

# A Country Level Evaluation of the Impact of E-government: the Case of Italy

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## ABSTRACT

Despite considerable investments made worldwide in e-government initiatives in the past years, whether e-government succeeded in achieving the expected benefits in terms of increased efficiency, effectiveness and quality in the delivery of services is still under discussion. This chapter proposes an evaluation of the outcomes of the National Action Plan (NAP) for the diffusion of e-government at the local level in Italy. The evaluation considers whether the implementation of the projects funded under the action plan determined positive effects at the country level in terms of an increase in the value generated for different stakeholders. The discussion of data from both national and international secondary sources shows that during the period in which the benefits of the NAP should have become apparent no positive effects have emerged with evidence. The chapter argues that this depends on some of the principles the NAP has been based on that limited its capability of achieving the expected results.

## INTRODUCTION

During the last two decades considerable resources have been invested worldwide in supporting innovation in public administration. Most of these resources have been devoted to e-government, that is the use of Information and Communication Technologies (ICT) to achieve better policy outcomes, higher quality services and greater engagement with citizens (OECD, 2003). In the countries of the European Union, the policies for the diffusion of e-government have mainly been coordinated at the Community level within the frameworks defined by the member governments and implemented by the action plans set up by the European Commission. The more recent ministerial declaration on e-government is the Malmö declaration in which the joint vision is stated that by 2015:

European governments (...) use e-government to increase their efficiency and effectiveness and to constantly improve public services in a way that caters for users' different needs and maximizes public value, thus supporting the transition of Europe to a leading knowledge-based economy. (EU, 2009a, p. 1)

In order to achieve these objectives, in the Malmö declaration some priorities have been defined; namely:

- citizens and businesses empowerment by means of e-government services
- implementation of seamless e-government services to support mobility in the single market
- achieve efficiency and effectiveness through the use of e-government to reduce the administrative burden and improve organisational processes
- establish the legal and technical preconditions that make possible the implementation of the policy priorities (EU, 2009, p. 2)

All these priorities, as well as some of the specific actions devised to achieve them, were already included in the previous EU action plans for e-government. Actually, citizens' centrality, efficiency, effectiveness, transparency, responsiveness and accountability of governments have been at the centre of the e-government initiatives from the very beginning. However, under the current global financial crisis, the achievement of those objectives is even more crucial than in the past. Indeed, according to a survey run by the Organization for Economic Co-operation and Development (OECD) in 2009, almost all the member countries report that e-government is seen as a contribution to the economic recovery (OECD, 2009; Ubaldi, 2011). This is mainly due to the expectation that e-government investments will provide significant cost-savings both directly, in terms of improved efficiency and effectiveness of government organizations, and indirectly, in terms of better quality of the services delivered and reduction of administrative burden on citizens and

enterprises. However, this expectation is uncertain; indeed, after more than a decade of investments in e-government a discussion is still going on worldwide concerning whether the policies for the diffusion of e-government implemented so far succeeded in achieving the expected results.

This chapter discusses this problem by considering the case of Italy, with a specific focus on the evaluation of the outcomes of the policies for the diffusion of e-government at the local level established in the Italian National Action Plan for e-government (NAP). The evaluation is based on a holistic approach and it is performed at the country level using secondary data sources (Alalwan & Thomas, 2011; Srivastava & Teo, 2007, 2010), including surveys conducted by both national and international organizations and data provided by the Italian National Institute of Statistics (ISTAT) and the European Institute of Statistics (EUROSTAT). On the basis of the data considered, in the chapter it is claimed that at the moment no positive effects at the country level have emerged with evidence yet as a result of the NAP, neither for the citizens as such (in terms of an increase of the country's global wellbeing), nor for citizens as taxpayers (in terms of the reduction of the global cost of local government), for citizens as public servants (in terms of the increase of their human capital) and for citizens as entrepreneurs (in terms of the reduction of the administrative burdens on enterprises).

The chapter concludes that this scarce impact of the NAP depends on some of the principles it has been based on rather than on the way the funded projects have been implemented.

## **BACKGROUND**

In broad terms, e-government aims at the transformation of government through the pervasive use of ICT. As such, e-government should be considered as a system innovation; this means that the evaluation of the policies implemented for the spreading of e-government cannot be simply based on the possible success of single projects implemented at the local level (best practices). Rather, what is needed is a holistic approach allowing an evaluation of the impacts of those policies at the level of the whole system of government (Srivastava & Teo, 2007, 2010; Castelnovo, 2010; Alalwan & Thomas, 2011).

The whole system of government should be considered as a system of systems, that is a strictly interconnected system of components in which the activities performed by one of the components impact on the behavior of other components, not necessarily those more directly connected to it. In such a strictly interconnected system the "optimization" of one of the components can be achieved through actions successfully implemented locally. However, these actions could determine unforeseen "long-distance effects" that could impact negatively on other components of the system. Hence, positive effects shown locally not necessarily determine positive results at the level of the whole system. This is what typically happens when a government body (usually one belonging to a higher institutional level, for instance a ministry) implements solutions that while improving its performances put a further burden on other government bodies (for instance the municipalities that have to interact with that ministry). For this reason, although a single e-government project can be evaluated even simply considering the effects it generates locally, in the evaluation of general policies for the diffusion of e-government at the local level a holistic approach should be taken, considering the effects they can possibly determine at the level of the whole system of local government, and more generally at the level of the whole country development (Srivastava & Teo, 2007, 2010). In this chapter such a holistic approach will be assumed in the evaluation of the outcomes of the national policies for the diffusion of e-government implemented in Italy in the past decade. Since citizens (user) centricity is one of the leading principles of e-government, the discussion will start by considering what citizens centricity could mean in a holist approach to e-government evaluation.

The concept of public value is becoming increasingly popular in the discussions about the evaluation of e-government policies, even outside the limits of the academic debate (Castelnovo & Simonetta, 2007, 2008; Codagnone & Undheim, 2008; Benington, 2009; Misuraca, Alfano & Viscusi, 2011; Karunasena and Deng, 2010, 2012). However, such an interest toward public value is quite recent, at least in the European Union policies for e-government. Actually, the first time the term "public value" occurs within the EU Ministerial Declarations on e-government is in the Malmö declaration. This follows the shift observed in the 2009 report on the progress of the i2010 E-Government Action Plan prepared for the European Commission:

All of the five Action Plan objectives report a shift over the last few years in underlying requirements and developments. There is increasing focus on user centricity and empowering citizens and businesses, on benefits and impacts, and with a longer term concern for improving performance and public value. (EU, 2009c, p. 8)

In a broad sense, public value refers to the value created by government through services, law regulations and other actions. Public value provides a broader measure than is conventionally used within the new public management literature, covering outcomes, the means used to deliver them as well as trust and legitimacy. It addresses issues such as equity, ethos and accountability (Kelly, Mulgan & Muers, 2002; Castelnovo & Simonetta, 2007, 2008; Grimsley & Meehan, 2008; Harrison et al., 2011; Karunasena and Deng, 2010, 2012) and focuses on a “wider range of value than public goods; more than outputs; and what has meaning for people, rather than what a public-sector decision-maker might presume is best for them” (Alford & O’Flynn, 2009, p. 176). As pointed out by Karunasena and Deng (2010, p. 287), the popularity of the concept of public value is because it provides an inclusive framework for examining the performance of public services from the perspective of citizens. However, the delivery of services is just one of the elements through which governments can generate public value. Public value can also be generated through a better use of public resources by governments; a more responsive and trustworthy government; the improvement of the citizens wellbeing and the development of public trust.

The close relation between public value and e-government has been pointed out by Kearns (2004) that refers to the work of Kelly, Mulgan and Muers (2002) in a critical discussion about the excessive emphasis given to online services as the central element of e-government systems. Public Administration aims at producing value for citizens; thus, the use of ICT to improve government can be considered as a means to improve the production of public value. From this point of view, an e-government system can be evaluated by considering the possible increasing of public value deriving from the adoption of that system (Castelnovo and Simonetta 2007, 2008; Yu, 2008; Codagnone & Undheim 2008).

Since E-Government aims at a citizen centered vision of government, also the evaluation of an e-government system as regards the public value produced should be based on a citizen-centered approach (Bannister 2002; Alford, 2002; Alshawi & Alalwany 2009). Discussing the value of ICT for Public Administration, Bannister (2002) underlines that the definition of value reflects the fact that citizens interact with Public Administration, which creates public value, playing different roles as e-government stakeholders (Scholl, 2001; Alalwan & Thomas, 2011; Rowley 2011). A possible classification of the citizens’ roles as e-government stakeholders is the following:

- citizen as such: any person having the right of citizenship;
- citizen as taxpayer: person who, through taxation, finances public administration;
- citizen as user/consumer: person who “buys” a service from public administration, thus obtaining private value (for himself);
- citizen as beneficiary: person who receives a service from public administration without having to buy it;
- citizen as entrepreneur: person who benefits from the services of public administration as economical subject;
- citizen as participant: person participating in democratic processes;
- citizen as policy maker: person playing the role of policy maker within public administration;
- citizen as civil servant: person working for public administration;
- citizen as delegate agent: person working on behalf of Public Administration without being an operator of public administration;
- citizen as supplier: person who, as economic subject, supplies goods and services to public administration. (Castelnovo & Simonetta 2007)

These roles correspond to some modalities of interaction between citizens and public administration. Some of these modalities concern relations between public administration and subjects that are external to it (external stakeholders): they correspond to roles in which citizens receive a value from public administration as users of services or participants in democratic processes (user/consumer, beneficiary, entrepreneur, participant).

Other modalities of interaction, by contrast, concern internal relations (internal stakeholders): they correspond to relations between public administration and citizens playing a direct or indirect role in the processes for the production of value (policy maker, civil servant). In these roles citizens receive a private value from public administration (in terms of political or economical reward). Nevertheless, as these roles are responsible, on different levels, for the functioning of the organization, they might also receive a public value, for instance in terms of good functioning of public administration itself.

To these two kinds of roles a third one can be added, which includes roles external to public administration and yet involved on different levels in the production of public value, as it is the case of Networked Government. Examples of such “mixed” roles are the role of delegate agent and of supplier, in particular of service supplier (for instance an outsourcer).

In considering the classification of the citizen roles above it should be borne in mind that an individual can play many different roles simultaneously. Thus, for instance, an individual can simultaneously be a taxpayer that “funds” public administration, a consumer that uses the services delivered by public administration and a civil servant working in a public administration organization. This can generate a conflict of interests that must be considered in evaluating public administration from the point of view of the public value it delivers to citizens. Actually, as a user of the services a citizen would like to receive more and better services from the public administration. However, this could determine a higher cost for service delivery (at least on the short term), which could mean that the citizen has either to pay a higher cost for accessing the services or to be prone to incur in a higher level of taxation. Similarly, as a civil servant a citizen might want a higher wage, that is a private value for him; however, this could mean that public administration has to spend more for salaries and this, as a consequence, could force public administration either to invest less in improving the quality of the services (which means less value for the citizen as user) or to higher the level of taxation (which means less value for the citizen as taxpayer).

In the next sections of the chapter it will be considered whether the policies for the diffusion of e-government at the local level in Italy succeeded in delivering value to citizens, as they play some of the roles considered in the taxonomy described above. More specifically, by following a holistic and role based approach to the evaluation of e-government, it will be considered whether the implementation of the NAP determined positive effects for the citizens as such, as tax payers, as entrepreneurs (considering the case of small to medium enterprises) and as public servants.

## **THE DEVELOPMENT OF E-GOVERNMENT IN ITALY: AN OVERVIEW**

In the past decade many investments have been made in Italy for the modernization of the public sector through the deployment of ICT. These investments involved both the central government and the whole system of local government of Italy, which includes 8092 municipalities, 110 provinces and 20 regions. This modernization effort has been supported with investments both from the central government and from the regional governments, sometimes in an uncoordinated way. Actually, it was only in 2002 that a coherent framework has been established by means of the definition of the national action plan for e-government, which set up a set of modernization objectives coherent with the EU’s strategy for the information society.

### **The Italian Action Plan for E-Government (NAP)**

The Italian National Action Plan for e-government has been launched in 2002 with a first announcement for the co-financing of innovation projects with the aim of:

- using ICTs in order to achieve a significant increase in quality and efficiency of the services delivered to citizens and enterprises
- promoting the creation, or the transformation, of the services delivered by local government into online services, or anyway services accessible through multiple channels.

The first announcement was followed by the presentation of 377 projects, whose overall value was €1200 Mln. Out of these 377 projects, 134 have been co-financed with €120 Mln, for an overall value of about € 500 Mln (CNIPA, 2007). Those projects involved about 5000 public bodies, 3574 of which were municipalities (or aggregations of municipalities), covering an overall population of about 38 million citizens (out of the 59 million inhabitants of Italy in 2007, the year in which all the projects have been concluded).

The funded projects, that mainly concerned the implementation of online services for citizens and for enterprises, started in the spring 2003, after the signing of all the agreements for their activation, and should have ended within 24 months. At the end of 2007, 2 projects had never been started, 121 projects were completed, in the sense that all the planned services had been released, whereas the remaining 11 projects were closed without having released all the services that had been planned.

With a delay of about 30 months, the first phase of the NAP can be considered as concluded at the end of 2007 (so it was considered by the National Center for IT in Public Administration – CNIPA -, that was responsible for the monitoring of the projects funded under the NAP programme).

The NAP also included a second phase that has been launched in 2004, based on 4 specific lines for the funding of projects with the aim of:

**Line 1:** implementing the “Sistema Pubblico di Connettività e Cooperazione” (Public Connectivity and Cooperation System), that is a technical and organizational nationwide system for network communication, basic interoperability, cooperation and security services among administrations

**Line 2:** extending local availability of services for citizens and enterprises through the re-use of the systems funded under the first phase of the NAP

**Line 3:** including small municipalities (municipalities with less than 5000 inhabitants) in the diffusion of e-government at the local level

**Line 4:** promoting ICT projects aiming to allow democratic citizen participation in public decision-making (e-democracy)

Under the line 1, 56 projects that involved all the 20 regions of Italy have been funded with €32 Mln, for an overall value of about €97 Mln (co-financed with resources from the regions). The line 2 involved 36 projects submitted by aggregations of municipalities that have been funded with €37 Mln (out of the €60 Mln originally available). Under the line 3, 43 projects have been funded with €14,5 Mln, for an overall value of about €41 Mln. These projects involved almost 4000 municipalities, out of which more of 3000 are small municipalities, covering almost 18 Mln inhabitants. Finally, the line 4 funded 57 projects, out of the 127 submitted, with €9,5 Mln, for an overall value of about €41 Mln.

At the moment a complete analysis of the impact of the NAP is still missing (an exception is (CNIPA, 2008) that considers only 20 of the 134 projects funded during the first phase of the NAP), also due to the fact that many of projects funded under the second phase of the NAP started only in 2009. Actually, although the second phase of the NAP was launched in 2004, the funding for the projects based on the lines 2 and 3 was delivered to the municipalities only in 2009.

However, since the first phase of the NAP ended in December 2007 it is reasonable to expect that, after more than 4 years, the investments made under the first phase of the that programme have already started spreading their benefits. Moreover, it should be observed that (as reported by CNIPA (2007)), the release of services to citizens and enterprises began long before December 2007.

The projects funded under the second phase of the NAP that have a direct impact on the delivery of services to citizens and enterprises are those based on the lines 2 and 3. As observed above, those projects started only in 2009 and at the moment there are no complete data available concerning their progression (see (Ferro & Sorrentino, 2010) for a discussion of the impact of line 3 on small municipalities). However, since they concern the same services implemented with the projects of the first phase of the NAP, it seems reasonable to assume that they will show a similar progression pace. Concerning the first phase of the NAP, CNIPA (2007) reports that after 30 months from the beginning of the funded projects the earned value was 91% and about 70% of the total number of the planned services had already been released. From this point of view, it could be expected that also the projects of the second phase of the NAP should already be contributing, at least partially, to increase the efficiency and effectiveness of the Italian local government, to improve public services and to maximize the public value delivered to citizens and enterprises.

## **The results achieved**

As observed above, a complete and detailed evaluation of the outcomes of the policies for the development of e-government at the local level implemented in Italy is still lacking. However, some country level data are available that are usually considered as indicators that measure a country's progress toward e-government. In this section some of these data are reported that will then be commented in the next section.

Coherently with the objectives stated by the eEurope 2002 and the eEurope 2005 Action Plans the NAP pursued the objective of developing modern public services (available online) and a favorable environment for e-business through the widespread availability of broadband access and secure information infrastructures. Figure 1 below reports data concerning the availability and use of online services both for citizens and enterprises. Those data can be considered as a direct output of the NAP since the implementation of online services was the main objective for most of the projects funded under the NAP.

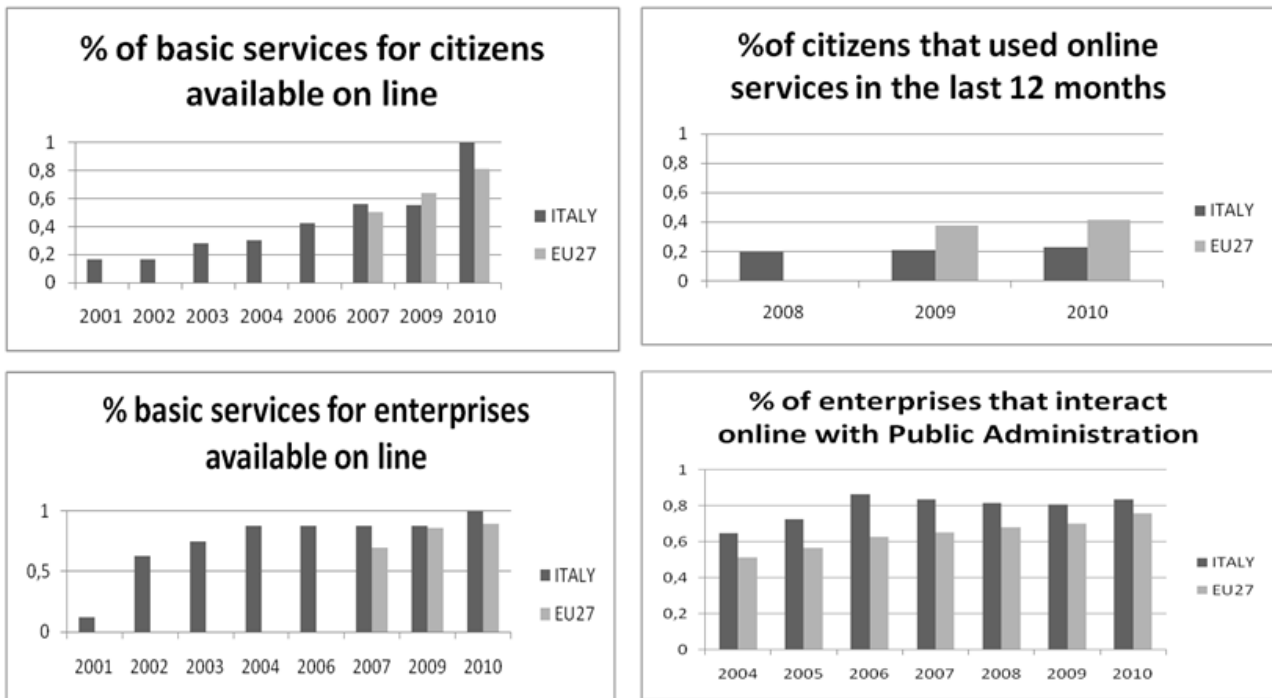


Figure 1. Online services availability and use (source: EU Digital Agenda Scoreboard (2011))

The NAP also aimed at increasing the availability of broadband connections in Italy both directly, by funding projects for the establishment of local infrastructures, and indirectly, by using online services as a driver to increase the need for broadband connections, thus making the private investments in broadband infrastructures more attractive. Figure 2 below reports data on the availability of broadband connections in Italy.

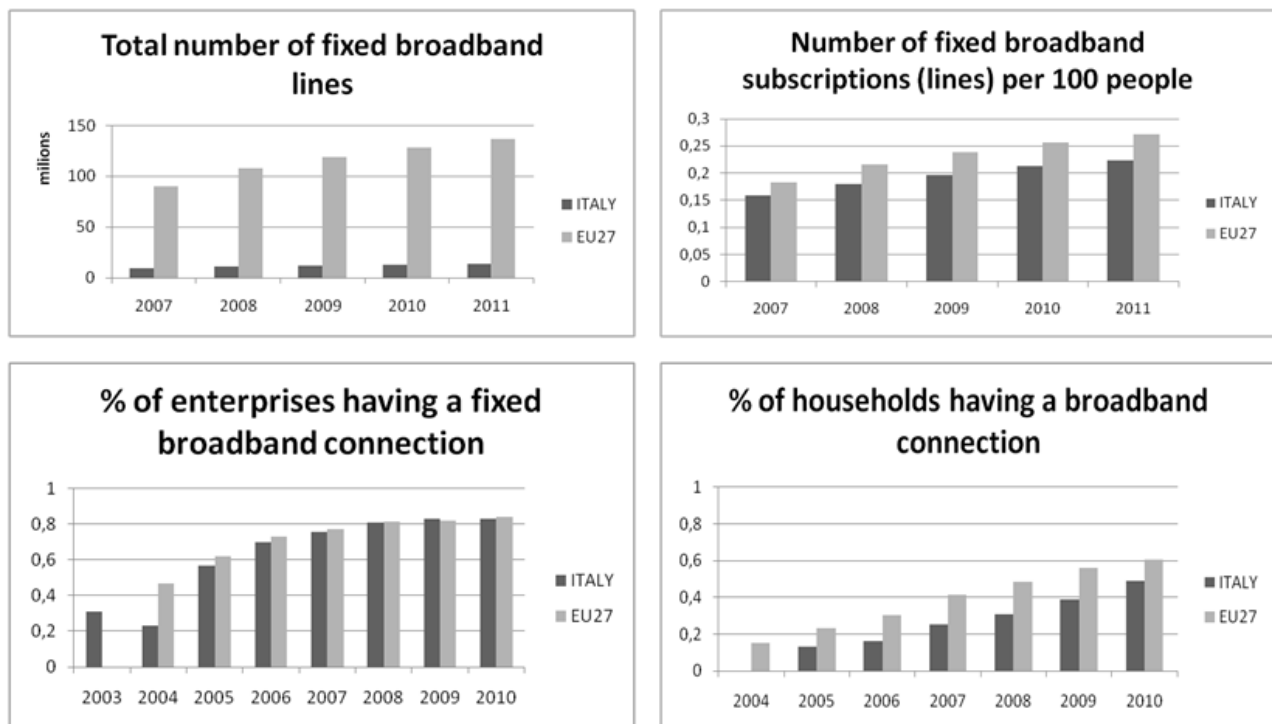


Figure 2. Availability and use of broadband lines (source: EU Digital Agenda Scoreboard (2011))

A significant amount of the funding delivered by the NAP has been devoted to increase the availability of ICT within the Italian municipalities. Figure 3 below compares the availability of ICT in the Italian municipalities from 2005 to 2009 (the last year for which official data are available), based on the data reported by the Italian National Institute of Statistics (ISTAT, 2006, 2008, 2010).

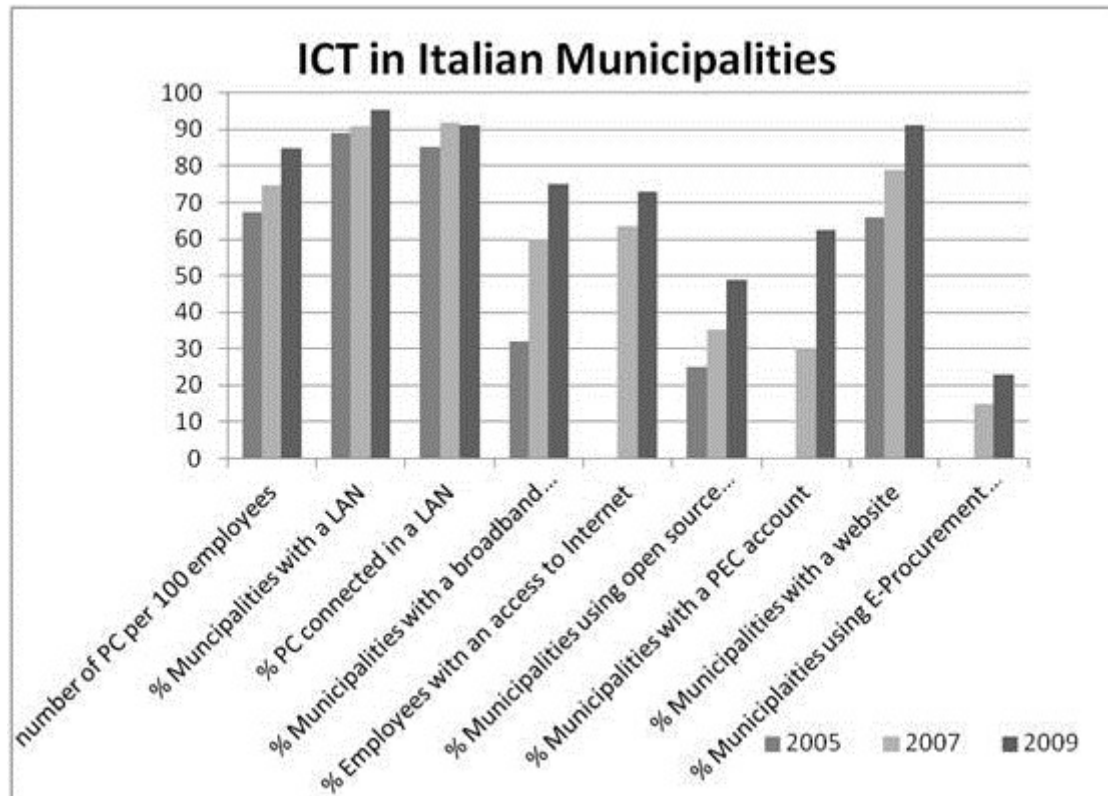


Figure 3. ICT in the Italian municipalities (source: ISTAT, 2006, 2008, 2010)

## A HOLISTIC AND ROLE-BASED EVALUATION OF E-GOVERNMENT

In this section an evaluation of the impact of the NAP at the country level will be introduced that is based on the holistic and role based approach described above.

The more general role in the taxonomy introduced above is the role of citizen as such, that is a person simply having the right of citizenship. Under this role there is not a specific value a citizen can get from government, but the one that derives from living in a developed and wealthy country. Seen from this point of view, the NAP can be evaluated by considering its possible contribution to the increasing of the wealth of Italy, due to the effect of the transformation of government it should have determined. In doing so an approach similar to that advocated in by Srivastava and Teo (2007, 2010) can be assumed, that suggests examining the payoffs from e-government in the form of national performance.

Figure 4 reports data concerning indicators frequently used to measure a country's wealth and performance (comparing Italy and the EU17 and EU27 countries), as well as the position of Italy in some well known international rankings.

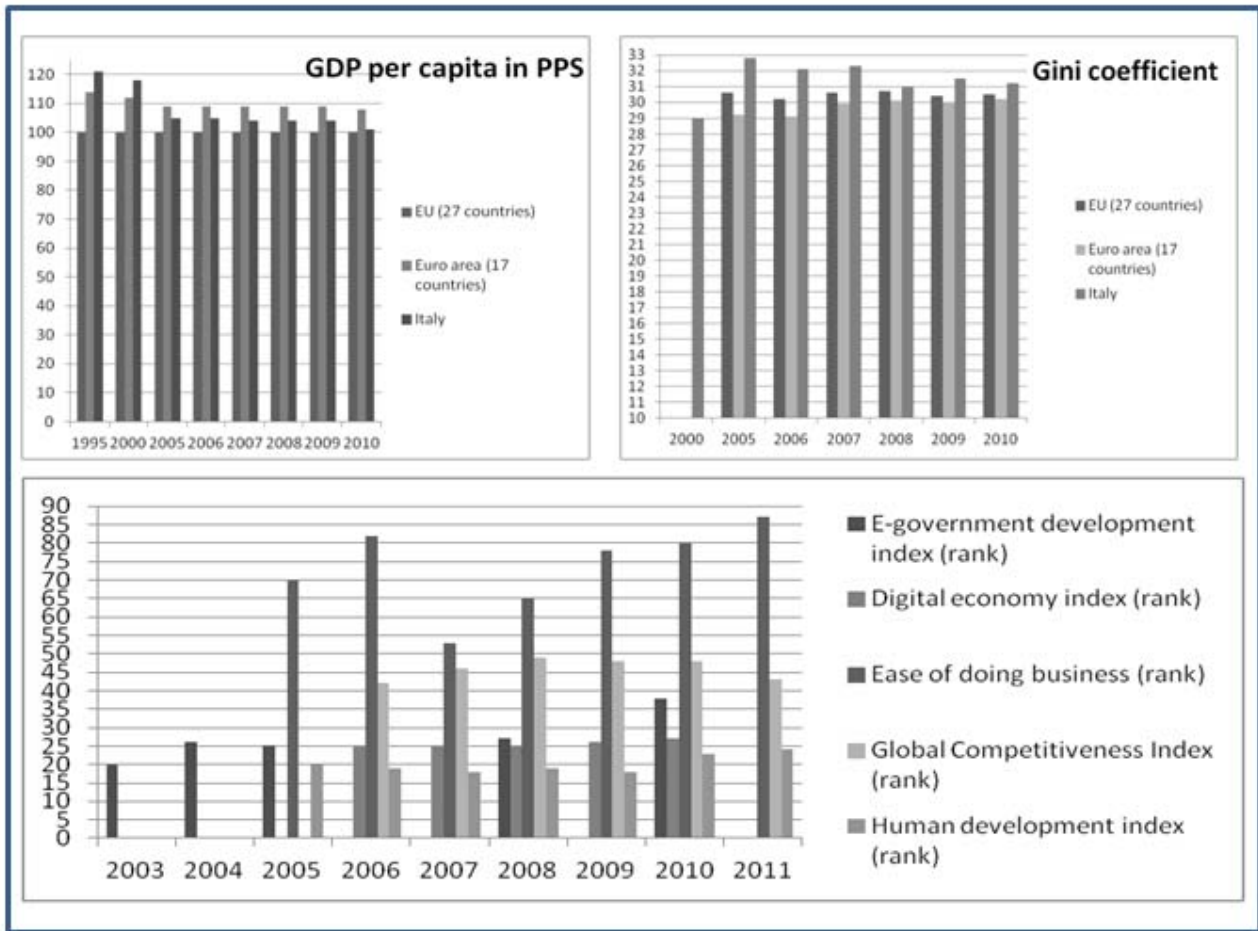


Figure 4. General indicators of Italy's wealth in the past decade

The indicators considered in Figure 4 are:

- The Gross Domestic Product per capita, as an indicator of a country's standard of living, expressed in Purchasing Power Standards (PPS) (source: EUROSTAT: <http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tec00114>)
- The Gini coefficient, as a measure of inequality; the higher the index, the more is the level of inequality (source: EUROSTAT - <http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=0&language=en&pcode=tes1190>)
- The United Nations E-government Development index (EGDI), as a comprehensive scoring of the willingness and capacity of national administrations to use online and mobile technology in the execution of government functions; the higher is a country's ranking, the lower is its capacity (source: UN E-Government Survey - [http://www.unpan.org/egovkb/global\\_reports/08report.htm](http://www.unpan.org/egovkb/global_reports/08report.htm))
- The Digital Economy index (DEI), to assess the quality of a country's ICT infrastructures and the ability of its consumers, businesses and governments to use ICT to their benefit; the higher is a country's ranking, the lower is its capacity to support digital economy (source: Economist Intelligence Unit - [http://graphics.eiu.com/upload/EIU\\_Digital\\_economy\\_rankings\\_2010\\_FINAL\\_WEB.pdf](http://graphics.eiu.com/upload/EIU_Digital_economy_rankings_2010_FINAL_WEB.pdf))
- The Ease of Doing Business index (EDBI), as a measure of a country's capability of setting up an environment favorable to business in terms of better, usually simpler, regulations for businesses and stronger protections of property rights; the higher is a country's ranking, the less it is easy to do business in it (source: World Bank - <http://www.doingbusiness.org/data>)
- The Global Competitiveness index (GCI), to measure the institutions, policies, and factors that set a country's sustainable current and medium-term levels of economic prosperity; the higher is a



country's ranking, the lower is its competitiveness (source: World Economic Forum - <http://www.weforum.org/issues/global-competitiveness/index.html>)

- The United Nations Human Development index (HDI), as a comparative measure of life expectancy, literacy, education and standards of living and a measure of the impact of economic policies on quality of life (source: United Nations Development Programme - <http://hdrstats.undp.org/en/countries/profiles/ITA.html>)

As highlighted by the data reported in figure 4, in the period under consideration (2007-2011), the Italy's global wealth has not improved. Rather, it seems that there has been a general worsening of the living conditions in Italy. Actually, the only values that show some improvement are the Gini coefficient and the GCI. The Gini coefficient gives a better result in 2010 than in 2007 and 2009 (that means a reduction of inequalities), although it is worse than it was in 2008. In 2011 Italy scores better in the GCI ranking than in 2007; however, this ranking is still worse than it was in 2006. Of course, these results are likely to depend on the negative effects of the global crisis and cannot be simply ascribed to national policies (including the policies for the diffusion of e-government). However, since all the indicators that more directly depend on the E-Government policies (EGDI, DEI and EDBI) show negative results, it seems reasonable to conclude at least that the NAP did not positively contribute to reduce the negative effects of the global crisis. Hence, the NAP does not seem to have been able to generate a value for citizens as such.

Efficiency in government is one of the main goals of e-government. Efficiency does not mean simply the reduction of the costs of government; actually

“the efficiency concept refers to the concept of production possibility frontier, which indicates the quantity of output which can be efficiently produced for a given input level. In other words, the greater the output for a given input or the lower the input for a given output, the more efficient is the activity.” (EU, 2009b, p. 37)

More efficiency in local government could mean either a reduction of the cost of the whole system of local government (input efficiency) or an increase of the number and/or the quality of the services delivered (output efficiency). Citizens contribute to the functioning of the system of local government by funding it as taxpayers. A reduction of the cost of the whole system of local government could mean a lower taxation level, which could contribute to determine a value for the citizens as taxpayers.

Following the approach described by Mandl, Dierx and Ilzkovitz (2008), the public spending allocated to the production of a given public service, like public spending on health, education or infrastructure, can be considered as a measure of input. (p. 5) In general terms, such a measure is not the best one because the way public sector accounts are typically designed makes it difficult to obtain information on all input costs (Estache, Gonzalez & Trujillo, 2007; Mandl, Dierx & Ilzkovitz, 2008; Codagnone & Undheim, 2008). However, since the holistic point of view taken in this chapter does not require a disaggregated analysis of the costs, the total amount of local government expenditures gives a sufficiently adequate measure of the inputs the system of local government consumes to produce its outputs (services).

Figure 5 below, that reports the level of local government expenditures in Italy from 1995 to 2010, clearly shows that in the period considered the local government current expenses increased constantly. This is a relevant point to stress since more efficiency in local government should determine cost savings exactly at the level of the current expenses. Thus the data in figure 5 allow concluding that from 1995 to 2010 there has not been any increase in input efficiency in the Italian system of local government. This includes also the period in which the projects funded under the NAP should have started spreading their benefits. Indeed, the local government expenditures increased sensibly in 2008 and continued to increase also in 2009 and 2010. Of course, this does not mean that the implementation of the NAP increased the local government expenditures. However, since the level of the expenditures has not decreased at more than 50 months distance from the conclusions of the projects funded under the first phase of the NAP, and at 30 months distance from the starting of the projects funded under the second phase of the NAP, it can be concluded that no positive effects of the NAP on the input efficiency of local government have emerged with evidence yet. This means that the implementation of the NAP did not contribute to reduce the costs of local government, which could have meant a possible lowering of the taxation level; from this point of view, no positive effects on the citizens as taxpayers have been derived yet from the implementation of the NAP.

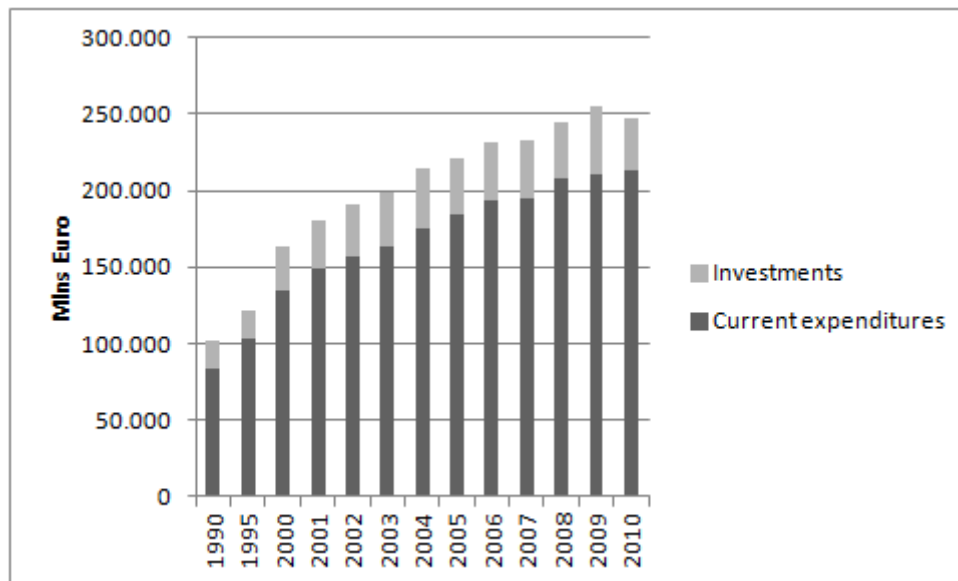


Figure 5. Local government expenditures in Italy 1995-2010 (source: ISTAT, 2011)

Although it did not have a positive impact on the reduction of local government expenditures, the NAP could have contributed to reduce the costs citizens and enterprises incur for accessing the services delivered by local government, while maintaining or increasing the quality of the services, thus creating a value both for citizens as users/consumers and citizens as entrepreneurs.

Concerning citizens, there are no specific direct costs for them to access the services delivered by local government, besides the general cost they pay as taxpayers. Moreover, there are no complete and reliable data that can be used to measure the possible indirect costs citizens incur for accessing the services. Such data are available for the Italian small to medium enterprises (SME) instead, which allow measuring the administrative costs incurred by SMEs for their relationships with public administration. The implementation of the NAP could have determined a value for citizens as enterprises by contributing to reduce the administrative costs enterprises incur for their relationships with local government organizations.

Every year a survey is conducted in Italy to analyse the relationships between SMEs and public administration. Figure 6 shows some of the main results of the 2011 survey (based on a representative sample of 1.732 enterprises), as reported in (PromoPa, 2011).

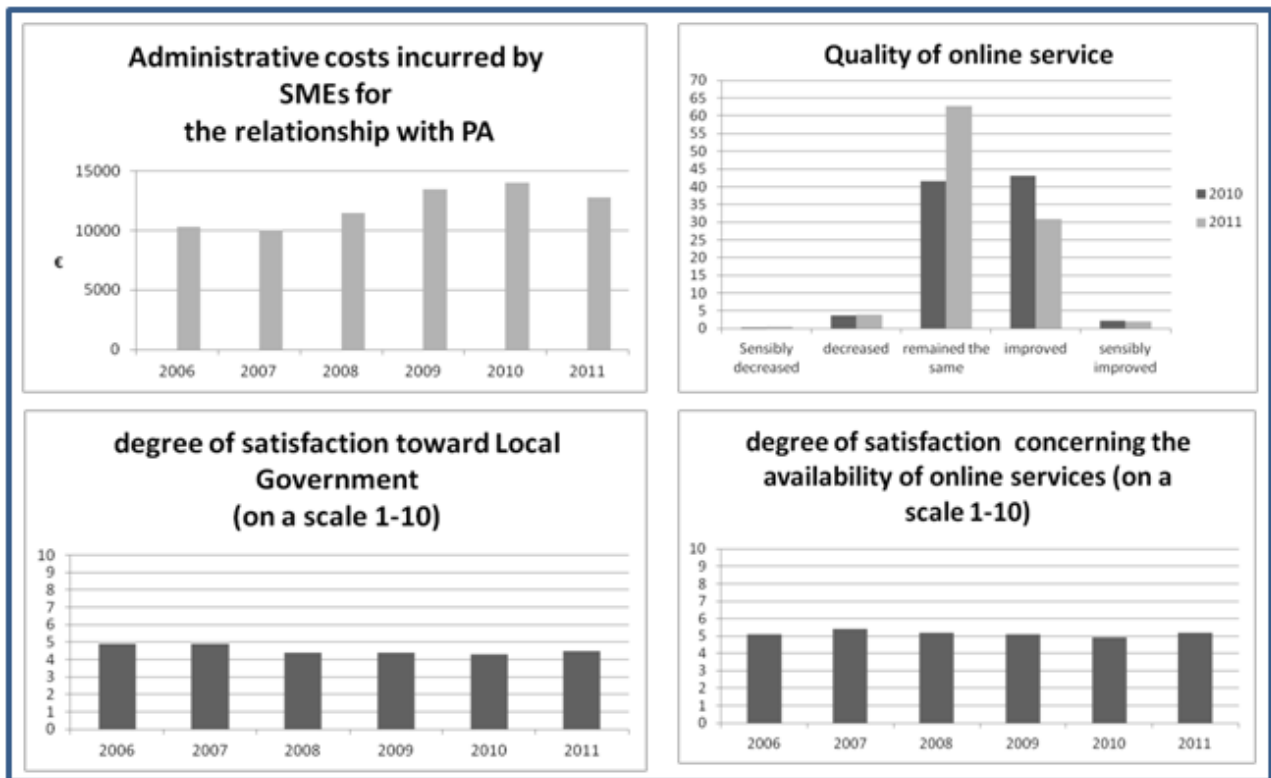


Figure 6. The relationships between SMEs and Local Government in Italy (source: PromoPA, 2011)

As shown in the figure 6, in 2011 the administrative costs for SME are lower than they were in 2009 and in 2010, although they are still sensibly higher than in 2008. This could mean that the online services for enterprises implemented under the NAP (even with some delay) are starting spreading some positive effect on the reduction of the administrative burden on SMEs. However, although the perceived quality of online services improved in the past two years, the data concerning both the degree of satisfaction toward the availability of online services and the overall degree of satisfaction towards local government in 2011 is sensibly lower than in 2007. From this point of view, it could be concluded that at more than 50 months distance from the conclusions of the first phase and at 30 months distance from the starting of the projects funded under the second phase, the NAP is still far from determining a positive effect on the quality of local government as perceived by the Italian SMEs. This confirms the difficulties the NAP encounters also in determining benefits in terms of value for citizens as entrepreneurs.

In the discussion above only external stakeholders have been considered; however, as observed, e-government can deliver a public value to internal stakeholders too. The training of the employees is a quite obvious condition for successful innovation; at the same time, investing in training and skills upgrading programmes is a way to increase the organizational human capital, that is the knowledge, skills and capabilities of the employees that can improve the organization's performance.

At a first sight, the human capital of the employees could be considered as a form of private value since the employees themselves are the primary beneficiaries of it. However, as long as it impacts on the employees' working practices, the human capital of the public servants can also be considered as a public value. From this point of view, the capability of the NAP to deliver public value to citizens as public servants can be evaluated by considering whether it had a positive impact on the training programmes implemented by local government organizations.

There are no complete data available concerning all the training activities in all the 8902 Italian municipalities. However, data are available concerning the municipalities that delivered ICT courses to their employees (although the last survey available concerns courses delivered in 2008). According to the data collected by the ISTAT, the percentage of the Italian municipalities that delivered ICT course to their employees was 20% in 2005, 19,6% in 2007 and 17% in 2009 (ISTAT, 2006, 2008, 2010).

ISTAT does not report the incidence of the municipalities involved in projects funded under the NAP on the sample considered in the surveys; hence the data reported do not allow evaluating the direct impact of the

NAP on the ICT training of the employees. However, the data clearly show a generalized reduction of the training activities in the years immediately following the conclusion of the projects funded under the NAP. Hence, it seems reasonable to conclude at least that the NAP did not determine, as an indirect effect, a rising of the Italian municipalities' awareness toward the need to implement ICT skills upgrading programmes as a way to foster innovation and increasing the quality of the services delivered (Arduini et al., 2010). From this point of view, it can be concluded that the NAP did not determine benefits visible at the country level in terms of an increase of the human capital of the employees.

### **Is there an “E-Government paradox”?**

The data discussed in the section above show that the policies for the diffusion of e-government at the local level implemented in Italy are still far from succeeding in delivering the expected value, at least with respect to the citizens' roles considered in this chapter (citizen as such, citizen as tax payer, citizen as entrepreneur, citizen as civil servant). In this section, it will be considered whether this unsatisfactory result can be explained simply in terms of unforeseen contingencies (like the global financial and economic crisis) and the particular learning curve that characterizes e-government applications, or it depends (mainly) on the principles the policies for the diffusion of e-government at the local level have been based in Italy.

From the data considered so far a sort of “e-government paradox” seems to arise (Bertot & Jaeger, 2008; Foley & Alfonso, 2009; Castelnovo 2010), similar to the “productivity paradox” (Brynjolfsson, 1993; Brynjolfsson & Hitt, 1998; Bresnahan, Brynjolfsson & Hitt, 2002) or the “performance paradox” discussed by Abhijit (2003). In its more simplified form the productivity paradox amounts to the observation that there is no relationship between ICT investments and productivity.

During the years an extensive literature has been devoted to the productivity paradox, and some explanations of it have been suggested (see, for instance, (Gunnarsson, Mellander & Savvidou, 2004)). Although efficiency and productivity are different concepts (IDABC, 2005), some of the explanations of the paradox that have been suggested can also help explaining why the NAP did not succeed in increasing the capability of local government to deliver public value.

There are three main arguments from the literature in the productivity paradox that can be used in the present discussion; the first concerns the time investments in technology need to show productivity-enhancing effects; the second concerns some well known problems related to technology adoption whereas the third concerns the relation between ICT investments and organizational innovation.

Abhijit (2003) reports data that show that the relationship between IT investments and government performance in 50 State Governments in the U.S.A., that was found to be negative at the beginning, becomes more positive with time (Abhijit reports that the effect of IT investments on performance tend to change from negative to positive after two years). Along the same lines, in (CNIPA, 2008) it has been claimed that the investments made under the NAP would require 5 years (on the average) to fully deliver their benefits. According to CNIPA (2007) at May 2006 the earned value of the NAP (first phase) was 91%; this means that the benefits of the NAP should have already been apparent in 2011. Hence it is very unlikely that the limited results achieved so far can be explained by the learning curve alone.

A critical factor determining the rate of return on most public sector ICT investments is the number of users and/or frequency of use of the services (Foley & Alfonso, 2009; Codagnone & Undheim, 2008). As shown in Figure 1, the data concerning the percentage of Italian citizens that use online services is quite low, about a half of the average value of the EU27. Interestingly enough, the data concerning the use of online services by the Italian enterprises are completely different; indeed, Italian enterprises use online services more than enterprises do in the countries of the EU27. This could be explained by considering that the use of online services in many cases is mandatory for the Italian enterprises.

Making it mandatory obviously increases the use of online services; however, as shown by the data reported in figure 6 above the high rate of use of online services by enterprises did not determine a higher level of satisfaction toward local government. This lead to hypothesize that there are some inadequacies in the way the online services for enterprises have been implemented according to the principles stated by the NAP. Since both online services for enterprises and online services for citizens have been implemented based on the same principles, the analysis of the case of enterprises, for which data are available, could give some insight to understand also why the use of online services by citizens is so low.

On the one hand, the NAP (both in the first and in the second phase) did not provide any information and communication campaign to raise the level of awareness of both citizens and enterprises toward the online services delivered by government organizations. Indeed, the second phase of the NAP included a line specifically devoted to information and communication initiatives for promoting the use of online services

by citizens and enterprises. Nevertheless, this line that was funded with € 9 Mln has never been implemented. A consequence of this choice is, for instance, the fact that still in 2011 only 27,6% of the Italian SMEs declared to know what the One Stop Shop for enterprises (that is the most typical e-government service for enterprises) is and how it works (PromoPa, 2011, p. 30).

On the other hand, to use the e-government services citizens and enterprises should perceive them as useful and important. As figure 7 below shows, although online services are considered as somewhat important by the Italian SMEs, they are not regarded as a priority. In all the surveys from 2006 to 2011 SMEs indicated other priorities for local government organizations, namely the simplification of the bureaucratic procedures, the competence of the personnel, the reduction of the delivery time and the cooperation among different offices.

Moreover, among the online services available to them, the Italian SMEs consider as more important (and hence more useful for them) the fiscal services (59,1%), the online release of authorizations and concessions (17,6%), the online registration and certification services (13,9%) and the online services for starting, transforming or closing a business (7,4%) (PromoPA, 2011). As these data clearly show, the online services delivered by local government (all those in the list above, but the fiscal services) are not considered to be really important (and consequently useful) for enterprises, although the use of some of them is mandatory (services for starting, transforming or closing a business).

From the observations above, it can be concluded that the low use of online services strictly depends on two main problems affecting the NAP:

- the lack of a widespread diffusion of information to the users concerning the services available and how to use them
- an inadequate consideration of what services are really relevant for the users, that would have required a more structured approach to the development of new services (Angelopoulos et al., 2010), including a preliminary assessment of the impact of the planned services on the targeted users.

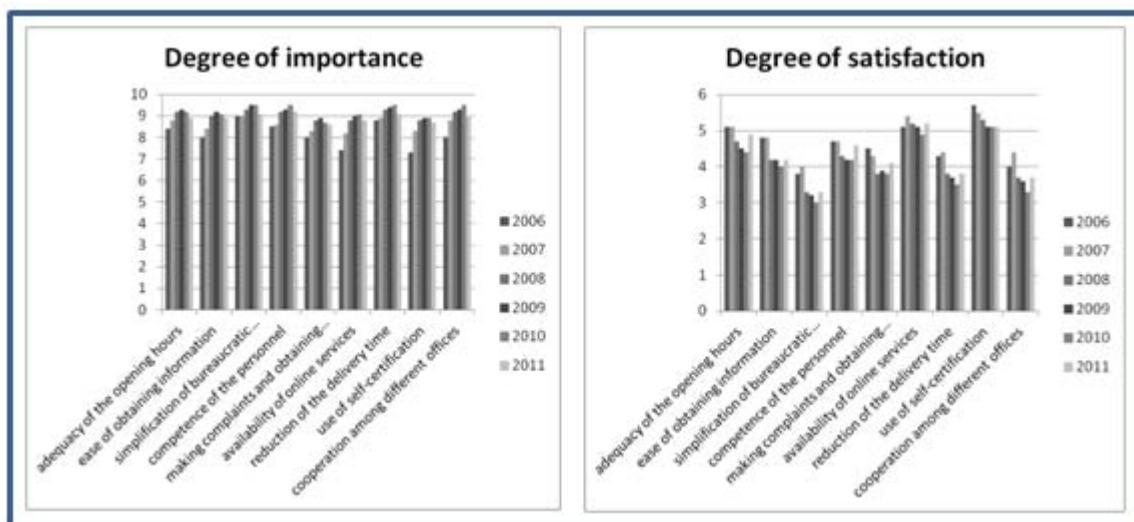


Figure 7. Priorities for local government as perceived by Italian SMEs (source: PromoPA, 2011)

The more common explanation of the productivity paradox refers to the misalignment of technology and organization. As argued by Brynjolfsson and Hitt (1998, p. 3) “the greatest benefits of computers appear to be realized when computer investment is coupled with other complementary investments; new strategies, new business processes and new organizations all appear to be important in realizing the maximum benefit of IT”. Similarly, Bresnahan, Brynjolfsson and Hitt (2002) show that firms with high levels of both IT and human capital are the most productive. The same conclusion has been drawn by Foley and Alfonso (2009) that explicitly discuss the impact of different e-government projects on government, citizens and enterprises. In their analysis of 28 different e-government projects, Foley and Alfonso found that the highest net benefits for both government (in terms of direct cash benefits and efficiency savings) and users (in terms of monetary benefits and time-based non-monetary benefits) are achieved by projects that involve back-office reform or reorganization.

The funding announcement for the first phase of the NAP did not provide any organizational requirement to be satisfied by the recipients of the funding. This led to consider the funding provided by the NAP programme simply as a way to support technological innovation, as explicitly recognized also by CNIPA (2007). Indeed, as reported in figure 3, as a consequence of the NAP since 2009 in the Italian municipalities there has been an adequate availability of ICT infrastructures and ICT equipment (both hardware and software). However, the NAP did not provide funds for process reengineering, back-office re-organization and training of the employees. These are exactly the elements that, according to the data reported in figure 7 above, are perceived by SMEs as priorities for Local Government; thus it is not surprisingly that the degree of satisfaction concerning these elements did not increase during the period in which the benefits of the NAP should have become apparent. Not having included any organizational requirement in the funding announcement can be considered one of the main deficiencies of the NAP, one that helps explaining the still unsatisfactory results achieved so far.

## **FUTURE RESEARCH DIRECTIONS**

The evaluation of the impact of the NAP on the capability of local government to deliver public value has been based on secondary data sources, including some international surveys (the E-Government and the Human Development Rankings of the United Nations, the Digital Economy Rankings of the Economist Intelligence Unit; the Global Competitiveness Rankings of the World Economic Forum and the Ease of Doing Business Rankings of the World Bank), the data delivered by both the Italian National Institute of Statistics (ISTAT) and the European Institute of Statistics (EUROSTAT) and the surveys that each year measure the degree of satisfaction of the Italian small to medium enterprises toward government.

The use of secondary data sources could represent a limitation of the approach described in the chapter. Indeed, the use of secondary data limits the analysis to those factors for which information is available. For instance, in the chapter the possible value created for some of the roles citizens can play in their relationships with public administration have not been considered because the selected data sources do not provide the relevant information. Hence, further research is needed to identify other secondary data sources that can be used in the evaluation of the country level impact of the policies for the diffusion of e-government.

The use of secondary data sources provides some advantages as well, such as easy reproducibility, ability to generalize the results arising from larger datasets, reliability of the data deriving from their having been compiled by trustworthy organizations, taking into account suitable procedures for ensuring reliability and validity (Srivastava & Teo, 2007). Moreover, all the data referred to in the chapter are available for other countries as well (at least for all the countries of the EU27). This makes it possible a cross-country comparison of different policies for the diffusion of e-government with respect to their capability of creating public value, measured as in the section above. Such a cross-country comparison can be the focus of further research, with the specific aim of identifying the elements that fostered or limited the success of the policies that have been implemented in different countries.

## **CONCLUSIONS**

In the chapter a holistic approach to the evaluation of e-government has been described that considers whether the implementation of the policies for the diffusion of e-government determined benefits at the country level. This approach has been applied to the evaluation of the impact of the innovation projects funded under the Italian National Action Plan for e-government (NAP) on the capability of local government to deliver public value. The aim of the evaluation was to verify whether after the conclusion of the projects funded under the NAP benefits emerged for citizens as such (in terms of the country's global wellbeing), for citizens as taxpayers (in terms of the reduction of the global cost of local government), for citizens as public servants (in terms of the increase of their human capital) and for citizens as entrepreneurs (in terms of the reduction of the administrative burdens on enterprises).

The analysis showed that, after 50 months from the conclusion of the first phase of the NAP and 30 months from the beginning of the second phase, the benefits of the NAP are still far from being apparent. This unsatisfactory result has been discussed by considering some well known explanations of the so called "productivity paradox".

From this discussion it has been concluded that the scarce impact of the NAP depends on two principles that characterized it. On the one hand, the NAP has been focused mainly on the technological aspects of innovation, neglecting the role of the non technological aspects that are critical for the success of ICT-based innovation, including the necessity of adequately inform the potential users about the services made

available; a more careful analysis of what services are really useful and important for the potential users; the need to support technological innovation with the training of the employees, the reengineering of the administrative processes and the reorganization of the back-office. On the other hand, the NAP adopted a two-step strategy for the diffusion of e-government at the local level: the first step was the funding of a limited number of selected projects whereas the second step was the inclusion of all the remaining municipalities through the re-use of the systems implemented in the first step. However, at 30 month distance from the launching of the second step, this result is still far from being achieved. The first aspect explains why the projects implemented under the NAP encountered difficulties in spreading their benefits; the second aspect explains why those benefits are not visible yet at the country level.

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## KEY TERMS AND DEFINITIONS

- E-government: the government's use of ICT to achieve better policy outcomes, higher quality services and greater engagement with citizens.
- Public value: public value refers to the value created by government through services, law regulations and other actions. It includes outcomes, the means used to deliver them as well as trust and legitimacy. It also addresses issues such as equity, ethos and accountability.
- Internal Stakeholder: citizens directly involved in the execution of the processes through which public administration can create and deliver public value.
- External Stakeholder: citizens that receive a value from public administration as users/beneficiaries of services or as participants in democratic processes.
- SMEs: enterprises with less than 250 employees; most of the Italian SMEs are microenterprises (94,6% of all the enterprises), that is enterprises with less than 10 employees.
- Holistic evaluation: evaluation that considers the global impact at the country level of the policies for the development of e-government.
- E-government paradox: a form of the productivity paradox; in its more general form it amounts to the claim that there does not seem to be a direct positive relation between investments in e-government initiatives and the increase of the public value created by government organizations.