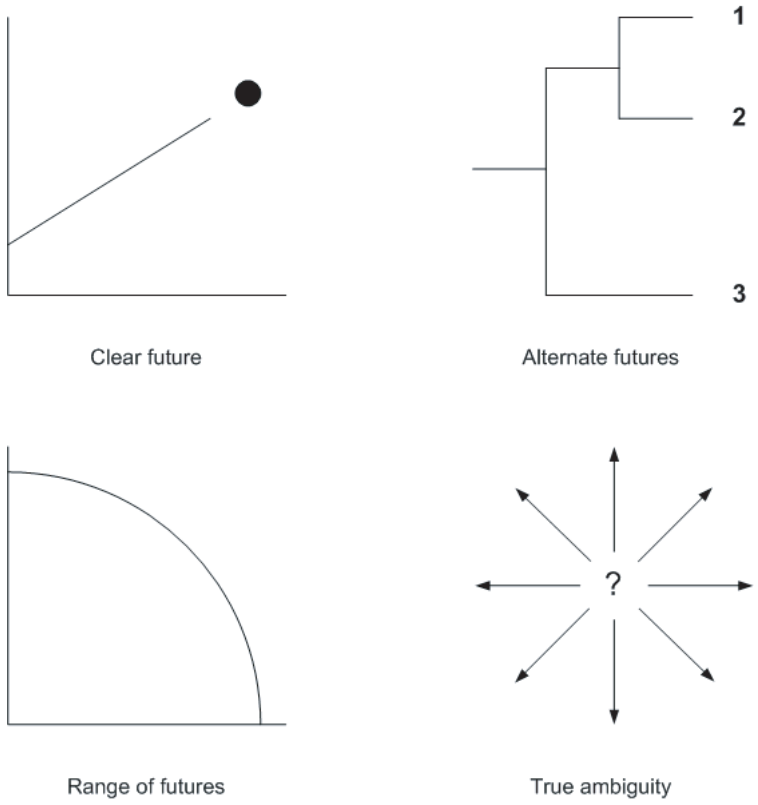


Figure 5.7: The four level of uncertainty (source:[21])

External risks	**Strategic risks**	**Operational risks**	**Financial risks**	**Personal/cultural risks**
•Phenomena of the nature •Market and sector changes •Market booms and depressions •Technological changes •Changes in international political set-up •Change in political asset (new elections) •Mistrust of the customers (citizens and organizations) •Mistrust of international allied states or international organization	•Wrong resource allocation •Insufficient resources •Corporate governance risks •Lack of political support •Non responsive organization •Unrealistic objectives	•Unresponsive organization •Project delays •Insufficient and jerking communication •Uncontrolled partner organizations •Too complicated projects •IT security	•Inadequate financial resources plans •Lack of liquidity funds •Credit risks •Bonds expiration	•Difficulties of communication between the people involved in the project (for example administrators and IT experts) •Resistance to change of the employees •Departure of key people

Table 5.3: Cataloging of the risks and some examples

During the realization of an E-Government project all the four level of uncertainty can occur simultaneously.

After all possible outcomes have been analyzed, it is important to analyze (identify and quantify) the related risks.

The crucial question for the identification of risks is: *"What are the possible disturbing factors to the achievement of objectives that can occur?"* Basically, we can define five risk categories: external risks, strategic risks, financial risks, operational risks and personal/cultural risks. Table 5.3 gives an overview of the five typologies of risks and some practical examples.

Managing all the risks identified would be impossible. We have to set priorities and identify the risks that we have to care about. In risk quantification, we try to classify the risks by their occurrence probability and their severity (figure 5.8). Risks with high incidence probability and consequences (A) have to be avoided. Risks with low severity and high probability (B) are not classified as risks, but more as quality and design problems [31]. These risks are closely related to quality management 5.3.6.3 [12]. The introduction of precautionary measures or measures to diminish risks for cases with neither high probability nor severity (C) should be undertaken only if the forecasted losses is greater that the cost of the measures. Every risk ranked with low probability and high level of loss (D) can be mostly avoided with preventive measures like governance or controlling.

From this classification, we can define the most dangerous risks, also, the negligible risks (those with low probability) can be defined. Those risks that represent a real threat to the success of E-Government projects have to be reduced or even avoided.

"Prevention is better than cure". Once the probability and the severity of every risk have been defined it is important to undertake preventive actions. Risk controlling includes measures to avoid or to diminish the residual and uncontrolled risks.

It could be possible that, even with organized risk management, some risks go unnoticed by the responsibles. The occurrence of these residual risks can be isolated only with a precise incident response and catastrophe management. Undervalued, unnoticed or unforeseen risks can jeopardize the realization of E-Government. Catastrophe management is the last resource.

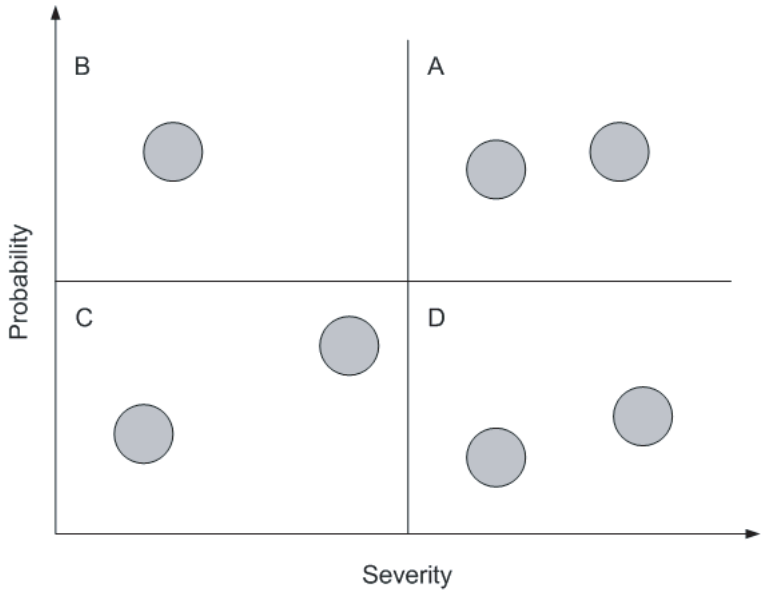


Figure 5.8: Size and likelihood of the identified risks

Because of their dynamic nature (the environment, strategic, operational, financial and personal conditions change continuously), risk analysis and controlling have to be undertaken more than once for every phase.

5.4 Prototyping

Since its formal introduction in the early 1980s to contrast the inefficiency of the waterfall developing model [15], prototyping has gained a widespread approval as a valid solution during these years. According to Avison and Fitzgerald, nowadays approximately 70% of the ICT projects include prototypes. The following increase coincides with a drop in the costs of software tools and the net acceleration in the processes of development[6]. Both factors have contributed to simplifying the creation of prototypes. It has to be clear that prototypes are not a panacea: they can't turn a bad project into a good one. In some cases, the introduction of prototypes during the development can help to anticipate the problems and to avoid a waste of money. In this section, we introduce the basic concepts of prototyping and when it is indispensable to create prototypes. Afterwards we will analyze the specific G2G E-Government's situations and we will find a valid model for prototyping.

[6]Center for Technology in Government, Stakeholder Analysis, www.dfid.gov.uk/foi/tools/chapter_02.htm (accessed on May 27, 2003).

We can distinguish between two different types of prototypes:

- Expendable prototype: fast developed prototype that has only a demonstrative purpose and can't be used as a basis for real system
- Evolutionary prototype: can be enhanced to become the starting point for the development of the real system

Prototyping can be useful in the following situations:

1. Project size (big projects)
2. Requirements determination
3. Complexity (complicated projects)
4. Users involvement
5. Difficult communication between the stakeholders

Most E-Government projects around Europe are still at a conceptual stage and the steps that have to be taken in order to develop the G2G applications are not clear. Normally E-Government projects can be considered big projects. In fact, even at the local or regional level there are many people involved in E-Government projects either as direct or as indirect stakeholders. The size of this kind of project, the great number of interaction between stakeholders and the youth of the E-Government subject increase the risk of failure of E-Government projects remarkably. The danger of a failure rises in the case of G2G applications. The coordination between different offices (at the national or even at international level) is a risk factor that can't be ignored. Governments can't afford to invest millions in projects with an uncertain future and in applications that have a high risk of failure. To reduce the uncertainty and avoid an enormous waste of money of missed projects, the European Union (including the member states) have to create prototype programs. With the availability of software tools that have reduced the costs and accelerated developing processes, the creation of prototypes is possible nowadays.

As mentioned before, most E-Government applications are in embryo. This means a high uncertainty about whether or not they will become crucial applications or disappoint the expectations. The introduction of prototypes and pilot projects will help responsibles to understand the feasibility of big E-Government projects.

5.5 European project examples

In this section, we present three practical examples of European G2G E-Government projects. To have a broader overview of the European scene, we have chosen two different typologies of G2G E-Government projects. The first two (GUIDE and E-Mayor) are managed by consortiums composed by private and public organizations (like public administrations or universities) and partially supported by the European Community. The last is a project of common interests of the IDA program, hence coordinated and managed directly by the European Commission. Moreover, the three projects are developed at different administrative levels: E-Mayor projects involve Small and Medium sized Government Organizations (SMGO) in EU, GUIDE tries to create a system that could fit the needs of every European administration and COWEBS involves principally the European Union as central authority and the member states' governments. Despite their diversity, the projects have, as we will see, some similarities in the development approach, like the creation of pilot systems or phase development.

5.5.1 E-Mayor

The interoperability of European Small and Medium sized Government Organisations (SMGOs) through secure Web services is the major task of eMayor project. Aware of the limited budget that small and medium municipalities have eMayor will offer affordable services.

Fourteen different organizations (7 technology providers, 3 universities and 4 municipalities) from different European countries are taking part to the project. eMayor is taking part to the European eGovernment R&D program and is sponsored by the European Commission.

eMayor project has started on January 2004 and will finish in February 2004. It is divided in 6 different phases, the Work Packages (WP):

- WP 2: Analysis and Research of the eGovernment Requirements of SMGO
- WP 3: Design of the eMayor Platform
- WP 4: Development of the eMayor Platform
- WP 5: Operation and Trial of the eMayor Platform
- WP 6: Pilot Assessment and Fine Tuning

- WP 7: Exploitation, Dissemination and Stakeholder Liaisons

For the moment Work Package 2 has been completed. eMayor responsibles are now in the middle of WP3.

eMayor project has a very well organized information system. The geographical distance of the project responsibles has been reduced with the introduction of a common mailing list and a repository portal, where documents and messages can be stored and can be accessed later.

5.5.2 GUIDE

GUIDE is a project financed by the European Commission within the purview of the European 6th Framework program. The project is directed by a consortium of 23 companies and universities from 13 different European countries (including Switzerland) leaded by Siemens Switzerland, British Telecommunications (BT) and Visa.

GUIDE project tries to overcome the heterogeneity of European identification and the authentication initiatives for access to public services, that endangers the constitution of a seamless pan-European service, establishing a single standardized identity management architecture. GUIDE aims at becoming a backbone for the E-Government services.

In the opinion of the responsibles, the creation of an open identity system will offer a higher quality of pan-European services reducing administrative costs, diminishing the likelihood of mistaken identity or of an identity research failure and a higher quality of exchanged data. GUIDE has the potentiality to reduce difficulties to enable the free circulation of people decreed by the European agreement and by the bilateral agreements between EU and Switzerland. Furthermore, GUIDE project is in line with the eEurope strategy.

The development of the GUIDE project is divided into many phases. Every phase has to deliver a so-called deliverable. Every deliverable will be inspected by the European Commission that has the power to establish whether or not the project is following the agreed project plan. If the commissioners believe that the delivered solution doesn't match with the plan they can sanction the consortium and ask for an adjustment at the expenses

of the consortium[7].

By now GUIDE responsibles are analyzing different requirements to find a reliable architecture.

GUIDE project has to surmount many obstacles to find an acceptable solution. Problems like the difficulty to find a unique and unequivocal identifier for European citizens and organization, the incompatibility of identification systems or the different use and organization of information around Europe are only few examples.

5.5.3 COWEBS: Coordination of Websites

The aim of COWEBS project is the creation of a common multilingual portal pooling social security information of the European citizen from every Member State. The project is coordinated by IDA in cooperation with DG Employment and Social Affairs. COWEBS will be interesting for those workers that are retiring and who have worked in different member states. The portal will give them the necessary information on their pensions (where they have to apply, complementary benefits for family, etc.). The creation of a central portal involving all the member states will force member states to centralize their information and to cooperate in social security matters.

For the moment, COWEBS, a pilot project portal limited to the pension sector that involves seven countries (France, Germany, Greece, The Netherlands, Italy, Spain and the United Kingdom) is under development. The budget allocated by IDA for 2003 - 2004 amounts to 750,000.

In the second instance, the portal could be integrated in the European one-stop portal as module.

5.6 Summary

1. Because of its singleness European Union needs a specific realization framework. The vertical and horizontal activities have to be organized in order to respect the sovereignty of every European country and the subsidiarity principle
2. European Commission has a central role in the realization of European

[7]This rule is valid for every enterprise or consortium taking part to European 6th Framework. It is not a specific rule for GUIDE.

G2G eServices. It has to coordinate every stakeholder and assure that member states realize compatible G2G E-Government systems

3. The exchange of knowledge is essential for the homogenization of G2G systems
4. The G2G implementation pyramid is a specific implementation framework for the European Union and its member states. The realization can be divided in four phases (objectives, strategy, conception and realization). During every phase the cross-phases (controlling, stakeholder analysis, quality management and risk management) have to be assured
5. The use of prototypes during the realization of G2G projects can help the responsibles to anticipate problems and avoid a unnecessary waste of money

Chapter 6

Case: the Swiss G2G E-Government

This chapter presents the case of E-Government in Switzerland. Being a multilingual confederative State, Switzerland has many parallels with the European Union that can be useful to analyze and to compare the two realities. Moreover, Switzerland is not a European state member: the relations with the Union are regulated through a set of bilateral agreements[1]. This relationship of concordance can have an influence on the decision of the standards and on their collaborations.

After a short introduction to the Swiss institutional system, we will analyze the E-Government strategy at international, the federal, cantonal and communal level to understand the actual state of affairs and the objectives of the Helvetian authorities. At the end of the chapter, we will analyze the influence E-Government can have on the federal system that characterizes Switzerland.

6.1 Introduction to Swiss governmental organization

[2] Switzerland is a multilingual (with four official languages), multi-ethnic and multi-confession nation. Since 1848, Switzerland has been organized

[1]Currently Swiss Authorities are examining the acceptance of second bilateral agreements as a continuation of the first bilateral agreements.

[2]This is only a short introduction, for more information about Swiss political system: www.admin.ch.

as a confederation of states[3] that preserves their sovereignty. The Swiss Confederation has three different levels of authority:

- Confederation: is the central authority. The authority of the central administration is defined by the Federal Constitution
- Cantons: Switzerland is constituted of 26 cantons. Every canton is an independent republic with its own government, parliament, constitution and courts
- Communes: Every canton is composed by different communes that represent the local authorities. Communes are the smallest Swiss organizational entities. The autonomy of the communes is regulated by the cantons

As we will see in detail the particular organization of the Swiss Confederation creates a challenge for the implementation of E-Government. Like for the EU, the decentralization of power, the independence and the multilingualism of the cantons jeopardizes the development of common and compatible E-Government systems.

6.2 G2G E-Government in Switzerland

G2G E-Government strategies and competencies are in Switzerland partly centralized in the Confederation and partially conducted by single cantons and communes. The devolution of powers to the cantons determines a decentralization of E-Government projects at the regional and local level. The risk is to create solutions that are incompatible or that work together only with expensive interfaces. The coordination between the different authorities has to be achieved with discussion and compromise between the different actors (including the citizens).

Figure 6.1 shows the different G2G dependencies of the Swiss Government. Inside the borders, the vertical dependencies are among the Confederation, the cantons and the communes. Horizontally, every single office at the same level is involved in the G2G E-Government. At the international level, the Swiss Government has to create the preconditions to create cooperation with other partner countries (for example China).

[3]Switzerland is the second oldest confederation of the history after United States

Switzerland is encircled by countries that have joint European Union ideals. To avoid exclusion from the European scene the Swiss Government has to find the appropriate way to cooperate with its neighbours to better integrate services and to share important information. E-Government can be the enabler of the Swiss-European coordination.

Like many other countries, Switzerland takes part in supranational organizations, such as the UN that aims at consolidating their relations and to accelerate the communication and exchange of information.

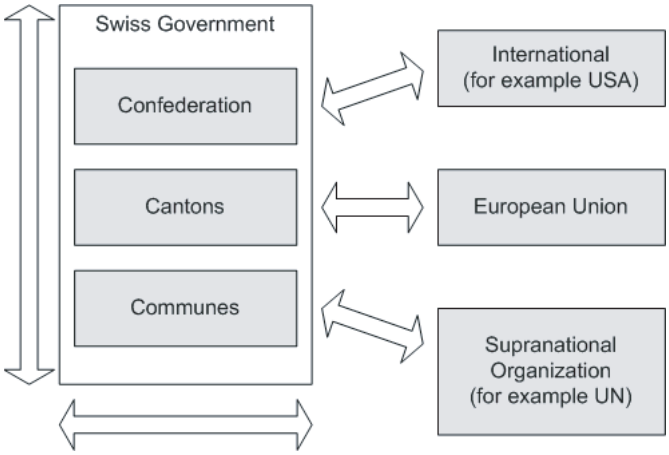


Figure 6.1: The Swiss G2G dependencies

The Swiss G2G E-Government Strategy has to consider and to include all these requirements.

In the following sections, we will analyze E-Government projects and the different activities at every level. Moreover, we will see if there exists projects and solutions aiming to integrate the different offices.

6.2.1 Confederation

In the next section, we will analyze the federal E-Government strategy and we will see the state of affairs at the highest administrative level.

6.2.1.1 Strategy

The Swiss Confederation released an E-Government strategy on February 2002. In general, the strategy contains the following four objectives that federal administration intends to pursue [24]:

- Efficiency: improve the information and communication flow between different offices and with the customers
- Flexibility: capability to adapt to a more dynamic market
- Transparency: clear with functionality of political processes
- Participation: increase the participation of the citizens to governmental activities with initiatives like E-Voting

The G2G competences of the Confederation are:

- The introduction of E-Government inside the three confederative powers legislative, executive and judiciary
- The horizontal integration between the Confederation's offices[4]
- The cooperation between the Confederation, the cantons and the communes (vertical integration)
- The collaboration between the cantons
- At the international level, coordination with other countries, the European Union and the supranational organizations to which Switzerland is affiliated

The Confederation's E-Government strategy is structured in a modular way. Of the three modules, two concern the Government-to-Government interdependences: first creating the conditions to introduce E-Government and second, networking (figure 6.2).

1. **Create the conditions**
   This module concentrates on the creation of the necessary technological, organizational and security conditions to introduce E-Government. An example is the GEVER[5] project that aims to create integrated digital working processes inside the administration.

[4]In the Confederation's E-Government strategy the horizontal relations are referred as G-I. We take the liberty of including these dependencies to the Government-to-Government discussion.

[5]`www.isb.admin.ch/internet/gever/index.html?lang=de&PHPSESSID=55108f9686f5452b779920ccaea03467`(accessed on June 2004)

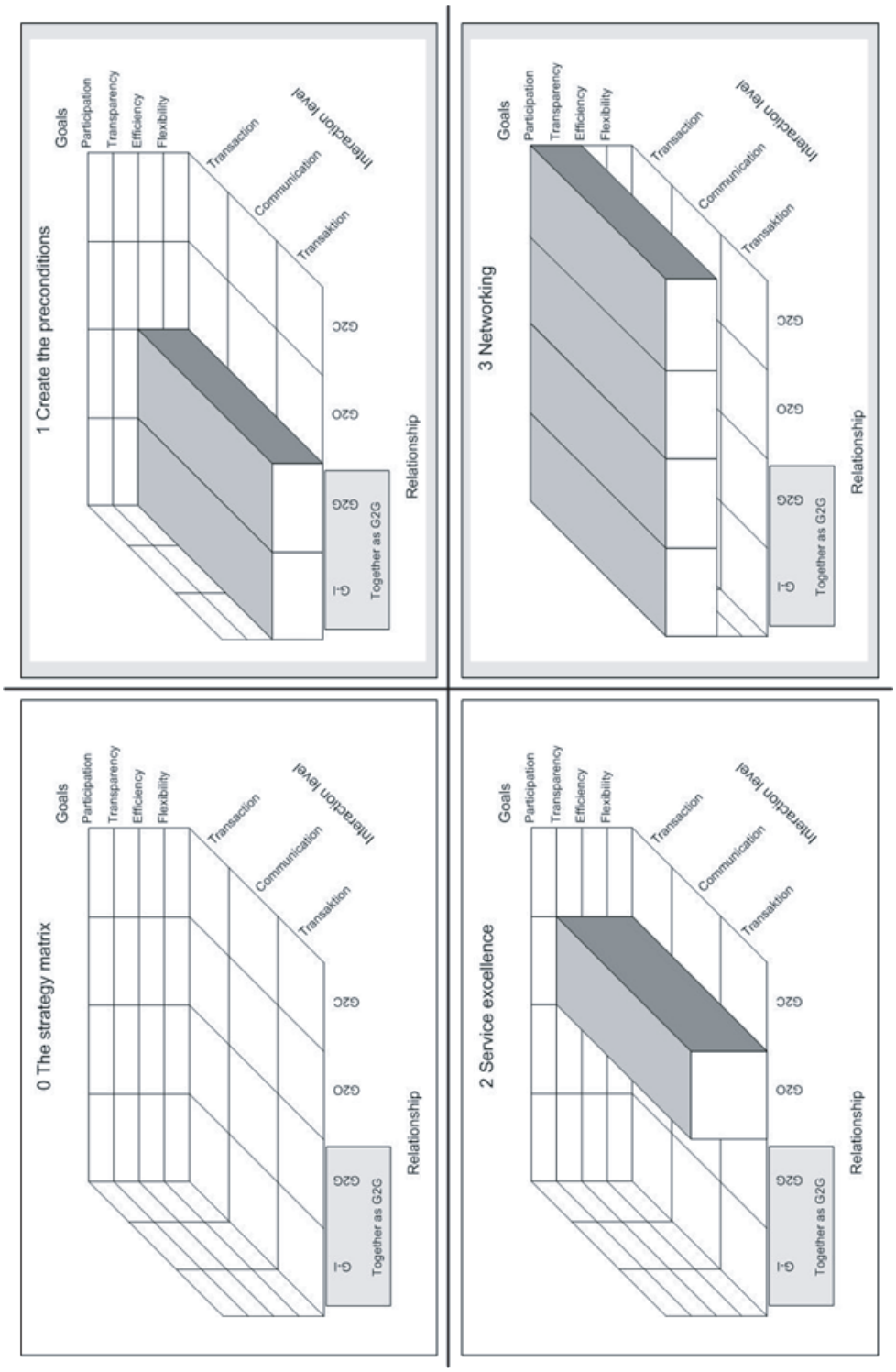


Figure 6.2: The four modules of the Confederations E-Government strategy

2. **Networking**
   Networking between the offices at the federal, cantonal and local level is the priority of this module. The two priorities are: improving the information and communication between different offices and creating and introducing automated transactions between different civil servants. An example of the module is the famous and at the same time ill-famed[6] Guichet Virtuel[7] ch.ch. The objective of this service is the centralization of the federal, cantonal and local administration in a unique one-stop front-office. Until now, the Guichet Virtuel hasn't respected the milestones. The mistrust of the Swiss one-stop service has led the cantons to shorten the planned budget by two thirds.

6.2.1.2 State of affairs

After two years of E-Government strategy, we can state that the communication and the exchange of information between different offices have boosted. The preferential medium is E-Mail, intensively used by 86% of civil servants [76]. Communication is still primitive and the use of E-Mails is just seen as a new communication way, alternative to the telephone or to the internal post. The use of Intranet has grown as well. Many civil servants upload and download important documents from the administration's servers. Real management of processes and a process-oriented exchange of documents is still absent. A recent benchmarking survey conducted by Capgemini ranked the Swiss E-Government sophistication 15 out of 18 European countries [14]. The Swiss E-Government jerks along.

If we look closer at the E-Government strategy of the Confederation, we notice a lack of tangible actions to really revolutionize the organization. The impression is that the heart of the eRevolution has not been touched by the representatives of the Swiss E-Government. There could be many reasons for this: the obstacles to revolutionize an old and well-rooted system, the complexity of the change, the lack of funds, the absence of leadership or simply the absence of goodwill to revolutionize a system that satisfies all. Another reason for this slow implementation can be traced back to hostility of the old guard that has less affinity for technology. The new civil servant generation seems to be more open and more willing to use new technologies[8].

[6]The "Guichet Virtuel" is widely criticized and considered an enormous waste of money.

[7]Swiss VIrtual Counter http://www.ch.ch

[8]Estonia is the country, of those that recently joined the EU, that has showed more confidence with the new technologies. One of the reasons is the relative young average age of the Estonian leaders. The Estonian Prime Minister Juhan Parts is only 37 years old.

Because of the subsidiarity principle, the Confederation leaves the cantons and the communes to manage their internal E-Government projects autonomously. The integration of the services between the cantons is distributed between the cantons and the Confederation that assume the responsibility for the coordination and the mediation. Achieving a full coordination between the cantons is a hard task.

To increase the coordination of Swiss E-Government projects the Swiss Federal Department of Finance has promoted the eVanti initiative to institutionalize the exchange of best practices between Swiss E-Government actors and to establish a benchmarking environment to monitor the progress of the Swiss e-Government. The initiative is under the responsibility of the Organ for the Information Technology strategy[9]. eVanti has the ambition to facilitate the creation of E-Government solutions, to decrease the project length and to reduce the implementation costs [10].

Unfortunately, eVanti isn't enough to boost the development of Swiss E-Government alone. eVanti doesn't grant the consolidation of data and processes between Swiss institutions. The initiatives pursued by eVanti are basically right, but they suffer from long implementation time and from the higher abstraction level: most of the projects are cancelled already during the design phase [76].

For the moment, most of the E-Government projects focus on the national level. As we will see later, the integration of the offices at every level of the confederation are the major interests of the E-Government responsibles[11]. The external cooperation to develop the cross-country system is rare. At the European level, Switzerland is actively cooperating with two of the four neighboring countries (i.e. France and Germany). Other international projects in Switzerland are promoted by private or academic organizations[12].

[9]Informatikstrategieorgan Bund ISB, Unit de stratgie informatique de la Confdration USIC

[10]http://www.evanti.ch (accessed on September 2004).

[11]The only example of successful international cooperation between Switzerland and the European Union is fingerprint database to control the immigration.

[12]For example University of Zurich is working at the international level for eMayor project to integrate the Municipalities around Europe.

6.2.2 Cantons

The services offered by every single canton are very varied. It is difficult to trace a common state of the E-Government at this level. Many cantons offer only information on their WebPages, other allow the citizen to download forms and the more advanced are undertaking complete and expensive projects to allow the integration of services.

Like the Confederation the cantons have already developed an E-Government strategy and are trying to introduce E-Government as an enabler for the efficiency of the service.

The freedom to plan and develop E-Government services that cantons have, can cause a heterogeneity of services difficult to arrange. The federal organization prevents the central authority to introduce a forced central strategy to homogenize the services. Aware of the federal principle, the Swiss confederation has created a central board (eCH[13]) where all Swiss cantons and communes can freely participate to discuss the possible standardization measures. In this way, the Confederation assures a central framework at which every canton can refer, thus safeguarding the cantonal sovereignty.

The introduction of G2G E-Government in Switzerland could be to the poorest cantons' advantage. Thanks to the homogenization of services and the lowering of geographical barriers, these cantons could benefit from more competitive power and increase their attraction as economic centers.

6.2.3 Communes

The state of the things at the local level is very fragmented. While many communes have already reached at least the first development stage (c.f. 2.1) others are still without an E-Mail based communication system yet. Between these two extremes, there is a myriad of different and heterogeneous solutions.

During 2003 the number of municipalities that owned a web site was 63% (30% more than in 2000) [5]. The presence of a first stage E-Government system is not (in accordance with [5]) directly connected with the financial situation of the commune, but more with the real necessity that communes have to create an E-Government system. For example, communes with less than 500 inhabitants and with a limited number of employees will prefer personal contact with the population. The percentages contained in figure 6.3

[13]http://www.ech.ch

confirms this relationship between web-site presence and number of inhabitants. In fact, the more the number of residents grows the more the likelihood that the commune has a web page. For bigger communes (like cities), the communication is difficult because of the high number of people that are involved. Through an internet service, the local authority can improve the communication (one-way, bidirectional or even multidirectional). In general, the number of people who that live in communes without an online presence is relatively small: 700'000 of the 7'261'200 domiciled.

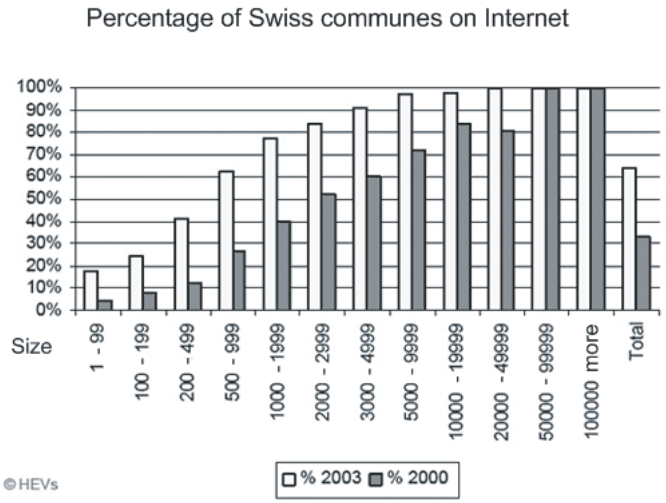


Figure 6.3: Percentage of Swiss municipality with a web site (source [5])

Until now, few Swiss municipalities have developed an E-Government implementation strategy[14] because of the limited financial and human resources at their disposal. The objectives of those communes are mostly related to the improvement of efficiency and the quality of the services [77].

In most cases, the introduction of new technologies doesn't influence the internal organization of the local administration and only 17% of Swiss communes have introduced or will introduce changes to their actual organization [77].

The majority of the communes have simple Internet services (static pages or virtual bullet boards). The integration at the local level is often judged as a manoeuvre of the cantons to better control the local civil servants. Even if

[14]Only 20% of the communes have created E-Government strategies and are formally developing E-Government projects, for example the City of Zurich or City of Basel.

most Swiss communes are still at the beginning of cataloguing, a good 27% (or 17% of all the municipalities) have passed the first step of integration and are still offering transactions. But the integration at the vertical and horizontal level is not easy to reach. Complicating the E-Government implementation are not only the financial and human resources. At the local level, an administrative operative standard doesn't exist. Every single local administration has developed its personal standards to collect data and their own working processes. This heterogeneity of processes is a real Achilles' heel for the integration.

The cantons and the Confederation have to coordinate integration at local level. Cantons can help communes to open the discussion to create the conditions for integration. Moreover, cantons can balance the different budgets and subsidize the poorest communes.

Subscribing to central coordination services can help communes to save implementation costs and to create a standardized environment. Examples of central coordination centers are eCH and eVanti (c.f. 6.2.1.2). Moreover, many local administrators seem very interested in exchanging best practices with other communes to reciprocally exploit their experiences [77].

The canton has the responsibility to help the communes to adopt interoperable architectures and interfaces that could allow the exchange of information (where needed) and the compatibility of services. Moreover, of interest is also the vertical integration between the communal and the cantonal services. The exchange of information between communes and the cantons are very common. Lacking standards, the communication at the vertical level is often difficult. The heterogeneity and the incompatibility of the services and data mean longer administrative processes and an increased redundancy in the data that can cause an inefficiency of the service.

A successful example of data integration at the municipal level is the "Movimento della Popolazione" (MovPop) project promoted by Ticino Canton. Started at the beginning of the 1990s the project aimed at centralizing the population census system to improve the control over inhabitants domiciled in the communes of Ticino and to track their moves inside and outside the canton.

If a person X moves from a town A to a town B, the Authorities of A have to notify the cantonal administrations of the departure of X. At the same time, the administration of B has to inform the responsible office of the ar-

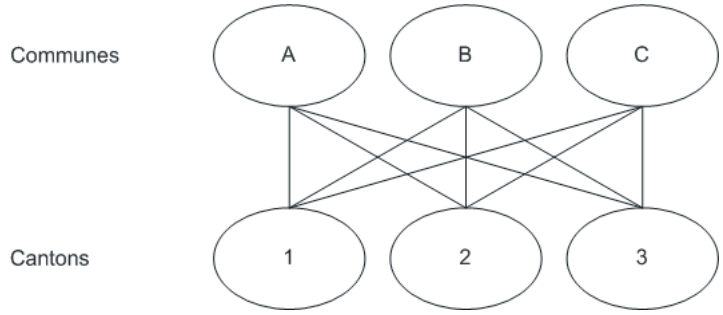


Figure 6.4: The citizens registration process before MovPop

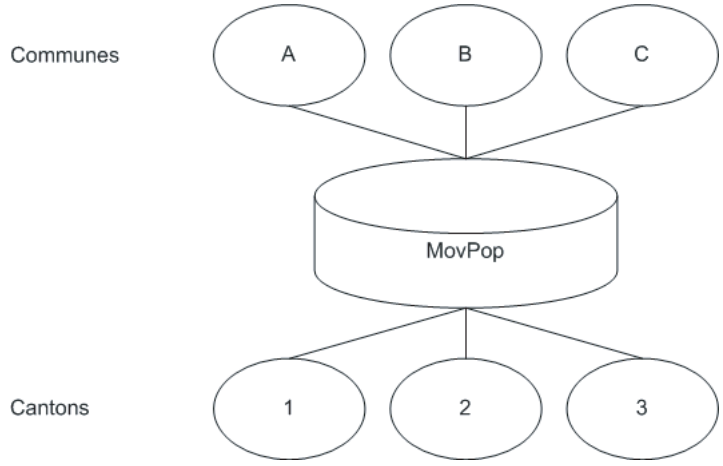


Figure 6.5: The citizens registration process with MovPop

rival of X. We present now the situation before and after the MovPop system.

Before the MovPop system, this process was accomplished in a decentralized way. The two administrations (A and B) had to make direct contact with every single cantonal office to notify them of the changes (figures 6.4 and 6.5). The notification wasn't standardized and the local administrations were free to give notification in the way they wanted (for example with paper documents or with the telephone). This created confusion in the management of information and the length of a move notification process where long. The update of the data was made monthly by the responsible offices, with the risk of an inconsistency in the information.

The objectives of MovPop are[15]:

[15]http://www.ti.ch

- The consolidation and the centralization of inhabitants data in a unique structure
- Efficiency without redundancy concerning the storage of personal data
- Creation of a real-time Information System
- Sharing the information with other applications

To accomplish these objectives MovPop implementation's project has been divided in two phases [3]:

1. Creation of a unique registry database, consolidation and standardization of the personal data format. The database contains the following data:
    - All personal data collected from local administrations
    - A complete address book
    - The move registry (all departures and arrivals can be tracked)
    - Information on the household
    - Information on foreign citizens
2. Create the conditions to assure the communication between the local and cantonal authorities

The first phase has been accomplished with success [3]. To allow the centralization of personal data, a standardization of the information is required. Every local and cantonal office has to agree on a common set of data to be collected. The right interpretation and the unequivocal comprehension of information is a must for centralization.

The second phase of MovPop aims at accelerating and simplifying the data input process. Assuming that almost every commune has a broadband connection, the cantonal administrations have decided to progressively replace the diskette-based data input with a simpler and fasten Internet-based form.

MovPop brings simplification to the registration processes and a centralized system with real-time data update. Moreover, MovPop has considerably diminished redundancies of the information.

6.2.4 Citizens and Organizations

One of the objectives of E-Government to simplify and improve the service that public services gives to their citizens and organizations. In this section, we analyze the positions taken by the "customers" of E-Government services.

6.2.4.1 Citizens

Although many Swiss households have an internet connection, only few citizens already communicate with the authorities using Internet technologies. The use of E-Mail to communicate and of the Internet to get information or services is still limited. Table 6.1 shows us the different communication ways used by citizens to get information or a service.

	Information		**Service**	
	Non-Internet users	Internet users	Non-Internet users	Internet users
Telephone	22	25	34	42
Counter	9	4	42	24
Letter	2	1	9	5
WWW	-	17	-	10
E-Mail	-	3	-	13
Other	14	12	8	1
Don't know	5	4	7	5

Table 6.1: The use of different media to communicate with the Swiss authorities, in percentage of the overage residents (source: [13]).

Many Swiss citizens are unaware of the E-Government projects of the Confederation, the Cantons or even of their communes. A survey conducted in 2003 by Bern University reveals that only 12% of the Swiss regularly use E-Government services to get information, download and submit forms or to transmit requests [11]. This failure doesn't come from a lack of need of E-Services, on the contrary there is a strong demand for E-Government. Rather, it comments more on a deficit in the information policies. In fact, only 7% of the respondents know the existence of the Swiss Federal E-Government portal ch.ch [11].

Important for the Swiss is not the quantity but the quality of eServices. The E-Government means for the citizens a better, simpler and more reliable

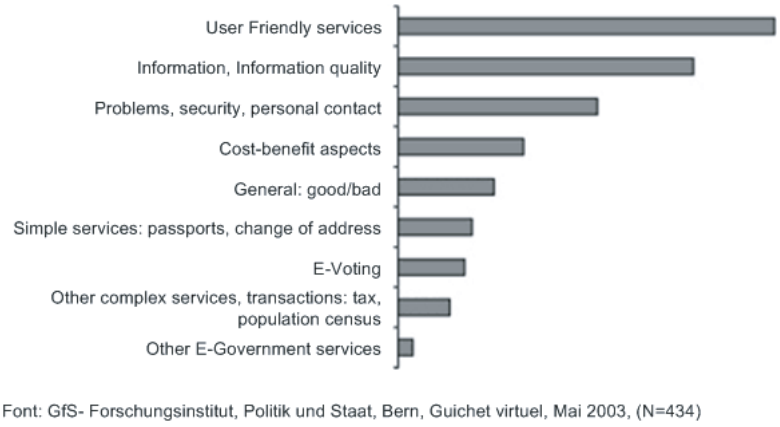


Figure 6.6: The Swiss citizens' requirements

set of online services. Figure 6.6 shows the requirements E-Government has to meet in order to be successful.

In general, the Swiss population sees E-Government as an opportunity to reduce transaction length and as an easy communication channel between them and authorities, on condition that the authorities create a secure environment and avoid the mistrust of privacy information. In few words, the Swiss balance the benefits of the online E-Services with the risks it can bring.

6.2.4.2 Organizations

Organizations are aware of the great opportunity E-Government represents to boost their business nationally and internationally. Like European enterprises, Swiss private organizations too are interested in expanding their business outside the regional and national boundaries. The creation of a G2G E-Government system can dramatically reduce transaction costs, boosting them to exploit the market at the national and international level.

6.3 The federalism principle and G2G E-Government

"The Cantons are sovereign insofar as their sovereignty is not limited by the Federal Constitution; they shall exercise all rights which are not transferred to the Confederation" (Swiss Constitution, Art 3).

Switzerland is a Confederation of sovereign Cantons. As stated in Art 3 of the Swiss Federal Constitution, every Canton is autonomous and shall

exercise powers that aren't delegated to the Confederation. This separation of powers between Confederation, cantons and municipality as stated by the Constitution is essential for Switzerland in respect to the different linguistic, cultural and religious identities present in Switzerland.

The federal principles are often in contrast with the trend of the G2G E-Government to centralize the services and tend to cancel the separation of authority. In other words, the free sharing and accessibility of information can jeopardize the Swiss federal system. Moreover, the centralization of all the Swiss services within a single counter could confuse the users about the real separation of the powers [43].

For these reasons legislators, administrators and IT experts have to plan the E-Government strategies in full obedience of the federal principles. This includes the renunciation of solutions that can put at risk Swiss fundamental rights.

The Swiss separation of powers that is often admired all over the world as the guarantee of freedom can be an obstacle for the realization of fully functional G2G E-Government services. Conflicting purposes and different points of view between the responsibles can bring failure to the projects. For example, the decision of many Swiss cantons to cut down the Web Services on the Guichet Virtuel can be partly traced back to the will of the cantons to preserve their federal autonomy avoiding to share all information and services with the Federal Authority. The federal principle has to be well balanced with the opportunity to create a more efficient administration. The parties involved in the cause (i.e. every stakeholder involved) have to discuss their position and find a compromise.

6.4 Summary

1. Switzerland is a multilingual, multi-ethnic and multi-confession nation. For its similarity with the European Union Switzerland can be an ideal pilot for the realization of European E-Government solutions
2. Recently Swiss E-Government jerks along. A survey conducted by Capgemini ranked Swiss E-Government sophistication 15 out of 18 European Countries
3. For the moment most G2G E-Government projects focus on national level. The cooperation with other European countries and with the European

Union are still irregular

4. Every Swiss Canton has the right to develop its own E-Government strategy, with the risk of an heterogeneity of the different systems. Trace a common state of the art at this level is very difficult
5. Many Swiss communes already have a simple webpage and communicate with their residents using an E-mail. Most communes are still in the middle of cataloguing phase
6. An important obstacle to the cration of an interoperable G2G E-Governmment system is the Helvetic federal system and the separation of political powers

Chapter 7

Conclusion

The creation of a fully integrated back-office organization in the European Union is not a simple task. Beyond the technology problems of compatibility of Information Systems, European Member States have to face semantic, organizational, financial, ontological, cultural and bureaucratic difficulties. The heterogeneity of still autonomous countries is a check for every G2G E-Government initiative.

To harmonize different administrative systems in the EU, E-Government responsibles have to deal with national pride and to demonstrate their will to be the *top of the class*. Every member state has to find compromises to allow an exchange of information with the other members. The different organizations have to find common ground so they can cooperate and to dissolve the geographical, political and imaginary borders that still exist within the European Union. The European Commission has the central role of European coordinator. It has to verify that every member state is working for the community and has to stimulate the eRevolution.

G2G Projects require substantial financial funds. This means that the European Union (and its Member States) have to raise the budget for E-Government R&D and for G2G E-Government realization projects. On the other hand, E-Government responsibles have to demonstrate the value of the eRevolution with tangible facts and figures.

E-Government must involve every public administration stakeholder (primary and secondary). The support of the highest administrative layer (the politicians) as well as of the customers (citizens and organizations) is essential for the success of E-Government. A *test-tube* E-Government will never succeed. E-Government responsibles must continuously communicate with

the stakeholders. To understand the real functionality of eServices and to anticipate problems, pilot projects and prototypes must be used.

The simple technological approach to G2G E-Government projects will never include all of the facets of the eRevolution. E-Government is an interdisciplinary discipline that includes economic, political and legal factors. The creation of G2G E-Government systems must be managed by interdisciplinary teams, coming from different European member states.

It this thesis, we have demonstrated that G2G E-Government can create an integrated European public administration, but it requires time and technical, organizational and cultural preconditions. Different legal systems of European Member States have to be modified to be compatible and to grant a flawless running of G2G E-Government systems, for example: the introduction of the digital signature will allow the introduction of paperless public services. The change from a vertical bureaucratic administration to a process-oriented administration is an important step to the creation of citizens-centric services. The suppression of the present office-centric organization will allow a significant improve the administrative efficiency. This will increase the customer satisfaction and reduce the operational costs. To allow the exchange of information between different offices, public administrations have to find a common denominator for data. The creation of a single universal system is (for the moment) unlikely. Cooperatively with the European Union, Member States have to make an effort to define and create compatible information. To do this the European eServices have to be defined.

Although many questions on European G2G E-Government have already been answered, the research has to clarify many other uncovered issues. For example:

- Define relevant European eServices
- Understand the ontological and cultural differences, cope with European complexity and find a common European vision
- Assure secure multi-platform pan-European E-Government
- Guarantee a flawless exchange of data and a reliable European Identity Management
- Define common analysis-tools to assure the efficiency of G2G E-Government
- Deal with European multilingualism

Bibliography

[1] Accenture. *eGovernment Leadership: High Performance, Maximum Value*. The Government Executive Series, 2004.

[2] Alabau, A. Understanding the e-government policy of the european union. a comparative analysis with the e-government policies of some supra national organizations. Working Document. Reference: PTSI/24, July 2003.

[3] Amministrazione 2000 Cantone Ticino. Rapporto intermedio a2000, progetto movimento della popolazione (movpop), allegato 5, ottobre 2002., 2002.

[4] Auerbach, N., and Maibaum, N. *FASME A step towards European E-Government solutions*. 10th European Conference on Information Systems, Gdansk, Poland, 2002.

[5] Barbey, V., and Abbet, S. Analyse de loffre communale suisse de prestations transactionelles pour la chacellerie fdrale. Tech. Rep. Rapport final, Institut Economie & Tourisme HEVs, 2003.

[6] Besanko, D., Dranove, D., Shanley, M., and Schaefer, S. *Economics of strategy*, 3rd ed. John Wiley and Sons, 2003.

[7] Bolici, F., and et al. Cooperating strategies in e-government. In *Electronic Government. Second International Conference, EGOV 2003 Prague, September 2003 Proceeding*, R. Traunmüller, Ed. Springer Verlag, 2003.

[8] Booz Allen Hamilton. *E-Government und der moderne Staat. Einstieg, Strategie und Umsetzung*. F.A.Z Institut für Management-, Markt-, und Medieninformationen, Frankfurt am Main, 2002.

[9] Bowles, A. *The benefit of open standards are realized in terms of increased flexibility and interoperability of systems, witch can reduce risk in terms of preservation of choice*. IBM E-Business Software, 2002.

[10] Brodie, M. L., and Stonebraker, M. *Migrating legacy systems : gateways, interfaces & the incremental approach*. Morgan Kaufmann Publishers, San Francisco, 1995.

[11] Brücher, H., Binswanger, S., Baumberger, P., and Moosmann, R. *eGovernment Trendbarometer - Evaluationsprojekt*. Unisys, 2004.

[12] Bruhn, M. *Qualitätsmanagement für Dienstleistungen. Grundlagen, Konzepte, Methoden*, 5th ed. Springer Verlag, Berlin, Heidelberg, New York, 2004.

[13] Bundeskanzlei. Bericht über die bedürfnisse der bevölkerung in bezug auf e-government, 2003.

[14] Cap Gemini Ernst Young. Online availability of public services: How does europe progress?, overall report of the web based survey presented to dg infso in 2003. Brussels, 2003.

[15] Chen, J. Building web applications, information system management. *Information System Management 18*, 1 (2001).

[16] Commission of the European Communities. The role of egovernment for europe's future, August 2003. Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions.

[17] Commission of the European Communities. eeurope 2005 midterm review, 2004.

[18] Commission of the European Communities. eeurope 2005 midterm review background paper, 2004.

[19] Commission of the European Communities. Linking up europe: the importance of interoperability for egovernment services, 2004.

[20] Coudenhove-Kalergi, R. N. *Europe Must Unite*. Paneuropa Editions Ltd, 1939.

[21] Courtney, H., Kirk, J., and VIguerie, P. Strategy under uncertainty. *Harvard Business Review 75*, 6 (1997), 67–81.

[22] Cyert, R., Kumar, P. K., and Williams, J. R. Information market imperfection and strategy. *Strategic Management Journal 14*, Winter Special Issue (1993), 47–58.

[23] Duck, J. D. Managing change: The art of balancing. In *Harvard Business Review on Change*, J. P. Kotter, Ed. Harvard Business School Publishing, 1998.

[24] Eidenössisches Finazdepartment. Efd, die egovernment-strategie des bundes, 2002.

[25] European Commission. The european union and the united states. global partners, global responsibilities, 2004.

[26] European Council. The lisbon european council - an agenda of economic and social renewal for europe, 2002.

[27] Feinberg, L. E. Homeland security: implications for information policy and practicefirst appraisal. *Government Information Quarterly 19*, 3 (2002), 265–288.

[28] Fiordalisi, M. e-europe, è tempo di accelerare. *Il corriere delle telecomunicazioni* (14.03.2004).

[29] Freeman, R. E. *Strategic management: A stakeholder approach*. Pittman, Boston, 1984.

[30] Geiger, H. Die risikopolitik der banken. teil 1 und teil 2. *Der Schweizer Treuhänder 73*, 6/7 and 8 (1999), 555–564, 713–718.

[31] Geiger, H. *Regulating and Supervising Operational Risk for Banks*, working paper ed. Institut für schweizerisches Bankwesen, 2000.

[32] Gellman, R. Perspectives on privacy and terrorism: All is not lost–yet. *Government Information Quarterly 19*, 3 (2002), 255–264.

[33] Glazer, R. Measuring the knower: Towards a theory of knowledge equity. *California Management Review 40*, 3 (1998), 175 –194.

[34] Glinz, M. Software qualitätsmanagement, 2004.

[35] Guibernau, M. *Governing European Diversity*. SAGE Publications, London, Thousand Oaks, New Delhi, 2001.

[36] Haller, W., and Kölz, A. *Allgemeines Staatsrecht*. Helbing & Lichtenhahn, 2002.

[37] Hayes, R., and Abernathy, W. Managing our way to economic decline. *Harvard Business Review 58*, 4 (1980), 67–77.

[38] Holmes, D. *eGov. eBusiness Strategies for Government.* Nicholas Brealey, 20001.

[39] Homburg, V., and Bekkers, V. The back-office of e-government (managing information domains as political economies)- volume 5. In *Proceedings of the 35th Annual Hawaii International Conference on System Sciences (HICSS'02)*, vol. 5. IEEE, 2002.

[40] IDA. *European Interoperability Framework for Pan-European E-Government Services.* IDA working document, January 2004.

[41] Informatikstrategieorgan Bund. Regieren in der informationsgesellschaft. die egovernment-strategie des bundes. Tech. rep., Eidgenössisches Finanzdepartement EFD, 2002.

[42] Information Society, and National Science Foundation. Collaboration between fp6/ist and nsf/itr, 14 May 2004.

[43] Jaeger, P. T. Constitutional principles and e-government: an opinion about possible effect of the federalism and the separation of powers on e-government policies. *Government Information Quarterly 19*, 4 (2002), 357–368.

[44] Kaplan, R. S., and Norton, D. P. Using the balanced scorecard as a strategic management system. *Harvard Business Review 74*, 1 (1996), 75–85.

[45] Kernaghan, K., and et al. *The New Public Organization.* Toronto: Institute of Public Administration of Canada, 2000.

[46] Kotter, J. P. Leading change: Why transformation efforts fail. In *Harvard Business Review on Change*, J. P. Kotter, Ed. Harvard Business School Publishing, 1998.

[47] Krcmar, H. *Informationsmanagement*, 2nd ed. Springer Verlag, Berlin, 2000.

[48] Layne, K., and Lee, J. Developing fully functional e-government: A four stage model. *Government Information Quarterly 18*, 2 (Summer 2001), 122–136.

[49] Lebech, A. Privacy and e-government. enterprise challenges for danish government. Tech. rep., IBM Privacy Technology Summit, 2003.

[50] Leitner, C. egovernment in europe: The state of affairs. *European Institute of Public Administration* (2003).

[51] Lenk, K. *eGovernment in Europe: Reality and Vision, International Conference of Knowledge Society Governance.* Law University of Lithuania, Vilnius, 23-24 January 2004.

[52] Makolm, J. Best practice in e-government. In *Electronic Government. First International Conference, EGOV 2002 Aix-en-Provence*, L. K. Traunmüller R., Ed. Springer Verlag, Berlin-M¨nchen, 2002.

[53] Millard, J., and et al. *Reorganization of Government Back Offices for Better Electronic Public Service European Good Practices (Back-office reorganization), Final Report to the European Commission.* Danish Technological Institute and Institut für Informationsmanagement GmbH, University of Bremens, January 2004.

[54] Montesquieu, C. d. S. *The spirit of laws: A compendium of the first English edition.* University of California Press, Berkeley, 1977.

[55] Morgan, C., and Murgatroyd, S. *Total Quality Management in the Public Sector.* Open University Press, Buckingham, 1994.

[56] Murphy, M. *Organisational Change and Firm Performance.* Technology and Industry Working paper series. OECD Directorate for Science, 2002.

[57] Nohria, N., Joyce, W., and Roberson, B. What really works. *Harvard Business Review 81*, 7 (July 2003), 42–53.

[58] Nonaka, I., and Takeuchi, H. *The Knowledge-Creating Company.* Oxford University Press, New York and Oxford, 1995.

[59] Nonaka, L., Toyama, R., and Konno, N. Seci, ba and leadership: a unified model of dynamic knowledge creation. *Long Range Planning 33*, 1 (2000), 5–34.

[60] Nonaka, I.and Konno, N. The concept of ba: Building a foundation for knowledge creation. *California Management Review 40*, 3 (1998), 40–54.

[61] OECD e-Government Studies. *The e-Government Imperative.* OECD, 2003.

[62] Oesterle, H., and et al. *Networking. Shaping Collaborations Between Enterprises*, second revisited and extended edition ed. Springer Verlag, Berlin-München, 2002.

[63] Osterloh, M. Motivation, knowledge transfer and organizational forms. *Organization Science 11*, 5 (2000), 538–550.

[64] Osterloh, M., and Frost, J. *Prozessmanagement als Kernkompetenz*, 4th ed. Gabler Verlag, Wiesbaden, 2003.

[65] Peppard, J., and Ward, J. *Strategic Planning for Information Systems*, 3rd ed. John Wiley & Sons, 2002.

[66] Polanyi, M. *The Tacit Dimension*. Routledge and Kegan Paul, London, 1966.

[67] Reffat, R. M. Developing a successful e-government, 2002.

[68] Reitze, T. Standards entwickeln das e-government weiter. *Netzguide E-Government* (2003).

[69] Riedl, R. Knowledge management for interstate e-government, 2001.

[70] Riedl, R. Limitations for interstate e-government and interdisciplinary projects. In *Proceedings of the 12th International Workshop on Database and Expert Systems Applications*. IEEE Computer Society, Washington, DC, 2001.

[71] Riedl, R. Affordance in e-government. In *Electronic government : second international conference, proceedings / EGOV 2003, Prague, Czech Republic, September 1-5, 2003*, R. Traunmüller, Ed. Springer Verlag, 2003.

[72] Riedl, R., and Maibaum, N. Fasme from smartcards to holistic it-architectures for interstate e-government. In *Electronic Government. First International Conference, EGOV 2002 Aix-en-Provence, September 2002 Proceeding*, R. Traunmüller and K. Lenk, Eds. Springer Verlag, 2002.

[73] Rousseau, J. *Du contrat social*. Librarie Gnrale Franaise, Paris, 1978.

[74] Sarenpää, A. E-government at a decisive moment: sketching a roadmap to excellence. In *Electronic government : second international conference, proceedings / EGOV 2003, Prague, Czech Republic, September 1-5, 2003*, R. Traunmüller, Ed. Springer Verlag, 2003.

[75] Schedler, K. *Electronic Government einführen und entwickeln.* Paul Haupt Verlag, Bern-Stuttgard-Wien, 2003.

[76] Schedler, K., and Summermatter, L. *Electronic Government-Barometer, Bericht zum Stand von E-Government in der Schweiz 2003, Teil Bund.* Univerität St. Gallen, Februar 2004.

[77] Schedler, K., and Summermatter, L. *Electronic Government-Barometer, Bericht zum Stand von E-Government in der Schweiz 2003, Teil Gemeinde.* Univerität St. Gallen, Februar 2004.

[78] Scheer, A., and et al. *E-Government. Prozessoptimierung in der öffentlichen Verwaltung.* Springer Verlag, Berlin-München, 2003.

[79] Scherer, A. G., and Alt, J. M. *Strategische Steuerung und Balanced Scorecard.* Bundesverwaltungsamt, 2002.

[80] Schmidt, B. *e-Government und Servicequalität. Analyse zur Perspektive von IT-Anbieter und Verwaltungsführung.* Paul Haupt, Bern, Stuttgart, Wien, 2003.

[81] Schon, D. A. *The Reflective Practioner.* Basic Book, New York, 1983.

[82] Schreyögg, G. *Organisation. Grundlagen moderner Organisationsgestaltung, 4. Vollständige und erweiterte Auflage.* Gabler Verlag, Wiesbaden, 2003.

[83] Seifert, J. W. A primer on e-government: Sector, stages, opportunities and challenge of online governance, congressional research service [crs] secrecy and security, January 2003.

[84] Stanca, L. Intervento di chiusura, european e-government conference, 2003.

[85] Steele, J. Transforming the balanced scorecards into your strategy execution system. *Manage 53*, 1 (September-October 2001), 22–24.

[86] Strebel, P. Why do employees resist change? In *Harvard Business Review on Change*, J. P. Kotter, Ed. Harvard Business School Publishing, 1998.

[87] Teodori, M. *L' Europa non è l' America.* Arnoldo Mondadori Editore, Milano, 2004.

[88] The European Parliament and The Council of the European Union. *DIRECTIVE 2002/58/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 12 July 2002 concerning the processing of personal data and the protection of privacy in the electronic communications sector (Directive on privacy and electronic communications)*. Official Journal of the European Communities, 2002.

[89] Toffler, A. *Powershift: Knowledge, Wealth and Violence at the Edge of the 21st Century*. Bantman Books, New York, 1990.

[90] Traunmüller, R., and Wimmer, M. E-government at a decisive moment: sketching a roadmap to excellence. In *Electronic government : second international conference, proceedings / EGOV 2003, Prague, Czech Republic, September 1-5, 2003*, R. Traunmüller, Ed. Springer Verlag, 2003.

[91] Wenger, E. *Communities of Practice: Learning, Meaning, and Identity*. Cambridge University Press, 1998.

[92] Wimmer, M., and Krenner, J. An integrated online one-stop government platform: The egov project. In *IDIMT-2001: 9th Interdisciplinary Information Management Talks*. Universitätsverlag Trauner, 2001. Proceedings, Schriftenreihe Informatik.

Appendix A

European strategies

Country	Objectives	Strategy	Implementation	Coordination
Austria	•Revaluation of business processes •Cooperation between administrations	Austrian Strategy is divided in two parts: •Part 1 contains conditions, objectives and realization strategies •Part 2 regulate the internal methods and procedures	Modular implementation. Strategy is a set of sub strategies. Every module has to be compatible with the others	Austrian CIO

Country	Objectives	Strategy	Implementation	Coordination
Belgium	Make a faster, convenient and open public services through: •Reengineering and integration of services •Cooperation between administrations •Simplification of procedures	Belgian e-government strategy.	Every administration can develop its application. Coordination required for intergovernmental activities.	Responsible for strategies is the State Secretary for E-Government linked to Minister for the Budget and Public Enterprises. Main coordinator body is Federal Public Service ICT (FEDICT). Implementation of interadministrative infrastructure by FEDICT. Federal administrations responsibles for implementation of specific projects.
Cyprus	-	-	-	-

Country	Objectives	Strategy	Implementation	Coordination
Czech Republic	•Improve the quality of services provided to citizens and businesses •Improve the decision making processes •Reengineering of administrations	E-Government strategy present in State Information Policy (eCzech 2006).	Goals set to respect the European needs. Use of prototypes and trials (for instance for Public Administration Portal).	Ministry of informatics is the central coordinator of the development of Czech IS. Individual implementation is responsibility of the single agencies.

Country	Objectives	Strategy	Implementation	Coordination
Denmark	•Creation of the network society •Citizens centric organization •Electronic process flow •Improve efficiency	Danish E-Government strategy 2004-2006.	Phase implementation of Electronic Services. Priorities set.	Separation of responsibilities for E-Government strategies: •Ministry of Finance •Ministry of Science, Technology and Innovation Coordination responsible is the Ministry of Science, Technology and Innovation. Specific implementations by single agencies. Other roles for specific projects like E-Government board, steering committees or digital task forces.

Country	Objectives	Strategy	Implementation	Coordination
Estonia	•Services improvement •Modernization of government	Estonian Information Policy (2002).	Different phases	Strategy and coordination body is the Department of State Information Systems (RISO), part of the Ministry of Transport and Communication. Single department for internal projects implementation

Country	Objectives	Strategy	Implementation	Coordination
Finland	•Reduce administrative costs •Citizens centric services •Increase efficiency of services	E-Government strategy is contained in Finnish Information Society Programme.	Set a framework for shared actions. Finnish government is setting a phase implementation. Use and exchange of best-practices.	Central coordination and decentralized responsibilities: central administration promotes E-Government and local or regional as service providers. In central administration three Ministry involved: •Minister of Finance (horizontal coordination) •Minister of Interior (vertical coordination) •Minister of Justice (regulatory framework)

Country	Objectives	Strategy	Implementation	Coordination
France	•Take specific services online •Creation of a strong E-Government agency •Change organization and digitalize the procedures	Integrated in the plan RE/SO 2007.	Progressive (phase) strategy. ADAE will grant the discussion between administrations, the impulse and the evaluation of the solutions. It will assure the development of interadministrative services.	Agence pour le Developpement de l'Administration Electronique (ADAE) an interministerial service under the reforme de l'Etat Minister
Germany	•Citizens centric organization •Reorganization of the public services (modern service-oriented enterprise)	BundOnline 2005.	Decentralized implementation with a central support from BundOnline group (especially for integration between different offices, for instance SAGA for standardization).	Group BundOnline integrated in the Ministry of Interior office. Implementation: Federal Coordination and Advisory Agency for IT in the Federal Administration (KBSt) to the interadministrative initiatives and every single agency for individual projects.

Country	Objectives	Strategy	Implementation	Coordination
Greece	•Improve competitiveness and efficiency •Reengineer procedures and communication within and amongst government departments •Link central, regional and local administrations	E-Government strategy is part of the program entitle: "Greece in the Information Society: Strategies and Actions" (2002).	Work in a decentralized way. Develop of single modularized solutions.	Ministry of Interior, Public Administration and Decentralization (in particular the General Secretariat for Public Administration) is responsible for the coordination and the implementation of E-Government. Ministries and regions can develop their implementation strategies that have to be validated by the central authority.

Country	Objectives	Strategy	Implementation	Coordination
Hungary	•Increase efficiency and transparency of the services •Easier access to public services	Hungarian Information Society Strategy (MITS) (2003).	Hungarian Government seeks to realize E-Government strategy in six different steps.	The Coordination Committee for the Information Society is responsible for preparation of E-Government policies. The implementation of E-Government strategy is responsibility of the Ministry of Informatics and Communications, except for the central Government that is competence of the "Electronic Government Centre" at the Prime Minister Office.

Country	Objectives	Strategy	Implementation	Coordination
Ireland	•24/7 services delivery •Higher efficiency and costs reduction •Government modernization	Irish Information Society Action Plan (2002).	Progressive strategy in three phases. Irish Government has agreed on the Public Services Broker as a framework to converge all services in a central service	Responsible for the coordination is the Minister of State for the Information Society. He is assisted by the Assistant Secretaries eGovernment Implementation Group

Country	Objectives	Strategy	Implementation	Coordination
Italy	•Enable the transformation of the Italian public administration •Ten major objectives: 1) Priority services online, 2) Digital ID, 3) Develop digital signature system, 4) Internal correspondence between public offices done via E-Mail, 5) All payment orders and requests managed electronically, 6) Train civil servants to use ICT, 7) Train 1/3 of the civil servants through E-Learning 8) 2/3 of all public administration offices to be equipped with terminals enabling user access to electronic services, 9) Create a customer satisfaction system, 10) 50% of the governmental procurement carried out electronically	E-Government policies contained in "Linee guida del Governo per lo sviluppo della Societ dell'Informazione nella legislatura" (2002).	In 2002 the Committee of Ministers has established the 10 E-Government objectives. Decentralized and modular implementation. Central coordination for interoperability and interadministrative projects. Italy is devolving its competences from central offices to regional and local authorities. E-Government is an enabler of the federalism.	Ministry of Innovation and Technology (MIT) has to drive and coordinate every single department to implement the necessary changes in their competence area. The interoperability between offices is a milestone of the Italian E-Government strategy. MIT has to grant it. At regional level Regional Competence Centers coordinates regional and local authorities.

Country	Objectives	Strategy	Implementation	Coordination
Latvia	-	-	Gradually implemented	Coordinated by the department of Information Technology at the Ministry of Transport and Communication.
Lithuania	•Improve transparency of the decision making process •Deliver services via Internet •One-stop citizens centric administration	Position Paper on E-Government (end 2002).	Avoid "one night" process. Many projects implemented in different phases. Lithuania is now concentrated on back-office services.	Information Society Development Committee responsible for coordination and observation of E-Government. Strategies developed by the Commission of Information Society Development headed by Prime Minister. Projects are developed by agencies in cooperation with the committee.

Country	Objectives	Strategy	Implementation	Coordination
Latvia	-	-	Gradually implemented	Coordinated by the department of Information Technology at the Ministry of Transport and Communication.

Country	Objectives	Strategy	Implementation	Coordination
Luxemburg	•Change the internal organization •Redefine the internal relationships •Install an efficient infrastructure •Dispose of competent and motivated official servants •Create a competent organization	Included in eLuxemburg action plan (2001).	Luxemburg has elaborated a central plan to avoid disjoined actions. Implementation in more phases.	E-Government is coordinated by the National Commission of Information Society (CNSI), headed by the Minister of Communication. Every E-Government project is evaluated by the CNSI. The Secretary of State of the Public Office and of the Administrative Reform defines the general orientation of the E-Government policies. Interadministrative projects (vertical and horizontal) are coordinated by special committees composed by representatives of every office concerned. Projects are developed by agencies in cooperation with the committee.

Country	Objectives	Strategy	Implementation	Coordination
Malta	-	White Paper on the Vision and Strategy for the attainment of E-Government.	Modular programmed	Ministry for Information Technology and Investment (MITI) is responsible for coordination and implementation of government-wide infrastructure. Government Ministries and department responsible for the development of departmental projects.
Netherlands	•More interaction between Government and citizens •Create a 24/7 service	Electronic Government Action Programme (1998).	-	Ministry of the Interior and Kingdom Relations (BZK) is responsible for the E-Strategy The Organisation for Information and Communication Technology has to coordinate the eTransformation.

Country	Objectives	Strategy	Implementation	Coordination
Poland	•Create a secure, fast and affordable to all citizens, business and institutions •Achieve a widespread informatics literacy •Create online services	ePoland (2004-2006)	-	Overall responsibility by the council of Ministers. State Committee for Scientific Research (KBN) coordinates the development of E-Government solutions The committee is assisted by the Ministry of Internal Affairs and Administrations.
Portugal	•Create a 24/7 service delivered through different channels •Reengineer the administrative processes to achieve more efficiency and reduce costs •Increase trust of the citizens in the PAs •Reorganization of the public administration	E-Government Action Plan (2003), integrated in Action Plan for the Information Society.	Four phases foreseen: •Web presence •Interaction •Transaction •Transformation	Coordination is responsibility of the Intersectoral Commission for IT in Public Administration. Every single Ministries are responsible for individual E-Government implementation.

Country	Objectives	Strategy	Implementation	Coordination
Slovakia	•Use E-Government and ICT as a mean to reorganize the public services •Remove barriers of E-Business development •Increase the competitiveness of Slovakia	Action Plan fort he Information Society (2001) in substitution of a specific strategic document.	Absence of a specific E-Government strategy	No coordination body. Single initiatives implemented by the single ministries and bodies.
Slovenia	•Create citizens-centric set of services •Remove useless information redundancies •Rationalise the operations of the Slovenian public administrations •Creation of eServices that contribute to improve the citizens quality of life •Publish information online	Action plan for E-Government up to 2004 (2002).	Set of phase-oriented projects.	Coordination at strategic level: Ministry of Information Society. Coordination at operational level: Government Centre for Informatics (GCI). GCI is responsible for the implementation of national infrastructures. Single departmental projects directed by single ministries.

Country	Objectives	Strategy	Implementation	Coordination
Spain	•E-Government is the mean to reorganize public service •Homogenize and coordinate the public administration at horizontal and vertical level, to offer a multiadministrative services •Offer the accessibility to the services to all the citizens	Plan de Choque para el impulso de la Administracin Electrnica (2003). Autonomous communities like Catalonia have launched their own initiatives.	Phase-oriented projects and pilot projects.	Coordination is responsibility of an inter-ministerial structure called the Council for Informatics and for the Impulsion of Electronic Administrations (CIAE). Implementation: Ministry of public Administrations and all ministries for individual projects.
Sweden	•Implement a 24-hours Public Administration	The Swedish E-Government Strategy (November 2002).	Phase-oriented projects.	Policy and strategy set by Minister of Finance. Swedish Agency for Public Management is entrusted the coordination and the national infrastructure project implementation

Country	Objectives	Strategy	Implementation	Coordination
United Kingdom	•Citizen-focused Government •Public services accessible through different channels •Use information better, less redundancies and efficient information management	E-Strategy (2000). eGIF for interoperability between administrations.	Modular initiative at departmental level, e-Envoy will identify cross-cutting activities.	Strategies and policies for the modernization and eRevolution: Cabinet Office. Coordination of E-Government projects is responsibility of the Office of e-Envoy (part of the Cabinet Office).

Table A.1: European strategies

Appendix B

Decision 2004/387/EC of the European Parliament and of the Council of 21 April 2004 on IDABC

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION [...] HAVE DECIDED AS FOLLOWS:

Article 1
Scope

This Decision establishes, for the period 2005-2009, a Programme for Interoperable Delivery of pan-European eGovernment Services to European Public Administrations, Community institutions and other entities and to European Businesses and Citizens (hereinafter the 'IDABC programme').

Article 2
Objective

1. The objective of the IDABC programme is to identify, support and promote the development and establishment of pan-European eGovernment services and the underlying interoperable telematic networks supporting the Member States and the Community in the implementation, within their respective areas of competence, of Community policies and activities, achieving substantial benefits for public administrations, businesses and citizens.
2. The programme aims also to:

a enable the efficient, effective and secure interchange of information between public administrations at all appropriate levels, as well as between such administrations and the Community institutions or other entities as appropriate;

b extend the benefits of the interchange of information as specified under (a) in order to facilitate the delivery of services to businesses and citizens taking into account their needs;

c support the Community decision-making process and facilitate communication between the Community institutions by developing the related strategic framework at the pan-European level;

d achieve interoperability, both within and across different policy areas and, where appropriate, with businesses and citizens, notably on the basis of a European Interoperability Framework;

e contribute to the efforts of Member State public administrations and the Community in terms of streamlined operations, prompter implementation, security, efficiency, transparency, service culture and responsiveness;

f promote the spread of good practice and encourage the development of innovative telematic solutions in public administrations.

Article 3
Definitions

For the purposes of this Decision, the following definitions shall apply:

a 'Telematic network' means a comprehensive data-communication system, comprising the physical infrastructure and connections as well as the related services and application layers, thus enabling the interchange of information electronically between and within public administrations as well as between public administrations and businesses and citizens;

b 'Pan-European eGovernment services' means cross-border public sector information and interactive services, either sectoral or horizontal, i.e. of cross-sectoral nature, provided by European public administrations to European public administrations, businesses, including their associations, and citizens, including their associations, by means of interoperable trans-European telematic networks;

c 'Project of common interest' means a project in the policy areas identified in Annex I, which is undertaken or continued under this Decision, and which concerns the establishment or enhancement of pan-European eGovernment services;

d 'Infrastructure services' means services provided to meet generic requirements, comprising technology and software solutions, including a European interoperability framework, security, middleware and network services. Infrastructure services underpin the delivery of pan-European eGovernment services;

e 'Horizontal measure' means an action as identified in Annex II, which is undertaken or continued under this Decision, and which concerns the establishment or enhancement of horizontal pan-European eGovernment services, infrastructure services or strategic and support activities;

f 'Interoperability' means the ability of information and communication technology (ICT) systems and of the business processes they support to exchange data and to enable information and knowledge to be shared.

Article 4
Projects of common interests

In order to achieve the objectives laid down in Article 2, the Community shall, in cooperation with the Member States, implement projects of common interest specified in the rolling work programme referred to in Article 8(1), in accordance with the principles laid down in Articles 6 and 7.
Projects of common interest shall, whenever possible, make use of the horizontal pan-European eGovernment and infrastructure services and contribute to the further development of these services.

Article 5
Horizontal measures

1. In order to achieve the objectives laid down in Article 2, the Community shall, in cooperation with the Member States, in support of projects of common interest, undertake horizontal measures as identified in Annex II and specified in the rolling work programme referred to in Article 8(1), in accordance with the principles laid down in Articles 6 and 7.

2. Horizontal measures shall provide, maintain and promote infrastructure services for public administrations in the Community on the basis of a maintenance and access policy defined in the framework of the IDABC programme. They shall also provide the management of horizontal pan-European eGovernment services as well as establish strategic and support activities to promote pan-European eGovernment services, perform strategic analysis of related developments in the Community and Member States, and ensure the management of the programme and the spread of good practice.

3. In order to be able to identify the horizontal measures to be undertaken, the Community shall establish a description of horizontal pan-European eGovernment and infrastructure services. The description shall include aspects such as the necessary management, organisation, related responsibilities and cost-sharing as well as a strategy to be used in the development and implementation of the horizontal pan-European eGovernment and infrastructure services. The strategy shall be based on an assessment of project requirements. The description shall be reviewed on a yearly basis.

Article 6
Implementation principles

1. In implementing projects of common interest and horizontal measures, the principles set out in paragraphs 2 to 10 shall apply.
2. This Decision is the legal basis for the implementation of horizontal measures.
3. The implementation of a project shall require a sectoral legal basis. For the purposes of this Decision, a project shall be considered to fulfil this requirement when it supports the delivery of pan-European eGovernment services to public administrations, to businesses or to citizens in the framework of the implementation of a sectoral legal basis or any other relevant legal basis. This paragraph shall not apply to projects of common interest that support the delivery of eGovernment services between Community institutions and European Agencies.
4. Participation of the largest possible number of Member States in a project in support of pan-European eGovernment services provided by public administrations to businesses, including their associations, or by public administrations to citizens, including their associations, shall be encouraged.
5. Projects of common interest and horizontal measures shall encompass all actions necessary for the establishment or enhancement of pan-European eGovernment services.
6. Projects of common interest and horizontal measures shall include, whenever appropriate, a preparatory phase. They shall comprise a feasibility phase, a development and validation phase, and an implementation phase to be implemented in accordance with Article 7.
   This paragraph shall not apply to strategic and support activities as defined in Part C of Annex II.

7. Results achieved by other relevant Community and Member States activities, in particular the Community research and technological development programmes and other Community programmes and policies, such as eTEN [1], eContent [2] eInclusion, eLearning[3] and MODINIS[4] shall be taken into account, whenever appropriate, in the definition of projects of common interest and horizontal measures in order to avoid duplication and to speed up the development of eGovernment services. Projects in the planning or the development phase shall also be taken into account.
8. Projects of common interest or horizontal measures shall be technically specified with reference to European standards or publicly available specifications or open specifications for information exchange and service integration and shall comply with the infrastructure services, as appropriate, in order to ensure interoperability and accessibility between national and Community systems within and across administrative sectors and with businesses and citizens.
9. Projects of common interest and horizontal measures shall, where appropriate, take due account of the European interoperability framework provided, maintained and promoted by the IDABC programme.
10. A post-implementation review of each project of common interest or horizontal measure shall be carried out within one year following the end of the implementation phase.
    A review shall include a cost-benefit analysis.
    In the case of projects of common interest the review shall be carried out in coordination with the Member States in conformity with the rules governing the sectoral policy and presented to the relevant sectoral committee.
    Conclusions and recommendations resulting from the review of projects of common interest shall be presented to the committee referred to in Article 11(1) for information.
    In the case of horizontal measures the review shall be carried out within the framework of the committee referred to in Article 11(1).

Article 7
Additional principles

1. In addition to the principles set out in Article 6, the principles set out in paragraphs 2 to 8 shall apply.

[1]OJ L 14, 11.7.1999, p.12.
[2]OJ L 14, 18.1.2001, p32.
[3]OJ L 345, 31.12.2003, p.9.
[4]OJ L 336, 23.12.2003, p.1.

2. The preparatory phase shall lead to the establishment of a preparatory report comprising the objectives, scope and rationale ofthe project of common interest or horizontal measure and in particular the anticipated costs and benefits, as well as the achievement of the necessary commitment and understanding among the participants through appropriate consultation, including an indication of the committee competent to follow the implementation of the project or measure.
3. The feasibility phase shall lead to the establishment of a global implementation plan, which shall cover the development and implementation phases and comprise the information contained in the preparatory report as well as:
    a a description of planned organisational development and, whenever appropriate, the re-engineering of working procedures;
    b objectives, functionalities, participants and technical approach;
    c measures to facilitate multilingual communication;
    d measures to ensure security and protection of data;
    e the assignment of roles to the Community and to the Member States;
    f a breakdown of the expected costs and a description of the expected benefits, including assessment criteria for measuring those benefits beyond the implementation phase and a detailed analysis of return on investment as well as milestones to be reached;
    g a schema which defines an equitable sharing between the Community and the Member States and, whenever appropriate, other entities, of the operational and maintenance costs of the pan-European eGovernment and infrastructure services on conclusion of the implementation phase.
4. During the development and validation phase, the solution proposed may, if relevant, be constructed, tested, evaluated and monitored on a small scale, and the results shall be used to adjust the global implementation plan accordingly.
5. During the implementation phase, the fully functional services concerned shall be established in accordance with the global implementation plan.
6. The preparatory report and the global implementation plan shall be established by making use of methodologies prepared as a support activity in the framework of the IDABC programme.
7. The initiation and implementation of a project of common interest, the definition of its phases and the establishment of preparatory reports and

global implementation plans shall be carried out and controlled by the Commission acting in accordance with the relevant sectoral committee procedure.

Where no sectoral committee procedure applies, the Community and the Member States shall set up groups of experts to examine all relevant issues.

The conclusions resulting from sectoral committees and, where applicable, from groups of experts shall be reported by the Commission to the committee referred to in Article 11(1).

8. The initiation and implementation of a horizontal measure, the definition of its phases and the establishment of preparatory reports and global implementation plans shall be carried out and controlled by the Commission acting in accordance with the procedure referred to in Article 11(2).

Article 8
Implementation procedure

1. The Commission shall establish a rolling work programme for the whole duration of this Decision for the implementation of projects of common interest and horizontal measures. The Commission shall approve the work programme and, at least once a year, any modification thereof, taking into account, as the case may be, the budget breakdown per project of common interest and horizontal measure.

   The procedure referred to in Article 11(2) shall apply in respect of the approval by the Commission of the rolling work programme and any modifications thereof.

2. For each project of common interest and for each horizontal measure, the work programme referred to in the first paragraph shall, where appropriate, include:

   a a description of the objectives, scope, rationale, potential beneficiaries, functionalities and technical approach;

   b a breakdown of past expenditure and milestones reached, as well as the costs and benefits anticipated and the milestones to be reached;

   c a specification of the horizontal pan-European eGovernment and infrastructure services to be used.

Article 9
Budgetary provisions

1. Without prejudice to Article 8, the procedure referred to in Article 11(2) shall apply in respect of the approval by the Commission of the budget per project of common interest or horizontal measure, as necessary, to cover, subject to the applicable budget rules, the rolling work programme and any modifications thereof, in accordance with Article 8(1).
2. Funds shall be released on the basis of the reaching of specific milestones in accordance with the procedure applicable to the relevant sectoral committee for projects of common interest and to the committee referred to in Article 11(1) for horizontal measures. For the initiation of the preparatory phase the milestone shall be the inclusion of the project of common interest or horizontal measure to be undertaken in the rolling work programme. For the initiation of the feasibility phase the milestone shall be the preparatory report. For the initiation of the subsequent development and validation phase the milestone shall be the global implementation plan. Milestones to be reached during the development and validation phase as well as the implementation phase shall be included in the rolling work programme in accordance with Article 8.
3. The procedure referred to in Article 11(2) shall also apply in respect of proposals for any budgetary increase of more than EUR 100 000 per project of common interest or horizontal measure within a year.
4. The programme shall be implemented on the basis of the rules of public procurement. The technical specifications of the calls for tender shall, for contract values in excess of EUR 500 000, be defined in coordination with the Member States in the framework of the relevant sectoral committee or the committee referred to in Article 11(1).

Article 10
Community financial contribution

1. In the implementation of projects of common interest and horizontal measures, the Community shall bear costs in proportion to its interest.
2. The financial contribution of the Community for each project of common interest or horizontal measure shall be determined in accordance with paragraphs 3 to 7.
3. For a project of common interest or a horizontal measure to receive a financial contribution from the Community, concrete plans for financing the maintenance and operational costs of the post-implementation phase shall be required, with a clear assignment of roles to the Community and to the Member States or to other entities.

4. In the preparatory and feasibility phases, the Community contribution may cover the full cost of the necessary studies.
5. In the development and validation phase and in the implementation phase, the Community shall bear the cost of those tasks which are assigned to it in the global implementation plan of that project of common interest or horizontal measure.
6. Community funding of a project of common interest or a horizontal measure concerning the delivery and maintenance of infrastructure services shall, in principle, cease after a maximum period of four years from the start of the preparatory phase.
7. The financial resources provided for under this Decision shall not be assigned to projects of common interest and horizontal measures or phases of projects of common interest and horizontal measures which benefit from other sources of Community funding.
8. By 31 December 2006, mechanisms to ensure the financial and operational sustainability of infrastructure services, whenever appropriate, shall be defined and agreed in accordance with the procedure referred to in Article 11(2).

Article 11
Commitee

1. The Commission shall be assisted by a committee called the Pan-European eGovernment Services Committee (PEGSCO).
2. Where reference is made to this paragraph, Articles 4 and 7 of Council Decision 1999/468/EC shall apply, having regard to Article 8 thereof. The period laid down in Article 4(3) of Decision 1999/468/EC shall be set at three months.
3. The PEGSCO shall adopt its rules of procedure.

Article 12
Annual report

The Commission shall report annually to the PEGSCO on the implementation of this Decision.

Article 13
Evaluation

1. The Commission shall, in coordination with the Member States, carry out a final evaluation of the implementation of this Decision at the end of the programme.
2. Moreover, the Commission shall, in coordination with the Member States, carry out an evaluation of the implementation of this Decision by mid-2006 at the latest. This evaluation shall also assess, inter alia, the effectiveness and efficiency of the IDABC activities as well as include a qualitative and quantitative evaluation of performance against the work programme. In the context of this evaluation the Commission shall report on the consistency of the amount for 2007- 2009 with the financial perspective. If applicable, the Commission shall take the necessary steps within the budgetary procedures for 2007- 2009 to ensure the consistency of the annual appropriations with the financial perspective.
3. The evaluations shall establish the progress and current status of the projects of common interest and horizontal measures identified in Annexes I and II respectively and in particular how the intended pan-European eGovernment services are developed, implemented and used.
   The evaluations shall also examine, in the light of the expenditure incurred by the Community, the benefits yielded by the pan-European eGovernment and infrastructure services to the Community for the advancement of common policies and institutional cooperation as far as public administrations, businesses and citizens are concerned and identify areas for potential improvement and verify synergies with other Community activities in the area of pan-European eGovernment and infrastructure services.
4. The Commission shall forward the results of its quantitative and qualitative evaluations to the European Parliament and the Council together with any appropriate proposals for the amendment of this Decision. The results shall be forwarded before presentation of the draft general budget of the European Union for the years 2007 and 2010 respectively.

Article 14
International cooperation

1. The IDABC programme may be opened, within the framework of their respective agreements with the Community, to participation by the countries of the European Economic Area and the candidate countries.
2. Cooperation with other third countries, in implementing projects of common interest and horizontal measures, shall be encouraged, notably with public administrations in Mediterranean countries, the Balkans and eastern European countries. Particular attention shall also be given to interna-

tional cooperation in support of development and economic cooperation. Related costs shall not be covered by the IDABC programme.

3. International organisations or other international entities may take part in the implementation of projects of common interest and horizontal measures at their own cost.

Article 15
Other networks

1. With regard to the establishment or enhancement of other networks which are not projects of common interest or horizontal measures (hereinafter referred to as other networks), Member States and the Community shall, in accordance with the relevant provisions of the Community legislation governing the implementation of those networks, ensure compliance with paragraphs 2 to 5.
2. Subject to paragraph 3, horizontal pan-European eGovernment and infrastructure services provided by the Community within the framework of this Decision may be used by other networks.
3. Each of the other networks shall be technically specified with reference to European standards or publicly available specifications or open specifications for information exchange and service integration, as appropriate, in order to ensure interoperability between national and Community systems within and across administrative sectors and with businesses and citizens.
4. By 31 October 2005, and at yearly intervals thereafter, the Commission shall forward to the PEGSCO a report on the implementation of paragraphs 1 to 5. In that report, the Commission shall specify any relevant user requirements or any other reason that prevents other networks from making use of the services under paragraph 2, and discuss the possibility of upgrading these services in order to extend their use.
5. The horizontal pan-European eGovernment and infrastructure services developed within the Community framework under the IDA or the IDABC programme may be used by the Council with regard to the establishment or enhancement of activities in the framework of the common foreign and security policy and police and judicial cooperation in criminal matters in accordance with Titles V and VI of the Treaty on European Union respectively.
   The use of such services shall be decided upon and financed in accordance with Titles V and VI of that Treaty.

Article 16
Financial framework

1. The financial framework for the implementation of the Community action under this Decision for the period from 1 January 2005 to 31 December 2009 is hereby set at EUR 148,7 million, of which EUR 59,1 million is for the period until 31 December 2006.
   For the period following 31 December 2006, the amount shall be deemed to be confirmed if it is consistent for this phase with the financial perspective in force for the period commencing in 2007.
2. The annual appropriations for the period from 2005 to 2009 shall be authorised by the budgetary authority within the limit of the financial perspective.

Article 17
Entry into force

This Decision shall enter into force on the twentieth day following its publication in the Official Journal of the European Union.
It shall apply from 1 January 2005 until 31 December 2009.
Done at Strasbourg, 21 April 2004.

Appendix C

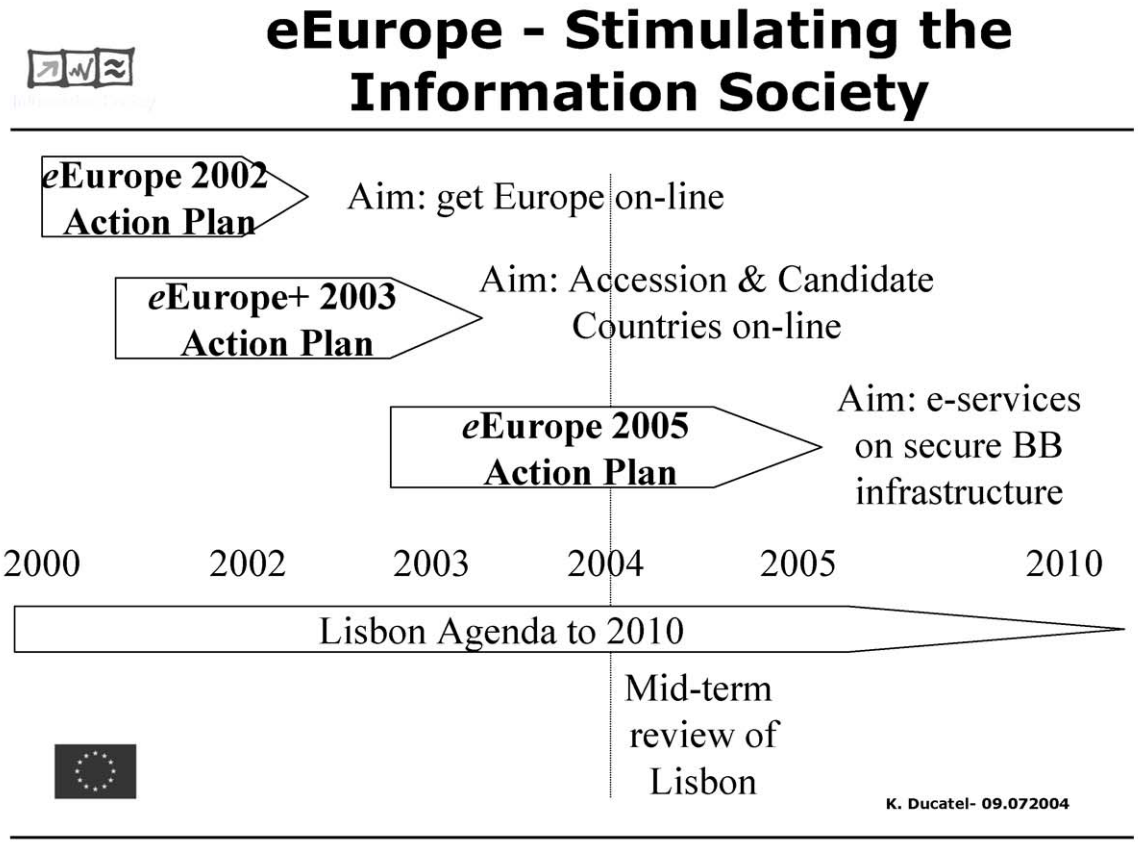
eEurope 2005+ (presentation of F. De Bruïne)

eEurope 2005 and beyond

Frans de Bruïne

European Commission
DG Information Society

K.Ducatel – 09/07/2004

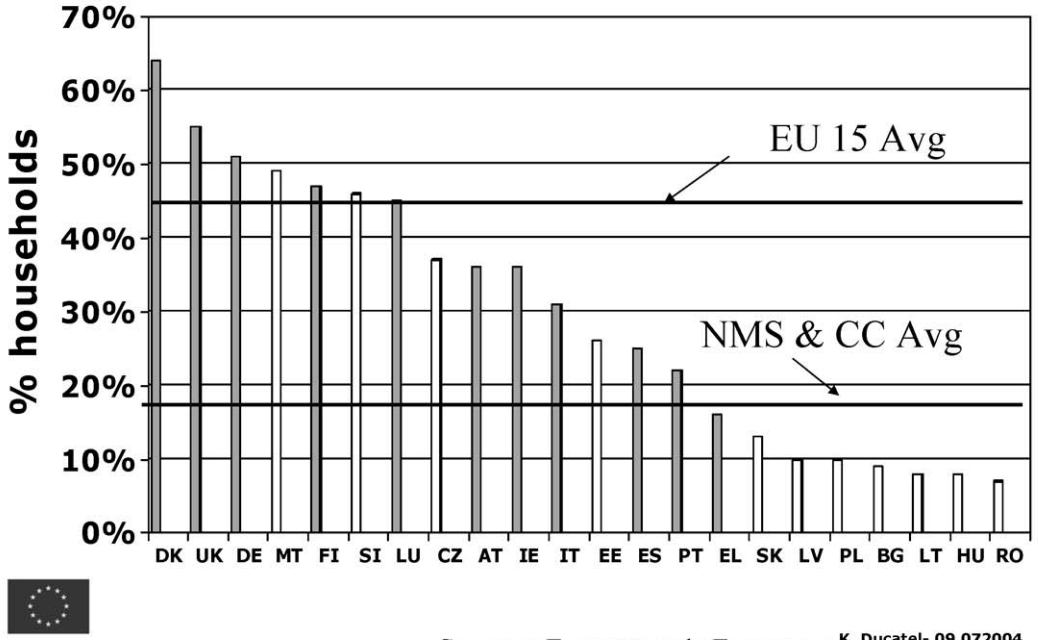

eEurope - Stimulating the Information Society
eEurope 2002 Action Plan
Aim: get Europe on-line
eEurope+ 2003 Action Plan
Aim: Accession & Candidate Countries on-line
eEurope 2005 Action Plan
Aim: e-services on secure BB infrastructure
2000
2002
2003
2004
2005
2010
Lisbon Agenda to 2010
Mid-term review of Lisbon
K. Ducatel- 09.072004

eEurope mid-term report

- Europe is largely on-line and broadband supply is rising …
  - …BB doubled in 2003 to 20 million connections (EU15)…
    - …but take up is uneven and demand lags behind supply
- Firms are on-line, even SMEs…
  - …but business case for e-business still lacking
- 20 basic public services on-line…
  - …up from 17% in 2001 to 43% in 2003…
    - …demand lags behind but seems to be growing
- e-Learning & e-Health more difficult terrain…
  - diversity of actors
  - complex deployment issues (interop./ standards/ lack of pan-European services/ inertia…)
- Balance of attention shifting to content, usage and impact.

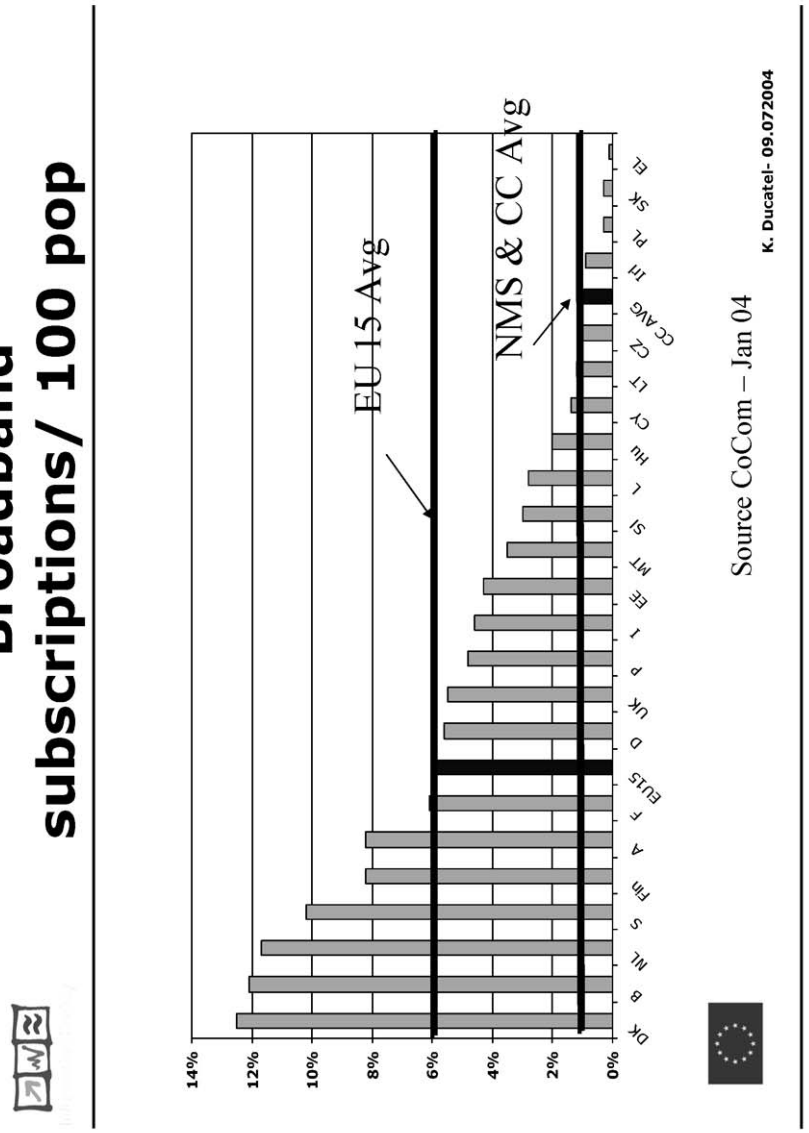
K. Ducatel- 09.072004

Internet penetration in households (2003)



Sources: Eurostat and eEurope+ survey

K. Ducatel- 09.072004


Broadband
subscriptions/ 100 pop
EU 15 Avg
NMS & CC Avg
14%
12%
10%
8%
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EL
Source CoCom – Jan 04
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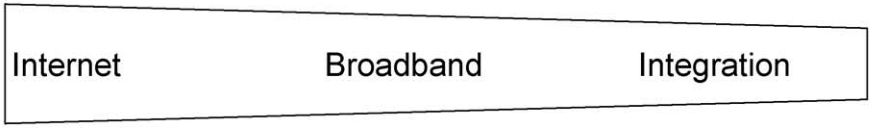
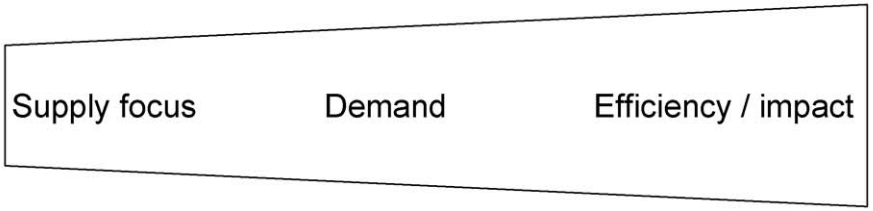
E-Volution: connectivity to content

Connectivity



Content and services



2000 2005 2010

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eEurope 2005+: Timetable

- **Now - Review of eEurope –successes and lessons**
  - ✓ **Connectivity is up**
  - ✓ **e-Gov = 'open gov' - services going on-line**
  - ✓ **Co-ordination delivers - eEurope Advisory Group**
  - ✓ **Benchmarking – monitoring progress is essential**
- **Inputs to the themes for the future**
  - **PWC study (August)**
  - **Dutch presidency seminar (September)**
  - **eEurope Advisory group reflection (October)**
  - **Council**
- **Timetable for a new policy instrument**
  - **Broad outline (end 2004)**
  - **Concrete proposal (mid 2005)**
  - **Preparation (end 2005)**
  - **Launch 2006**

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