

# Interoperable government providing services: key questions and solutions analysed through 40 case studies collected in Europe

Alain BUSSON & Alain KERAVEL  
*HEC, EOLE laboratory, Paris*  
*keravel@hec.fr, busson@hec.fr*

**Abstract :** Looking at a large number of European local e-government achievements involving interoperability between information systems, the authors analyse some key questions than the political and operational decision makers have to answers in order to lead such projects. Conclusions are the following: The region seems the main actor in Europe able to develop programme with a long or medium term strategic planning (5-10 years). Strategic choices have to be done between portal or platform approach, between centralised or decentralised architecture. It is necessary to have a close look at security and privacy issues at the beginning of the project, because they are linked with the future user audience of the e-services. Operational choices have also to be done concerning the balance between technological or organisational innovation; quick wins motivate administrations to develop interoperability between information systems; Business Process Rebuilding is a long path difficult to achieve; the audience of the services and the civil servant adaptation are the key success factors. As a conclusion the authors present how the TERREGOV solution could be change this actual state of the art.

## 1 Introduction

Taking the view that government services are offered by a number of administrations interacting one with each other and that local administrations often act as a front office to the Citizen, one of the main challenge of e-government is to make it possible for local administrations to become a channel for delivering online a large variety of services in a straightforward and transparent manner regardless of the administration(s) actually involved in providing those services.

The involvement of several actors in the service delivery (national or local administrations, public agencies, non profit organisations, private service providers...) leads to develop technical interoperability between the different legacy systems and to improve cooperation between the different organisations.

## *Objectives and methodology*

This paper is an outcome of the socio –economic researches undertaken in the frame of the on going integrated IST project (IST-1-507749) TERRREGOV (Impact of e-Government on Territorial Government Services). It will present a cross analysis of 40 case studies of achieved services using interoperability between territorial governments.

This analysis will be first focused on the project sponsor point of view (strategic issues) : We will explore the questions addressed during the strategic positioning of the project by the sponsor:

- Where is the good level for this project; the municipalities, the region, the state?
- What will be the scope, the size of the project?
- What will be the choice between a centralised vs. decentralised architecture?
- What will be the choice concerning the transaction security?

Then, the analysis will explore the questions addressed during the implementation of the project by the project manager (operational issues) :

- What are the questions to ask at the starting point ?
- How to be clear about the achievements expected ?
- How to proceed at a technical, organisational or change management level ?

## **2 Strategic issues**

### **2.1 Relevant level for decision making : critical size is needed**

Macro-economic context : the ability of each local actor to invest in e-Government solutions is constrained by its degree of autonomy and its financial resources, i.e. by the political and administrative organisation of its country. More important than the “static” administrative organisation are the patterns of collaboration between the different administrative levels (State, Regions, Provinces or Districts, Municipalities) which are very different from one country to another. E-Government solutions are more developed in countries where there is a clear cooperation between all the public actors and a common strategy in the field of e-administration (Germany, Italy...).

Micro-economic context : the investment costs needed for the development of interoperable e-Government solutions are mostly too high for a municipality. In all the cases analysed the investment cost of a e-Government platform is of the order of at least €1 million and can reach more than €15 million. On average, public funding is about €2 or 3 million. Furthermore, small municipalities do not have the finance and human resources to develop and manage complex IT solutions.

The investment risk can only be taken by actors who :

- have sufficient geographical influence (critical size)
- can play a significant strategic planning role in order to coordinate national strategy and the local initiatives
- have the financial resources and the know how to develop IT solutions
- have the ability and the legitimacy to provide pooled solutions to local governments.

In many countries, this role is played by a regional administration (Italy, Spain, Germany, Belgium).

## 2.2 Scope of the project : long term vision and cooperation

The development of interoperable e-Government solutions is a long and complex process. It supposes :

- an IT infrastructure which allows the possibility of an efficient exchange of information between Administrations.
- homogeneous equipment of all the actors involved
- a significant number of end-users

It supposes also the involvement of many actors (internal or external). It needs often a high level of investment and has many economic and organisational impacts.

Therefore, such projects need a long term vision and a strategic planning.

“Wall-On-Line” is the name given to the Walloon region electronic government project. Adopted in June 2001 by the Walloon government, this project is conducted under the authority of the Minister-President. The overall objective of the Wall-on-Line project is to develop e-Government and implement the concept of a one-stop shop with multiple accesses, common to all authorities - 2004-2009 regional policy declaration. (Interoperability project – Belgium)  
“The development of the project in the departments may seem slow as it took almost 10 years to be accomplished. Its success relies on constant efforts and perseverance, while adapting to local communities and partners’ pace.” (VIRGIL – France)

## 2.3 Main choices

### Portal or platform<sup>1</sup> ?

In several cases, service delivery is provided with a “portal” approach. The portal is well designed for information provision and data sharing. It aggregates content coming from various sources and allows the easy localisation of information delivery by use of co-branding solutions. It is also a good solution for a “one-stop shop” approach improving vertical co-operation. Nevertheless this solution needs significant investment supported by a single actor and an efficient networking of all the actors involved which conditions the quality and the updating of information.

The main services provided on the Bremen Online Services portal are the following:  
- a one stop shop where the citizens can register in a secure way and with only one single form their new address  
- upload administrative forms (civil status) with electronic signature, on line payment of taxes  
- a one stop shop where the students can manage all the university procedures (BOS – Germany)

Some other initiatives are built with a “platform” approach. The platform does not aim at centralising and dispatching the data but provides common tools and common functionalities (security, data exchange mechanisms, electronic signature...) that allow the service delivery. In this configuration, local actors are directly responsible for service provision and have to coordinate their actions (technical and organisational interoperability).

The InfoVille platform provides for free an operating model which includes :  
- hosting spaces for municipal portals,

---

<sup>1</sup> The distinction between portal and platform is useful to compare two different orientations : front office orientation (portal) vs. back office orientation (platform) ... even if a portal is always built on a technical platform.

- a module for technical management,
- a module for administrative management,
- web tools that enables local actors to publish web contents and services (InfoVille – Spain)

### Architecture of service provision

There are two generic models used to implement e-services which involve different administrations.

- the use of a platform, linked with each actor of the service provision, which manages the service and act as front office for the end-user (centralised organisation).
- the use of a platform which provides some technical common functionalities to different administrations which remain independent and responsible for the service provision (decentralised organisation).

The case studies show that the centralised architecture model is the rule, the decentralised the exception.

- Most of the national or regional platforms observed are centralised and link the municipal governments in ASP mode (or with XML flows). This architecture is easier to implement because it does not need significant investment or internal reorganisation in the local governments. The financial and technical effort is done by the regional (or national) actor. Local governments have only to adapt and link their IT systems to the central platform.
- Nevertheless the increasing maturity of local governments in the field of IC technologies and the political willingness to respect the autonomy of each local actor has lead to the adoption of a more decentralised architecture. Decentralisation of data management also meets the needs of an electronic administration which respects the privacy rights of the citizens.

### Security issues

Ensuring security and protecting privacy are crucial issues for the development of e-Government. It is obvious that the end user will not use electronic procedures instead of paper forms if its transactions with the public administration are not managed in a secure and trustworthy way.

The case studies show clearly that the key concept is scalability.

- because the majority of administrative transactions do not need a high level of security
- because secure procedures are expensive, difficult to implement and not always well accepted by the end user, as shown by the German examples

### Privacy issues

Although an European Directive harmonizes the different national legislative frameworks, differences remain that concern :

- data interchange between public administrations (limited or without any restriction)
- personal identifier (unique personal number vs. several identifiers)

The solution has to be adapted to each national context, i.e. to be flexible enough in order to comply with national laws

## **3 Operational issues**

### **3.1 Starting point : technical or organisational innovation ?**

e-Government is not primarily about the technology, but technology is, of course, the enabler, and technological changes constitute an important driver and opener of new opportunities.

Nevertheless, it is possible to develop interoperability mostly from an organisational perspective, as shown by the following example :

POINT COM' is a public service office designed as a unique resource to deal with the various queries expressed by the public and which direct the end-user to the appropriate public organisations. This kind of service needs however :

- a mediation agent able to manage the diversity and the complexity of the cases
- an in-depth reorganisation of the administrations and a strong coordination between them in order to give in real time appropriate answers to the questions asked.

This project was built without any technical innovation (Point Com' – France)

### **3.2 Results and achievements : cost savings or improvement of the quality of service ?**

Although rationalisation of expenditure is a major goal of public administrations, public actors are not as much concerned by financial aspects as private companies. In the public sector, introduction of e-Government solutions is seen more as an opportunity to improve the quality of service delivery than to cut down expenses.

Management of school transportation (Belgium)

The implementation thanks to the TIC allowed simplification, for the schools and the other actors, of the filling in of the application through " intelligent " forms available on the Internet site of the school Transportation Department. It allowed a double saving of time: saving of time in the transmission of the file and in its encoding by the administration. Finally, all the actors use the same information system, the monitoring of the progress of the files has been found to have been greatly simplified.

The advantages noted by all the actors are the following : speed of file management, clarity, coherence and completeness of the application, global view on the school transportation system.

On the contrary, the project management by a private actor leads to a better economic visibility.

KMD is a private company in charge of the NetCitizen portal . KMD considers NetCitizen as a long-term investment of strategic importance. An effect of this is that the economic success criterion is tied to NetCitizen and the amount of related business that it will create. So far KMD have had to invest a lot in technology, competence development and marketing in order to build a successful portal that has been accepted by public and private actors as well as citizens (NetCitizen – Denmark)

### **3.3 Management of change**

#### Business process rebuilding

Business process rebuilding is necessary to implement e-Government applications and requires a partial or full integration of the back-offices involved in the service provision. It also entails a re-definition of the jobs of many civil servants. Many actors consider that the main benefit and cost savings of introduction of e-Government services will be obtained with in-depth internal reorganisation as shown by several projects in the Nordic countries.

“In order to estimate possible rationalisation effects of the services that are designed and offered KMD conducts business process analysis on all processes in the administration that implement the services. This has allowed KMD them to specify what benefits that could be gained. The most common result of these analyses is that the technology in itself may give 20% of a given saving while the redesign of organisational processes provides the remaining 80% of the saving” (NetCitizen - DK).

However, bureaucratic inertia, resistance to change impose to IT teams in charge of the implementation of e-Government services a progressive approach : civil servants will not accept to change dramatically the way they do their jobs without a clear vision of the added value of the technical innovation (win-win strategy). Therefore, it is necessary to carry out impact studies and processes analysis in order to implement major structural changes. Those studies will facilitate negotiations with the actors involved in the service provision and increase the acceptability of technical and organisational changes.

#### Human Resources issues

The move to an electronic interoperable administration is a long process. The case studies analysis confirms the clear preference for a pragmatic approach : “to enrich the old practices with the new ones, to give an active identity to the user, to smoothly change the social equilibrium of the organisation”.

The analysis points to three main conclusions

- *Strengthening of existing collaborations* in order to create new ones : interoperability (vertical or horizontal co-operation) is easier to implement when the actors are used to collaborating. Even then, it takes time.
- *Collaboration more than imposition* : "things change naturally and it is not necessary to inflict them. Changes impact the heart of organizations, practices and culture. This can only be done gradually ".
- *Training* : project implementation, in almost all the cases analysed, is based on extensive training sessions. Training in this implementation process is essential. Training contributes to cultural change, to the knowledge transfer, to enable civil servants to use the technology.

FHH management team is very careful to support change management within the regional administration. It put a KM platform into service, open to the whole administrative staff - 30.000 civil servants (Hamburg Gateway - Germany)

## **4 How TERREGOV solutions answer to these key questions?**

For the decision makers TERREGOV solution could change the landscape described above

- TERREGOV solution offers a Service-oriented Architecture that proposes to wrap existing information systems into Web Services to make them interoperable. As a result a high degree of organisational autonomy is supported by the TERREGOV platform and the question of the relevant level of decision could be asked in a different way. Responsibilities could be shared in a different way.
- The length of strategic planning to obtain significant results on the field could be reduced with the TERREGOV solution capacity to build flexible e-procedure
- TERREGOV as a platform solution dedicated to interoperability will not act as a information system integrator but will allow loosely IS coupling

<b>Integration</b>	<b>Interoperability</b>
Participant systems are assimilated in a larger whole	Participant systems remain independent and autonomous
Systems must conform to a specific way of doing things	Systems may share information without strict standards of conformance
Connections (physical and logical) are brittle	Connections (physical and logical) are loosely coupled
Rules are programmed in custom code, functions or scripts	Roles are modelled in schemas, domain models, and mappings
Standard vocabularies are encouraged	Local data vocabularies are encouraged

- For security and privacy issues TERREGOV solution could select relevant e-procedure in a flexible way respecting the diversity of constraints
- 
- 
- Semantic facilities embedded in the TERREGOV solution could facilitate the organisational integration by fostering Knowledge management driven model
- Collaborative tools embedded in the TERREGOV solution could facilitate the change management process.