EVALUATING THE CONTROL APPROACH ON THE ITALIAN E-GOVERNMENT STRATEGIES THROUGH THE IT GOVERNANCE FRAMEWORK

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ABSTRACT

The digitalisation of the Italian Public Sector aims to simplify the complex of relationships among Public Authorities (PAs) and between PA and its customers (citizens or businesses) exploiting the potentialities of integration, inter-connectivity and multi-channel approaches offered by the new technologies.

The high complexity due to the PA national competence and to the different users involved, imposes an “IT governance” approach: in this context the strategic decisions concerning the IT investments cannot be left to the case or simply delegated to the IS department discretion; they need a strategic direction able to ensure homogeneity and coordination at a national level.

IT governance satisfies this requirement since it imposes formalised planning models that can be referenced by all the Local PAs (LPAs) involved in the implementing phase as warranty of homogeneity and integration.

These models do not only refer to the strategic planning: they also allow the systematic use of performance estimation methods for a fast analysis of the strategy designs’ implementation i.e. the analysis of the components’ answers involved in the innovation process.

This paper evaluates the adequacy of the estimation approach adopted by the Italian PA. It will use a formalised model, the IT governance framework (ITgf), to map some ICT strategies stated by the PA to highlight the cause and effect relations among the strategic components and the Critical Success Factors (CSFs) that should be under control.

Therefore, the actual PA control parameters will be showed: the comparison between the actual control values and the expected ones will highlight that the IT governance approach has not been adopted by the Italian PA yet, although all the circumstances evidence that it should be.
1. INTRODUCTION

In the last few years, governments are trying to build up the so-called “Information Society” (Anttiroiko 2001), a society able to manage information making wide use of the most innovative ICT. The aim is to simplify all the relationships between the Public Administration (PA) and its citizens creating the conditions for the reduction of the public expenses and promoting “compliance”, i.e. the spontaneous citizen obedience to the public duties. This would lead implementing the e-government, here defined as “a public organization that makes extensive use of ICT”. All the key decisions for the e-government implementation represent a “core business” affair since they cannot be delegated to the IS departments or to the outsourcers: on the contrary, they need a strategic direction as warranty of homogeneity and integration among different organizational units. The IT governance approach is the answer to this need since it enables a strategic direction and control of these decisions: this is a high need in complex organisations (multi-business e multi-service) with a high number of local IT applications and where the integration among different organizational levels is very crucial (Giustiniano 2005). The PAs are typical complex organizations. In particular, many e-government strategic initiatives have been implemented among different PAs so that an IT governance approach becomes necessary. IT governance does not only refer to the strategic planning: it also imposes a control over a coherent system of performance values. This involves the systematic use of an evaluation method for a fast analysis of the effectiveness and the efficiency of the strategy implementing process as well as of the coherence between the strategy initiative outcome and the e-government objective. This will lead the PA to promote the competitiveness of the whole country and the social welfare besides avoid wastes of resources.

2. THE RESEARCH METHOD AND BACKGROUND

The analysis has been conducted principally on public domain information since “the public sector is the biggest single collector and producer of information content in all areas of public life [...]” (Bonn Ministerial Declaration 1997). The large volume of public information is recognized to be comprehensive: it covers long periods, and is generally accurate (Hadi & McBride 2000). However, the
analytical approach of the public data has involved the need of a framework able to show the main strategic components of the e-government strategic initiatives and the cause and effect relations among them.

A framework is an useful representation of a specific situation or thing. Frameworks and models typically describe reality without dealing with every detail of it (Alter 2002).

In particular, this paper will refer the ITgf: it collects the main strategic components useful for planning and monitoring an IT strategy. The strategic components are classified into two categories: relationships and resources. The framework shows two IT governance perspectives: one of Back-Office (BO) and one of Front-Office (FO). A strategy initiative can mainly affect one or both the perspectives (figure 1).

Figure 1: The IT governance framework (ITgf)

The strategy initiative must plan actions and enable specific components to produce some effects with the aim to carry out the strategy design. Therefore, it should enable a strategic component to cause a specific effect on another component according with a cascade process.

Every strategic component, that is managed to affect others components, constitute a performance driver. The final component of the cascade is expected to produce the outcome i.e. the key aim. The realised strategy represents the effective result produced. The feed-back process must evaluate the realised strategy through meaningful driver measures and outcome measures.
The outcome measures represent what the organisation must achieve and the driver measures track how the strategic components are contributing to the organization’s key aim. To guarantee the effectiveness and efficiency of the whole strategy, every strategic component must be under control.

According with this approach the ITgf will be used to make explicit the cause and effect relations among the main strategic components involved by every e-government strategy initiative and the CSFs that should be under control. The research concerning the cause and effect relations among the strategic components has recognized to be a fundamental step to identify were the evaluations should be done and to verify if the implementing path is efficient and able to produce the expected results (Van Grembergen 2000).

In particular, the next section employs the ITgf to show the Italian e-government strategy designs: the strategic components will be referenced to point out where the outcomes are expected. The e-government strategy designs will reference the purposes stated by the Italian PA (MIT 2002, 2003 a, 2003 b). The section after that one collects some e-government strategy initiatives: in this case, the ITgf will be referenced to identify the cause and effect links among the strategic components involved by every specific initiative. This step will allow to identify were it is necessary to evaluate driver and outcome measures for a coherent IT governance approach. Finally, the comparison with the actual evaluation criterion followed by the Italian PA will prove that the Italian PA evaluation approach differs from the IT governance approach since it focus only on some components of the strategy initiative and not on the whole process that tracks the strategy implementation.

The strategy initiatives and the evaluations of the realized e-government strategies will reference Censis, Rur, Federcomin, Formez and the Department of the Public Function data (Rur et al. 2003, Federcomin 2003 a, b, c).

3. THE ITALIAN E-GOVERNMENT STRATEGY DESIGNS

Figure 2 schematizes the BO and FO prospective and the strategic components of the ITgf: relationships and resources. These last ones are classified as people, ICT, process, data and other resources. They represent all the resources that
characterise an Information System IT-focused since IT governance focus on IT strategy (Cavallo & Martellucci 2005, Mertens et al. 2004).

![Figure 2: The strategy designs over the strategic components](image)

In this section figure 2 has been referred to classify the e-government strategy designs according with the outcome expected. Thus, the analysis of every Italian e-government strategy design refers the strategic component from which the outcomes are expected. Figure 3 shows the e-government strategy designs according with the declarations of purposes performed by the Italian PA (MIT 2002, 2003 a, b). The Italian e-government mission is “to promote the extensive use of the ICT in the PA”. For this purpose the PA defines as “strategic” in the BO side, the A2A (Administration-to-Administration) and the A2B (Administration-to-Business) relationships, i.e., respectively, the relationships to establish among public administrations and between public administrations and private subjects. For the FO side, the PA defines A2C (Administration to Customer) relationships that represent all the relationships between the PAs and
the final user (citizen or enterprise) to promote. Others strategy designs (such as “clear responsibility identification”, “quality insurance”, etc.) affect a specific resource: looking at this, it is necessary to establish one or more outcome measures able to represent if the key aim has been achieved. The strategy initiative refers to the strategy design drawing up the fundamentals steps of its implementation: in this way, the control objectives and related measures could be highlighted. Next section will collect some strategic initiatives performed to implement some of these strategy designs and will examine the coherence of the PA evaluation approach.

4. THE STRATEGY INITIATIVES AND THE EVALUATION APPROACH

Every specific initiative implementing an Italian e-government strategy design has been mapped according with the perspectives (BO and/or FO) and the strategic components involved with the aim to identify the cause and effect relations. The ITgf has been used to identify every cause and effect link that is expected among the strategic components: this is also an useful manner to identify all the CSFs involved, i.e., where the evaluations should be done. The ITgf approach indicates, as CSFs, every strategic component of the cascade resulting from the strategy initiative mapping process. These components can be also qualified as “performance drivers” when they are managed to affect another strategic component or as outcome producer when they are expected to produce the key aim. The evaluation of the drivers’ measures, together with the evaluation of the outcome measures, constitutes the control practice that is expected. Outcome measures, without drivers’ measures, do not communicate how the outcomes are to be achieved. Moreover, drivers measures without outcome measures, may lead to significant investment without a measurement whether this strategy is effective (Van Grembergen 2000). The cause and effect maps show the expected sequence of performance drivers for every e-government strategy. For each of them, one or more specific kinds of drivers’ measures appear between parentheses in coherence with the strategy initiative purpose. The last strategic component of the cascade shows, between parentheses, the kind of measures for the expected outcome.
4.1 Back-Office initiatives

4.1.1 Implementing strategy designs on BO processes: the strategy initiative 1

The Italian PA implements the following kinds of collaborations to make the online transaction procedures operative and secure and to sustain the technology innovation:

- between LPAs (A2A);
- between LPAs and private administrations (A2B), i.e. local agencies, banks, Chambers of Commerce and ASL (Azienda Sanitaria Locale - Local Health Office). Collaborating with private subjects allows the technological adaptation with fewer expenses.

The map concerning this strategy initiative can be described as follows:

BO: RELATIONSHIPS (entity of A2A and A2B relationships) ► ICT (innovation, technological adaptation) ► PROCESSES (on-line transaction operability, security, efficiency).

The evaluation practice of the strategy initiative 1: figure 4 (Federcom in 2003 b) represents the evaluation of the performance drivers “RELATIONSHIPS”: most of the ICT investment (the average value is 75%) has been financed through mixed funds (private and public): the size of these funds can measure the A2B relations while 10%, 23% and 26% can measure the A2A relations.

![Figure 4: Sources of the ICT investment (Federcom in 2003 b)](image)

Shortcomings: no evaluations have been showed on the ICT performance driver (innovation, adaptation and efficiency) and on the outcome measures from...
4.1.2 Implementing strategy designs on BO processes: the strategy initiative 2
In the BO side, the Local and Wide Area Networks (LAN, WAN) enable the integration and resource sharing among processes. This strategy initiative on the BO side has been mapped as follows:

BO: ICT (kinds of LAN and WAN and their spread) ➤ PROCESS (level of integration and resource sharing)

The evaluation practice of the strategy initiative 2: the evaluation, in this case, concerns the kinds of networks that have been implemented: depending on the subjects involved in the exchange of resources and in the integration of functions, they have been created different types of networks:

- between LPAs: creation of a standard procedure that will join many of the greatest LPAs;
- between private and public subjects: the private subjects’ experience and structures could serve important public services (e.g. tax payment, eProcurement procedures) through outsourcing contracts.
- on a national level: creation of only one national concessionary, that organizes on-line auctions for the supplies, that allows the administrations to implement a fundamental service without supporting the high costs of technological adaptation.

Shortcomings: no measure is available for the spread of this kind of networks as well as for the level of integration and resource sharing that is due to LAN and WAN implementations.

4.2 Front-Office initiatives

4.2.1 Implementing strategy designs on FO people: the strategy initiative 1
The institutional communication on web increases thanks to the internet spread and the pioneering success of web-based applications in many Italian LPAs (regions, provinces, communes). The evolution and specialization of LPAs web-
sites contents improve the on-line services. The cause and effect links for this initiative can be mapped as follows:

FO: ICT (LPAs web-sites specialization and integration) ▶ PROCESS (on-line services improvement and enlargement) ▶ PEOPLE (level of communication)

The evaluation practice of the strategy initiative 1: a first evaluation available refers to the kinds of integration of the technology solutions: it was born a territorial portal connected with the institutional site according with two models:

- a complete integration between two dimensions: the territorial portals represent those parts of the institutional sites offering services to the citizens;
- territorial portals in a parallel position with the institutional ones: the territorial portals constitute a guide to the services, able to address the customer to those sites where the transaction can be done.

A second evaluation measures the LPAs web-sites specialisation since it evaluates a particular kind of content (communication channels) and its spread among the LPAs web-sites. Tables 1 and 2 (Rur et al. 2003) indicate how much the main communication channels have been provided, in the LPAs web sites, to communicate with the public authority (table 1) or to access information services (table 2). In other words, these tables show how many LPAs have adopted every communication channel in their web-site.

<table>
<thead>
<tr>
<th></th>
<th>Regions a.v.</th>
<th>Provinces %</th>
<th>Chief town councils %</th>
<th>Others communes %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone</td>
<td>1</td>
<td>9,0</td>
<td>15,7</td>
<td>6,3</td>
</tr>
<tr>
<td>Form/e-mail</td>
<td>18</td>
<td>65,0</td>
<td>67,6</td>
<td>38,5</td>
</tr>
<tr>
<td>Chat/Web cam</td>
<td>-</td>
<td>1,0</td>
<td>2,0</td>
<td>0,4</td>
</tr>
</tbody>
</table>

Table 1: Contacts with the chief town councils or with the president of regions or provinces through the LPAs site – (Rur et al. 2003)

<table>
<thead>
<tr>
<th></th>
<th>Regions a.v.</th>
<th>Provinces %</th>
<th>Chief town councils %</th>
<th>Others communes %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wap</td>
<td>4</td>
<td>4,0</td>
<td>5,0</td>
<td>1,2</td>
</tr>
<tr>
<td>Sms</td>
<td>2</td>
<td>3,0</td>
<td>8,0</td>
<td>0,8</td>
</tr>
<tr>
<td>Freefone</td>
<td>18</td>
<td>95,0</td>
<td>89,0</td>
<td>3,8</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>1,0</td>
<td>1,0</td>
<td>-</td>
</tr>
</tbody>
</table>

1 percentage (%) and absolute values (a.v.)
Table 2: Information channels among LPAs - (Rur et al. 2003)

Again, with reference to specialization, a third evaluation shows if there is an increase of the multi-channel approach among the LPAs: table 3 shows that, there was not an increase of the multiple channel approach in the years 2001-2002.

<table>
<thead>
<tr>
<th>Years</th>
<th>Regions a.v.</th>
<th>Provinces %</th>
<th>Chief town councils %</th>
<th>Others communes %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>01</td>
<td>02</td>
<td>01</td>
<td>02</td>
</tr>
<tr>
<td>Multi-channel distribution of information</td>
<td>6</td>
<td>6</td>
<td>8,0</td>
<td>7,0</td>
</tr>
</tbody>
</table>

Table 3: The LPAs use of multiple channel approach (Rur et al. 2003)

Finally, a third evaluation refers to the enlargement of the on-line services: nowadays citizens can express their opinions through the discussion spaces on the LPAs web sites. They can refer to arguments of general interest; they can regard considerations or claims, or (more rarely) the participation to the decisional process.

*Shortcomings:* the data collected shows the LPAs effort in adopting a multi-channel approach to communicate with citizens showing the communication-channels spread inside the web sites and the enlargement of the on-line communication potentiality. Nevertheless, there were not measures showing how much citizens effectively use these channels (i.e. the level of communication).

4.2.2 Implementing strategy designs on FO data: the strategy initiative 2

Everybody must be able to access, in real-time and from any place, to rationalised and upgraded data banks, quite apart from the customer technology (digital points of service, chat, portals, e-mail, fax, telephone or free-number, call center or web call center). This multi-channel FO requires high investments in technology reengineering. The creation of Territorial Information Systems (TIS) could represent an interesting solution: they represent the integration of several data files on the territory and allow obtaining detailed, complete, up-to-date and personalized information. The map that follows describes this FO initiative that involves also the BO side:

FO: ICT (diffusion of TIS applications) ►DATA (integrity, univocity, completeness) ►►BO: DATA (integrity, univocity, completeness)
The evaluation practice of the strategy initiative 2: the evaluation of this strategy has shown that most of the LPAs web sites do not develop TIS applications able to supply the services shown in table 4. In the most cases (72%) there is not information TIS provided. Therefore, there are high difficulties in developing ad-hoc applications able to collect and integrate the available data through TIS.

<table>
<thead>
<tr>
<th>Absence of information</th>
<th>76</th>
<th>72,4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presence of information</td>
<td>9</td>
<td>8,6</td>
</tr>
<tr>
<td>One way interaction (e.g. consultation maps in a static way)</td>
<td>10</td>
<td>9,5</td>
</tr>
<tr>
<td>Two way interaction (e.g. consulting maps through database, demanding maps)</td>
<td>7</td>
<td>6,7</td>
</tr>
<tr>
<td>Complete transaction (e.g. purchasing maps)</td>
<td>3</td>
<td>2,8</td>
</tr>
</tbody>
</table>

Table 4: Level of interaction reached through TIS in the web sites of the Italian chief town councils (% and a.v.) - (Rur et al. 2003)

Shortcomings: there is not evaluation concerning measures on data integrity, univocity and completeness when the services are TIS provided.

4.3 A summarizing table
The following table (table 5) collects the maps of the strategies described in the above sections. For each strategy’s step, the kind of the driver/outcome measure appears below. Next to every kind of measure, there is the number of surveys that the PA has actually collected.

<table>
<thead>
<tr>
<th>Section</th>
<th>PERFORMANCE DRIVERS</th>
<th>OUTCOMES</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1.1</td>
<td>BO: RELATIONSHIPS►</td>
<td>ICT►</td>
</tr>
<tr>
<td></td>
<td>entity of A2A relationships</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>entity of A2B relationships</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.1.2</td>
<td>BO: ICT ►</td>
<td></td>
</tr>
<tr>
<td></td>
<td>kinds of LAN and WAN</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>spread of LAN and WAN</td>
<td>0</td>
</tr>
<tr>
<td>4.2.1</td>
<td>FO: ICT ►</td>
<td>PROCESS ►</td>
</tr>
<tr>
<td></td>
<td>LPAs web-sites specialization</td>
<td>2</td>
</tr>
</tbody>
</table>
Table 5: Maps of the strategy initiatives, driver/outcome measures expected, and actual evaluations

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Driver</th>
<th>Outcome</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPAs web-sites integration</td>
<td>1</td>
<td>on-line services enlargement</td>
<td>1</td>
</tr>
<tr>
<td>4.2.2 FO: ICT ► DATA ►► BO: DATA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diffusion of TIS applications</td>
<td>1</td>
<td>Integrità</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>integrity</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>univocità</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>univocity</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>completeness</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>completeness</td>
<td>0</td>
</tr>
</tbody>
</table>

Therefore, most of the evaluations concern the first performance driver while there are no evaluations concerning the expected outcome. This would lead to some considerations. The first one concern the actual aim of every survey: the evaluations do not lead to an improvement of the whole strategy implementing process. They only highlight what the different PAs have done to implement the strategy designs. In other words, there is a fulfilment culture, rather than an improvement culture. For a coherent IT governance approach, the aim must be the implementation of the cycle for the continuous evaluation and improvement of the strategy effectiveness and efficiency. Measurement needs to be focused on the overall end-to-end process of the strategy’s life cycle. This would lead to track a cause and effect map for every strategy and to ask, for every step of the map, what is the objective and how we can measure it, as well as, what is the following step and what are the requirements that enable every component to produce the expected results. This approach is a key determinant of the organization’s ability to adapt to the ever-changing demands of its environment and constituted the basis of the organization learning from feedback.

5. CONCLUSIONS

The Italian PA has promoted the wide use of ICT in the public sector to increase, thought technology, the number and quality of services, the relationships with citizens and businesses and, last, but not at least, to reduce the public expenditure. The LPAs have undertaken many initiatives to implement all the related e-government strategy designs stated by the central PA. The public sector is
characterised by high complexity due to its national competence, to the multiplicity and heterogeneity of the organizational levels and public services. Moreover, the strategic importance of the e-government implementing plans prefigures the IT governance approach as the most suitable. In particular, among the multiplicity of the topics concerning the IT governance, this paper deals with that concerning the planning and control method. The aim is to evaluate the adequacy of the evaluation practices adopted by the Italian PA for the e-government strategies. The reference to a formalised model of IT governance, the ITgf, leads to track the fundamentals steps of the control process: they are the identification of the strategy designs, the mapping process of the cause and effect links among the main strategic components involved by every strategy initiative and the evaluation of the expected performance measures and outcome measures. The expected evaluation practice concerns all the drivers’ measures as well as the outcome measures since the second one communicate if the results have been gained and in what measure while the first one shows if the performance drivers have acted like enabling causes. This control perspective, that is coherent with the IT governance approach, has been compared with that actually adopted by the Italian PA. The results show that the actual control approach is quite different: most of the evaluations concern only the first performance driver while there are no evaluations concerning the expected outcome. The attention is on the investment performed rather than on the efficiency and effectiveness of the strategy implementing cycle: the fulfilment culture predominates on the improvement culture. Consequently, when the performance drivers have actually been enabled, there are no evaluations that verify how much this has influenced the following components performance: therefore the feedback that enables the organization learning is inadequate. In conclusion, this study has evidenced that the Italian PA has not adopted the IT governance approach yet, although all the circumstances evidence that it is the most suitable one. Further contributions in this research topic could lead to investigate the reasons that take to avoid a more coherent evaluation approach.
REFERENCES


