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The impact of ICT on local administrations in Italy: state of the art, SWOT analysis and improvement solutions

Federico Fontana

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Abstract

Local administrations in Italy are involved, since the beginning of the 1990s, in a large and deep process of reform. This reform aims at their modernization and basically at enhancing their efficiency and effectiveness. The ultimate goal is to create a local administration that is able to better satisfy the needs of citizens and businesses and to economically manage public resources. Within this reform, a central role is played by the development of information systems (IS) and by the relative innovation in information and communication technology (ICT). This is a technical as well as organizational revolution generally referred to as 'e-government'. The IS-and-ICT revolution is not only an important step in the administrative reform taking place in Italy, but it is also viewed as a key factor for its success or failure. Yet while offering interesting and powerful levers for the gradual improvement of local administrations' operative and financial performances, the IS-and-ICT revolution still presents some troubles to overcome. The aim of this paper is three-fold. First, it describes the state of the art of ICT development by local administrations in Italy. Second, it analyses its strengths, weaknesses, opportunities and threats. Third, it suggests some solutions to overcome threats and weaknesses and to profit from opportunities and strengths. This paper offers a critical and empirically informed analysis of the reasons behind the successes and failures of the current e-government revolution in Italy and proposes possible solutions concerning both the national level and local-administration level.

1. ICT role within the reform of local administrations in Italy

Since the beginning of the 1990s, public administrations in Italy have undertaken a process of substantial change, which have been altering their general mission, organizational models as well as their financial structure (Anselmi, 1995; Farneti, 1995; Borgonovi, 1996).

This reform, initially inspired by the principles of 'new public management' and more recently by those of 'public governance', is particularly relevant for local administrations (Table 1), due to the growing levels of autonomy they have been granted in both the organization of their activities and in the management of their financial resources and also for the increased number of functions they have been assigned. These aspects are amplified by the closeness of local administrations to their constituencies (Fontana and Rossi, 2001).

The reform has stemmed from a redesigning of the role assigned to decentralised governments and has gone through a redefinition of the governing criteria of local administrations. This reform profoundly innovates institutional and operational structures and concerns both the political and technical spheres of local administrations. By so doing, it affects managerial aspects as well as the information and control systems and has diverse effects on financial resources.

These changes have been dictated by the need to re-establish more satisfying results in terms of effectiveness and efficiency of the services provided by local administrations. On the one hand, the changes aim at improving the capacity to identify and meet citizens' needs. On the other hand, they aim at improving the capacity to more effectively acquire and use public resources.

The need for change is felt even more urgently in the current context, in which institutions are working to assure that Italy can remain within the European Monetary Union and are trying to initiate 'virtuous' processes at any level of the public administration. Virtuous processes are particularly linked to the containment of public spending without compromising the qualitative and quantitative standards that local administrations have so far offered.

Table 1: The reform of local administration (in particular the case of municipality) in Italy

	Before the 1990s reform	Nowadays
Local administration		
Municipality (in particular)	Administration representing the local community, taking care of its interests and promoting its development, with a relative degree of dependence from the region and the state	Administration representing the local community, taking care of its interests and promoting its development, with a relevant degree of regulatory, organizational and financial autonomy (nowadays Italy is made up of 8,101 municipalities, besides 103 provinces and 20 regions)
Municipal government		
Mayor	Politician who served as chief executive, elected by and within the municipal council	Chief executive directly elected by citizens
Municipal committee	Executive commission elected by and within the municipal council	Executive commission appointed by the mayor even outside the municipal council
Municipal council	Representative assembly, elected by citizens, with regulatory, managerial and control powers	Representative assembly, elected by citizens, with regulatory and control (but not managerial) powers
Municipal management		
General secretary	Chief administrative officer, sent/nominated by the Ministry of Interior. He is primarily in charge of guaranteeing the lawfulness of the process and, secondarily, of coordinating and supervising the municipal organization	Chief administrative officer, appointed by the mayor, whose role consists first of all, in the guarantee of lawfulness, but also in the coordination and supervision of the municipal organization; the General secretary may also play the role of General manager
General manager	Role not provided by the law	Chief operating officer, appointed by the mayor, responsible for coordinating the strategic planning of the municipality
Managers (and Service officers)	Bureaucratic officers appointed to execute municipal government's decisions; they were employed on a permanent basis and their labor contracts were regulated only by the public law	Managerial officers appointed by the mayor and supposed to reach the municipal government's goals; they are employed on a permanent or a temporary basis and their labor contracts are regulated by the public or private law
Control system		
Regional audit committee (CO.RE.CO.)	External (regional) audit institution, whose role was very important since it concerned almost every single administrative file	No longer in place
Court of accounts	External (national with regional sections) audit institution with an important role regarding public accounting and finance	External (national with regional sections) institution with an increasing collaborative audit role regarding public accounting and finance
Accounting auditor(s)	Internal body elected by and within the municipal council (i.e. it was not a professional body) to provide accounting and financial auditing	Internal professional individual or committee elected by the Council to provide a more accurate accounting and financial auditing
Internal control office and *Evaluation committee*	Bodies not envisaged by the law	Internal bodies appointed to provide strategic and management control and evaluation
Resources and activities		
Financial resources	High financial dependence by the State (in 1990 the average current financial autonomy ratio was 35%)	Prevalent financial autonomy (in 2004 the average current financial autonomy ratio was 73%; in the same year the total amount of current expenditures was about € 50 billions, i.e. 3.73% of GDP, and the total amount of net investments was about € 27 billions, i.e. 1.97% of GDP)
Human resources	Public employees, appointed on a permanent or a temporary basis, whose labor contracts were regulated only by the public law	Public employees employed on a permanent basis, but also a substantial number of flexible employees (in 2004 the total cost of personnel was about € 15 billions, i.e. 30% of total current expenditures and 1.12% of GDP)
Service production models	High rate of internal production, medium rate of contracting out (outsourcing) and low rate of contracting in (in house providing)	Decreasing rate of internal production, stable rate of contracting out and increasing rate of contracting in
Service areas (not affected by the reform)	General administration Local police Culture Tourism Environment Economic development	Justice administration Public education Sports and entertainment Road network and transportation Social services Productive services

Within this reform, a central role is played by the development of appropriate information and control systems, which are crucial for the success or failure of the whole process. More to the point, the innovation of IS and the use of ICT are instrumental to the modernization and improvement of the very functioning of local administrations and can contribute to the quality of their internal and external relations as well as to slim down their decision-making and implementation processes. This evolution also matches the growing, though as yet not dominant, demand of online services from both citizens and businesses. Available data show that 56% of Internet users (about 10 million users) turn to local administrations not only to collect information but also to access specific services, especially administrative and financial ones (Table 2).

Table 2: Reasons to turn to local administrations

Citizens:*	Total	Age groups			
		14-17	18-24	25-54	≥ 55
Search for information	77%	78%	65%	80%	75%
Search for forms/documents	38%	24%	43%	37%	43%
Submission of forms	11%	8%	12%	11%	9%
Sending comments	10%	26%	8%	4%	2%
Payment of bills an taxes	6%	4%	5%	6%	9%
Request of documents	5%	6%	9%	11%	11%

Businesses:**	Total	Number of employee			
		1-9	10-49	50-249	250+
Search for information	91%	92%	76%	69%	80%
Search for forms/documents	63%	62%	78%	82%	83%
Sending forms	49%	48%	50%	52%	75%
Management of a whole service	39%	39%	37%	44%	61%

** Source: Federcomin (2004)*
*** Source: Federcomin (2005b)*

2. ICT development by local administrations in Italy: the state of the art

Currently, the development of IS-and-ICT in Italian local administrations draws on the following pillars:

- The *Government Guidelines for the Development of the Information Society 2002*, which draws on the EU project called 'eEurope' and implements the strategy formulated by the European Council in Lisbon in March 2000. The *Guidelines* insert technological innovation in the public administration within the broader context of the development of the information society, and define both general objectives for all public administrations and specific objectives for local administrations;
- *e-Government for an Efficient Federalism: a Shared Formulation, a Cooperative Implementation*, which was approved by the Joint Conference of

State, Regions, Cities and Local Administrations in 2003. This document sets ICT as the key instrument for the coordination of and collaboration between the different levels of governments and for the creation of value within a system increasingly characterized by the growing autonomy of local administrations;

- The *Code of Digital Administration*, which is included in the D.Lgs. 82/2005 and provides a thorough normative framework to optimize digital innovations in the public administration.

In the meantime, a National Center for IT in the Public Administration (CNIPA) and 19 Regional Competence Centers (CRCs) were established to facilitate and support the process of technological modernization in the public administration. These centers provide support – to different degrees – to central, regional and local administrations (Table 3).

Table 3: CNIPA and CRCs

CNIPA
The National Center for IT in Public Administration was created in July 2003. It replaced the Authority for IT in Public Administration (AIPA), an independent body that had been created in 1993. CNIPA is placed under the direct authority of the Presidency of the Council of Ministers, and is responsible for the implementation of policies in the field of information technology in the public sector devised by the Minister for Innovation and Technologies (MIT). In each central administration a senior official responsible for ICT systems is the official referent of CNIPA for ICT matters. The network of all these senior officials represents an important asset to coordinate and improve ICT development in Italian central administration and ensure an adequate level of visibility on ICT activities. The institutional role of CNIPA can be summed-up as follows: ➢ to define technical rules and criteria in the field of planning, projecting and managing information systems of public administrations and their organization, quality and security; ➢ to plan and coordinate development and management projects regarding the information systems of public administrations; ➢ to promote, in agreement with the public administrations interested, cross-sector and infrastructural ICT projects and to audit their achievement; ➢ to verify periodically, in agreement with the public administrations interested, ICT performances and results, using cost-benefit analysis and efficiency, effectiveness and quality indicators; ➢ to define trends and instructions about ICT teaching programs and ICT professionals recruitment programs for public administrations; ➢ to counsel the Presidency of the Council of Ministers, evaluating the law projects in the field of IS-and-ICT; ➢ to suggest to the Presidency of the Council of Ministers the definition of policies and directives addressed to regions and local administrations; ➢ to solve conflicts arising between two or more institutions about IS-and-ICT; ➢ to cooperate with EU institutions and to participate in European and international ICT commissions and organizations; ➢ to exercise every other function useful to obtain a convenient management and development of information systems by public administrations.

CRCs

The Regional Competence Centers were established following an agreement between the central government and the Presidents of all Regions in March 2002.

CRCs form a network of expertise providing local public sector bodies in their areas with technical assistance, information and training activities. They support regional and local governments in their efforts to implement e-government, upgrade their IT systems and reorganize both their back-office processes and their service delivery channels.

19 Centers are currently operational, with a total of about 100 staff nationwide. 25 other people work at the central coordination office in Rome.

Their task is to manage and develop the network, and promote knowledge management, efficient joint working and exchange of experience.

The objectives of CRCs can be summed-up as follows:

- to support and strengthen the know how of local administrations in the development of e-government and Information Society initiatives, in coherence with the Italian Government's Guidelines published in May, 2002;
- to increase the public decision-makers' awareness and comprehension of the issues to be tackled, their potential role for change, and the importance of 'acting together';
- to diffuse shared models, approaches and tools on critical aspects (organizational, managerial, cultural, etc.) of the innovation processes in the public administration;
- to promote co-operation on such themes, within regional systems and at an inter-regional level;
- to deliver timely and useful information on the progress and achievements of the regional and national policies for e-government and the Information Society.

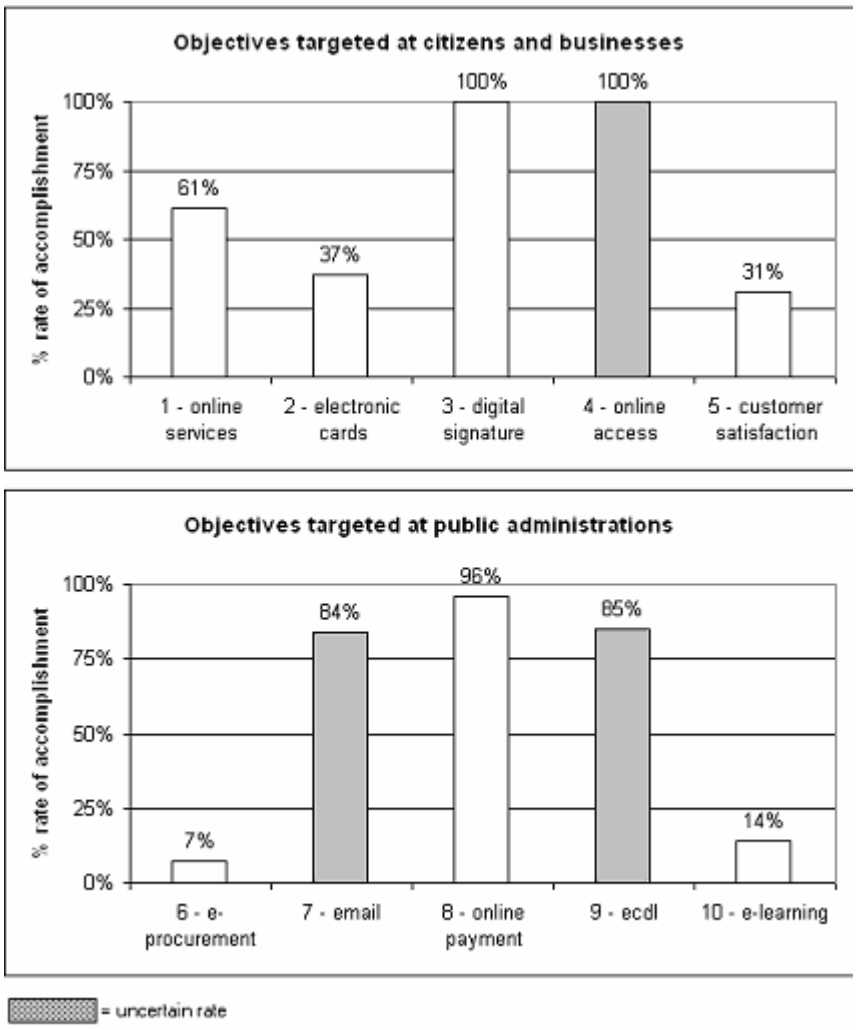
Source: CRC (2003), EU – IDABC (2005); CNIPA (2006a)

One of the functions of CNIPA is the systematic evaluation of the state of ICT of public institutions, which is done annually. Last evaluations provide an updated and detailed picture of the level of technological innovation of public administrations and of the degree of implementation of the objectives set in the 2002 government guidelines. These 10 objectives can be split into objectives targeted at citizens and businesses and objectives targeted at public administrations (Figure 1).

As for the set of objectives targeted at citizens and businesses, the following considerations pertain (CNIPA, 2005-2006a; MIT, 2006):

1) The objective of making available online 100% of the 80 services identified as priority had an accomplishment rate of about 61%, reporting some delays and partial implementations;
2) The objective of launching 30 million electronic cards by 2005 had an accomplishment rate of only 43%. It was a too ambitious objective, whose accomplishment rate is much lower than the expectations;
3) The objective of introducing the digital signature as an essential instrument for the digital management of documentation flows was largely accomplished, reporting 2,1 million digital firms distributed by the end of 2005;

Figure 1: The rate of accomplishment of ICT government objectives



Source: CNIPA (2005, 2006a); MIT (2006)

4) The objective of accessing online to users' documentation for at least 2/3 of the departments, thus facilitating transparency of administrative practices, is considered achieved at 100%. CNIPA, however, does not refer to the number of offices that allow online access, but to the number of institutions that have activated the digital code, which is a necessary but not sufficient condition;
5) The objective of measuring the level of customer satisfaction in the public administration providing online services was achieved at 31%, but it remains focused on some sectors leaving others totally un-assessed.

As for the set of objectives targeted at the internal functioning of public administration, it is possible to observe that:

1) The objective of e-procurement was totally missed (7% in 2005) due to the norms that have been approved over time, which have limited the functioning of CONSIP (public stock company owned by the Italian Ministry of Economy and Finance) which is so far the only active body in this sector;
2) The objective to use electronic mail to make communications faster and more economical is considered achieved at 84%. CNIPA, however, does not refer to communication flows via email but to the number of employees with an email address, which is once again a necessary but not sufficient condition. Moreover, while email is by now the usual instrument for informal communication, it is far from fully replacing paper documentation for formal communication, since this implies the use of certified mail and digital signature;
3) The objective related to online payment has been substantially achieved (96%) since 2003. However, the full de-materialization of the accounting process is still blocked by the scarce use of the digital signature;
4) The objective of certified (through the achievement of the ECDL) digital alphabetization of 60% of public employees is considered accomplished at 85%. Even in this case, however, CNIPA refers to the number of employees making use of a PC, while in reality the number of employees that are PC literate by the end of 2004 was only 2.6%, a very low percentage compared to previous expectations;
5) The objective for e-learning set that 1/3 of the training for public employees would happen through the Internet. The rate of accomplishment of this objective is not clear (14% in 2005) and the pilot initiatives in this field suggests that things will change with large investment and in any case not in the short term.

To sum up, the degree of accomplishment of ICT objectives as set in the legislative instruments has given contradictory results:

- digital signature and payment online have been largely achieved;
- e-procurement and e-learning have been largely missed;
- online provision of priority public services and evaluation of customer satisfaction have produced significant results;
- distribution of electronic cards and online access to administrative proceedings report partial implementation and significant delays;
- use of email and digital alphabetization of public employees report results of difficult interpretation.

In other words, the digital revolution achieved by the Italian public administration by the end of 2005 evidenced contradictory results, with an overall rate of accomplishment of the goals included in the government guidelines of about 50%. This low achievement is partly due to the extreme ambition of some of the government objectives in relation to the starting points of public administrations. It is also due to the lack of financial resources as well as of a specific expertise available within the administrations.

To this regard, it is possible to observe that in 2004 public spending in ICT sector stabilised at about € 3billion, of which € 1,3billion (43%) was supported by central administrations and € 1,7billion (57%) by regional and local administrations. Overall this expenditure represents 15% of national market, which is estimated in the order of € 20billion (Federcomin, 2005a). Despite being substantial in absolute terms, these resources are not sufficient to give full implementation to the ambitious government programmes.

This fact, which already clearly emerges from CNIPA evaluation, can be studied in depth in the specific case of local administrations. To this regard, it is possible to draw on various sources, among which particularly interesting are the periodic reports on digital cities carried out by RUR (Urban Network of Representatives) together with CENSIS (Centre to Study Social Investments) and MIT (Ministry of Innovation and Technology).

Specifically, the *8th Report on Digital Cities* offers a picture of ICT in different types of local institutions – yet limited to the largest ones – and rates them. This research takes 6 sector indexes related to: institutional context and administrative transparency; quality and interactive character of the services provided; practical accessibility of the websites; cooperation, relational character and community; territorial marketing and economic development; and professional level of technological tools.

If we summarize the analysis, it is possible to observe how innovation in ICT sector evidences a large gap between institutions in the North and Centre and institutions in the South of Italy.

Local administrations in the North and Centre have websites that are qualitatively superior, higher levels of innovation, higher levels of spending that facilitate access to a larger market and one with a bigger demand for online services. In contrast, administrations in the South show substantial delays with websites that are less comprehensive, interactive and professional, but also with organizational weaknesses and with a market that is less dynamic – also because of the fewer infrastructures and networks in the local context.

It is also possible to observe that local administrations in the main cities show higher scores in all categories compared to smaller cities. This means that also the size of an administration – which is directly related to its financial and professional resources – is a determinant factor for the degree of technological innovation (Table 4) (RUR, 2005).

Table 4: ICT rating of regional and local administrations (first 5 positions)

Rating		REGIONS	Index	Sector Indexes					
2004	2002		2004	Administrative transparency	Quality & interactivity	Practical accessibility	Cooperation & community	Territorial marketing	Professional level
1	1	LIGURIA	83	79	70	85	85	79	76
2	2	EMILIA ROMAGNA	80	86	61	60	92	83	76
3	4	PIEMONTE	77	84	59	55	77	79	80
4	4	LOMBARDIA	72	68	62	75	75	58	69
5	3	TOSCANA	71	83	63	63	84	55	56
MAXIMUM RATE			83						
AVERAGE RATE			62						
MINIMUM RATE			43						
OVER AVERAGE ENTITIES			46%						

Rating		PROVINCES	Index	Sector Indexes					
2004	2002		2004	Administrative transparency	Quality & interactivity	Practical accessibility	Cooperation & community	Territorial marketing	Professional level
1	10	MILANO	69	77	56	61	73	53	69
2	2	TRENTO	68	69	55	73	53	61	76
2	1	MANTOVA	68	67	46	69	80	53	71
2	7	MODENA	68	70	59	46	73	61	77
2	9	TORINO	68	72	54	47	83	44	82
3	23	BRESCIA	67	71	49	46	98	58	70
3	4	BOLOGNA	67	67	57	44	66	62	82
3	4	FERRARA	67	69	54	74	44	61	76
4	19	CUNEO	66	48	42	87	71	52	85
4	6	PARMA	66	72	60	46	57	63	74
4	6	PADOVA	66	77	54	46	65	49	80
5	21	BERGAMO	64	67	46	46	95	44	66
MAXIMUM RATE			69						
AVERAGE RATE			47						
MINIMUM RATE			24						
OVER AVERAGE ENTITIES			61%						

Rating		HEAD-OF-PROVINCE MUNICIPALITIES	Index	Sector Indexes					
2004	2002		2004	Administrative transparency	Quality & interactivity	Practical accessibility	Cooperation & community	Territorial marketing	Professional level
1	2	TORINO	80	83	72	67	91	77	69
2	3	FIRENZE	78	95	66	56	79	65	81
3	1	BOLOGNA	76	88	64	75	65	68	75
3	5	MODENA	76	81	71	80	51	72	76
4	18	COMO	75	77	60	58	94	70	79
5	4	ROMA	74	89	62	65	70	70	67
MAXIMUM RATE			80						
AVERAGE RATE			50						
MINIMUM RATE			22						
OVER AVERAGE ENTITIES			47%						

Rating		OTHER MUNICIPALITIES	Index	Sector Indexes					
2004	2002		2004	Administrative transparency	Quality & interactivity	Practical accessibility	Cooperation & community	Territorial marketing	Professional level
1	–	JESI (AN)	63	78	61	51	46	66	75
2	–	CARPI (MO)	61	78	54	68	44	65	57
2	–	SESTO S.G. (MI)	61	60	59	44	58	62	82
3	–	IMOLA (BO)	59	71	54	61	46	57	65
4	–	EMPOLI (FI)	58	69	55	55	59	43	70
4	–	CESENA (FO)	58	57	58	49	58	50	69
5	–	ARGENTA (FE)	57	77	54	39	50	50	69
MAXIMUM RATE			63						
AVERAGE RATE			40						
MINIMUM RATE			19						
OVER AVERAGE ENTITIES			33%						

Source: RUR (2005)

Other analyses dealing with the level of development of ICT in public administrations, especially local ones, come to the same conclusions. Among these analyses there is the *Investigation on Internet Communication in Public Administrations*, carried out by the Movement for the Rights of Citizens (MDC). This investigation highlights the features of the websites of regions and head-of-region municipalities and considers their capacity to respond via email (MDC, 2005).

The analysis of websites is carried out considering 4 parameters: which theme areas are covered; level of accessibility; quantity of information that are made available; and quality of information services that are offered. This analysis led to a rating that, though different from the RUR one, brings to the same conclusions.

The evaluation of the capacity of electronic response is based on 3 parameters: rapidity, usefulness and overall quality of electronic response, which in turn are aggregated in a synthesis indicator which expresses the institution's capacity of interaction by email. This research allows to assess the quantitative response of various institutions as well as to determine the qualitative character of this response. The result of this analysis confirms the better ranking of the institutions located in the North of Italy compared to those in the South. From a quantitative point of view, however, about 1/3 of all the observed administrations does not provide the electronic answers that they are requested to provide. From a qualitative point of view, the average results are much lower the accepted threshold (they are about 6/20) (Table 5).

Table 5: Electronic response by regional and local administrations

The quantitative picture.

	North	Centre	South	Italy
REGIONS	86%	38%	55%	**60%**
MUNICIPALITIES	86%	57%	50%	**65%**

The qualitative picture (first 5 positions).

REGIONS	Rapidity *(0 - 3)*	Usefulness *(0 - 14)*	Quality *(0 - 3)*	Interaction ***(0 - 20)***	*Ranking*
LIGURIA	2,7	8,7	2,7	**14,1**	***1***
PIEMONTE	3,0	8,0	2,0	**13,0**	***2***
VENETO	3,0	8,0	2,0	**13,0**	***2***
VALLE D'AOSTA	2,0	5,3	1,7	**9,0**	***3***
EMILIA ROMAGNA	3,0	5,0	1,0	**9,0**	***3***
CAMPANIA	3,0	4,7	1,0	**8,7**	***4***
PUGLIA	3,0	4,3	1,3	**8,6**	***5***
AVERAGE	*1,7*	*3,6*	*1,0*	***6,3***	*–*

HEAD-OF-REGION MUNICIPALITIES	Rapidity *(0 - 3)*	Usefulness *(0 - 14)*	Quality *(0 - 3)*	Interaction ***(0 - 20)***	*Ranking*
VENEZIA	3,0	7,7	2,7	**13,4**	***1***
ANCONA	3,0	7,7	2,3	**13,0**	***2***
BOLOGNA	3,0	8,3	1,7	**13,0**	***2***
TRIESTE	3,0	6,0	3,0	**12,0**	***3***
GENOVA	3,0	4,4	2,0	**9,4**	***4***
CAGLIARI	2,3	5,4	1,3	**9,0**	***5***
…					
AVERAGE	*1,9*	*3,0*	*1,2*	***6,1***	*–*

Source: MDC (2005)

To sum up, the results are not particularly comforting and indicate that there is ample room for improvement in the use of ICT in local administrations.

This last observation is confirmed by the state of advancement of e-government plan in the regions and local administrations, which CNIPA systematically assesses.

The plan is articulated in two phases. The first developed from 2001 to 2003, while the second was carried out in 2004. The first phase of e-government plan concentrated on 3 much correlated action lines: promotion of projects aimed at develop infrastructural services and services targeted at citizens and businesses; the definition of a common technical and methodological framework; the launch of a network of Regional Competence Centers (CRC). The second phase specifically aims at extending the processes of innovation to as many local administrations as possible.

The projects that passed the first phase were 134 out of 377 submitted projects and cost € 500million, of which € 120million co-financed by MIT. The initial demand was of € 1,2billion: the financial needs were covered only for a bit more than 10%. These figures are very significant since they show both the huge interest that e-government plan triggered among local administrations and the large gap between the financial resources available for it and the concrete financial needs. As of April 2006, the state of advancement of these projects was about 91% in financial terms with a significant improvement in the last 24 months. However, the delay compared to the initial estimates is about 17 months and some 1/4 of the total projects show an improvement below 70% (CNIPA, 2006b).

These figures confirm the different speed at which local administrations introduced innovations in ICT sector. If, on the one hand there are administrations that have shown a substantial dynamism and a high innovative capacity, on the other hand there are local administrations that report delays and less propensity or capacity to innovate. Moreover, as CNIPA reports (2005), even where there is a high level of innovation, old and new systems co-exist: innovative and technologically-advanced methods and instruments exist alongside – rather than replacing – the traditional ones. This can be evidenced both in the processes of back-office and in the front-line activities.

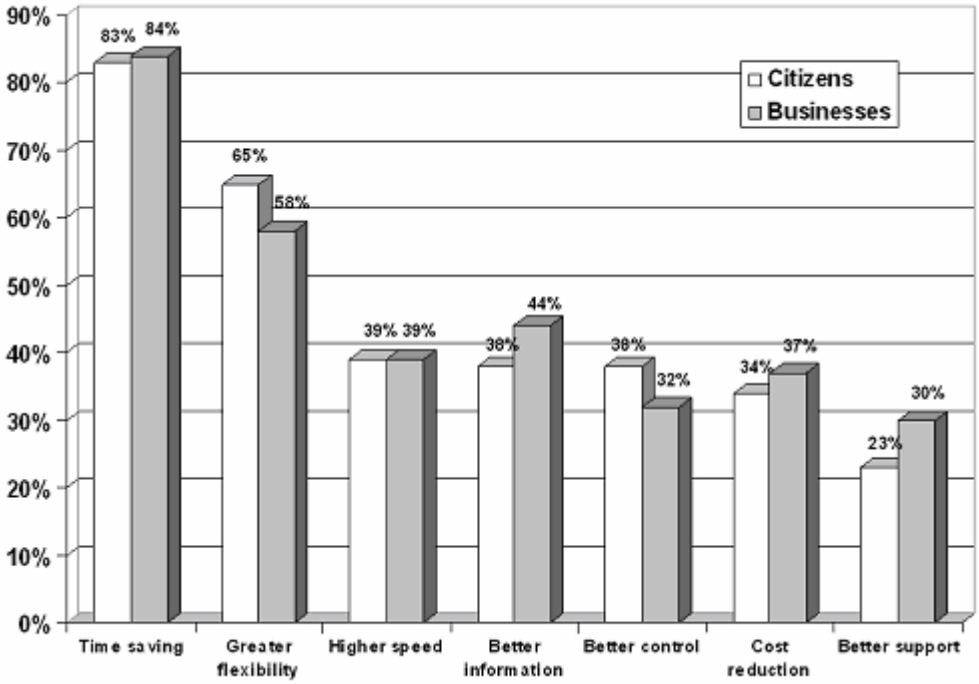
3. A SWOT analysis

The development of ICT is fundamental to create a public administration oriented to citizens and businesses and that produces services that are more respondent to their needs and also more economical, able to employ infrastructures that support e-government models while at the same time assuring the actual participation of the final users (e-democracy).

The advantages of the e-government for citizens and businesses, and therefore for the overall socio-economic system, are multiple. A recent study carried out for the European Commission (Ramboll-Management 2004) identifies

7 principal benefits for both citizens and businesses. These benefits are – in descendent order: time saving; greater flexibility; higher speed of response; better information; higher control; cost reduction; and better operative support (Figure 2).

Figure 2: e-government benefits for citizens and businesses



Source: Ramboll-Management (2004)

These are all very significant factors, some of which are crucial for improving both the quality of social life and the productivity and competitiveness of the economic system.

The ICT contribution to public administrations, especially local ones, can be assessed against a variety of criteria-objectives. These criteria, which are explicitly referred to in the *Code of Digital Administration* and have been regularly mentioned in the overall process of legislative reform in Italy, should inform the work of the government and local administrations. They are (Pollifroni, 2003; Subioli, 2005; Hinna and Monteduro, 2006):

- simplification, which means a more precise definition of the managerial setting, the re-design and slim-down of procedures, and the reduction and redefinition of models and documentation;
- transparency, which is achieved by making better information available to all stakeholders and by facilitating the access to documentation and administrative processes to users;

- impartiality, which means assuring that everyone (in a very inclusive way) has the same access to information and services (for instance, by promoting adequate infrastructures, accessibility of websites, and citizens' digital literacy);
- participation, which is achieved by facilitating the involvement of citizens in the administrative processes (administrative participation) but also in the decisional processes (democratic participation);
- effectiveness, which draws on the four preceding criteria and which translates in the production of just-on-time and high-quality services. Effectiveness offers an appropriate level of satisfaction to the demands and expectations of stakeholders;
- efficiency, which in turn is facilitated by simplification, translates in higher managerial flexibility, higher productivity of labour and lower costs;
- value for money, which is a synthesis of the preceding criteria, and refers to a management able to satisfy the need of citizens and businesses in a way that is qualitatively appropriate and economically convenient.

In sum, the e-government can make public administrations more effective both in their internal procedures and in the relationship with their external partners. It does so in a less costly way, which meets the demand for rationalization of the overall managerial cycle. Nevertheless, the full exploitation of this opportunity requires the removal of a series of limits that currently obstacles the rapid and extensive diffusion of ICT in local administrations. As seen above, there are suboptimal levels of implementation of e-government projects, whose rescue is essential to avoid a back clash in the performance of some local administrations, which would worsen the already-existing gaps and slow down the process of innovation in the whole system. Normative incongruity, cultural barriers, lack of resources and market inefficiency seem to be the main causes of the reported delays and weaknesses.

From a normative point of view, despite the laudable attempt to build an organic and updated framework for the development of ICT in the public administration, many incongruities are identifiable. In addition to the complexity of the relevant norms, which is partly due to the technical character of the subject, there is a lack of integration between technological, administrative and organizational innovation, with an evident dominance of the first type of innovation over the second and third one. The importance of technological innovation is indubitable, but its prioritization separately from the administrative and organizational types of innovation might lessen its impact and makes its effects less conclusive.

From a cultural point of view, there is scarce sensitivity to technological innovation in the government sector and small propensity to change among directive bodies and, more generally, among employees of local administrations.

The absence of a political sensitivity to innovation precludes the pursuing of ambitious projects, such as those linked to e-government. For their financial

relevance and organizational impact, these projects require a considerable determination, a constant effort, a long-term vision and an appropriate governance level.

The reduced propensity to change, partly typical of any organization, delays and slows down the impact of those innovative projects that have already been activated. This is especially true in those initiatives, such as the e-government one, that profoundly affect the administrative and organizational setting and whose success depends to a large degree on the involvement and participation of all human resources.

On the one hand, the reduced propensity to change can stem from the lack of awareness of the opportunities that technical innovation offers. This is typical of small size institutions. On the other hand, these cultural barriers can be erected rightly after knowing and disliking some of the consequences of the above-mentioned technical innovations. This is possible in institutions of any dimension.

First, a possible aversion can come from the rigor that ICT development imposes over administrative procedures, making them less likely to be bent to particular interests. This is a positive contribution that e-government is making to the regularity, impartiality, transparency and effectiveness of administrative action, but, rightly for these reasons, can be negatively valued by those subjects that are not animated by the goal of pursuing the general interest of the organization.

Second, another aversion concerns the enormous possibility that ICT opens to the monitoring of the managerial results and thus of the functionality of the organization and of individual contributions to those results. This is a fundamental contribution of ICT to the governing functions of the organization, but at the same time extends to technological innovations the reserve that characterizes the development of management control systems.

The lack of technological, human and financial resources can sometimes be a cause or a consequence of the above-mentioned cultural barriers. The lack of financial resources is at the source of the inadequate availability of the other types of resources and is particularly felt in the current context, characterized by the containment of public spending (Fontana et al., 2003). As a consequence, even in the absence of cultural barriers, many institutions encounter serious difficulties in making the infrastructural and organizational investments that ICT development requires. Clear examples of this lack of resources are the 10% only of achieved co-financing through the state in the first phase of the national plan for e-government and the expectation of implementing the *Code of Digital Administration* at zero costs, with no inflows of additional resources. These examples point to a further element of weakness of the current legislative setting concerning ICT.

At the technological level, this implies that communication networks might not be implemented adequately, the number of PC stations might not be sufficient, hardware and software systems might be out of date or not aligned; and the timing of adjustment can be a problem too. This results in delays in the implementation or partial implementation of e-government projects, which in turn

brings to a sub-optimization of the benefits that can be exploited both within the administration and in the relationships with the external environment.

At the level of human resources, two problems emerge. On the one hand, the digital literacy of the general personnel might be insufficient or insufficiently spread, also because of the lack of financial resources devoted to digital training. On the other hand, the specific personnel devoted to the functioning and maintenance of the digital systems and ICT is often under-dimensioned and not always adequately trained. This is due to the limits and obstacles in the hiring process but also to the difficulty of finding the right professional competences at the conditions imposed by the labour rules in the public administration.

These technological and professional shortages sometimes are difficult to overcome even by drawing on external supports – outsourcing – and this is both for the usual financial limits and for the reticence towards this managerial form of implementation. More precisely, the fear of losing control over a strategic function – though not always justified – limits the outsourcing of ICT services in local administrations. In addition, operators in this market are not always highly professional, in the sense that they might be very specialized on the technological aspects but not on the administrative and organizational impacts of ICT. This is particularly true in local administrations.

4. Some improvement solutions

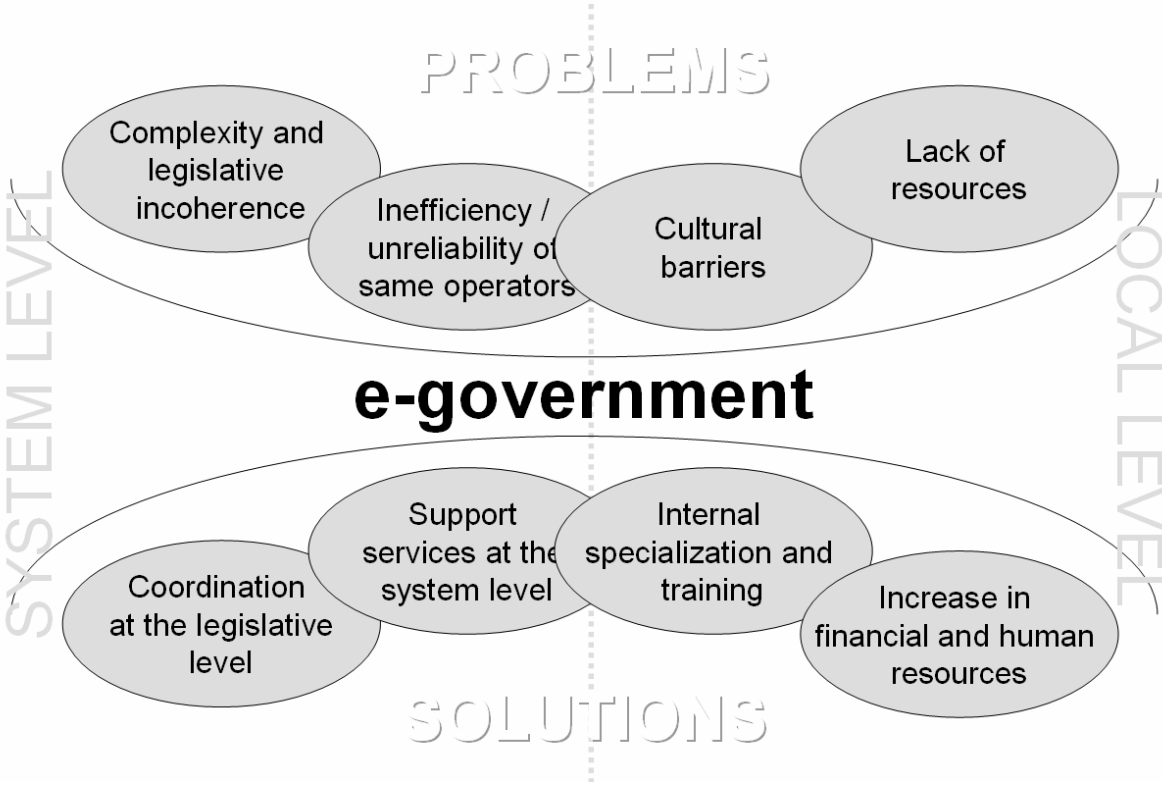
In front of the above-mentioned problems it is possible to identify a combination of solutions, some spontaneous and others to be planned and decided, both at the national level and at the level of each single administration.

The demand for a slimmer and more efficient public administration, which is able to positively contribute to the country's modernization, productivity and competitiveness, is gradually growing among citizens and businesses. This will have an effect upon the attitude of the government at different institutional levels, favoring a progressive removal of the cultural barriers and positively affecting the other problems that were mentioned above. This exogenous evolution can be helped and anticipated with endogenous solutions that can play both at the central and local level (Figure 3).

A first useful action would be to have a better coordination between the legislative rules concerning technological innovation and those concerning the administrative reform. It would be important that the legislative framework conveyed the message that the development of ICT is not an end in itself but a condition to be carried out alongside the administrative and organizational innovation so as to provide local institutions – and more generally all public administrations – a greater overall functionality.

A second action of more general character would be to activate appropriate support services at the system level. In particular, it would be useful if CNIPA and CRCs, which are already operating respectively as central and regional structures for digital support, extended their competences and activities to the broader range of innovations currently taking place. This would include the administrative and organizational aspects of the reform. In addition, in order to make the support more capillary and effective, it would be important to set up centers at the provincial level, which could more easily reach and interact with the local institutions, avoiding in this way the marginalization of the smallest municipalities.

Figure 3: e-government problems and possible solutions



In order to make the most of these centers, they should be required to provide a whole new set of services in addition to the direction, regulation and monitoring functions carried out on a day-to-day basis and the support services offered upon requests of each local institution. To begin with, they should start promotional and support actions targeted at the generality of local institutions, so as to improve the planning and implementation capacity required by e-government. These actions should be carried out independently of the specific demands emerging

from each individual institution, so as to involve even those local realities that are less sensitive and prone to change. Second, it would be useful to adopt benchmarking techniques to be extended to institutions of different size and with a comparison not only on a national basis but on a local basis too. This comparative exercise – at the same time collaborative and competitive – could be positive on two grounds: first, it could enhance the sensitivity and propensity to change of the backward entities; second, it could favor the spreading of best practices from the most advanced institutions. Finally, it would be useful to activate a certification of ICT solutions and providers, which would assure the technological, administrative and organizational quality of each innovative project. This solution could translate in a 'white list' of certified services and providers and could be implemented upon demand of businesses without being fully binding for local administrations. Such a white list would make the use of market resources more agile and trustworthy for local administrations.

The implementation of the above-mentioned services at the system level could at least partially overcome the current lack of technological and professional resources. Despite that, the development of appropriate professional profiles and the extension of digital training to the whole personnel remain crucial conditions for the spreading and taking over of e-government projects. These projects require a steady and robust specialized support, but also require that the whole personnel – both the functions of back-office and front-office – be involved.

Last but not least, there is the need of a significant increase in the financial resources devoted to e-government. Large investments able to offer significant improvements in the quality of services and at the same time an increase in productivity and income are extremely needed at the moment. These solutions can be feasible and are certainly crucial to neutralize the problems listed above and adequately support e-government projects. This would contribute to the quality improvement that is highly expected from local and in general from all public administrations, so as to make them important actors in the search for increased competitiveness and better quality of social services.

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