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INNOVATION AND GOVERNMENT PAYMENTS IN THE ITALIAN DIGITAL AGENDA

by Pasquale Ferroⁱ, Carlo Maria Arpaiaⁱ and Raffaele Doronzoⁱ

Abstract

We examine the main items on the European and the Italian Digital Agenda and the rules of the Digital Administration Code, in particular on-line payments. We then highlight the part played by the Bank of Italy in overall administrative modernization through its role as provider of the State Treasury service. We analyse the latest international studies on e-government, comment on the data from the Bank's survey on local government computerization in order to see how innovation can affect local authorities' on-line services, and offer some considerations on the outlook for the government payments system.

JEL Classification: H11, H83, Z18.

Keywords: innovation, general government, Digital Agenda, payments.

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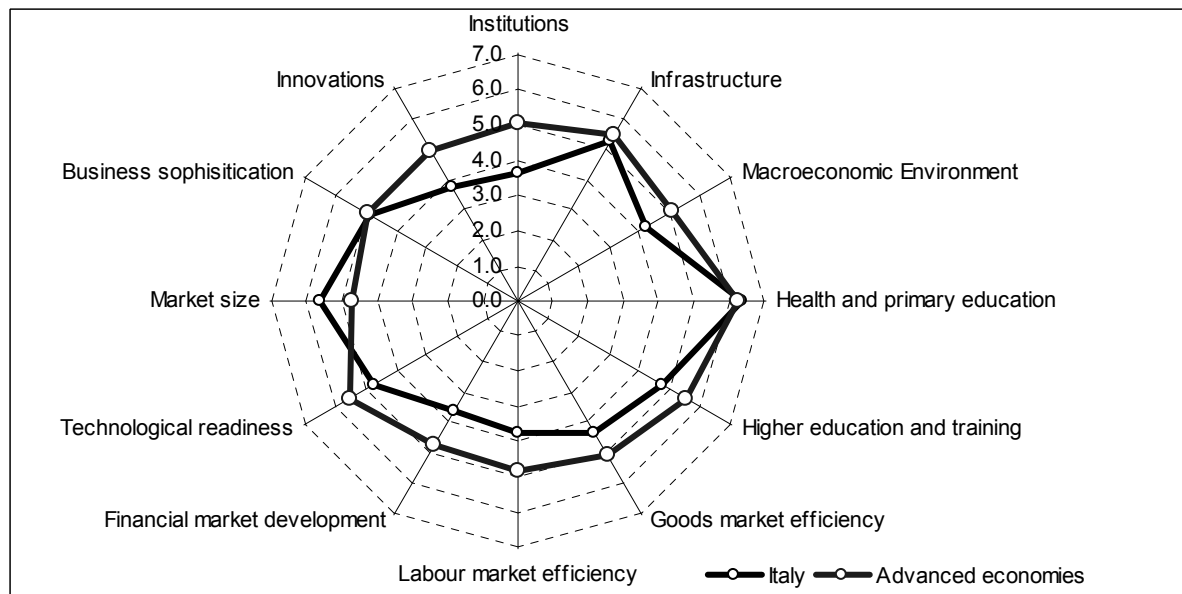
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ⁱⁱ Pasquale Ferro, sections 1, 2.2, 6; Carlo Maria Arpaia, sections 3, 4.2, 5; Raffaele Doronzo, sections 1, 2.1, 4.1.

1. Introduction

A comparison with the other developed countries reveals that Italy lags seriously behind in competitiveness and innovation. In the 2012 World Economic Forum global competitiveness ranking, Italy remains stable at 42nd place; the country is somewhat better placed on innovation alone, where it ranks 36th. The lag stands out more clearly still in the 12 competitiveness subsectors (Figure 1). Inefficient bureaucracy and overtaxation are perceived as the main institutional obstacles to business activity¹.

Figure 1: The twelve components of the Global Competitiveness Index 2012 (World Economic Forum)



Over the past twenty years progress has certainly been made in the public administration.² A series of reforms have sought to combine cost savings with better service, through regulation and simplification of administrative procedures, deregulation and

¹ A WEF survey interviewing 100 leading academics identified the main factors impeding investment and competitiveness. In Italy, besides taxation and bureaucracy, these were: the poor development of the capital market, the rigidity of the labour market, inadequate infrastructures, crime, corruption, and insufficient drive for innovation. These results are also confirmed by a World Bank survey (World Bank, 2012). To analyze the literature on the measurement of innovation activity and evaluates the position of Italy with respect to major European Countries see Benvenuti, 2013.

² The reforms of 1993-94 stemmed from the growth of the public debt and the need to adjust the public finances. They were designed to simplify public administration, to make it more efficient and less expensive, more transparent and citizen-friendly. Devolution, simplification, deregulation and reorganization of the central government were the guidelines included in the reforms drafted by Franco Bassanini, which also introduced 'administrative federalism without constitutional amendments', alongside the reorganization of central and local administrative structures. The reform process has comprised the following: Legislative Decree 165/2001 (regulating matters relating to state employees); Constitutional Law 3/2001 (amending section V of the Constitution, devolving authority and power to local government on specific matters); Legislative Decree 82/2005 (the Digital Administration Code); Legislative Decree 42/2005 (instituting the Public Connectivity System and the international public administration electronic network); Law 133/2008 and Law 69/2009 (implementation of the industrial plan for general government, May 2008); Law 42/2009 (the enabling act for fiscal federalism); Law 15/2009 and Legislative Decree 150/2009 (new regulations on the civil service) where the key words are: transparency and integrity in the public administration, and performance assessment; and Legislative Decree 235/2010 (including an important reform of the Digital Administration Code). Since 2010 administrative reform issues have been closely related to the issues of Lisbon 2020 and of the Digital Agenda for Europe.

rationalization of the bureaucratic apparatus, and increased managerial accountability. The tendency in the public administration is now towards the digital economy, computerization, telematic networks and on-line services. And the administration has grown more transparent and attentive to the needs of the stakeholders.

However, there is still much to be done, in so far as ICT, the Internet³ and e-government are not playing a major role in the public administration. E-government has been a central issue in innovation locally, nationally and internationally. In 2003⁴ the European Commission described it as an essential instrument to reach the following objectives: 1) open government (citizen participation in the decision process); 2) public services tailored to citizens' individual needs⁵; 3) helping general government optimize resources by boosting efficiency and productivity, reducing the costs of services to citizens and firms, cutting red tape and shortening waiting time.⁶ As well as improving efficiency, e-government will entail other benefits: it can encourage people to access services via ICT, thus promoting the use of ICT and attenuating the digital divide; it should boost the demand for ICT and network connections in the private sector; public investment in infrastructures should foster net economies. Education and development of technological knowledge could also benefit.

Most countries have started to adopt e-government initiatives, under supervision of international bodies like the UN and the OECD, which select and promote best practices in general government. In some countries e-government can foster greater democracy, encouraging citizen participation and the transparency of decision-making processes and conduct and thus combating bad administration. Economically, a major objective is to enhance government productivity by increasing efficiency in resource use and offering adequate and high quality services. Empirical evidence shows that investment in ICT contributes significantly to productivity growth.⁷

In public administration ICT can support e-government in the fields of technology, information and organization as well as in strategic planning. The development of an adequate infrastructure, such as broadband links, is necessary to increase productivity and efficiency, but it is not sufficient. It is also essential to reorganize both front-office and back-office systems, with wide-ranging projects that involve management, human resources and technology over extended periods of time and under adequate governance. The availability of public services on e-government portals is an important first step towards easier access to information for citizens and firms, but the benefits for users, including transparency and efficiency, can only be triggered by an overall review of the process of supplying public services to dramatically reduce or eliminate queues at the counter.

Governments therefore have strong motivations to invest in the development of e-government: policy should boost faster internet connections to foster the use of ICT instruments to access services, while at the same time it is crucial to offer digital services and increase the demand for ICT and network connections, making general government the key

³ A recent report by the McKinsey Global Institute, presented at the E-G8 in Deauville (26-27 May 2011) analyses the impact of the Internet on economic growth in 13 countries, finding that if the Internet (consumption and expenses) were an economic sector, its influence on the GDP (estimated at 3.4 per cent) of the countries examined would be greater than agriculture or utilities. Furthermore, the Internet has created 2.6 jobs for each job destroyed, and has increased the productivity of small and medium-sized enterprises by 10 per cent while helping to double exports. The report shows how Italy, like Russia and Brasil, has substantial growth potential due to the potential demand that Internet can create. "Internet matters: The net's sweeping impact on growth, job and prosperity," May 2011.

⁴ See in particular Erkki Liikanen's speech at the conference "*Local e-Government in the Information Society*", Barcelona, 21 March 2003. Liikanen was Commissioner for Enterprise and Information Society.

⁵ On-line public services should be accessible to all users, regardless of their digital skills or income.

⁶ Istat (the National Institute of Statistics) estimates that administrative obligations required by public administration cost enterprises 23 billion euros (Istat, 2012).

⁷ Liikanen, op. cit.

driver of the digital economy thanks notably to the demand generated by the public administration itself. This creates a compliance effect in the private sector, which must invest in turn in order to interact with the digital government. And public investment in infrastructure produces positive externalities in the form of the development of on-line services. By motivating the use of ICT by the public administration, businesses and citizens, e-government stimulates investment in infrastructures and ICT learning.

In this paper, first we describe the European initiatives for e-government and their implementation in Italy, summarizing the digital agenda and the regulatory framework for digitalization in government, highlighting the role of electronic payments as an essential requirement for users to interact with government through various channels more efficiently and at lower cost. Particular attention is paid to innovation in the system of public payments, given the role played by the Bank of Italy in providing the State Treasury service and the accomplishments: the modernization of the government payments system has been the driving force for the modernization of the public administration in general, helping the review of budget and expenditure procedures. There nevertheless remain obstacles to be removed before government payments can trigger widespread innovation and promote the supply of on-line services.

We then discuss the state of e-government in Italy in the European context and the progress made in recent years. We consider several UN, EU and OECD studies and present the results of the digital agenda together with the estimate given by a Bank of Italy survey on local government computerization. The intention is to determine how far innovation in payment services at the local level is affecting the provision of public services. Finally, we recommend a series of actions within the public payments system to foster e-government.

2. The European and the Italian framework: the Digital Agenda and the Digital Administration Code.

2.1 The Digital Agenda for Europe and the Italian experience

In order to speed up ICT development, the European Commission has proposed the Digital Agenda for Europe⁸ as part of the wider EU2020 development strategy.⁹ The digital agenda comprises 101 actions, grouped into macro-sectors, to speed the diffusion of high-speed Internet and reap the benefits of a digital single market for households and businesses. The intention is to improve security for on-line payment instruments and so boost users' confidence, to enhance Europeans' digital competence and make on-line services accessible. Implementation requires intervention at European, national and regional levels. The Member States are required to present annual reports on the measures taken.¹⁰

⁸ Two major objectives of the agenda are: speeding up the diffusion of high-speed Internet and reaping the benefits of a single digital market for households and firms. The Commission observes that the ICT sector produces 5 per cent of the European GDP and accounts for €660 billion in annual market value, but contributes even more to productivity growth (20 per cent coming directly from the ICT sector and 30 per cent from investment in ICT), and that global ICT demand amounts to €8 trillion, only a quarter of it involving European enterprises.

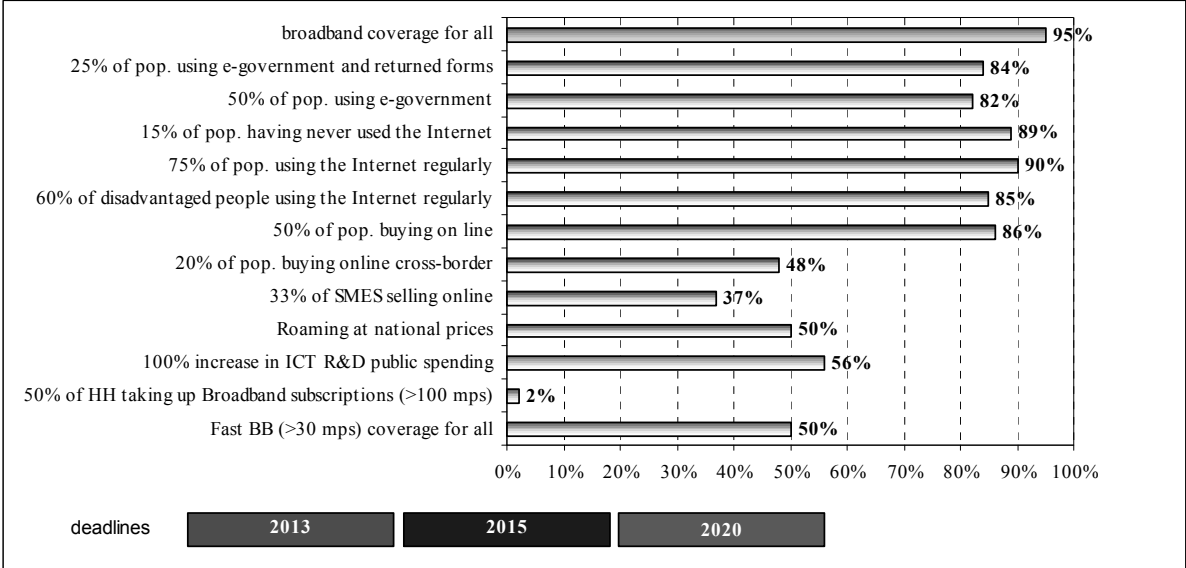
⁹ EU2020 follows the Lisbon strategy laid out by the European Council in 2000. The Lisbon objectives included: the modernization of the public administration through on-line services, electronic payments, dematerialization, interoperability among administrations and on-line purchases. (See Sestito P. e Torrini R., 2012, on issues concerning the structural reforms needed to achieve the objectives and their coordination)

¹⁰ Italy produces a Stability and Convergence Programme, to be submitted to Parliament before the adoption of the budget, with instructions on public finances and budget policy, and a National Reform Programme included in the Economic and Financial Document, which contains elements to check progress towards the objective of intelligent, sustainable and inclusive growth.

The EU annual report¹¹ charts progress on the digital agenda against 13 performance indicators, which are shown in Figure 2 together with the percentage achievement of the goal for each year. There has been definite progress, although problems remain. European use of Internet is increasing steadily: in 2011, 65 per cent of the population were frequent users, up 5 percentage points for the year. On-line purchases are also increasing rapidly (although cross-border e-commerce growth is rather slow). While high-speed broadband and Internet connections over 100 Mbps are spreading, on-line selling and buying by small businesses is still underdeveloped. Despite the recession of recent years, there has been a general rise in public investment in R&D, albeit not on track for the 2020 targets. Notwithstanding the efforts of many countries, e-government in relations between citizens, businesses and public administration is not very widespread.

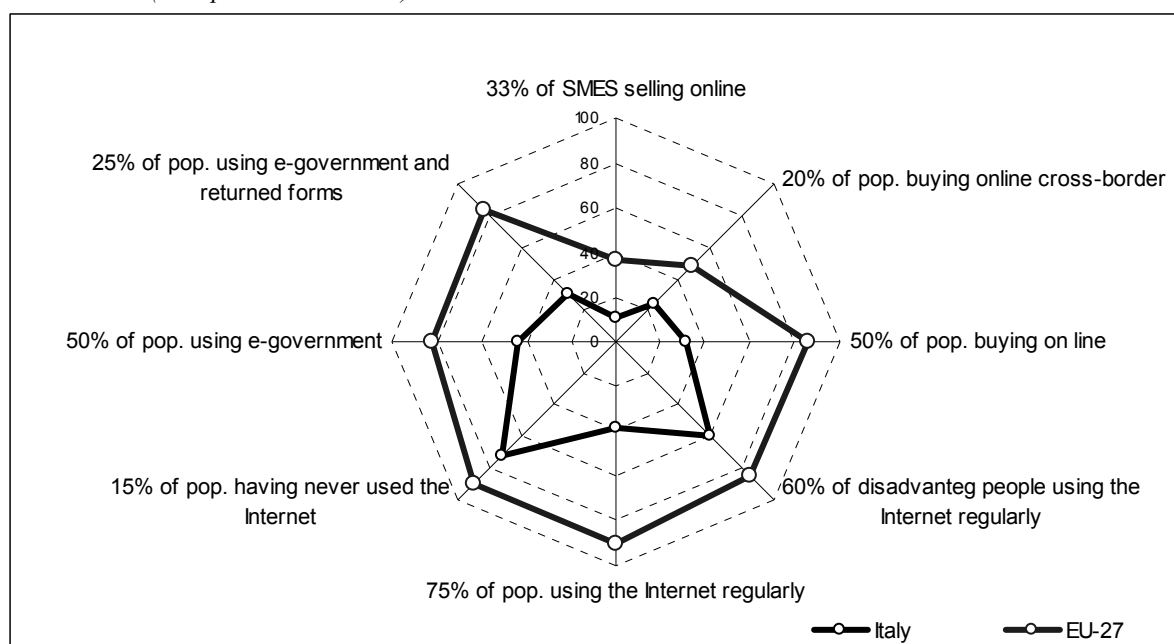
Figure 3 shows how Italy compares with the average European performance on some of the most important digital agenda goals: 1) 75 per cent of population using the Internet regularly; 2) 15 per cent of the population never having used the Internet; 3) 50 per cent of the population using e-government; 4) 25 per cent of the population using advanced e-government procedures; 5) 33 per cent of small enterprises selling on-line; 6) 50 per cent of the population buying goods and services on-line; 7) 20 per cent of the population buying on-line cross-border; 8) 60 per cent of disadvantaged people using the Internet regularly. Italy is lagging behind on these objectives. Only 62 per cent of Italian households have an Internet connection, and the percentage using the Internet regularly is still very low. Italy also has the highest percentage of population who have never used the Internet. The number of people availing themselves of e-government facilities is still very low, while e-commerce is still insufficiently widespread among both households and businesses. Given the situation, it is most unlikely that Italy can attain the objective of 50 per cent of the population using e-government by 2015. These data will be further examined in section 4.2.

Figure 2: Achievement of the objectives of the Digital Agenda for Europe by 2011 (European Commission)



¹¹ European Commission, 2012.

Figure 3: *the objectives of the Digital Agenda for Europe by 2011: a comparison of Italy's and Europe's achievements (European Commission)*



2.2 The rules for digitization of government

Italy adopted the European objectives in its “E-Gov 2012” plan. A set of projects have been developed to make the public administration more efficient, improve service quality and lower costs. To reduce the flow of paper documents in favour of totally computerized processes, the objective is to offer users the option of on-line payment for all government services and to enable firms to integrate the electronic invoicing of general government entities with payment procedures, so as to reduce administrative, accounting and financial costs.¹²

An essential condition for the implementation of the plan is the completion and development of the Public Connectivity System, which links most general government entities and financial institutions, the terminals of any modern public payment system, by instituting clear rules for operations in open networks.¹³ This would foster on-line access to a

¹² A recent inquiry by a parliamentary committee observed that Italy’s backwardness in this field can be overcome if: a) the use of ICT is supported by planning capability on the part of government bodies; b) there is proper governance of the computerized general government information system and of the links between central, regional and local government, overcoming problems and creating “a single centre for policy impetus and coordination for digitization in order to avoid problems of interoperability”; and c) expenditure is increased and improved to expand the supply of on-line services also for infrastructure projects. The committee also suggested considering the possibility of setting a deadline for general government entities’ changeover to digital administration. Law 35/2012 set the deadline at 1 January 2014 and provided that public administration bodies use only ICT channels and services, including certified email, for their services (also by means of authorized intermediaries); for the public’s submission of reports, requests, acts and suretyships; for tax, social security, welfare and insurance payments; and for requests for attestations and certificates. Starting in January 2014 general government entities will use only ICT services or certified email also for their own acts, communications and services.

¹³ The Digital Administration Code (Legislative Decrees 82/2005 and 235/2010) defines the PCS as “the set of technological infrastructures and technical rules for the development, sharing, integration and dissemination of the information and data of the public administration necessary to basic and advanced interoperability and cooperation in applications of information systems and flows, guaranteeing security, data confidentiality and the safeguarding and independence of the information base of each general government entity.” The PCS is

wide range of public services, the development of technological infrastructures, training and research in ICT as support to the project for increasing on-line transactions.

The Italian plan consists of 27 actions. For our present purposes, the key ones are dematerialization, the digitization of services to users, and the spread of on-line payments. An essential precondition is the re-engineering of administrative activities and internal processes in the logic of intensive ICT use.

Rethinking administrative procedures and reorganizing them around ICT is not easy for the general government bodies that have taken the rule and its application as point of reference, and for this reason the results so far are unsatisfactory. Europe has a single currency, but the electronic payment market is still fragmented by national borders. Hence the single euro payments area (SEPA) needs to be completed, which will also constitute a platform for value-added services in connection with payments, such as the development of a European framework for electronic invoicing, in an integrated market for secure, efficient payments.

An important milestone in relaunching the Italian Digital Agenda is the Decree Law 179/2012 (see Appendix 2). It has the ambitious objective of making innovation a structural factor for sustainable growth and firms' competitiveness. Article 1 says the State will promote the development of the digital economy and culture, define policies of incentives for the demand for digital services, and foster computer literacy and technological research and innovation, as essential factors of progress and opportunities for economic, cultural and civic enrichment. It recognizes that digitization is a powerful tool for reducing costs and speeding up processes for the State, to be translated into employment growth, productivity growth and competitiveness. The process is to be guided by two bodies, the Steering Group and the Digital Italy Agency.¹⁴

Digitization moves on a number of fronts: network infrastructures, the integration of ICT systems within general government, digitization of relations between government and firms and the public. Through the Agency, by 30 June the Government presents an annual report to the parliamentary committees on the consistency of regulations with EU principles as regards the realization of the digital single market and on the state of implementation of the

essentially the information architecture of general government, based on shared technical rules and services of interoperability and cooperation among the information systems of the single administrations acceding to it. For more detail, see Appendix A1.

¹⁴ The Agency performs the functions of coordination, direction and regulation formerly assigned to DigitPa, the Agency for the Dissemination of Technologies for Innovation, and the Department for Digitization and Technological Innovation under the Office of the Prime Minister. Specifically, the Agency's duties are: a) to help disseminate ICT in order to foster innovation and economic growth, including by speeding up the dissemination of next-generation networking (NGN); b) to develop strategies, technical rules and guidelines for the uniformity of languages, procedures and standards, including open standards, for full interoperability and application cooperation among the information systems within Italian general government and between the latter and the systems of the European Union; c) to ensure technical uniformity of the public information systems providing services to the general public and to firms, guaranteeing homogeneous quality and availability throughout the national territory and complete integration at European level; d) to support and disseminate initiatives for the digitization of document flows within general government, including conversion and preservation, speeding up the digitization of administrative documents and working to remove the technical impediments to digital administration and the full and effective institution of the right to the use of the technologies referred to in Article 3 of the Digital Administration Code; e) to oversee the quality of services and the rationalization of IT expenditure, in cooperation with CONSIP, including by inter-institutional cooperation during the phases of planning and management of procurement procedures, in order to accelerate the processes of computerization and to save on expenditure; f) to promote and disseminate computer literacy initiatives for the public, among other things through agreements with the Scuola Superiore della Pubblica Amministrazione and Formez, and recourse to innovative teaching technologies; and g) to monitor the implementation of ICT plans within general government entities, in terms of effectiveness and economy, suggesting correctives to their governing bodies and, where appropriate, to the President of the Council of Ministers.

actions envisaged in the annual laws, setting out the effects for citizens, firms and the public administration.

Another objective of the measure is the consolidation and interoperability of information systems. Special attention is given to spreading computer literacy (for instance, greater use of electronic payment instruments and debit cards). The project for electronic identity cards will be initiated, and electronic health services will be developed, while public and private investment in ICT will be stepped up to facilitate cloud computing¹⁵ and the spread of the open data culture.

Decree Law 179/2012 finds fertile terrain in the government digitization provisions of the Digital Administration Code, Legislative Decree 82/2005 (see Appendix 3), reformulated in Legislative Decree 235/2010. The Code adapts the rules of conduct for general government bodies to the evolution of technology, consistently with the European framework and with the effort to design IT and organizational innovations capable of generating significant economies. It institutes the legal right, for individuals and firms, to interact with any general government body in digital mode (Internet, email, etc.) and with innovative instruments and an obligation for government entities to make all information and administrative proceedings available in the same mode.

Overall, the Code can potentially affect the practices of public administrations and the quality of their services. But it is also clear that if they are to be applied the new rules need not only effective implementing provisions – which are still lacking – but also the capacity on the part of the government entities to put them into practice. The revised version of the Code, in any case, is clearer than its predecessor on the objectives, procedures and instruments for the transition to digital administration, introducing reward and sanction mechanisms in line with Legislative Decree 150/2009 for public managerial accountability, in that the savings achieved by reorganization and the introduction of ICT procedures can be allocated to staff incentives.¹⁶

The rules governing advanced digital signatures, permitting the full legal signature of digital documents, and the integration of the projects for the electronic ID card and the national service card for purposes of electronic identification are steps towards digital administration, together with the further, more practical spur to electronic collection procedures, which general government entities must make available to users. Specifically, the Code introduces new payment instruments (credit cards, debit or prepaid cards, and any other electronic payment instrument available) for collections by general government, which may also outsource collection to private parties.

The Code and the PCS are necessary (though not sufficient) infrastructural elements for the dissemination of on-line government services. It will be possible to integrate payments and services requested by citizens with the use of all available payment channels. This is the reason for Article 5 of the Code (now reformulated by Article 15 of Decree Law 179/2012),

¹⁵ The European Commission attaches great importance to cloud computing, which it estimates could generate 2.5 million jobs by 2020 and an additional €160 billion (1 per cent) of GDP. The main benefits, in its view, will come with the involvement of the public administration, allowing better and cheaper e-government services.

¹⁶ Among the Code's most important innovations are the certified email for communications requiring advice of receipt to persons who have given their email address and the single office for ICT activities at each government body. Certified email is also used as an instrument for identification, thus avoiding the use of the digital signature. The promulgation of technical rules conferring full validity on digital copies of documents will further the dematerialization of general government documents; government bodies will no longer be able to require the use of forms not available on their websites. Other significant provisions, entailing savings for citizens and firms, are the measure dispensing users from providing data to general government entities more than once, the government bodies themselves then guaranteeing access to the information to other public structures so requesting, and provision that the filing of claims, declarations and data, and the exchange of information and documents (for statistical purposes) between firms and public administration be only via ICT.

which requires a set of rules, standards, organizational structures and infrastructures necessary for the dematerialization of the financial flows for all payment transactions (collections, receipts, payment orders and account flows) and to enable users to pay by electronic channels made available by the payment service providers.

The stepped-up drive for rapid attainment of the digital agenda objectives is also justified by the very significant potential cost savings and revenue gains. A good number of studies have estimated the economic value of general government digitization, evaluating the potential saving on the supply side. The recent analysis by the Digital Agenda Observatory of the Milan Polytechnical University examined six main areas and measured the benefits of digital solutions over a three-year span. Overall, it estimated cost savings of €20 billion and additional revenues of €5 billion.¹⁷ A more prudent but still substantial estimate of the likely savings is that of Confindustria Digitale in its press release on the government's spending review decree.¹⁸ This study puts the potential savings from general government digitization at €7.5 billion a year, positing digitization of the entire service provision process, rationalization and interoperability of databases and provision of services to citizens on-line. In addition, there would be the potential savings on the demand side, thanks to the saving of time in interaction between users and government. A study by the I-Comp institute on competitiveness estimates savings for service users ranging from €4 billion to €13 billion¹⁹; this wide range of variation depends essentially on whether or not there is effective reorganization to accompany general government digitization. Finally, the Ministry for Economic Development estimates the cost to firms of the failure to dematerialize relations with general government at €15 billion.²⁰

3. Public sector payments as a tool for innovation in government

The potential role of public payments as a vehicle for innovation in the payments market and the economy as a whole has been recognized by the World Bank,²¹ which has issued guidelines²² for modernization in this area.²³ The guidelines take a systemic approach

¹⁷ The six areas are: 1) e-procurement in general government; the savings if on-line procurement were raised from 5 to 30 per cent of the total would amount to €7 billion; 2) electronic invoicing; with the unblocking of the implementing decree, now approved by the State Council, savings would come to €5 billion, of which €1 billion for general government and €1 billion for public contractors; 3) electronic payments to general government entities; assuming 30 per cent digital payments of municipal property taxes, waste taxes, traffic fines and motor vehicle fees, the savings would come to €0.6 billion; 4) electronic payments to merchants; with just a 10-point increase, from 20 to 30 per cent, in the use of electronic payments (credit, debit and prepaid cards and other electronic instruments), the revenue gain due to the reduction in tax evasion would be €5 billion; 5) dematerialization and digital process innovation; if employees' productivity increased by 10 per cent, with the typical rate of process digitization there would be savings of about €15 billion; 6) start-ups; with an investment of €300 billion, there would be an estimated increment in GDP of €3 billion over ten years.

¹⁸ http://www.confindustriadigitale.it/Area_Stampa/Comunicati_Stampa/Stefano_ParisiSpending_Review.

¹⁹ I-Comp, 2012.

²⁰ Ministero dello sviluppo economico, 2011; Cassa Depositi e Prestiti, 2012.

²¹ World Bank, 2012.

²² For details, see Appendix A4.

²³ In analyzing the complex relations between general government and the economy, within which public payments represent an important link, the World Bank identifies four areas for action: safety and efficiency of government payment programs, with a stress on technology and effective governance of the process, so that central bank, government and all stakeholders work constantly for a level of efficiency in line with the most innovative models; the regulatory framework, in which national legislative bodies must strike the right balance between prescription and flexibility, ensuring fair competition among market forces and ample scope for innovation; payment system infrastructure, which is an essential prerequisite for efficient processes, even though there have been instances, internationally, of best practices arising even in the absence of some fundamental

to the development of modern government payment programs, taking account of the various agents involved (government entities, central bank, payment institutions and service providers, firms and the public) in the entire “value chain” of the payment process. They stress the importance of using the most advanced payment technologies, in a broader context of simultaneous pursuit of transparency, efficiency, risk minimization, the promotion of e-government, the control of the public accounts, financial inclusion, and the war on cash. Government payments may be a help towards e-government. The payment system, in turn, uses the public administration as a source of impetus towards the scale economies necessary for the success of the most competitive models. The nature and large volume of public payments are such that innovations in this field are not only a tool for payment system modernization but can also facilitate financial inclusion for the most disadvantaged groups within the population. These observations apply, albeit with national specificities, not only to the developing countries but also to a developed country like Italy.

In short, the international experience referred to in the World Bank guidelines teaches that efficient public payment and collection procedures are doubly innovative: they assist in the consistent, efficient, transparent management of public resources, and given the economic pervasiveness of government payments, their “critical mass,” they encourage the spread of shared standards or market models that benefit all stakeholders, far beyond the public administration and its users. It will be useful, then, to reflect on the best configuration for government payment programs and the possibility of using them to favour e-government in general. In doing so, we shall consider the State treasury service, i.e. payment services involving both central and local government.

In Italy, the computerized State treasury service is based on the connection between the general government domain and that of the payment service providers. Within the government domain, payments and collections are executed via the functions of the computerized general government payment system (SIPA), an administrative and electronic information system instituted jointly by the Bank of Italy, the State Accounting Office, the State Audit Office, and DigitPA in order to take full advantage of the functions of electronic networks for public payments.

In this framework the Bank of Italy plays a crucial role. It serves at once as State Treasurer and payment system manager. The advantages of this procedure, especially on the public expenditure side, have been substantial in terms of bureaucratic streamlining, the dematerialization of paper document flows, and the availability of information on the public accounts. The payment system as a whole has benefited from the innovations in Treasury payments. Overall, these procedures have produced a giant leap in the quality and efficiency of the State treasury service, with benefits both for government and for payment recipients, who get the amounts due them promptly and regularly.²⁴

infrastructure or adequate financial inclusion; and cooperation, in that the two-way linkage between government payment systems and the economy and the major externalities of efficient standards and models indicate the need for incentives for cooperation among the categories of agents.

²⁴ Starting in the 1990s the Bank of Italy began to work to improve the efficiency of central government payment and collection procedures and public sector liquidity management. In fact, the State treasury service was the first task assigned to the Bank of Italy upon its creation in 1893, so it has been a function of the Bank's for 120 years now. The Bank has progressively supplemented the tasks of payment execution and management of State borrowing with others: since 1980 it has managed the liquidity of government entities included within the single treasury, which in order to facilitate the financing of the central government budget must hold their unused liquidity at the State Treasury. The treasury service itself, as the handler of an enormous mass of accounting documents and data, was one of the first institutions to automate data processing, at the dawn of the electronics revolution. Since the 1980s, around the nucleus of the State treasury service, as the government budget expanded and state intervention in the economy increased, other activities were added: estimating the state sector borrowing requirement, cashier services for public entities, and the General Government Transactions Information System (SIOPE), which lent powerful impetus to the monitoring of local government accounts. In

Practically all Treasury service payments are now made using ICT procedures (67 million electronic payments and scarcely a million residual paper-based payments), allowing the reorganization of operating processes underlying the recent remodulation of the local presence of the Bank (and of the Ministry for the Economy and Finance).²⁵ In this sector computerization has had a major impact. Since 2003 the Bank of Italy has cut the costs directly ascribable to the treasury function. The staff assigned to the management of public payments has been reduced to a third of its original number. In the last five years the operating costs of the treasury service have been reduced significantly. The savings from the closing of 39 branches (possible thanks to the computerization of State payments and collections) has been put at €80 million.²⁶ This is just one instance of the potential savings in all fields that could derive from innovative procedures.²⁷

Thus the State treasury service can be said to be very well advanced in the computerization of payment procedures. For collection procedures, however, matters stand quite differently; they are still tied to outdated mechanisms that neglect the necessary synergies between financial flows and administrative flows that are at the very basis of e-government. Central government departments (the State Treasury) and local government bodies (see Section 4.2) mainly effect collections through paper-based channels and instruments that do not make the data of single payments immediately available.²⁸

this context the Bank of Italy pressed strongly for the simplification of expenditure procedures and the use of ICT in government, in order to renovate the public payment system and enhance government efficiency. On SIOPE see A. Pietroni and P. Ferro, “Il Sistema Informativo sulle Operazioni degli Enti Pubblici: obiettivi, utilizzo e sviluppo”, in *La Finanza Locale*, No. 12/2008.

²⁵ The procedures instituted under the name “computerized State Treasury” include the computer expenditure mandate for central government departments (800,000 transactions a year), state employee salaries and pensions (23 million), other public employee pensions (23 million) and temporary INPS pensions (14 million), settlement of payments and collections of public entities in the single treasury account (1 million), payments into postal current accounts (800,000), and other procedures such as those created for tax agencies (1 million transactions yearly) and for tax payments, via the central government F24 form, for the municipal income surtax and other taxes. For State collections, the treasury service mainly collects amounts from the banking system. The “single mandate” has attained the objective of regulating the flow of funds through interbank settlement procedures and crediting the amounts paid into the treasury service (e.g., social security contributions to INPS) to the State and to other public bodies on a definite, certain timetable. For an assessment of the objectives and results of the State Treasury reform thanks to the new technology, see P. Ferro, “L’utilizzo dell’ICT nel sistema dei pagamenti pubblici: le prospettive per la tesoreria dello Stato e degli enti locali”, remarks at *Forum Banche e PA* organized by Associazione Bancaria Italiana, Rome, February 2010.

²⁶ Banca d’Italia, 2009.

²⁷ Though there is a broad consensus that ICT applications and electronic networks cut costs, there have been few quantifications of the potential savings from innovation in government. The benefits obtained by the Bank of Italy can be compared with electronic invoicing, a process similar to that of public expenditure. A study by the European Commission’s informal task force on e-invoicing (2007) estimated that the introduction of e-invoicing in Europe would produce cost reductions in the supply chain of €243 billion. For Italy, a study by the Milan Polytechnical University found that the benefits for agents from e-invoicing could range from €3 per invoice (when only the paper support is dematerialized and the savings therefore consists only of the cost of printing, filing and retrieval) to €12 per invoice for “structured” e-invoicing (when the e-invoice contains data that can be processed automatically).

²⁸ Payments to the Treasury are made via the “single mandate” and other channels as well. The “single mandate,” which allows offsetting tax and social security contribution debits and credits, covers some 125 million payments received from banks and the Post Office, which collect 70 per cent of the taxes and contributions due to the State and the social security institutions. Tax payments can be made at bank and post office branches, via Internet banking, or through the Revenue Agency portal (Entratel). Direct cash payment to the Treasury service is also possible (this channel is declining steadily, just 40,000 transactions in 2011) or to the Treasury’s postal current account, with full discharge of the taxpayer’s liability. For some payments the Treasury service receives electronic transmissions with images of the postal account deposit receipts and enters them in the accounts (some departments have dedicated accounts for this purpose, located at the Viterbo treasury service). This channel is costly for the payer (waiting time at the branch), for the government unit receiving the payment and for the Treasury (manual accounting entries). Since 2006 payments have also been possible by

Consequently, the government units involved demand a receipt for the payment. Alternatively, some units have special agreements (e.g. with Poste Italiane) for automatic reception of the data on in-payments to dedicated postal current accounts. While this does make the process more efficient for the government units, it also forces the payer to use one, exclusive channel (the deposit form for the “dedicated” postal account), which is generally not available on-line. This obliges government bodies to effect costly reconciliations, seriously delaying the provision of the service acquired and undermining the productivity of government action. Action is required on this segment of government activity to take full advantage of computerization and dematerialization. The Digital Administration Code and Decree Law 179/2012 move in this direction.

4. The placement of Italy in the e-government field

The previous sections have shown the importance of e-government for the improvement of government efficiency and its benefits for the economy and the society. Furthermore, with reference to the digital agenda and the Digital Administration Code, European and international scenarios have been illustrated. The present section sets out the results of some studies on the development of e-government, enabling us to see how Italy stands internationally and explain the differences between central and local administrations.

4.1 Studies by the United Nations, the European Commission and the OECD

The United Nations²⁹ proposes a complex e-government development index (EGDI), which measures the ability of public administrations in different countries to use ICT for supplying public services. The UN study is based on the results of an extensive research on the use of the Internet connection (on-line connection) in the 193 member States and it ascertains the technical characteristics of websites, together with the e-government policies and the strategies applied in different sectors for the on-line provision of some public services. The index is calculated as the weighted average of a series of sub-indicators that can be extracted and analyzed one by one. The most relevant ones for our purposes are the online service index and the Telecommunication infrastructure index.

The online service index (OSI) measures the degree of development of on-line services. Several national websites of both central and local public administrations were examined and evaluated. In addition, several countries filled in questionnaires with four sections, each corresponding to a different e-government development stage. The first includes questions about features relating to the initial stage of an e-government system that provides basic and limited information. The second stage reflects a stronger government presence, with the provision of more complex public services and access to downloadable laws, regulations, newsletters and database. The third stage implies an interactive relationship between the administration and citizens/consumers; it includes the possibility of paying taxes on-line, requesting documents, such as ID cards, birth certificates, passports, and other forms

bank or postal credit transfer, to the bank account specified by the IBAN code of the State Accounting Office (assigned to the budget or to other accounts). This channel permits home banking and the automatic accounting entry of the payments. The amounts collected by the banks must be paid to the tax concessionary within three days and entered in the accounts by the Treasury in another three days. This double movement of funds is inefficient and often pointless, as in practice the tax concessionary is the bank itself. Further, the payment to the Treasury service is often effected by non-automatic instruments (debit letters on the banks' settlement accounts with the Bank of Italy), which weighs down the operations both of the Bank of Italy's branches and of the tax concessionaries.

²⁹ United Nations, 2012.

of interaction. The fourth and highest stage is “connective presence.” This represents the most sophisticated level of e-government initiatives; it is characterized by broad bilateral interaction between citizen and public administration (citizen-to-government and government-to-citizen). Basically, the government encourages citizens to participate democratically in the decision-making process through ICT, by creating an open and interactive dialogue with society. On-line payments are placed in this last stage.

Table 1: *E-government development index 2012 (United Nations)*

	E-gov development index (EGSI)	Component 1 Online service index (OSI)	Component 2 Telecommunication infrastructure index (TII)	Component 3 Human capital index (HKI)
Italy	0.7190	0.5752	0.6697	0.9120
Europe	0.7188	0.6189	0.6490	0.8916
Developed Countries	0.7329	0.6503	0.6509	0.8974

Table 2: *Online service index 2012 (United Nations)*

	Online service index (OSI)	Stage 1	Stage 2	Stage 3	Stage 4
Italy	0.5752	92%	57%	48%	41%
Europe	0.6189	96%	66%	45%	45%
Developed Countries	0.6503	96%	68%	49%	49%

Table 3: *Telecommunication infrastructure index 2012 (United Nations)*

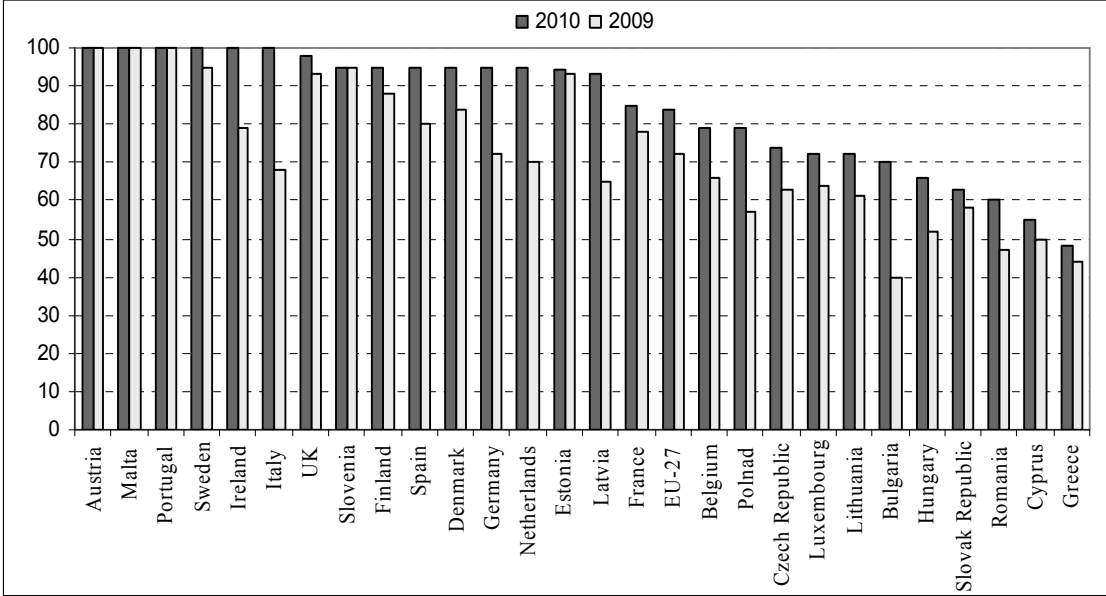
	Telecommunication infrastructure index (TII)	Component 1 Internet users per 100 inhabitants	Component 2 Fixed telephones lines per 100 inhabitants	Component 3 Mobilephones lines per 100 inhabitants
Italy	0.6697	53.68	35.67	135.42
Europe	0.6460	66.01	40.40	119.52
Developed Countries	0.6509	67.45	40.69	117.24

The telecommunication infrastructure index (TII) contains a series of sub-indicators related to the ICT infrastructural equipment, the most important being the number of Internet users and the number of telephone land and mobile lines in relation to population. Tables 1, 2 and 3 show the placement of Italy within the European Union and compared to the group of the most developed non-EU countries. On the basis of the e-government development index, Italy ranks 32nd globally, with an index value of 0.72,³⁰ essentially in line with the average index of the other two groups of countries examined (Europe and the developed countries).

³⁰ The index values range from 0 (minimum) to 1 (maximum).

But for the online service index the difference is greater (Table 2): Italy ranks 53rd, with an index value of 0.5752 and percentages of accomplishment of the four e-government development stages almost always lower than the other two groups. As far as the telecommunication infrastructure index is concerned (Table 3), Italy ranks 28th, with a slightly higher index value than in the average index for the other two groups of countries. This positive result is mainly due to the great popularity of mobile phones (135 for every 100 inhabitants), against a scarce number of Internet users.

Figure 4: Availability of basic e-government services 2009-2010 (European Commission)



Further information can be drawn by the European Commission’s annual comparative survey of e-government,³¹ which highlights the countries that have been most successful in achieving developed e-government services, underscoring the gains made in the last decade. The most interesting indicators concern the on-line availability of a set of basic public services and the sophistication of services, including the possibility of initiating and completing procedures with the public administration, including payment. Twenty basic public services³² were analyzed and grouped into four categories: (i) services related to income (government level); (ii) registration (e.g., births, register of firms, residence); (iii) public administration services (e.g. health care, social services, libraries); (iv) authorizations, permits, licenses (e.g., building, education, passports). Most of these services are currently available on-line. The European Commission surveys³³ indicate that Italy’s performance is definitely positive, with significant advances in the past few years that have brought Italy into the top group on a par with the five most innovative EU countries in 2010 (Austria, Ireland, Malta, Portugal and Sweden), with a 100 per cent rate of on-line availability for the public services considered (Figure 4): quite a remarkable result considering the country’s position in earlier years. In 2010 the European average was 82 per cent (up from 69 per cent in 2009). The ranking of on-line sophistication (Figure 5) evaluates the supply of public services in

³¹ Capgemini, 2011.

³² Reports to the police; entry in the register of firms; motor vehicle registration; personal documents; building authorizations; public tenders; income tax; social security tax; company tax; VAT; customs declarations; job search; national insurance contributions; public libraries; school enrollments; statistics; certificates; health care; change of residence; environmental authorizations.

³³ All data except sophistication of on line services are available at: http://ec.europa.eu/information_society/digital-agenda/scoreboard/graphs/index_en.htm

respect to a maturity model in five phases: (i) information; (ii) one-way interaction; (iii) two-way interaction; (iv) transactions; (v) personalization. The best performers here (Figure 6) are Ireland, Malta, Austria and Portugal (100 per cent), closely followed by Sweden, Germany and Italy (99 per cent). The average European score is 90 per cent (with a 7-point improvement compared to 2009).

Figure 5: Level of services sophistication, 2009-2010 (European Commission)

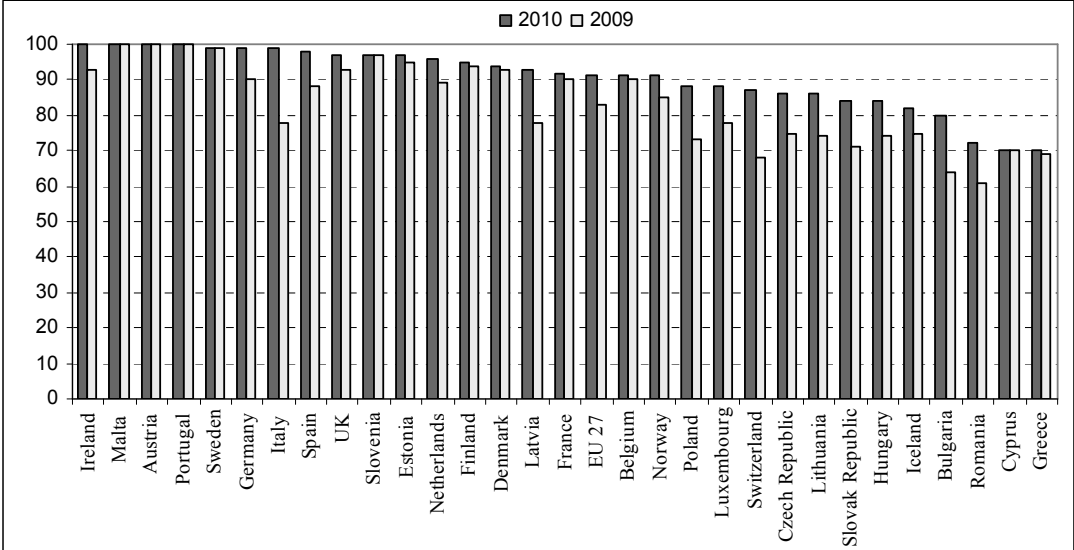
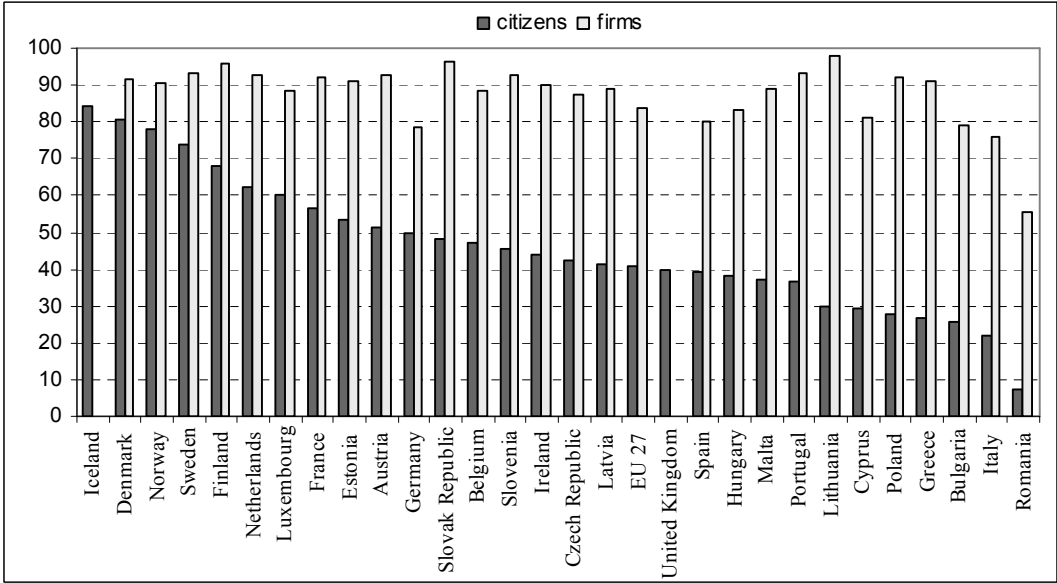


Figure 6: Percentage of citizens and firms that in 2011 used the Internet to communicate with the public administration (European Commission)



However, the data also spotlight a lag in the use of on-line public services in Italy (Figure 6). Only 22 per cent of Italian citizens accessed e-government services in 2011, against a European average of 41 per cent. According to this parameter, only Romania performed worse than Italy. The data on the use of on-line public services by Italian firms are more encouraging, since 76 per cent of firms report using the digital channel when communicating with the public administration, against a European average of 84 per cent. This much better result, though it is still behind the main European countries, has been

assisted by efforts in recent years to reduce the number of bureaucratic procedures required of firms (although there is still much to be done, as the WEF and the World Bank data show³⁴).

The low level of online service use by Italian citizens has several causes. The first factor is a low level of computer literacy. The digital divide is confirmed by the fact that only 51 per cent of Italians connect to the Internet at least once a week, compared with 67 per cent throughout Europe (Figure 7).

Figure 7: Percentage of citizens connecting to the Internet at least once a week (European Commission)

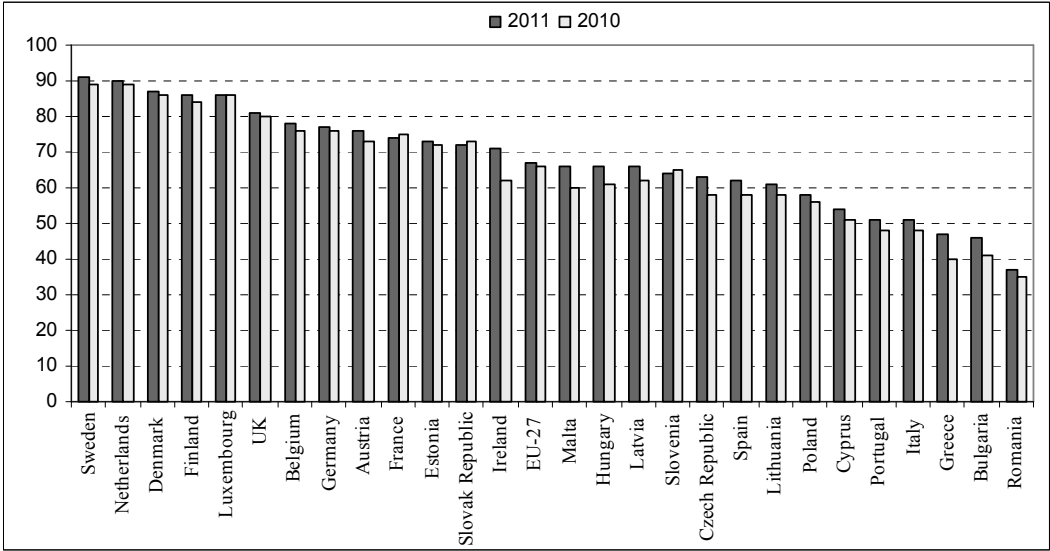
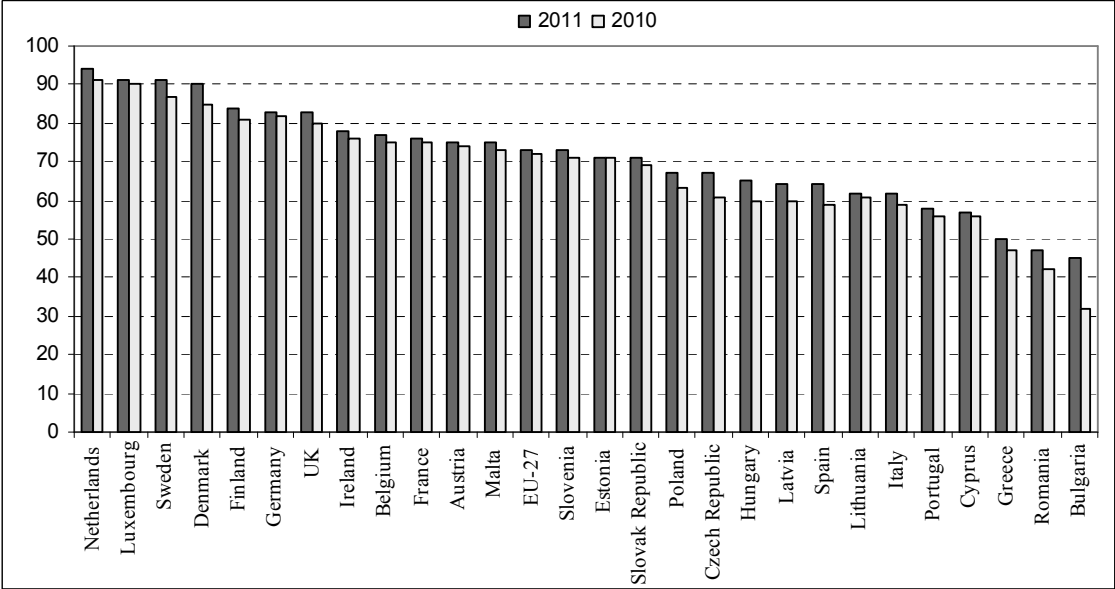


Figure 8: percentage of households connected to the Internet in Europe (European Commission)

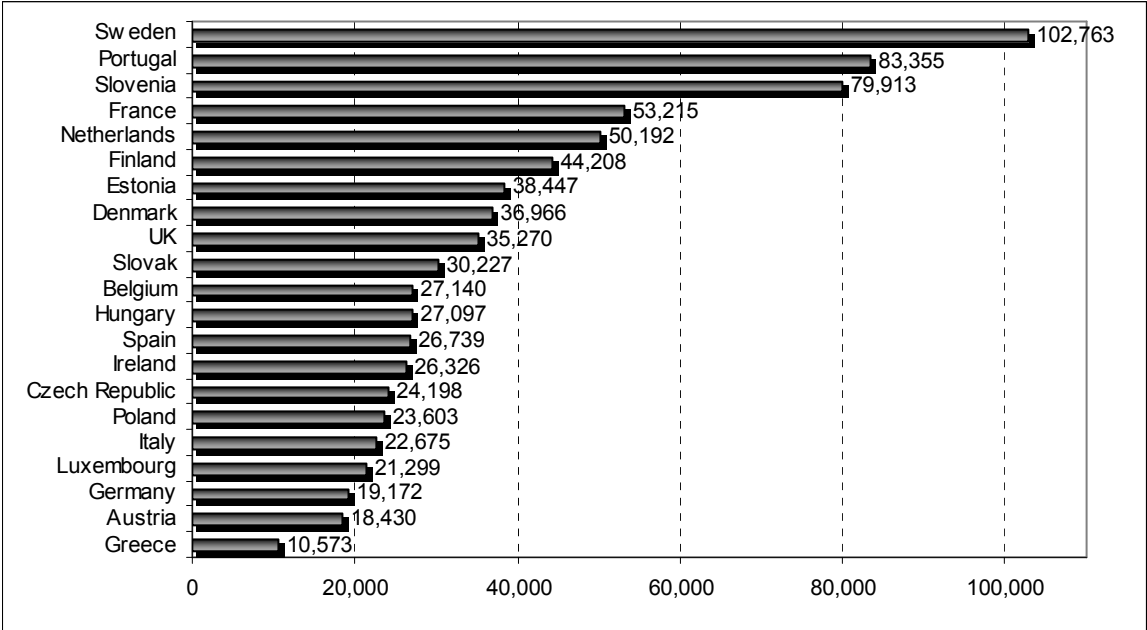


Another factor is relatively poor accessibility of communication infrastructures. Italy is still behind the other EU member States, particularly as far as new generation networking (broadband connection) is concerned.³⁵ Figure 8 shows the percentage of households connected to the Internet in Europe, regardless of the kind of technology used and the

³⁴ *Doing Business in Italy*, 2013. Survey presented in Rome, at the Bank of Italy, 14 November 2012.
³⁵ I-COMP, 2011. The World Bank estimates that a 10 per cent change in broadband connection can generate a 1.2 per cent increase in per capita GDP in developed countries (World Bank, *Economic impacts of broadband*, 2009).

transmission speed (62 per cent in Italy, 73 per cent Europe-wide). Again Italy ranks very low, outperforming only Bulgaria, Romania, Greece, Cyprus and Portugal.

Figure 9: Average speed declared for broadband connections Kbit/s (OECD 2011)



Italian households’ low level of connection to the Internet can be ascribed in part to the lack of efficient infrastructure, which should ensure universal net coverage and good quality connection. Data from Eurostat for 2011 show that 52 per cent of Italian households have broadband net coverage, against a European average of 67 per cent. An OECD study³⁶ stresses, moreover, that the average speed of broadband connections is systematically lower than in the other European countries: 22,675 Kbit/s in Italy against 102,763 Kbit/s in Sweden (Figure 9).

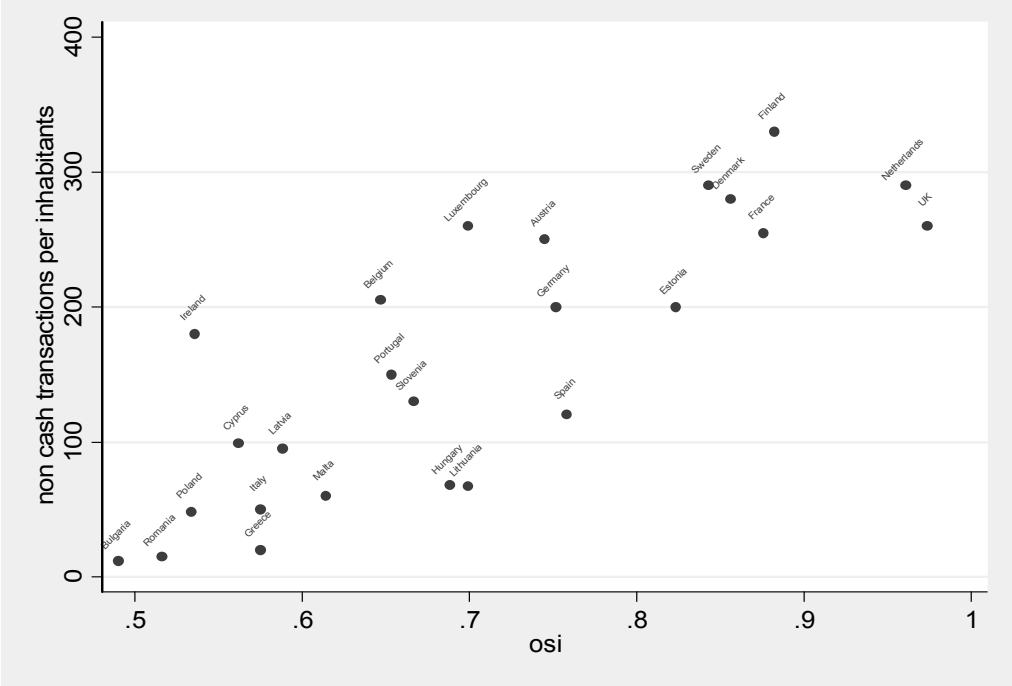
The OECD noted growing use of digital channels for interacting with the public administration. Overall, Italy has achieved appreciable results, with steady improvement in recent years. In general terms, however, the survey confirms that the percentage of citizens using the Internet to interact with government and procuring services is still not satisfactory.³⁷ For firms, however, a number of countries have made significant progress. Italy, at 84 per cent, is just above the OECD average of 82 per cent. Northern European countries lead both rankings (citizens and firms). For the OECD, increasing the volume of e-government services is essential to making the on-line channel more cost-efficient and creating, in a number of countries including Italy, a link between the supply of services, generally well developed, and the demand, often still scant. Furthermore, the experience of the most highly developed countries shows that the more advanced the e-government systems are, the more widely used

³⁶ OECD, 2011

³⁷ Against a European average of 42 per cent, the Italian average is 18 per cent, and the rate of increase between 2005 and 2010 is among the lowest, together with Turkey. This is basically confirmed by the Web index of the World Wide Web Foundation, which ranks Italy 23rd of 61 countries (1st is Sweden, followed by the United States and Britain, Canada, Finland and Switzerland), and 12th in Europe. The index is based on 85 indicators, such as the possibility of connecting to the Internet, both from a technological/infrastructural and from a regulatory point of view, the availability of useful content in the web, the percentage of connected users and the degree of their use, the impact of the web on politics, economy and society (health, education, firms’ competitiveness, governance, etc...).

are non-cash payment instruments. As a consequence, the combination of innovation in payment systems (technology, nets, regulation) and e-government development reduces the use of cash with benefits for both firms and consumers.³⁸ This is well illustrated in Figure 10, graphing the correlation between the UN's online service index and the number of non-cash transactions per capita.

Figure 10: Online service Index (United Nations, 2012) and non cash payments per capita (Capgemini, 2011)



The studies, then, reveal both strengths and weaknesses. Italy appears to have attained significant levels of quality and quantity in on-line service provision by government (documented in the latest survey conducted by Capgemini on behalf of the EU Commission), but as we shall see, situations differ. In some areas (tax service, payments, national social security administration) the central government is on a par with the best European standards, whereas the host of local administrations has not achieved any such results or has done so spottily, with divergences in terms of geographical distribution (more developed in the North than in the South), and the size and type of entities (more developed in the health care system than in local government as such). Surveys conducted by the e-government observatory of the School of Management of the Milan Polytechnical University³⁹ and the Bank of Italy survey on the computerization of local administrations substantially confirm these divergences.

4.2 The survey on local government computerization

In considering the interrelations among innovation, e-government and productivity and the potential role of the payment system, we need to focus on local government, which is crucial to an overall evaluation of the efficiency of public services. Devolution process pursuant to the amendement of Title V of the Constitution (Constitutional Law 3/2001), has heightened the need for contact between citizens and local government. In this scenario, changing payment channels and innovative payment instruments can benefit general

³⁸ Capgemini, 2011; Bank for International Settlements, 2010.
³⁹ Politecnico di Milano, 2011.

government productivity and have a positive impact on citizens' conduct, prompting them to forgo cash.

For these reasons the Bank of Italy periodically surveys the degree of computerization in local government, examining the relationship between public entities and their payment service providers. Innovation in this area can have a substantial impact on the provision of public services. The first survey was conducted in 2000. The Bank is currently processing the fifth edition, which covered a sample of more than 400 entities in 2012.⁴⁰ Thus we can trace the evolution in local governments' adoption of ICT. There has been slow but constant progress towards the comprehensive use of computer technology in the supply of public services. Changes in the payment market and the technological environment have counselled better modulation of the scope of the survey, which now focuses more specifically on the propensity for innovation. The 2012 survey included specific questions on channels of communication with citizens and with other general government bodies. The survey makes it clear that greater use of innovative payment channels can institute a completely dematerialized dialogue with citizens and firms. The survey's findings on the extent of local government's use of electronic payment instruments and modern channels for "on-line" provision of public services can be taken as a check on the data and rankings set out above.

A first, concise indication concerns the sophistication of on-line services. The respondents were asked to say what kind of services citizens could get from the entities' websites: information only, personalized information for registered users, downloads and uploads of data, or completing the procedure, including payment. The majority (53 per cent) rank at the bottom level (information services only), while 28 per cent allow downloading and uploading data. Just 10 per cent were at the highest level of sophistication, allowing users to actually complete procedures on-line and make payment. The entities with the highest percentage allowing on-line payments are regions (25 per cent) and local health units (17 per cent); geographically, the South lags behind (3 per cent) by comparison with the Centre (13 per cent) North-West (14 per cent) and North-East (17 per cent), confirming an earlier study.⁴¹

The weakness in on-line government services is confirmed by the answers concerning payment channels available to citizens: 90 per cent of the entities provide for payment at their own front-office or at post office branches, while only 18 per cent allow on-line payment and 24 per cent ATM/POS. Local health units are more open to innovative channels: 38 per cent allow on-line payments and 75 per cent ATM/POS payments. Three quarters of the regions, interestingly, are open to less conventional channels (such as tobacconists, lottery offices and large retailers), which are increasingly used by the mass invoicers (electricity, gas and other utilities), thanks to the possibility of immediate confirmation of the payment. Here again, use is less common in the southern regions than in the rest of the country. These findings contrast with the higher percentage of on-line service availability shown in the latest e-government report for the Commission by Capgemini.

⁴⁰ The survey covers 16 regions and 92 provinces, 282 municipalities and the health care institutions of the provincial capitals. Bank of Italy branches send the form to the entities' ICT and accounting managers.

Type of entity	Number	Geographical area	Number
Local Health Units	29	North-West	120
Municipalities	282	NE North-East	65
Provinces	92	Centre	67
Regions	16	South	120
Total	419	Islands	47
		Total	419

⁴¹ Arpaia, Doronzo, Ferro, 2009.

The degree of ICT use also varies according to administrative function within entities. Budget and accounting displays the greatest use of ICT, 93 per cent of the entities reporting that more than 50 per cent of the function is computerized. For accounting management, which needs more sophisticated integration of internal processes, only 50 per cent report that degree of computerization. The share of public entities adopting e-procurement procedures is very low (6 per cent). We can say that local governments' back-office procedures are generally more highly computerized than the more "user-driven" functions.

The fact that only 30 per cent of entities allow citizens and firms to submit claims or documentations on-line supports the thesis that Italy is lagging behind on the digital agenda. Regions and local health units are better placed, with 69 per cent providing for on-line data exchange with users.

The survey indicates that this backwardness in ICT does not depend on weak demand (only 6 per cent of the entities cite low demand as an impediment to more widespread use of on-line services) or on regulatory shortcomings (cited by just 11 per cent). The major impediments cited are the cost of innovation (cited by 75 per cent of respondents), lack of specific skills (64 per cent) and organizational and other supply-side problems.

Figure 11: Sophistication of on-line services 2012 (Bank of Italy)

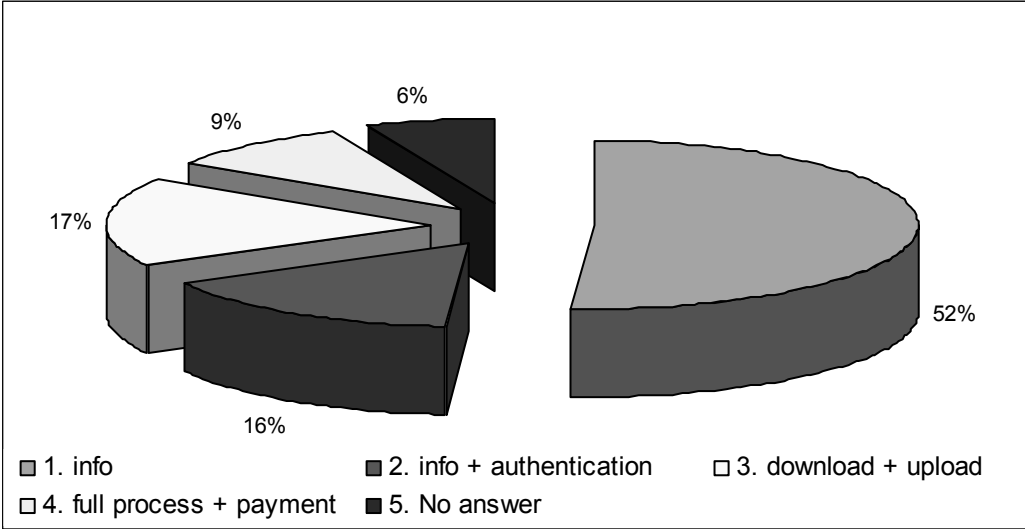
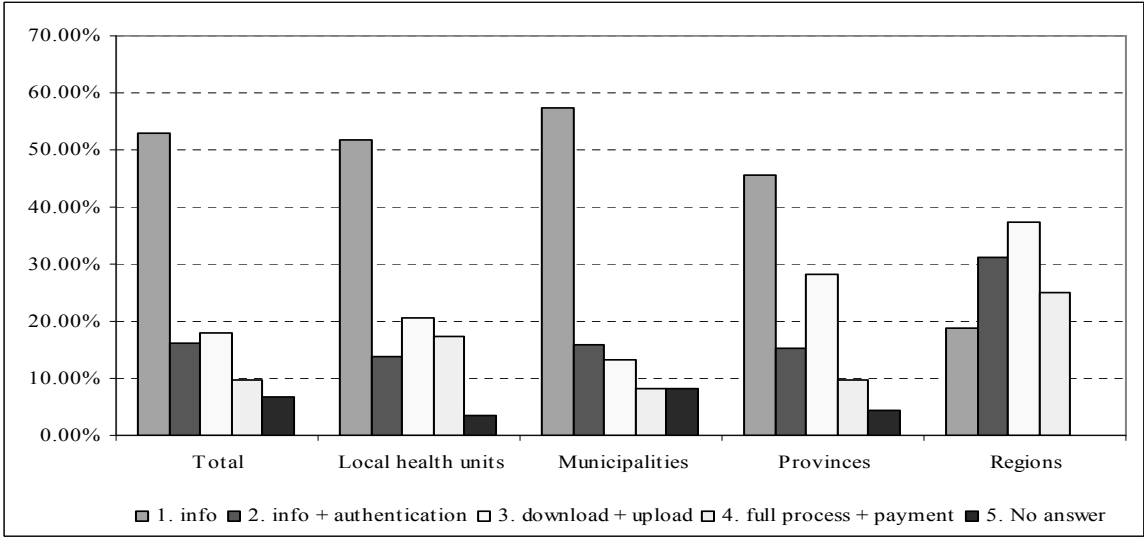


Figure 12: Sophistication of on-line services by type of entity 2012 (Banca d'Italia)



The survey also considers how government bodies communicate with users: 93 per cent of the sample had at least one certified electronic mailbox, but 72 per cent used it for less than 20 per cent of all outgoing and incoming messages.

Some progress has been made in the government-to-bank segment over the past three years: 70 per cent of entities now send payment orders all-electronically, only 25 per cent still use paper-based instruments (down from 48 per cent in 2005 and 36 per cent in 2008). Southern entities are slower in abandoning paper (37.5 per cent are still using paper-based payment orders); the North-Eastern is most inclined to innovation. And although national regulation has introduced electronic invoicing to general government bodies, 65 per cent of the sample has not yet planned any initiative to receive e-invoices.

Figure 13: Collection channels 2012

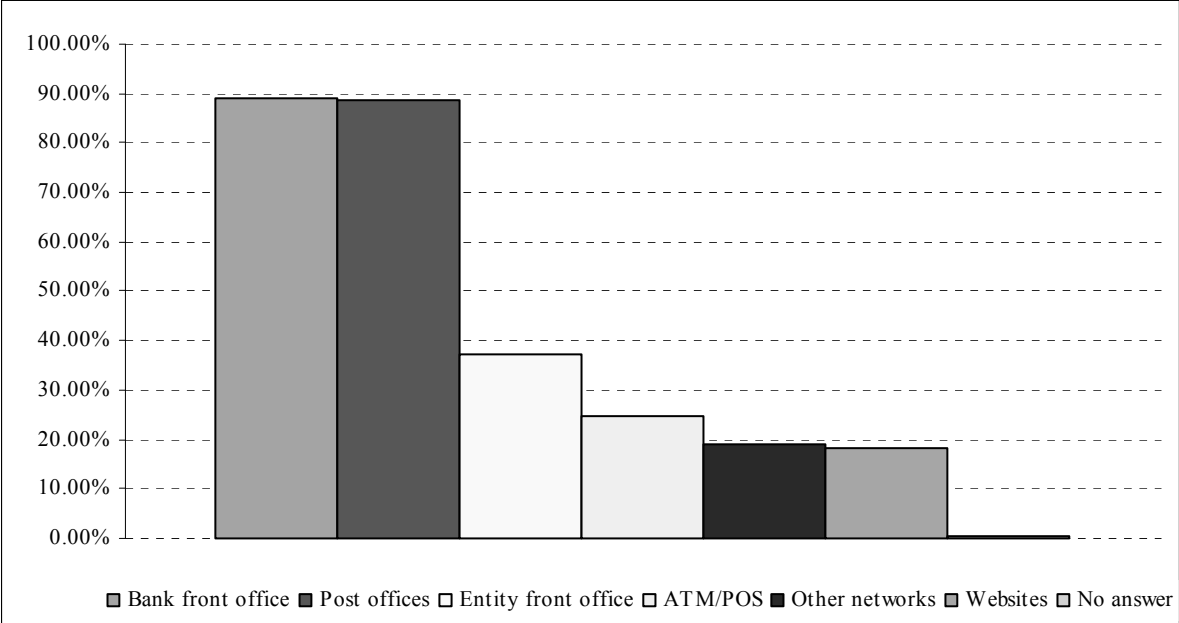
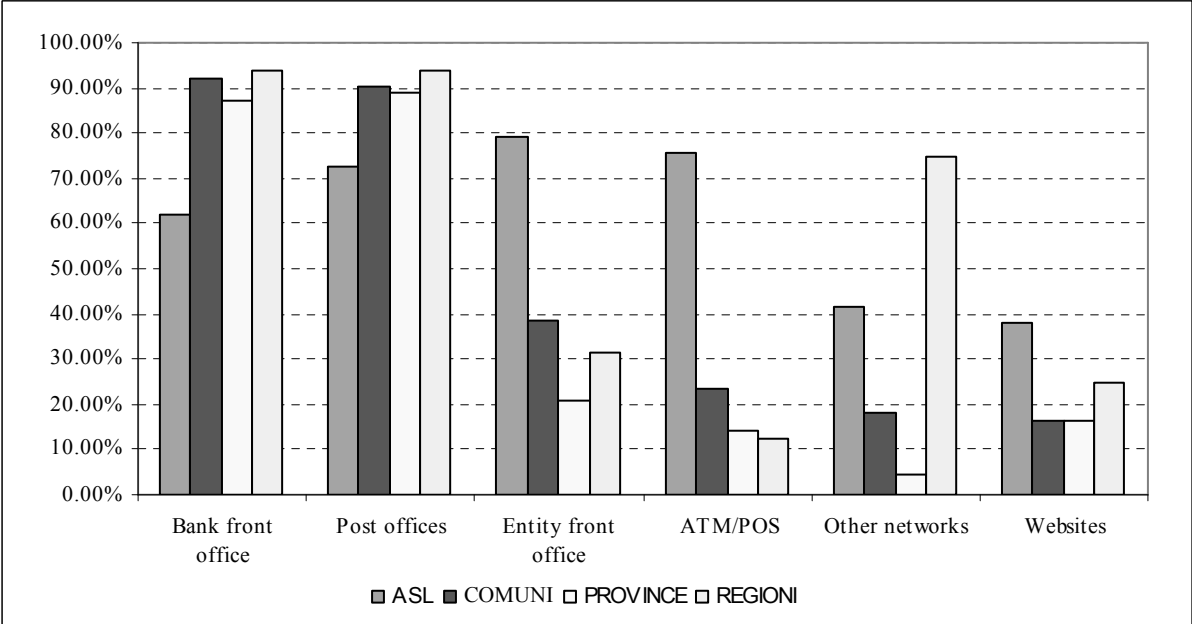


Figure 14: Collection channels by type of entity 2012



The survey reveals that most government bodies are not ready to provide services or digital contents via the web. The percentage of final users that can pay for public services on-line is still low, showing how weak the provision of on-line services is. Confirmation from other surveys is not easy to find, save for the Milan Polytechnical University e-government observatory,⁴² which found that even in a sample of highly innovative public entities only 15 per cent provided for payments through multiple channels and 13 per cent offered on-line services equivalent to the Bank of Italy's top degree of sophistication (with authentication and upload/download functions).

5. Some considerations on *e-government* initiatives and the role of government payments

The surveys indicate that the number of Italian citizens and firms that use the Internet to interact with government is still very low. One factor has to do with government payments. Where public services depend on payment (a charge, a tax, a fee), payment systems and procedures are inevitably crucial in the administrative procedure. Online administrative procedures, then, become analogous to e-commerce. The payment must be promptly and securely matched with the underlying administrative information/documents, for any central or local government service.

Yet this integration is not so frequent, for a number of reasons. First, most central government units have only recently begun to invest in ICT for communication with citizens. The Digital Administration Code entitles citizens to interact with the public administration in digital mode, but to date central government investment in the relevant technology platforms is inadequate.

A second factor is lack of the coordination needed to learn from successful experience and to share standards and infrastructures. Clearly, much depends on the fragmentation of local government (over 16,000 entities according to Istat), which would require regional coordination.

A third, closely related factor is the obsolescence of the collection procedures. Notwithstanding some important innovations, the government payment system has generally been seen as separate from administration as such, having contacts with it only for payment orders and reporting. Where the innovations in expenditure procedures affected the entire payment "value chain", on the collection side this was not the case. For years the importance of the linkage between payment and underlying procedure has been underestimated. Supplying or at least allowing the use of online services requires thorough reconsideration of collection procedures for central and local government alike. The "request – payment – supply" process has to center on immediate matching of financial and administrative flows, dematerialization of information, standards, and shared infrastructures that simplify secure and reliable exchange of information between government and users.

Given the enormous volume of public transactions, government can certainly play a crucial role in increasing the demand for secure, innovative payment services. However, as seen, it still uses conventional payment channels; the sort of systemic regulatory and technological modernization that has reshaped the expenditure side has not yet taken place. Article 15 of Decree Law 179/2012, confirming Article 5 of the Digital Administration Code, is certainly a step in the right direction, even though the real benefits of technological innovation can be obtained only if the new rules and procedures are extended to all categories

⁴² Milan Polytechnical University, 2011.

of revenue, including tax revenue. Every exception, however well justified by the delicacy of the procedures involved, can only diminish the positive impact on government efficiency.

Although it lacks clear indications for managing the modernization of the collection procedures, this regulation does have some positive elements for coordination. First, it imposes a common standard for general government, under shared guidelines, in order to define the matching code, thus acknowledging the importance of telematic connections between the payment, administrative and accounting procedures. Second, it assigns to Consip and the regional procurement centers a key role in centralizing the demand for government services. Under the strategy of the Digital Italy Agency, the idea is to allow government to exploit its “critical mass” to obtain better terms for the services making possible electronic payments. Further impetus for payment system development will come from the completion of SEPA; EU Regulation 260/2012 sets the deadline of February 2014 for the definitive adoption of SEPA-compliant credit transfers and direct debits, which will foster greater use of pan-European instruments based on shared standards.

These regulations will be crucial in government payment innovation. Millions of payments and millions of users will be involved in the process, leading to the dematerialization of the expenditure and payment procedures of public administrations other than the central government, with great benefits for government and users alike. The experience with the computerization of central government payments demonstrates that innovation in this area can facilitate the re-engineering of administrative procedures and stimulate users to interact with government bodies on-line.

6. Conclusion

According to the indicators we have considered, the supply and especially the demand for e-government services is lower in Italy than in other advanced countries. This is probably due in part to poor computer literacy, but also to inadequate infrastructure (i.e. broadband coverage) and insufficient availability of the services. Data from the State Treasury on collection procedures and survey findings on local government computerization reveal a low level of on-line services, mainly because the possibility of actually concluding an administrative procedure on-line with payment is not common (almost non-existent for the central government, and less than 20 per cent among local government bodies). In short, our data strongly suggest that some other, more optimistic surveys have overestimated the supply of e-government services in Italy.

Public institutions have made great efforts for public administration reform, but the outcome has not always been up to expectations, as is shown, for instance, by the indicators of achievement of the goals of the digital agenda. While some units have adopted regulations and used technologies optimally, others lag behind.⁴³ Legislation and e-government plans have not produced cohesion, the coordination and monitoring of projects, accountability,

⁴³ The feeling of being perennially in mid-stream in the modernization of the public administration, and the difficulty of relations with citizens, is recounted historically by Sabino Cassese, who affirms that when we speak of the public administration you get the impression that we live in an “invisible State,” going on to say that “*deprecatio temporis*, Italians’ traditional mistrust of public institutions, the awareness – widespread already in the 19th century - of Italy’s backwardness with respect to France and Britain, served as a potent spur for public financial adjustment. But the Italy that entered the European Union was a State that remains ambivalent, half developed and half backward; still dualistic, authoritarian and liberal; and worst of all, interfering in any and all matters but failing to defend the public interest that justifies such intervention.” S. Cassese, *Lo stato introvabile. Modernità e arretratezza delle istituzioni italiane*, Donzelli, 1998. For an overview of the reforms of the public administration, see F. Bassanini, *Vent’anni di riforme del sistema amministrativo italiano*, Rassegna Astrid, 2010.

effective implementation, the checking of results, a gauge of the quantity and quality of the public resources used or the real benefits for the community. This situation reflects the separation (also ICT separation) between central and local government, the inability to interact effectively, the former being self-referential and the latter captive to local interests. This is shown, among other things, by the fact that at first computerization involved mainly the central government, while local government lacked proper management, strategy and the resources needed for innovation. Further, the administrative reforms beginning in 2001 actually applied only to the central government, while for local government they remained at the status of principles and guidelines. Yet innovation and technology should clearly be links between central and local government in implementing e-government reforms and plans. Efficient public services compliant with standards shared by citizens and businesses nationwide would be a unifying element.

The need, then, is for better management and enhanced coordination of initiatives already in place, not the institution of uncertain new ones, and to devise solutions that are satisfactory for both central and local government. The financial and economic crisis has had an enormous impact on the prospects for reform. The European requirements and the need to reduce the debt inevitably imply cuts also in the resources for the modernization of public infrastructures. The public administration is challenged to enhance efficiency, not to cut services but to improve their efficacy, pursuing cost reduction together with stability. In this way government can move towards balancing the public accounts, laying the basis for economic growth through the simplification of administrative procedures, dematerialization, advanced technology and efficient public services.

The payment system can be a lever for the development of e-government: reviewing collection procedures, putting immediate matching of financial and informative data at the center of the “request – payment – service supply” process, dematerializing information, fixing standards and sharing infrastructures that simplify, though payment procedures, secure and reliable information exchange between government and users.

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APPENDIX

A1: Structures for the dissemination of IT in the Italian public administration

Computerizing the Italian public administration has been the task of several entities in the last twenty years, starting with from Legislative Decree 39/1993, which established the *Autorità per l'Informatica nella Pubblica Amministrazione* (AIPA, Authority for IT in the Public Administration) to design, develop and manage IT systems in central government departments. AIPA, headed by Professor G.M. Rey, acted intensively and efficiently to provide the public administration with an IT plan, establishing standards and technical rules and supporting government units in entering into contracts with the IT service providers. After the approval of Legislative Decree 196/2003, AIPA was replaced by the *Centro Nazionale per l'Informatica nella pubblica amministrazione* (CNIPA, National Center for IT in the Public Administration), whose mandate was to govern ICT and SPC development in the public administration and coordinate the planning process by laying down the relevant technical rules (in January 2004 CNIPA also replaced the technical center of the Prime Minister's Office, established in 1997 to assist the users of the *Rete Unitaria della Pubblica Amministrazione*, forerunner of the Public Connectivity System, *Sistema pubblica di connettività*, SPC). In 2009, CNIPA was replaced by DigitPA, in charge of carrying out projects and performing technical and operational tasks, working towards the realization of digital administration. DigitPA's consulting and coordination role was strengthened and its structure made more operational with the attribution of additional functions and management tasks. The last revision of the coordination entities came with Decree Law 83/2012, converted into Law 134/2012, establishing the *Agenzia per l'Italia Digitale* (Digital Italy Agency), mandated to implement the Italian Digital Agenda, under the guidelines developed by the coordinating committee as envisaged by Article 47 of Decree Law 5/2012, converted into Law 35/2012, and according to the Digital Agenda for Europe. In particular, the new entity will have to accelerate the plans for broadband.

A2: Main measures concerning the public administration, digital agenda and e-payments

Decree Law 179/2012 calls for measures to speed up the computerization of the public administration. These measures are:

- Unification of personal ID and health care card;
- Establishment, at the Italian Ministry of the Interior (Home Office), of the National Civic Register Office for the whole resident population and the establishment, at Istat, of the national archive of streets and street numbers, as well as a constant population census;
- Institution of the digital domicile for citizens, i.e. a certified e-mail box that each citizen can use to communicate with the public administration. The e-mail address would be also registered in the National Civic Register Office for the whole resident population and, as such, could be used by all government bodies;
- Creation of e-folders for students and gradual adoption of digital school texts;
- Establishment, at the Ministry of Economic Development, of the National Index of certified electronic mailboxes for companies and professionals;
- Innovation in local transport via the adoption of national e-ticketing, payable by mobile payment instruments and other telecommunications devices;
- Measures to facilitate the diffusion of broadband connection (re-financed), also easing the administrative tasks for the actual construction work;
- Use of IT in agreements and contracts of the public administration and in the conservation of notary deeds, with the assignment of explicit managerial, disciplinary and fiscal accountability to the head of the relevant office in case of failed implementation of the electronic procedure. It is forbidden for public administrations to exchange paper documents and/or communications (switch off).
- Introduction of "open data" and exploitation of the public information endowment to promote participation and administrative transparency. Furthermore, the re-use of IT programs by public administrations (with managerial accountability in case of failed application of this rule) is strongly incentivated, as well as public administration procurement, which must be exclusively electronic, with significant savings;

- E-transmission of medical prescriptions (goal: 90 per cent of the 800 million paper prescriptions digitalized by 2015) and digitalization of case histories, together with the institution of electronic medical records, cutting costs and enabling more controls.
- Use of PEC (certified e-mail) for notifications and communications by chancellor's offices and legal offices when the addressee has certified e-mail (according to public lists) or when this address has been provided by the judged party;
- Obligation for the public administration to accept e-payments (excluding tax and social security payments) via credit transfers, credit and debit cards, or other available instruments, and to publish IBAN codes on websites; mandatory registration of central and local administrations to the SICOGE (system of economic and financial accounting managed by the State Accounting Department) as precondition for the de-materialization and computerization of payments to citizens;
- As of 1 January 2014, legal persons selling and providing services, including professional services, must accept debit card payments; it will be possible to make e-payments also with mobile technologies.

A3: The main provisions of the Digital Administration Code

The Digital Administration Code (Legislative Decree 82/2005) establishes the regulatory framework for the digitization of the public administration, establishing the right of citizens and firms to use IT in communicating with government. Legislative Decree 235/2010 introduced further changes, defining the digitization of the public administration as a function of government that will lower transaction costs and, in a period of 20 years, increase cumulative GDP growth by 17 percentage points.

The Digital Administration Code provides for:

- adoption of coordinated initiatives by central and local government to digitize administrative activities (Article 14);
- use of ICT between public administration and firms in submitting applications, certificates and data and in information/documents exchange, as well as for the adoption and the communication of administrative proceedings and actions;
- enhanced transparency in administrative activities, by providing institutional websites with forms enabling users to start administrative processes on-line;
- use of debit, credit or prepaid cards and all other electronic payment instruments for payments to public administrations;
- legal validity of electronic documents digitally signed and liberalization of the digital signature market;
- use of certified e-mail for communication and transmission of electronic documents, dematerialization of documents, electronic recording and filing;
- agreements between public administrations for the exchange of data;
- availability to other administrations and other parties of the public data owned by each administration, in an easily processable format.

A4: General guidelines for the development of government payment programs

A. Governance, Security and Efficiency

- Guideline 1. Ensure proper program governance and risk management: governance arrangements should ensure accountability, transparency, and effectiveness in managing the risks associated with government payment programs.
- Guideline 2. Review and streamline treasury processes, then work on their automation: the treasury should devote extensive efforts to identifying all relevant needs with regard to improved safety, efficiency and transparency.
- Guideline 3. Take full advantage of electronic payment methods: the extensive use of electronic payments in government payment programs can reduce costs and improve transparency and traceability.
- Guideline 4. Create appropriate organizational arrangements to foster the continuous development of government payment programs: the National Treasury/Ministry of Finance should consider engaging in collaborative schemes with the central bank and other stakeholders to identify additional improvement opportunities for these programs and, eventually, facilitate their implementation.

B. Legal and Regulatory

- Guideline 5. An appropriate legal framework with specific applicability to government payment programs can further underpin their safe and efficient operation: laws and/or regulations that provide clarity and certainty to the various parties involved, and that promote effectiveness and transparency in the execution of programs should be enacted/approved.
- Guideline 6. Laws and regulations on payment instruments and systems, competition and consumer protection can also have an important bearing on government payment programs: the legal basis should support sound and fair practices in the market place, and be flexible enough to accommodate innovations.

C. Payment System Infrastructure

- Guideline 7. An appropriate payment infrastructure should be in place: the potential to obtain substantial benefits from migrating government expenditures and collections to electronic payments relies on there being the required payment infrastructures to process such payments securely, efficiently and at a reasonable cost.
- Guideline 8. Maximize the potential of the available infrastructures through interoperability and widespread usage: the ability of payment service providers to channel their payment operations through any of the key mainstream infrastructures promotes efficiency, network expansion, and a level playing field for all players.

D. Cooperation and Partnerships to Leverage Government Payment Programs

- General Guideline 9. Adopt a strategic approach to the development of government payment programs: the reform of government payment programs has the potential to trigger the development of a robust payment infrastructure, which in turn will support the secure and efficient processing of government payments.
- General Guideline 10. Leverage on government payment programs to promote financial inclusion: the large volume of payments made by government bodies, as well as the nature of some specific programs like social spending programs, represents an opportunity to promote or facilitate financial inclusion on a large scale.

A5: The Italian Digital Agenda and electronic payments to the public administration

The main innovations of Article 5 of the Digital Administration Code are:

- applicability of the regulation: all public administrations, as defined by the Digital Administration Code, must enable users to use electronic payment instruments in accordance with the rules laid down by the article;
- IBAN: public administrations must provide on their website and in the payment request the IBAN of the receiving account (or the description of payment if this is made to an item of the State budget or to an account within the State Treasury) in order to allow payment by credit transfer;
- matching code: public administrations must always provide the payer with the payment identification code to be included in the description of payment, in case of credit transfer, or communicated to the receiving administration by the payer. In terms of e-government, the payment identification code – for payments ordered by the relevant administrations according to a standard established by the Digital Italy Agency, after hearing the opinion of the Bank of Italy – will allow automatic matching of the payment by the administration, so enabling the prompt provision of the service
- card payments: public administrations must enable citizens to make payments by debit, credit or prepaid card, or by any other electronic payment instruments available, through payment service providers, selected through the procurement and negotiation tools provided by Consip or the regional purchasing centre.