Critical steps towards e-Governance: a case study analysis

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Abstract

The purpose of this paper is to make a further contribution to the theory and to the understanding of e-Governance. In doing so, the paper proceeds by an in-depth analysis of three cases, which, we think, are particularly illustrative of the three main dimensions – i.e., e-Service-Delivery, e-Regulation and e-Policy-Making – of evolving e-Governance practice and theory. By analysing the cases from a comprehensive theoretical framework, we will show how information and communication technology (ICT) impacts the transformation of the State.

Keywords: e-Government, e-Service-delivery, e-Regulation, e-Policy-making, e-Governance, State transformation

1   Introduction

On a global scale, e-Government initiatives are being promoted intensively by public organizations as well as by industry. Conferences on the e-Government phenomenon aim at fostering the discussion and Know-How transfer of its multiple facets. However, most of the initiatives solely consider e-Government as the digitalization of the public sector. So far, little research is done on the impact of e-Government on the public and the private sectors.

This paper contributes to further our understanding of how the ICTs and State transformation interact. Indeed, we believe that, one the one hand, the ICTs fit into State transformation by offering technological solutions to problems arising along the process. On the other hand, the ICTs further contribute to such State transformation. We start out with a comprehensive model of such State transformation and how the ICTs fit into it, which will be presented in section 2. This model contains three main dimensions of State transformation, namely the transformation of service delivery, of regulation and of policy-making. In all these three dimensions the ICTs do play a role. We will therefore present three cases illustrating each of the three dimensions. In section 6 we will shortly conclude the three cases, so as to further develop our understanding of how State transformation and ICTs interact.

2 Electronic government vs. ICT Governance of State transformation

In the following section, we present our understanding of the interaction between ICT and State transformation.

2.1 The drivers of State transformation

Within the past years, State transformation was increasingly driven by globalization. Moreover, the transformation of State was equated with the modernization of the State operational activities. (Finger and Pécoud 2003) At present, the State is challenged with various factors.

FINANCIAL CHALLENGES: In the past, the State and its administration was more or less accepted by society. Businesses were running great, profits reached ever increasing margins and taxes were being paid. The State had no reasons to complain and did not take care of financial matters. This has changed. Regression and market consolidation in almost every business sector urged society and government to react. Dramatic drops of tax incomes and significant raising costs of political systems and social security networks have put the State under enormous pressure.

LEGITIMATION CHALLENGES: State-run administrations were slow and discouraged citizens and the private sector. Governance mechanisms and public policy systems were being questioned. Driven by economic and political pressures, the State was forced to apply standardized economic methodologies in order to legitimatize its existence by improving service delivery to citizens the private sector.

COMPETITION: In a global economy, companies aim entering markets in different countries and continents. In order to keep the countries attractive for foreign investors, the State is forced to prepare the political and regulatory framework. The State has to react on multiple cultures and industrial prerequisites, international companies expect to be fulfilled. Next to the private sector, the State is in charge of preparing the economic environment in a globalized world.

TECHNOLOGY: The dot-com hype vanished and globalization came up with its more unpleasant side. Second to none, information technology represented by the internet, enables the actors in society and industry to critically asses the role and functionality of governments and administration. Information and technology are forcing governments and administration to question their own structures and procedures.

As a reaction on these challenges, the State is rethinking its main functions.

2.2 Subsequent challenges to the State

The State is challenged with cost-cutting initiatives and is target of performance improvement and operations management measures. Research on information processing technologies has contributed powerful tools to drive the process optimization in public organization, either internal or external processes. (Salzmann 2004)
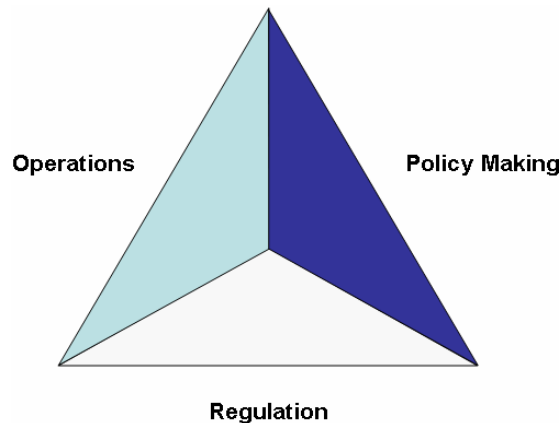
Figure 1: Challenges to the State

Global competition in almost every industry and concentration on innovation require little administrative burdens for entrepreneurs aiming at creating value for industry and society. Currently, governments and public administrations are discovering information technology as means to manage the de-regulation of their intra-societal and industrial relations. However, we consider information technology as particularly important for the future architecture of public regulation mechanisms.

Thirdly, governments and administration are confronted with the question of how to shape the political system according to multi-dimensional requirements of various groups of interest. The public sector steadily discovers the information technology's potential to shape traditional patterns of policy-making.

2.3   Existing definitions of e-Government: a brief summary

Current research on the character of e-Government is diverse.

E-Government can be defined as a governmental form of organization which integrates the interaction of public and private actors and the interface between the State and citizens by ICT. E-Government is composed of a regulating element, which shapes the framework of our information society, and a participating element, where the public sector applies information and communication technologies. Thirdly, e-Government possesses an e-Policy dimension focusing the influence of the State information society. (Gisler and Spahni 2001) This conceptualization goes one step beyond the digitalisation, although it does not clearly consider the impact of technology on State transformation.

According to the definition, e-Government is often regarded as the pure implementation of ICTs in government and administration. According to the author, the proliferation of the internet and emerging research on government and public administration made the government promise to be "more efficient, responsive, transparent and legitimate." However, Gordon (2002) stated, that the main responsibility of government is governance. For him, investing in information and communication technology aims at driving the State to reduce size and costs of government and accelerates the creation of business and work in the private sector. (Gordon 2002)

A third conceptualization of e-Government is composed of a four stage approach: transmit, interact, transact and integrate. The model focuses the role of ICT in the interface between the public and the private sector. While the first two stages

concentrate the information exchange via web-portals, the last two stages are mainly oriented towards an integrated service delivery approach. The model drawn by the author reduces e-Government to the settlement of transaction between government and third party actors, either public or private. Major driver of the conceptualization is technology. (Heath 2000)

For reasons of space, we have chosen to reduce the summary to three different conceptualizations of e-Government. However, they pinpoint the most important facts:

- E-Government provides *tools* and *methodologies* to process governmental procedures at the public/private sector interface more efficiently by means of ICT.

- E-Government is considered as an organizational form to involve citizens and the private sector in government procedures.

- E-Government slowly starts being accepted as more than just a simplification of public organizations. The concept distinguishes various functions, a government is legitimated for.

2.4   How ICT governs the transformation of State - a conceptualization

The fundamental redefinition of the State's main functions is more likely than ever. E-Government initiatives demonstrate that services, formerly provided by government and authorities, are increasingly processed by private or third sector actors. (Accenture 2001) To a lesser extent, the State's policy making and regulation responsibilities are affected as well. (Finger and Pécoud 2003) In the following section, we briefly present our model to capture ICT induced State transformation, which we think goes one step further than the above mentioned conceptualizations of e-Government.

Basically, we use a framework, which is made up of a first and second level layer. The *top level layer* spans a two dimensional vector space. It is composed of 'State transformation' and 'standard of technology'. (see Figure 2)

STATE TRANSFORMAT.: This dimension captures the maturity level of State transformation. It is an indication to which extent the State has proceeded in terms of procedural and organizational transformation. Pure settlement of services within a web-portal framework is less sophisticated and takes place on a local level. On a global level, the State is more concerned about integration of regulation and policy-making by means of information technology.

STD. OF TECHNOLOGY: This dimension indicates the technological level of sophistication. In our model, an information oriented website for example is the lowest level, while an integrated solution with transactional elements and communication technology standards represents a high level of sophistication.

The four quadrants of the resulting matrix are called 'views'. At the present stage in time, we have identified: administration, regulation & policy-making, e-Service-delivery and e-Governance.
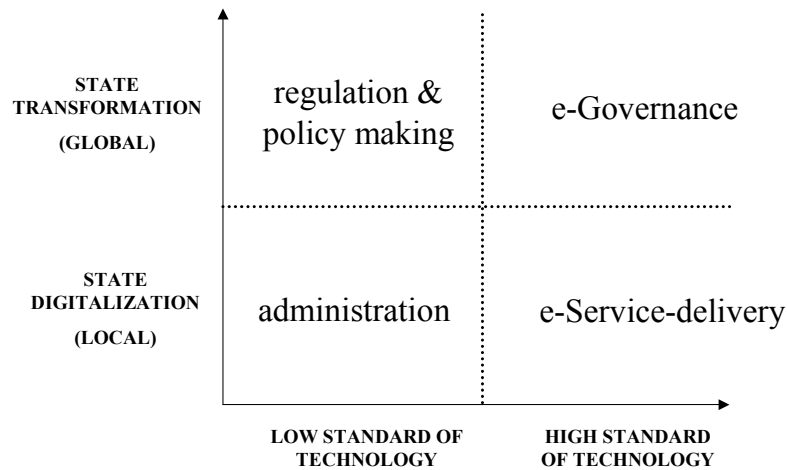
Figure 2: The e-Governance matrix

The *second level layer* spans a four dimensional vector space. We call each dimension a driver and each driver represents a dimension of our e-Governance model.

LEVEL: Due to globalization, different policy levels arise. In particular there is a global and in parallel a local level as well as intermediate national levels.

ACTOR: On each level, actors built up their areas of influence. They take care of policy-making and to a lesser extent regulation too.

FUNCTION: Our model distinguishes different functions, the State has to deliver: e.g. *service-delivery*, *policy-making* and *regulation*. Each function can be found on each level and can be fulfilled by each actor.

TECHNOLOGY: Technology drives the transformation of State. Levels, actors and functions as mentioned before are influence by technology. Technology will come up with new forms of interaction between the different drivers of our model.

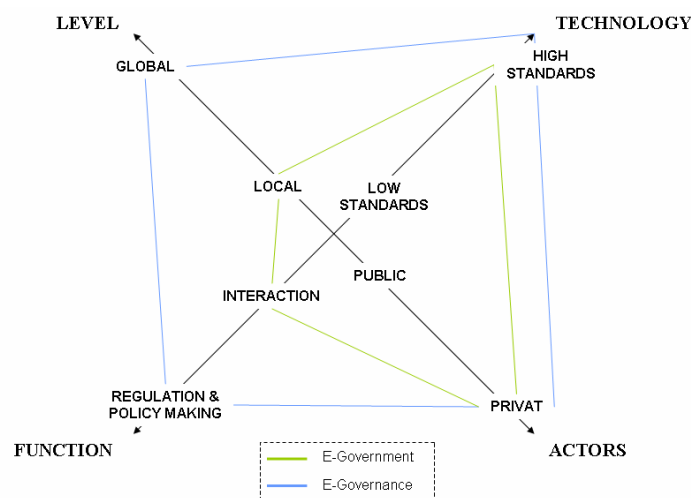On a more graphical basis, the e-Governance model looks as depicted in Figure 3.

Figure 3: The level of e-Governance maturity

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Within the following three chapters, we analyze the applicability of e-Government and e-Governance theory in order to describe the implications of information technology on State transformation.

3 The canton of Zurich: a case study on e-Service-delivery

The following section presents a case study focusing the service delivery dimension of our e-Governance model. (Accenture 2001)

3.1 Starting Point: Global economic and technological change and striving after national and European recognition

In 2000, the canton of Zurich aimed at positioning itself as an economic and technological centre in Europe. (Zurich 2001) Within two years, multiple technology based services have been implemented in a cantonal portal. The initiatives focused transaction based services between government and different client groups (such as citizens, industry and municipalities) rather than simple information transfer. The pallet of external electronic services was enormous:

- Information system on Building Request Management,
- Statistic Information System,
- Electronic legal decision publication system,
- e-Procurement,
- e-Recruitment,
- e-Voting,
- e-Work-permits and
- Noise information system.

Regarding the internal electronic service implementation, the canton of Zurich developed an intranet for the cantonal administration.

After two years of exploitation, the e-Government initiative achievements were assessed very positively. In general, the overall strategy was goal-prominently and the implemented services worked out satisfyingly, although the impact of part-projects did not reach the expected level of acceptance. As an example, the portal's high effort requiring search-index functionality is almost never used. (Koch and DemoSCOPE 2003) According to a Swiss internal survey, the canton of Zurich's electronic service delivery profile was ranked first.

In 2004, the canton of Zurich aims at establishing a central department for e-Government issues, which concentrates the further deployment of e-Government in the canton of Zurich. (Zurich 2004)

- **Content Management**: The canton aims at qualitatively exploiting the offering of its websites and contents for citizens and industry.
- **Knowledge Management**: The content management targets the distribution of information and knowledge resources within the cantonal administration in order to improve service delivery to the internal and external 'clients'.
- **Return-on-Investment**: Cost-Benefit-Analysis tools are aimed at being developed in order to assess actual and future e-Government related activities.

3.2 The maturity level of e-Governance in the canton of Geneva

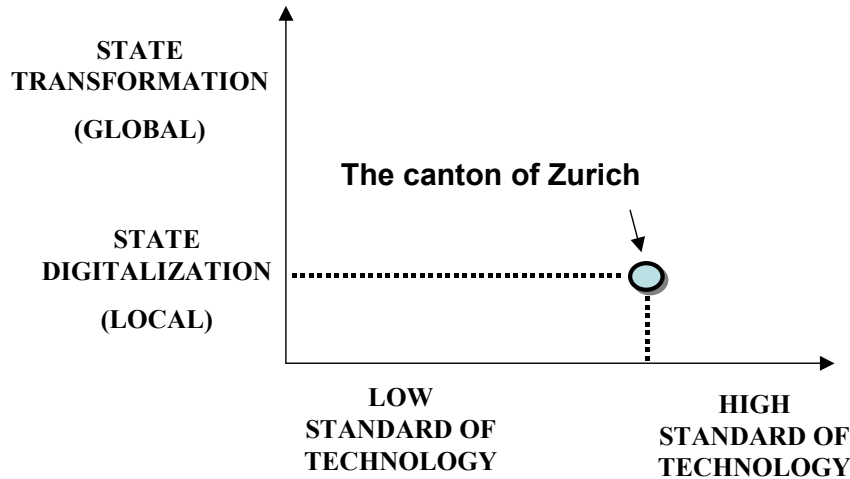In the first layer of our e-Governance model, we categorize the canton of Zurich as follows.

Figure 4: The Zurich e-Governance matrix

In the canton of Zurich, information technology so far has had a big impact on the distribution and processing of information. We have positioned the canton in the lower right-hand sector of our matrix. The canton is in a phase of **MIRRORING**, which is improving and simplifying former administrative burdens by information technology. (see Figure 4)

In detail, we conclude the following level of e-Governance maturity (see Figure 5).

- **TECHNOLOGY**: The technology applied is based on a solid web-based solution with sophisticated solutions in detail. The services are processed by web-based transactions.

- **LEVEL**: The level of the service delivery is almost local within the canton. Transactions take place within the cantonal area, although various documents of federal concerns are offered on the Zurich platform.

- **ACTOR**: The Zurich platform integrates multiple actors. On the one hand internal administration is enhanced by the portal and on the other hand citizens, industry and partner municipalities are served. The public as well as the private sector contribute to the evolution and deployment of the service delivery platform. (Koch and DemoSCOPE 2003)

- **FUNCTION**: The Zurich initiative mainly concentrates on delivering administrative services to multiple layers of users (public/private).

One of the key winning features of the platform for users is the distribution of daily news. Most of the private sector clients have discovered the Zurich portal by using

search engines and describe the platform as very useful to navigate throughout the Zurich administration. (Koch and DemoSCOPE 2003)
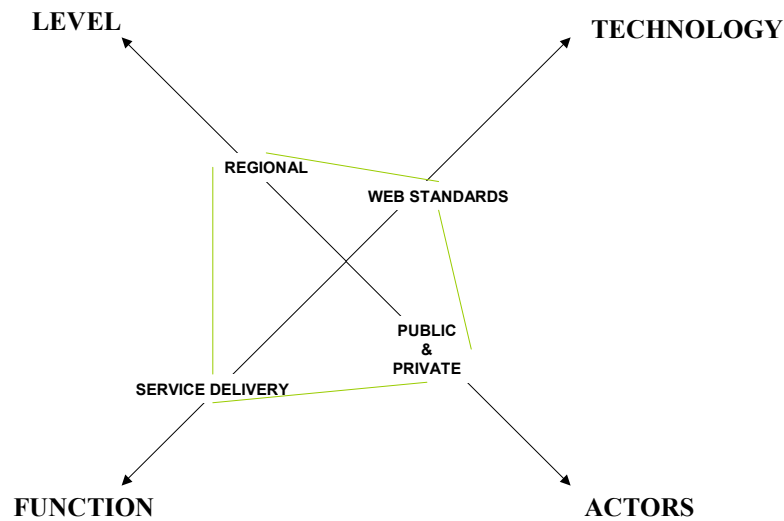

Figure 5: The maturity of e-Governance -Zurich

In summary, the Zurich portal offers a wide variety of services for private and public 'clients'.

SUBSTITUTION&MIRRORING: *The portal significantly facilitates the navigation throughout the cantonal administration and fosters an efficient interaction with the 'clients'.*

Information technology enabled the cantonal administration to find a way to become more transparent and present to their 'clients'. It led to a substitution of antique procedures and supported the reviewing process of the cantonal administration in order to better serve the 'clients' needs.

SERVICE DELIVERY: *The portal improves the understanding and participation of citizens regarding policy making and administrative procedures. Internet affine 'clients' prefer online interaction with administration and government.*

Offering a widespread portfolio of information services, the canton of Zurich managed to improve the willingness of political participation. With the portal, citizens and industry representatives are able to look at and understand the policy making processes much more clearly. The Zurich portal is available 24 hours a day. More than 60% of the population do have access to the internet and prefer to process their administrative duties online.

4   The Flemish Community: a case study on an attempt of electronic deregulation

The second case is about an e-Government initiative at the Ministry of Flemish Community (the regional government administration for Flanders) in Belgium. The project aimed at deregulating license management procedures for investors wishing to make investments in the Flemish Community. The project information reside from personal communication and interviews with managers in charge for the project.

4.1   Starting Point: deregulation of administrative burdens for investors

In 1998, the Ministry of the Flemish Community launched a change management initiative in order to simplify administrative procedures for investors seeking to obtain licenses or applying for regional investments. A survey had outlined that potential investors were discouraged by the actual State of administration procedures.

- Sufficient information on requisites and procedures for licensing were not available.

- Regulations and service levels of the licensing process were inconsistent and differed between the various levels of authorities.

- There has been no transparency on the licensing process, which made the legislation and administration uncertain.

- The processing of information and licensing was slow and cost intensive.

The increasing dissatisfaction of investors made the ministry setting up an action plan, which was composed of 20 projects divided in two categories: (1) long-term targets and (2) short term targets.

- The long-term actions focused on reengineering license management procedures. They aimed at *integrating* and *harmonizing* license regulations and legislation.

- As short term target, a Government-to-Business portal was initiated. The one-stop portal targeted the virtual integration and deregulation of license management.

4.2   Transition phase and further evolution

In 1999, a change of government took place. Among the 20 projects of the former action plan just a few 'survived'. Although the new government considered the Know-How and insights revealed during the 1998 study as feasible, they did not follow-up with the change project.

During the following three years, the Government-to-Business portal was put online and served as an information and interaction-based platform. The Ministry of the Flemish Community was able to improve the relation between investors and government. However, the change project as a whole was indirectly stopped.

In 2002, the e-Government initiative was re-launched by a different department. The 1998 study results were lost and new efforts were made in order to set up a completely

new action plan. Additionally, another e-Government initiative was launched in 2002 on a regional level, aiming at integrating every local movement. This initiative only focused the information technology component, led to a slowing down of development of existing portals and finally failed.

Now, in 2004 the Ministry of Flemish community perceived the first measurable optimizations. The licensing process is more deregulated and simplified than in 1999.

4.3 Critical steps towards e-Regulation: evaluation and conclusion

The case of the Flemish Community clearly outlines the challenges of deregulating administrative procedures and structures. The 1998 action plans outlined an urgent need to reengineer license management. These consolidated findings went further than a pure translation of existing procedures by technological means. However, the ministry formulated the necessity of a web-based interface to the private sector actors.
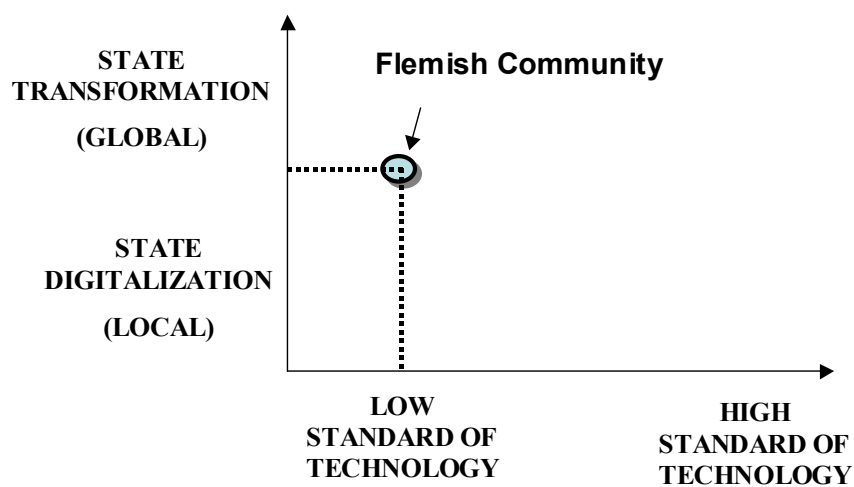

Figure 6: The Flemish Community e-Governance matrix

Within our matrix, we position the e-Government initiative in the upper left-hand sector, which we define as the *regulation & policy-making* view. (see Figure 6) The standard of technology applied was low (pure web-based interfaces).

In 1998, appropriate measures were taken into account in order to move towards an integrated e-Governance approach.

- Information technology supports the front-end process integration for the 'clients' of deregulation (private sector companies and investors).

- Process reengineering and change management approaches are effective means for the conceptual back-end restructuring of deregulation.

According to the e-Governance drivers, we conclude the following level of e-Governance maturity. (see Figure 7)

TECHNOLOGY: The front-end process integration by information technology turned out to be sufficient for partial wins. However, technology did not contribute comprehensively to the overall success of the project. Technology simplified and supported the process integration, but did not cover the reengineering of licence management as a whole.

LEVEL:	Initially, the project took place on a local level. It was re-launched on a national level in 2002. In both attempts, the projects did not succeed to implement a comprehensive reorganization of licence management. On local level, the web-based portal was initiated successfully, while the national initiative disappeared in technology-focused hazards.
ACTOR:	The reorganization of licence management involved multiple actors. During the project phase(s), the public sector was the main know-how leader in licence management and private sector service providers were responsible for technology transfer and project methodology. In summary, involved actors stated, that the project did not succeed to establish a committed project structure joining the crucial competencies in the areas of information technology, legislation, process management and customer relations.
FUNCTION:	The project targeted the deregulation of licence management. Deregulation meant improving and simplifying complex procedures and rules, which were embedded in rigid political systems. The project was faced with a high level of complexity and uncertainty regarding potential solutions.

In summary, the e-Governance driver analysis leads to the following visualization of project's state of progress regarding our e-Governance model.
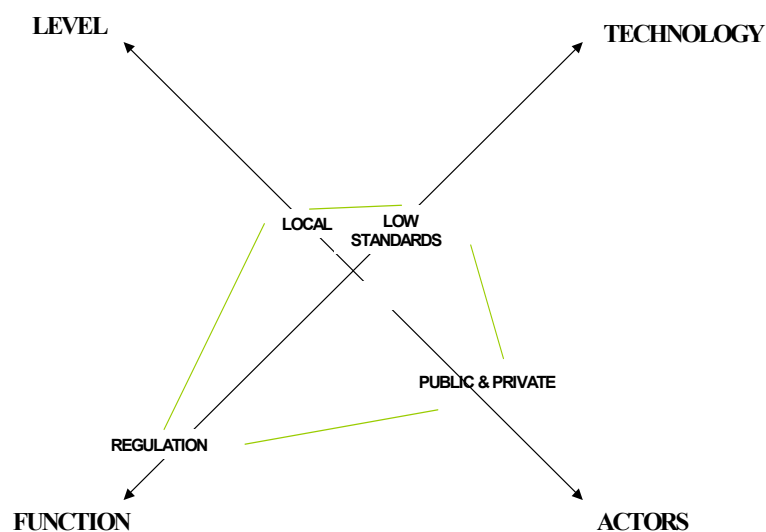

Figure 7: The maturity of e-Governance – The Flemish Community

Focusing each driver, we conclude the following hypotheses.

FUNCTION&TECHNOLOY: *A project in e-Regulation goes far beyond the digitalisation of the existing; it is a comprehensive change management approach.*

The digitalization of existing processes and procedures, by implementing standardized information technology means (e.g. web-based interfaces) is on the short-run sufficient to satisfy the needs of 'clients'. However, in terms of functions, deregulation requires fundamental investigations, a strong commitment to the project

target and crucial competences within the project team to successfully accomplish an e-Regulation initiative.

LEVEL&ACTORS: *Changes in governments have a very critical influence on the sponsorship and progress of an e-Regulation project.*

In 1999, the newly elected government did not accept the ongoing actions. The lack of sponsorship and insufficient involvement of the right actors on the right levels made the project being preliminarily stopped. Discordance and uncertainty about the future the concepts of deregulation finally hindered the project to be processed clearly.

Handling *State transformation* means managing multi-level complexities. As the case has shown, deregulation of administration is challenging and difficult to accomplish. It can neither be done by simply focusing information technology, nor can it be done effectively by changing procedures and regulations separately. A holistic implementation approach is crucial. It is necessary to integrate actors on multiple levels with complementary competencies. In addition, e-Regulation requires the exploitation of technology standards to discover and support news forms of public-private collaboration. Deregulation cannot be processed effectively by government and administration themselves. In the e-Governance framework, it is technology, which drives the transformation process.

5 The Canton of Geneva: a case study on electronic policy making

We have chosen this third case as a good study on the status, perspectives and issues of electronic voting in Europe.

5.1 Starting Point: information (and) technology, the policy system and changing habits of citizens

Switzerland is a decentralized country with high technological standards and a direct democratically system. During one year, Swiss citizens are called four to six times a year to the poll. In 2000 the Republic and State of Geneva (Switzerland) conducted a poll, which aimed at identifying the needs of citizens and society related to e-Government. As a result, 66% of the Swiss internet users preferred online voting. (Chevallier 2003) In 2002, 52% of the Swiss people had an internet access and most of the cantons offered voting by either polling stations or by post. (Bonard 2002)

During the years of the dot-com boom, e-Commerce technologies improved significantly. Web technologies and security management tools offered various opportunities to improve government services.
The Geneva electoral law allowed e-Voting initiatives to be tested without the necessity of parliament approvals and Geneva's voters were the first in Switzerland to be already registered in a digital format. Only slight changes on federal and cantonal election law had to be made in order to process electronic ballots.

Finally, the e-Voting project, launched in 2001 and tested with 450 web users of all ages, went 'live' in may 2002 within the framework of a real voting situation with 16.000 school attendees. In 2003, two small scale ballots were processed successfully in villages with 1200 and 2500 registered voters. During the first half of 2004, there is a ballot with 18.000 registered voters. The ballot's target is to decide whether to buy or not to buy a local cinema. Voters do have the choice of internet based voting, voting by post or visiting the local polling station. (Chevallier 2004)

5.2 Fostering e-Policy-Making: The Geneva Internet voting system

The State of Geneva has implemented a comprehensive architecture, enabling the citizens to highly participate in the democratic opinion building and policy making process. In our evaluation scheme, we consider the Geneva e-Voting project as follows.
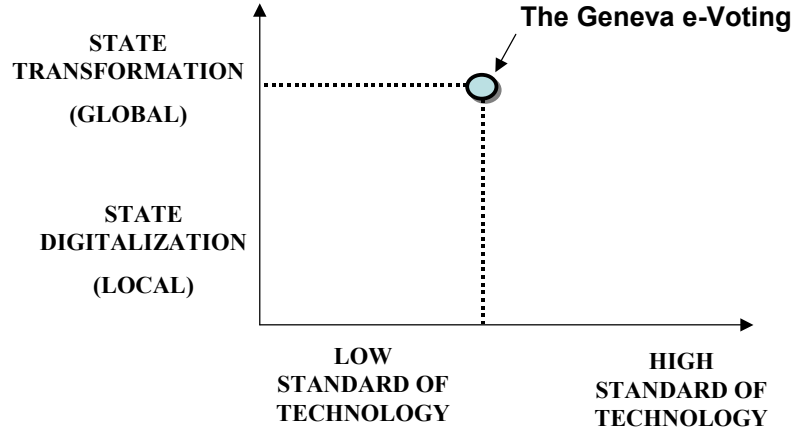

Figure 8: The Geneva e-Governance matrix

In our e-Governance evaluation scheme, we consider the Geneva e-Voting project in terms of State transformation as advanced, while the impact of information technology is on a medium level. (see Figure 8) In Geneva, technology has had an impact on the evolution of how citizens engage within the policy-system. Furthermore, the political regulations were adapted in order to facilitate the processing of electronic voting.

From a more detailed perspective, we describe the impact of information technology on the State of Geneva as follows.
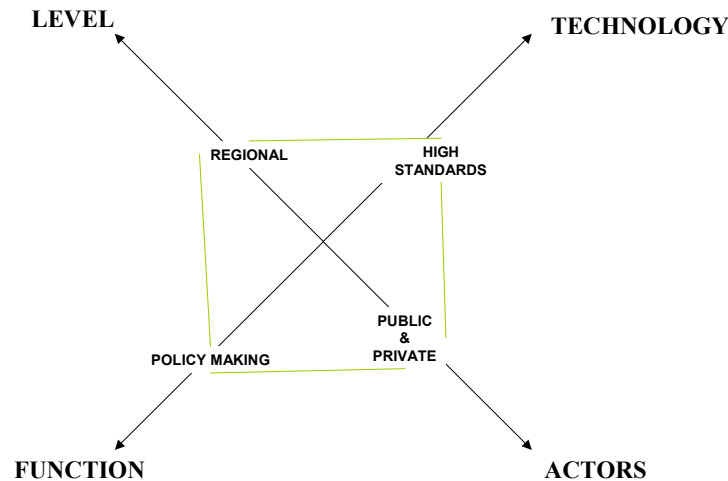

Figure 9: The level of e-Governance maturity -Geneva

The core drivers of the Geneva e-Voting project are (see Figure 9):

- **TECHNOLOGY**: The technology is based on a solid technological architecture. The security standards are high and do optimally follow the legal requirements for internet based voting. Technology is easy to use and accessible for target audience.

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- **LEVEL**: At the present time, the internet voting system enables local and regional actors to participate in the political opinion making process on the basis of an electronic voting system.

- **ACTOR**: The Geneva voting system involved multiple actors. The composition of the voters was heterogeneous (e.g. age, gender, social background).
  The development team of the e-Voting system was composed of public and private sector actors. The property rights belong to the public sector. In terms of the knowledge to enhance and maintain the system, the public sector is independent on the private system integrator.

- **FUNCTION**: The internet voting application is part of a broader e-Governance initiative. The e-Voting system actively animates the citizens to engage in the political opinion making process.

The case represents an effective approach to improve policy making by applying information technology. Regarding the impact of information technology on the transformation of the State, we draw the following conclusions.

ACTOR&LEVEL: *Electronic policy making is a very sensitive challenge. It has to be exploited carefully by bringing together public administration, legislation and the private sector.*

Prior to implementation, the canton of Geneva conducted an examination on necessity, implications and legal requirements of an e-Voting initiative. Local, regional and even national legislations were slightly adjusted in order to enable a successful implementation of e-Voting.

The e-Voting system was built in a public-private partnership. The system integration's main requirement was sustainability and a custom-made solution. Once the system was finished, the State of Geneva wanted to be able to further improve and maintain the e-Voting system without being dependent on private sector service provider.

TECHNOLOGY: *Information technology has an increasing impact on the influence of society in policy-making processes.*

The e-Voting system drives the evolution of an information society in the canton of Geneva. Due to technological and procedural improvements, during the last eight years the voter turnout increased by 20 percent. (Chevallier 2003)

The citizens are digitally registered in the e-Voting system. Consequently, the voters only need internet access to participate. With the voting system, government took better into account the habits of many citizens, which fostered the increase in voter turnout.

SUBSTITUTION&MIRRORING: *Transition to electronic policy making needs a gradual approach to be implemented in order to gain acceptance and sustain commitment.*

The e-Voting system is introduced gradually. In doing so, the government on the one hand examines the acceptance the new polling methods and on the other hand smoothly introduces society to a new technology. In fact, there have been more voters above 60 years old on the internet (14%) than voters under 24 years (12%). (Chevallier 2004)

Information technology influences the perception of the policy-making processes in the canton of Geneva. Furthermore, the e-Voting system confirmed, what the Geneva government assumed: technology positively impacts the way, society interacts with the current policy-systems.

6   How do e-Service-Delivery, e-Regulation and e-Policy-making affect the transformation of State?

Each of the cases represents an example of how information technology takes over control of interaction between State and its stakeholders. Furthermore, the cases are examples of how information technology changes the perception of State and the role of the State in society.

The implementation of electronic functionalities for governmental service provision enhances the interface between State and society. It solves problems arising from expensive administrative procedures and intransparent rules and regulations. Information technology thus fosters the legitimization of State. More precisely, information technology changes the society's commitment to the State. On the one hand, technology enables the State to pay more attention to the habits and developments in society. On the other hand, technology provides citizens with new methods and tools to make use of their stake in the State, in whatever manner.

The three core functions of State, namely service-delivery, regulation and policy-making, are mainly affected by the transformation process. Since information technology highly impacts those functions, we consider information technology as one of the key drivers of State transformation. This phenomenon is what we call e-Governance.

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