

The Challenges of e-Gov in Times of Crisis

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Keywords: e-Government, Economic Crisis, Public Sector, Italy, Stimulus Packages.

Abstract: Two main reasons spur us to explore the nexus between e-government and economic crisis. The first, more general, is due to the fact that this relationship has been relatively little researched. The second, more pressing reason is the fact that in a time of recession no government can escape the tough new challenges posed by the design of stimulus packages. The paper discusses the Italian Digital Agenda and argues that the economic crisis spotlights the efficiency issue and also dictates the governance model between the various decisional levels, emphasizing the centralized logic. The study is an early effort to analyze the issues most likely determinant in shaping the IS/ICT demand at the macro level, i.e., the public sector as a whole. The experience of previous e-government programs will provide the basis on which to make a preliminary assessment of the growth impact of the Digital Agenda.

1 INTRODUCTION

There is rising consensus that it will prove impossible to lead the EU out of crisis without stimulating sustainable growth (FEPS, 2012). This paper investigates the nexus between e-government - i.e., “the use of Information and communications technology [ICT], and particularly the internet, as a tool to achieve better government” (OECD, 2003) - and the financial crisis and the subsequent economic slowdown that has blighted all the advanced and developing countries since 2008. It attempts to respond to two interrelated questions that play a crucial role in all those settings in which the policymakers have increasingly incorporated e-government into their action:

- What type of relationship exists between e-government and economic recovery?
- What are the potential implications of the stimulus packages on the ICT options/strategies of the public sector?

Two main reasons spur us to explore e-government in times of crisis. First, current public-sector transformation studies habitually under-explore or sideline the time factor (Pollitt, 2008). Second, the stimulus packages developed by governments around the world invariably leverage the innovative use of ICTs across the economy and

society (OECD, 2009). Inspired by New Public Management ideas, the public sector must ‘work better and cost less’ (Ongaro and Valotti, 2008), a goal that e-government can help to attain by improving the efficiency of the PA ‘machinery’.

Yoon and Chae (2009: 25) define an e-strategy as a set of coordinated actions and policies that seek to accelerate the development of a given country through the use of telecommunications, information systems and their associated technologies. The e-strategies see the public institutions as important *drivers* of digitisation by embracing e-government policies, as *implementers* of these policies, and as *market players* in the demand for ICT-related products and services. Therefore, it is imperative better understand the implications of ICT-based policies.

This exploratory paper aims to contribute to the growing debate on the role of ICT - i.e., the main general-purpose technology of our time (Zysman and Breznitz, 2012) - as a key driver of the public action’s response to the crisis. The paper takes its cue from the assumption that an ubiquitous, rapidly changing technology scenario means that ICT ‘is both a major source of the problem and a major part of the solution’ (Brewer et al., 2006).

The study is split into four steps: First, drawing on a selective literature review, it presents an

updated account of the economic implications of ICT and, in particular, e-government. Second, the Digital Agenda 2012 (i.e., the stimulus package recently launched by the Italian government) is used to analyze (from the logic of an *ex ante* evaluation, i.e., post-program adoption) the potential implications for the IS/ICT demand of public organizations. As revealed by a qualitative analysis of the Digital Agenda, the government clearly sees the use of ICT as a cost-cutting strategy, which also places new constraints on the action of the public organizations. The paper argues that e-government programs are given a key anti-crisis role but the ongoing recession negatively affects the resources, nature and timing of the programs. Nevertheless, even during a crisis the trends that make ICT a general-purpose technology could benefit the PA innovation effort. The ensuing discussion is the result of the insights produced by the literature review, a documentary analysis, and the authors' current knowledge. The paper closes with some conclusions for the study of e-government in times of crisis.

2 ICT, E-GOVERNMENT AND GROWTH

Mapping the extensive literature that has sought to document the growth effects of ICT is beyond the scope of this paper. Recent work to shed new analytical light on the economic implications of ICT has been carried out by, among others, Karlsson et al. (2010), Weber and Kauffman (2011), Vu (2011), Kretschmer (2012). Rather than an exhaustive review (impossible here for reasons of space) it is more useful, and closer to the paper's focus, to select sample contributions and the references cited therein.

ICT plays a major role in shaping economic performance in developed countries (IDABC, 2005). As a general-purpose technology, ICT 'affects a multitude of sectors ..., and ... makes other sectors more productive' (Kretschmer, 2012). Therefore, the effective role of ICT as a 'driver of economic growth' can depend on a large number of often contingent interactions and relationships (Bloom et al., 2010).

According to the OECD (2009) the impact of the crisis on ICTs is two-fold, i.e., direct and indirect impacts on the ICT sector itself, but also on the innovative use of ICTs across the economy and society. The two impacts are mutually reinforcing. A slowing ICT sector will generate lower productivity

increases and potentially fewer ICT innovations. Slower uptake of ICTs slows the productivity- and innovation-enhancing features of ICTs from diffusing throughout the economy; and network effects induced by a broadly installed ICT infrastructure do not materialise.

Unlike the studies on the overall impact of ICT, research into the economic effects of e-government is far more recent and hence less developed. Cross-country e-government studies (e.g., Yoon and Chae, 2009), Srivastava and Teo, 2010, Rose and Grant, 2010) agree that appropriate ICT investments, the removal of obstacles that prevent the PA from functioning well, and the development of an innovation-friendly business environment help to realize the economic potential of e-government and, thus, to improve the public sector.

Srivastava and Teo (2010) demonstrate that facilitating a number of online government services for businesses increases their use of ICT and the Internet. According to Picci (2006) the aggregate e-government intervention has three effects. First, it produces savings in the provision of public services. Second, by facilitating economic activities, and by favoring participation in the labor market, it increases private-sector employment. Third, by providing a 'connected environment' it improves the prevailing technology that influences the production process. The aggregate e-government effect, observes Picci, takes time to be effective, reflecting not only the period needed to complete projects, but also the learning processes in the administrations involved.

In summary, while, on the one side, financial austerity can be a barrier to government development, on the other, the need to select the projects can provide an opportunity to inject innovation into the mix of policies being adopted to tackle the economic downturn (OECD, 2009).

Interestingly Pollitt and Bouckaert (2001) highlight the ambiguity of the implications of the economic crisis: 'austerity makes reforms more difficult, because reforms cannot be lubricated with new money, ... but on the other hand, a sense of crisis can make it easier to consider radical options and more fundamental changes than would otherwise get onto the agenda of feasibility'. The authors therefore invite us to take a realistic approach to the economic downturn instead of making oversimplified interpretations of the role of the public programs and their effects.

3 RESEARCH APPROACH AND CASE ANALYSIS

To illustrate how the government of an industrialized country is seeking to use e-government as an anti-crisis measure, the paper draws on the case of the Italian Digital Agenda 2012. The following analysis is supported by multiple sources of evidence. Official documents were collected and analyzed to study the assumptions that support and steer the Italian plans. The analysis is limited to the *agenda-setting phase* because, at the time of writing, the implementation norms required to enact the Digital Agenda had not yet been issued. To assess the potential implications of the Digital Agenda for public ICT strategies, the paper further draws on insights from the academic literature, reports, and the authors' current knowledge.

3.1 The Digital Agenda: Content

The Digital Agenda is crucial for the Italian government that took office in late 2011. E-government, e-commerce, smart communities, computer literacy, and infrastructure are the growth pillars of the government's action decided by the steering committee appointed in February 2012, which has mandated coordination to three ministries: Economic Development; Civil Service; Education and Research.

The government's Digital Agenda decree approved on 5 October 2012 addresses the hurdles of insufficient development with measures that affect both the demand and the supply of e-services and ICT infrastructure. The decree targets the following areas: Digital identity; Digital administration; Open data and digital inclusion; Digital agenda for education; E-health; Elimination of the digital divide; Electronic money; Digital justice. The Agenda assumes that digitization can readjust Italy's current territorial imbalances. ICT demand and supply (and, in particular, the PA as acquirer and user of ICT) are closely intertwined (Uskow and Casalino, 2012), (Dameri et al., 2012).

First Observation. Broadband, application cooperation, electronic ID cards are recurrent themes in the formal measures issued by previous Italian governments, although these have mostly remained on paper. Unlike the past, the current government wants to accelerate the adoption of e-government by making its use mandatory (e.g., it has introduced penalties for those public managers who do not use the digital signature).

Will it work? Is a legitimate doubt given that the main ICT constituents of the Digital Agenda are now mature and consolidated. The crucial aspect is not so much whether the State and the more than 8,000 municipalities of Italy will manage to produce and distribute the 60 million multifunction ID cards, but whether the cards will provide secure access to highly composite public domains such as healthcare, justice and tax.

3.2 Toward a Target ICT Portfolio

The digital government switchover imposes stricter interoperability within and across administrations.

Lanzara (Contini and Lanzara, 2009) distinguishes three domains of interoperability: *technical* (standards, protocols, modules, interfaces, linkages, gateways, coding conventions and so on); *functional* (the alignment between two regulative regimes – law and technology – and between different sets of work practices); and *institutional* (the sharing of administrative routines to allow communication, mutual understanding, accountability and coordination), all of which must be orchestrated automatically across the ICT infrastructure. Technical compatibility 'is a necessary condition for the interoperability of different ICT systems' (ibidem: 33), but also underpins the functional and institutional interoperability. Lanzara thus conceptually separates e-government from the simple 'putting online [of] what is currently [...] delivered offline' (ibidem, 2009: 2).

If we can accept this line of reasoning, which presumes the reshaping of the public sector's 'institutional fabric' (ibidem: 4), the extent of the future challenges to be faced by the Italian PA as a whole become clear. Therefore it is reasonable to assume that the efficacy of the anti-crisis stimulus packages will depend, first, on the implementation process and, second, on the degree of incisiveness with which the government coordinates the project.

At present, the details of the roadmap are still being defined but the close relationship between the outcomes of the Digital Agenda and the organizational and ICT choices of thousands of PA is evident. In the coming months, each PA must formulate its own 'achievable migration plan' (Ward and Griffiths, 1997). The result of this cognitive and planning effort must be a 'target application portfolio' (ibidem) that must be compared with ICT supply alternatives.

At the micro level, each PA must square the migration planning and IT supply decisions for the

Digital Agenda with the constraints and priorities dictated by the IS in use. Therefore, the actions taken will reflect context-specific needs that are hard to generalize. What we can attempt here, however, is an analysis of the issues most likely to be determinants in shaping the IS/ICT demand at the macro level, i.e., the public sector as a whole. Previous e-government programs will provide the basis on which to build a plausible picture of the future public IS/ICT demand and, as a consequence, to preliminarily assess the growth impact of the Digital Agenda. The following analysis does not address the appropriateness of the Agenda's anti-crisis measures nor its financial implications.

3.3 Critical Issues and ICT Decisions

Essentially, three critical issues will orient the decisions of the Italian PA on the development, adoption and use of ICT solutions.

Resources. The ICT budgets of the public sector have contracted sharply in the past five years. The slump in demand from 2010 was particularly glaring in the central PA (-4.1%), while the local PA demand shrank 2% (Assinform, 2012). The Digital Agenda 2012 affects many areas, but only a few projects (such as broadband, identity cards, e-education, and e-justice) will receive public funding, while the other measures will have to be self-financed.

Implications for IS/ICT demand: the limited availability of public money could become an insurmountable hurdle for entities with fewer resources and skills, such as the municipalities that are already having to cope with shrinking budgets.

Timing. The launch of e-health, e-payments, electronic ID-cards means the ministries concerned will have to issue special implementation norms. Other measures (e.g., use of digital signature) will come into effect immediately, while in yet other cases no date has been specified.

Implications for IS/ICT demand: some PAs could decide to sit on the fence, postponing their action until the implementation norms are issued. The "wait-and-see" strategy is more widespread than commonly believed: evidence of this is the electronic correspondence register that the entire Italian public sector was legally required to implement in January 2004 but which, one year later, was up and running in solely 34 out of 61 central administrations (Sorrentino, 2007).

Type of Actions. The Digital Agenda has an impact on both the infrastructure and the application portfolios of the relative administrations, although

the application portfolio will be the primary target in coming months.

Implications for IS/ICT demand: budget issues will induce most PA to keep using their legacy information systems (IS) and databases, even though the best decision would be to replace them entirely. Therefore, most cases of migration planning will consist of squeezing the maximum support from the current IS, which means that the interoperability issues will play second fiddle to the technical aspects. Probably, the projects of bigger scope will affect domains that have always been highly regulated (e.g., healthcare and justice), which are already used to interacting and sharing resources in a systemic logic. It is a fairly natural step in such environments – given the sensitive data treated and the reliability required of the ICT applications – to progress to more advanced levels of integration and standardization. In fact, unsurprisingly, most of the Italian PA's cloud computing experiments have centered on the healthcare systems (Assinform, 2012).

In domains where standardization levels are lower (e.g., local authorities), and where there is a strong tendency to delegate the ICT choices to the suppliers, private companies will seek to push the public decision-makers into launching new projects. Banks and telecom companies will put further pressure on the PA to implement multi-channel payment systems. That could boost the use of facility management and outsourcing services.

4 FINAL REMARKS

Public programs are more difficult to implement in times of crisis. The Italian Digital Agenda's trajectory is dominated by the first category of the potential effects identified by Pollitt and Bouckaert (2011), in other words, financial austerity, with considerable repercussions on the resources, nature and timing of the e-strategies.

There is widespread uncertainty on the outcome of the implementation processes that will be launched by thousands of subjects in response to the Digital Agenda. Further, the effective degrees of freedom given to the single administrations in arriving at their ICT decisions and strategies are heavily conditioned by financial austerity. Therefore, the new constraints dictated by the Digital Agenda will reduce the street-level bureaucrats' power of discretion.

The Agenda will have a significant impact on the application portfolio of the PA. The stimulus

packages are primarily focused on the development and diffusion of e-services based on what are called *substitutive* software applications, i.e., ‘machine power for people power, economics being the main driving force, to improve efficiency’ (Ward and Griffiths, 1997). These are followed by *complementary* applications, i.e., ‘improving productivity and ... effectiveness by enabling work to be performed in new ways’ (ibidem). The *innovative* applications, or those intended to obtain or support new practices, concern a small number of areas: open data, medical records, and educational reforms.

The government therefore has decided to count mainly on a cost-cutting strategy that replaces the labor-intensive services with e-services. But capturing the ICT-enabled productivity gains will mean ‘reconstituting the services’ (Zysman and Breznitz, 2012), which translates into investing in an organizational innovation that is much harder to achieve than simple technological upgrading. Therefore, there is a risk of compromising the realization of the expected benefits for national performance should the “widespread minor interventions” on the ICT portfolio predominate over the redesign of operations and processes.

Then there is the timing issue. The multiple governance levels that are fairly unused to collaborating and the fact that not all the PA will be able to respond to the Digital Agenda with the same level of diligence probably will generate substantial lags between the enactment of e-government and its effects (Picci, 2006).

The second category of the effects of austerity underscored by Pollitt and Bouckaert (2011) still needs to be analyzed: is there truly room for the Italian PA to consider ‘radical options and more fundamental changes’ *because* of the crisis? Some pilot experiences in Italy (CNIPA, 2008) show that cloud computing, one of the most promising ICT developments, gives the PA potential to achieve economies of scale and to implement organizational innovation. But none of these payoffs is automatic. Organizations that replace their IS with cloud computing while changing nothing else are doomed to miss out on the full benefits of the new technology (Brynjolfsson et al., 2010). Nevertheless, the dragging on of the crisis probably will push many PAs to become - *albeit unwillingly* - cloud consumers, with yet-to-be-deciphered critical effects on the economic system as a whole. An example of the decisions that cloud computing can accelerate is the spending of €450 million per year solely for managing the 1,033 data centers of the Italian central

PA (Assinform, 2012).

We believe that our exploratory analysis will contribute to the debate on e-government’s growth role in the global crisis. As a preliminary response to our research questions, we can say that the nexus between e-government and crisis is significant. E-government can be a major driver of recovery but its impact on growth must not be overestimated because the e-government is, in turn, shaped by the recession.

Despite its context-specificity, the case helps us to identify some factors common to e-government change in periods of recession. First, the crisis influences the feasibility of the stimulus packages that leverage e-government. Second, by drastically shrinking the available resources, the crisis shapes the governance of the various levels, generating a highly centralized decisional model that reduces each PA’s discretionary power. Third, even in times of crisis, the development trends that make ICT a general-purpose technology could reward the public sector’s innovation effort. Therefore, the crisis could open windows of opportunity for transformation change and provide the ‘basis for rapid action’ (Pollitt, 2008:139). Moreover, the viable ICT options can vary noticeably from one PA to another.

Our analysis focuses on solely three of the main critical factors, i.e., the resources, nature, and timing of the projects that will shape the future ICT strategies of the Italian PA, but does not attempt to test their prevalence or relative weight. Therefore we cannot rule out that other factors not considered here will instead be deemed relevant and worthy of investigation. Future research must therefore better clarify the implications of the hesitant economic recovery on e-government strategies, possibly through a plurality of perspectives and methods. A further trend worth exploring is the PA’s adoption of cloud computing, and its consequences on the e-services implemented also outside the public sector. Indeed, the relationship between e-government and crisis is set to remain a key and fruitful concern of research and practice.

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