Introduction

E-governance is more than just a government website on the Internet. Solutions to development issues often require changes to government processes, e.g. by decentralisation. Objectives are generally to improve efficiency and effectiveness and to save costs. The driving force can also be public demand for online services and information that increase democratic participation, accountability, transparency, and the quality and speed of services.

Government, as a collector and source of information, in order to serve its customers (citizens, businesses, and other interest groups) better and to save costs by making internal operations more efficient. One department is divided into multiple sub departments and which needs interact each other for processing of information while executing government’s resolutions.

Solutions to development issues often require changes to government processes, e.g. by decentralisation. Objectives are generally to improve efficiency and effectiveness and to save costs. The driving force can also be public demand for online services and information that increase democratic participation, accountability, transparency, and the quality and speed of services. The implementation and use of ICT solutions can support governance reforms.

E-governance will become more and more present around the world in the next few years. Internationally most countries are in the early stages of e-governance. A good start has been made in Europe, USA and in other Westernised countries such as Australia and Singapore. Over the coming years also developing countries and their citizens can also benefit from e-governance.

This report explains what is meant by e-governance. It starts with a definition of e-governance, and then presents a general e-governance model and several case studies and examples. Technology aspects are discussed, followed by a SWOT analysis on e-governance in developing countries. Finally, a description is given of what steps have to be taken to set up a policy on e-governance and how implementation projects can be selected.

2. The Area of e-Government

2.1 E-Governance Model

The three main target groups that can be distinguished in e-governance concepts are government, citizens and businesses/interest groups. The external strategic objectives focus on citizens and businesses and interest groups, the internal objectives focus on government itself.

Abbreviations such as B2B (business to business) and B2C (business to consumer) are used, like in e-commerce, to shortly describe which of the main groups are interacting. The most common
group interactions in e-governance are presented schematically in Figure 3. The three abbreviations in the figure, G2C, G2B and G2G are explained in Figure 2.

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<th>e-democracy</th>
<th>e-government</th>
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<td><strong>External</strong></td>
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<td>G2C: Government to Citizen</td>
<td>X</td>
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<td>G2B: Government to Business</td>
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<td><strong>Internal</strong></td>
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<td>G2G: Government to Government</td>
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As mentioned before, e-governance is more than a government website on the Internet. What are the opportunities and possibilities of e-governance in the future, and what services are delivered at this moment?

Gartner, an international e-business research consultancy firm, has formulated a four-phase e-governance model. This e-governance model can serve as a reference for governments to position where a project fits in the overall evolution of an e-governance strategy.

In most cases, governments start with the delivery of online information, but soon public demand and internal efficiency ask for more complex services. Of course this change will take effect gradually; some services will be online earlier than other services. In some cases the public demand is the driving force; in other cases cost saving aspects for the government are leading.

According to Gartner, e-governance will mature according the four-phase e-governance maturity model. These phases have been defined based on experiences with e-commerce and e-governance in Europe and other Western regions.

**E-Governance Maturity Model (Gartner)**

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<tbody>
<tr>
<td>Early 90’s</td>
<td>Information</td>
<td>➔ Presence</td>
</tr>
<tr>
<td>Mid 90’s</td>
<td>Interaction</td>
<td>➔ Intake process</td>
</tr>
<tr>
<td>Present</td>
<td>Transaction</td>
<td>➔ Complete transaction</td>
</tr>
<tr>
<td>Future</td>
<td>Transformation</td>
<td>➔ Integration and organizational changes</td>
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In each of the four phases, the delivery of online services and use of ICTs in government operations serve one or more of the aspects of e-governance: democracy, government, business.

The model does not mean that all institutions have to go through all phases and all at the same time. On the contrary, in the Western world government institutions are in phase 1, 2 or 3. The differences can be huge: the tax department can be in phase 3, while the department of public works is just in an early stage of phase one. It all depends on where the advantages are highest.

Another remark must be made. This model shows four phases for different e-governance (e-democracy and e-government) solutions. The assumption is made that the government has already defined an overall vision and e-policy. In the chapter “Implementation of e-governance”, this remark will be further explained.

**Phase 1: Information**
In the first phase e-governance means being present on the web, providing the external public (G2C and G2B) with relevant information. The format of the first government websites is similar to that of a brochure or leaflet. The value to the public is that government information is publicly accessible; processes are described and thus become more transparent, which improves democracy and service.

**Phase 2: Interaction**
In the second phase the interaction between government and the public (G2C and G2B) is stimulated with various applications. People can ask questions via e-mail use search engines for information and are able to download all sorts of forms and documents. These functionalities save time. In fact the complete intake of (simple) applications can be done online 24/7. Normally this would have only been possible at a counter during opening hours.

**Phase 3: Transaction**
With phase three the complexity of the technology is increasing, but customer (G2C and G2B) value will also be higher. Complete transactions can be done without going to an office.

Examples of online services are filing income tax, filing property tax, extending/renewal of licenses, visa and passports and online voting. Phase three is mainly complex because of security and personalization issues – e.g., digital (electronic) signatures are necessary to enable legal transfer of services. On the business side the government is starting with e-procurement applications.

**Phase 4: Transformation**
The fourth phase is the transformation phase in which all information systems are integrated and the public can get G2C and G2B services at one (virtual) counter. One single point of contact for all services is the ultimate goal.

2.2 OVERVIEW OF G2G
There are extensive research efforts in the domain of cross-organizational integration in the context of governmental applications. For example Beaumont (2005) introduces the arrival of geo portals in many areas of public service delivery. This necessarily entails inter-agency collaboration and the pooling of information resources. There is an established track record of the successful use of GIS to facilitate this (e.g. Higgs, 1999), and developments in GIS architectures and networking is enabling access and interrogation of such pooled resources at a distance (e.g.}
Hudson-Smith et al., 2003). Also, according to Silicon Trust, the new term u-government stands for ubiquitous government starting to emerge. In the context of government the term ubiquitous government was established in 2003, because the interactions and transactions between governments and their citizens are now possible anywhere, anytime, unconstrained by power lines and telephone wires.

According to Relani (2004) Government-to-Government is a new research area. The short experience accumulated in these few years isn’t enough for the responsible groups 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. For example, The Swiss Federal Government bounds G2G as the vertical interaction between Federal Government, Cantons and local administrations.

CONCEPTUALIZING A FRAMEWORK FOR THE BARRIERS TO G2G ADOPTION

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 (Homburg and Bekkers, 2002). 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 (Rainer, 2004). In this section we are going to highlight some of those barriers as discussed in the literature:

• **Legislative & Regularity:** 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 (Jaeger, 2002). G2G E-Government legislators have to be aware of the importance that the separation of powers, namely legislative, executive and judiciary as a constitution of democracy (Rainer, 2004).

• **Security:** Concerning G2G, in everyday transactions, all public administration officers 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 services involving information sharing among many different national and international level agencies. Through government networks flow much personal and secret data (Cyert et al., 1998). This information has to be protected in a legal way (creating 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 (OECD, 2003).

• **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 is strictly related to resource allocation. The provision of the required resources for the e-Revolution can be one of the
most problematic issues of the administration. In addition, the difficulty to evaluate the expenses and the return of the investments make it harder for the E-Government responsible groups the call for funds. (Riedel, 2004) These resources so also include some long term preparations such as 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.

• **Cultural:** As mentioned above, G2G includes not just the cooperation between two public organizations but also the cooperation between two governments. As Riedel (2004) discusses, 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. In the context of different countries, each culture is a great potential for every single country for economic creativity. 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 cooperation (Riedel, 2001).

• **Coordination:** E-Government projects involve many stakeholders. 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 egotism 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 (Lenk, 2004).

• **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. (Layne, 2001) There are many difficulties and a lack of standards at the moment that make the implementation of a joined-up EGovernment challenging. In this section, we will discuss the key issues.

• **Legacy Systems:** Although many public administrations have upgraded their applications during the Y2K crisis, many legacy systems still remain. (Leitner, 2003) These systems are often inflexible and the incompatibility among them makes it hard to develop middleware applications.

• **Organizational Structure:** Osterloh and Frost (2003) believe that 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. 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 are regulated through inflexible regulations, codes and laws that are a real obstacle to the fluidity of information and they create a real bottleneck. 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.
• **Information and Knowledge Interchange:** As Relani (2004) argues, 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.

• **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 lose 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 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 (Rainer, 2004).

To sum up, we can view the challenges of G2G mainly as problems of integration including those related to technical and non-technical issues. Thus, we believe it has to be identified what level of integration are we aiming? And before answering this question what kind of G2G are we willing to adopt? Is it a backbone to support other sectors? Is it citizen centered or process centered? Or is it used to support a strategic process by nature? For example Klischewski (2004) distinguishes the two types of integration information and process integration. Information integration aims at facilitating information flow, i.e. providing access to structured informational resources across technical and organizational boarders in order to enable new services based on a virtually shared information environment. Process integration on the other hand, centers around interrelating steps and stages of process performance across technical and organizational borders in order to enable new services based on an overarching monitoring and control of process flow. Based on the discussion above, we developed a research framework that combines all these barriers identified in disparate studies in the normative literature. The proposed conceptual framework is illustrated

![Fig. 2 Barriers Of G2G Application](image-url)