Technical Foundations to Cut Down Administrative Red Tape: The Case of the Canton of Vaud

Olivier Glassey, Sophie Pichaureaux

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Olivier Glassey
Swiss Graduate School of Public Administration
Swiss Public Administration Network
1015 Lausanne, Switzerland
+41 21 557 40 20
olivier.glassey@idheap.unil.ch

Sophie Pichaureaux
eGovernment Program, Canton of Vaud
Av. Longemalle 1
1020 Renens, Switzerland
+41 21 316 01 85
sophie.pichaureaux@vd.ch

ABSTRACT
In this paper, we describe an analysis framework we developed in order to analyze the implementation of a simplification strategy in a Swiss Canton. This strategy is based on a participatory analysis of services and on the development of eGovernment foundations through the use of open standards and open source software. This framework takes into account both the supply side of administrative services and the user uptake. We will furthermore present preliminary results of our survey.

Keywords
eGovernment, foundations, e-Services, users, standardization, case study.

1. INTRODUCTION

In its 2007-2012 legislature program, the government of the Swiss Canton of Vaud (700'000 residents) defined a set of strategic objectives. Amongst them, the goal of "simplifying administrative tasks" was defined, with the secondary objectives of implementing a relevant information system strategy and of developing eGovernment through the use of open standards and open source software.

This simplification approach called "SimpA" was launched in March 2010 and currently its main achievements are:

- 180 proposals for simplification were gathered through idea boxes.
- An internal working group came up with another 50 proposals.
- Three consultation groups are currently surveying external partners: businesses, municipalities, and citizens.

At the moment of writing, a first wave of around 50 proposals was selected by department and office managers in order to be implemented.

Now this idea of administrative simplification is nothing very new and has been around at least since Charles Dickens and his red tape. Let us not go that far back, but we will mention the Red Tape Commission that was created in the Canadian province of Ontario in 1996 (and discontinued in 2003). Closer to us, the Missouri Red Tape Reduction Act took effect on January 1st, 2010. What we find interesting in the Canton of Vaud approach is (i) that they rely on eGovernment to cut down red tape; (ii) they decided to develop generic technical components in order to support this simplification approach.

Indeed, in 2010 the Parliament of the Canton of Vaud voted a credit of 6.4 million Swiss Francs to develop the technical foundations for eGovernment in 2010-2013. Once these foundations are in place, the second wave of the program is the development of fully integrated eGovernment solutions (2013-2017).

The 2009-2013 IT Strategy of the Canton of Vaud defines the following scenario:

- Modernizing infrastructures
- Consolidating and developing technical components that are necessary to reach the 2013 target system
- Facilitating the implementation of new projects and reducing costs
- Identifying business productivity gains acquired through IT and administrative simplification
- Allocating part of the cost savings reached by better business processes to the maintenance of the eGovernment platform.

The main business objectives (in taxation, finance, human resources, security and justice, population, statistics, health, employment, land management, education, culture) were analyzed in order to find out common needs in terms of IT/IS. A list of required components was defined, comprising tools such as a single point of entry; identity and access management; content management; ePayment; business process management; multi-channel diffusion of electronic content, procurement, eForms, population and business registers, BI, CRM, etc. This publication on the case of the Canton of Vaud comprises two main parts: (i) the development of an analysis framework to assess administrative simplification with regard to eGovernment; (ii) a preliminary analysis of the strategy of the Canton and its implementation.

2. ANALYSIS FRAMEWORK

Our analysis model relies on two main dimensions:

- *Supply side*: what type of services are provided through which channels?
- *User Uptake*: are these services used? Do they contribute to cut down red tape in the view of users?

This model was first developed to analyze eTaxation systems [1], but we believe it can be generalized. In order to analyze the supply side we use the work of [2] who define four levels of services:

- *Information and intention building* phase: governments publish information on the Web and users can download forms.
- *Contracting* phase: users can file administrative procedures online.
- *Service delivery* phase: users can finalize a procedure and pay fees online.
- *Aftercare phase*: follow-ups, complaints and appeals are managed online.

Regarding the channel types, [3] write that three types stand out as being used the most by citizens: Web, phone and front desk. In order to study these channels they define several modes based on who is the initiator of the interaction and on the level of interactivity:

- *Allocution*: an organization sends information to the citizens.
- *Registration*: a citizen sends information to the organization.
- *Consultation*: a citizen uses an information source provided by the organization in order to find the data he/she needs.
- *Conversation*: user requests information and the organization provides the information, tailored to the user's needs.

[3] furthermore integrate the concept of (financial) transactions, where money (and not information) is exchanged between citizens and governmental organizations.

Table 1 shows an example of a combination of these two approaches and can be used either to describe the current situation of eGovernment systems (as-is situation) or to identify user needs and requirements for a future system (to-be situation). In this example we list the existing communication modes corresponding to front desk/phone/online communication channels for each level of services. We consider the paper-based workflows to be integrated within the traditional front desk channel.

Table 1. Level of service and communication channels

	Front desk	Phone	Online
Information and intention building	*Allocution*	*Conversation*	*Consultation*
Contracting	*Registration*		*Registration*
Service Delivery	*Transaction*		*Transaction*
Aftercare	*Conversation*	*Conversation*	

Furthermore, we need dimensions and criteria in order to assess eServices. We thus combine two models that are not too different from one another and cover similar grounds. The first one was developed by [2] who propose a number of evaluation criteria for each of the following dimensions of eServices:

- *Information quality*: relevant, accurate, timely and context-pertinent information is provided.
- *Usability*: system is easy to use and provides support (search, download, help FAQ, etc.)
- *Multi-channel*: information is provided on multiple channels and taxpayers can return their data likewise.
- *Security* and *privacy*: information is sent to the right person at the right place over secure communication channels.
- *Service quality*: service should not only be faster but also better
- *Empowerment*: instructions are available to help users master the different channels and services.

The second model from [4] is based on the following five categories:

- *Content*: quantity, quality and personalization.
- *Presentation*: appearance, format and multimedia.
- *Usability*: user interface, navigability, orientation, search, structure.
- *Technical*: security and privacy, performance, compatibility, reliability and maintenance.
- e*Services* & *Interactivity*: quantity, quality, online payment, online learning, technical services, informational services.

However, these two models only look at the supply side (content and services provided by the administration) and do not allow analysis of the demand side or the user uptake of such systems. We therefore use the work of [5] who base their assessment of online tax declaration use in nine European countries on the ACM model (Access to the internet, Competence in using the internet and Motivation for using the internet to communicate with authorities). We extended the motivation dimension by using the model of [6] who applied the theory of planned behavior to measure user acceptance of the eTaxation system in Taiwan. They introduce concepts such as attitude towards perceived risk [7], perceived usefulness [8] or trust [9]. We also integrated subjective norms and intentions on the basis of [10, 11] who propose "an integrated research model that distinguishes beliefs and attitudes about the system from beliefs and attitudes about using the system". To survey the behavior of those using technology they also rely on the well-known technology acceptance model [8]. This theory suggests that users confronted with a new technology are influenced in their use by the:

- *Perceived usefulness*: [8] defines it as "the degree to which a person believes that using a particular system would enhance his or her job performance";
- *Perceived ease-of-use*: [8] describes this as "the degree to which a person believes that using a particular system would be free from effort".

Returning to [11], they compare the work on information systems' user satisfaction by [12, 13, 14, 15] in order to define their own framework. They propose a list of more than 40 variables to survey user satisfaction, amongst others:

- *System quality*: accessibility, timeliness, language, flexibility, integration, efficiency;

- *Information quality*: accuracy, precision, reliability, currency, completeness, format, volume;
- *Service quality*: relationship with staff, communication with staff, technical competence of staff, attitude of staff, schedule of products or services, time required for new developments, processing of change requests, vendor support, response time, and means of input.

Table 2 shows the two sides of our assessment model and lists the dimensions that we will analyze. We will not discuss in detail why we chose one indicator over the other from the literature mentioned above. We will however point out that there is a loose correspondence between supply-side indicators and demand-side indicators: content is linked to access, usability is related to perceived usefulness, perceived risk is a function of the communication channel, trust is partly based on security and privacy guarantees, and competence has to do with the technicalities of a system.

Table 2. Evaluation of eServices supply and user uptake

Supply side	**User Uptake**
Content	*Access*
Usability	*Perceived Usefulness*
Multi-channel	*Perceived Risk*
Security and Privacy	*Trust*
Technical	*Competence*

This model is rather generic and we completed it with specific requirements introduced by the eGovernment program of the Canton of Vaud:

- *Business needs*: the eGovernment program is centralized and does not know precisely the requirements of all departments and offices, thus it needs tools to define them.
- *Governance model*: multiple stakeholders are involved, within the Canton of Vaud, but also externally.
- *Auditability*: all services provided by the Canton of Vaud must comply with existing regulations; auditability is required in order to do so.
- *Support*: assistance for users who are not able to complete an online administrative service.

3. PRELIMINARY ANALYSIS

As mentioned in the introduction the administrative simplification (SimpA) began in 2010, as did the eGovernment program. For the time being there are many business services that are online but they are in "silo" mode. At the time of writing we do not have enough information to provide in-depth analysis and sound results. This paper is a picture of the situation at a given moment in time (March 2011) and we plan on using our framework again at some point in the future, in order to be able to compare the two situations and to measure if the program has made progress towards the objective of cutting down administrative red tape.

Let us also remind our readers that we are looking at the technical foundations eGovernment program that was defined by a bill of the Parliament of the Canton of Vaud. Although the objectives of this program are to develop technical components, it is based on a broader view (Fig. 1): the definition of governance mechanisms, integration of the communication and legal aspects of such projects, and strong integration with business processes and business requirements. The eGov technical foundations are shown in blue and they are implemented with the objective of supporting business processes.

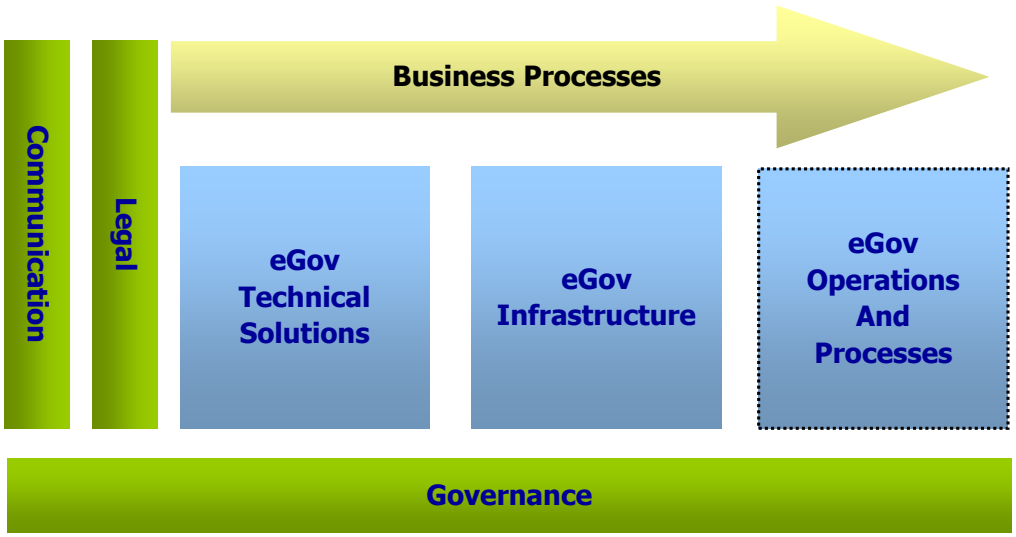

Figure 1. Canton of Vaud eGovernment Program.

We are now going to analyze this eGovernment program according to the framework defined in §2.

3.1 Supply Side

3.1.1 Content

The supply side of the Canton of Vaud in terms of eGovernment is rather large: citizens can order a number of official documents and extracts, businesses can request a working permit or transfer fiscal data automatically, etc. However most of these services have been developed in an ad hoc manner and are not integrated in a global eGovernment strategy. The main objective of the eGovernment program is to give access to all eServices through a single point of access on the one side, but probably most importantly it is to allow reuse of component and transversal integration of electronic procedures. At the moment there is only one component that would qualify for the latter. ConVerCE is an intelligent online form generator that is in use throughout various departments: concrete applications of this tool are, for example, the online generation of apprenticeship contracts between business and the Canton of Vaud (Fig. 2), or the application for an authorization to excavate Cantonal roads.

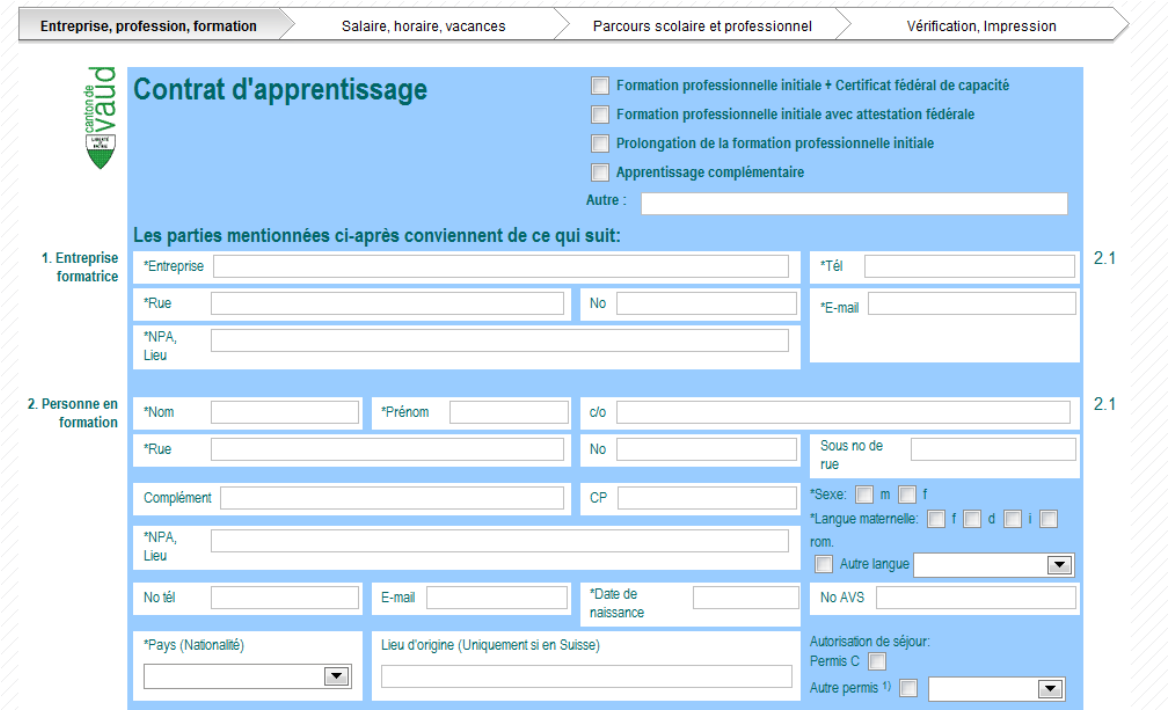

Figure 2: eForms for Apprenticeship Contracts

3.1.2 Usability

At the moment there is no systematic method with regard to usability. However this is taken care of by using various mock-up approaches during the analysis phase, as well as during the testing phase. In the above example, the apprenticeship contract forms have been tested by a dozen of companies before they were fully available online. Occasionally the IT department of the Canton of Vaud has worked with usability experts, on dedicated projects.

3.1.3 Multi-Channel

Again there is no systematic approach regarding the multi-channel service provision: the choice is up to each office or department. An inventory of such practices is currently being conducted, as well as a feasibility study.

3.1.4 Security and Privacy

The Canton of Vaud uses an IAM (Identity & Access Management) platform to give a single sign-on and secure access to all administrative resources. It is only used for employees and formal partners, but the objective is to extend the use of this portal to residents and other external stakeholders. This requires the resizing of user directory. An ongoing survey is trying to identify best practice as regards user management in other Swiss Cantons and European countries, notably regarding the scaling up of such systems.

3.1.5 Technical

We will not go into the specifics of which components are available or under development here. We will rather focus on the match between technology and requirements: see §3.3.1.

3.2 User Uptake

At this point we cannot really elaborate on user uptake, as there are very few existing transversal services that were implemented by the administrative simplification program. This part of the model will be used in our next survey of the Canton of Vaud eGovernment program. We can only mention that issues such as perceived risks, usefulness, or trust, are addressed by the internal user groups (from the core administrative businesses) and that it is planned to integrate end-users such as citizens or businesses in a second round of analysis.

3.3 Specific Requirements

3.3.1 Business Needs

What is interesting in the case of the Canton of Vaud eGovernment program is that the technology is in advance with regard to the business needs. Thus the eGovernment program is not based on a classical requirement analysis but on change management. The eGovernment team uses agile practices (such as rapid prototyping and developing proofs of concept) to coach business users and experts in order to delegate the responsibility of business analysis to the end-users. This goes along with the mock-up approach described in §3.1.2.

3.3.2 Governance Model

The eGovernment program introduced a radical change in terms of governance. Rather than relying on the traditional hierarchical and silo structures, it introduced a reference group comprising representatives of the Chancellery, of the information and communication Bureau, of the IT department, and of selected administrative offices using eGoverment services. This reference group is piloting the program in a transversal manner and has a set of given responsibilities such as enhancing participation, process modeling, validating solutions, planning, etc.

3.3.3 Auditability

There are many legal issues to be taken care of around eServices, and legal departments are in charge of these. However compliance management should probably also be part of such an eGovernment program. For the time being, auditability is based on keeping a trace of who does what in what context and when. There are further monitoring tools, which track system alerts and also integrate business rules that can trigger specific business alerts. They allow for auditing security, transactions/volume, performance, etc.

3.3.4 Support

In the Bill that was passed to fund the development of eGovernment components, it was explicitly stated that no support was planned. This is the state of things currently, but the phase we called “Aftercare” in our model will be investigated more thoroughly during the proof-of-concept phase starting in September 2011.

4. CONCLUSIONS AND FUTURE WORK

For the time being we have generalized an assessment model developed for eTaxation systems and applied it to work in progress in the context of the eGovernment program in the Canton of Vaud. As we do not have enough information it is hard to draw any conclusions other than that we found the framework useful in describing the situation at a given moment in time. However we believe it goes further than just a case description, as it will allow us for comparison when we survey the Canton of Vaud eGovernment program again.

5. ACKNOWLEDGMENTS

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