

Chapter 17

Sustainable Cloud Computing Frameworks for E-Government: Best Practices in Italian Municipalities

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ABSTRACT

Computerizing the country is a priority for the Italian government, which has set up the Digital Agenda for innovation driven by information and communication technologies to deliver smart, sustainable and inclusive growth, in adherence to European Union's policies. Cloud computing is one of the pillars of this strategic plan, since by accelerating the implementation of the Digital Agenda, it represents a chance for Italy to meet its increasingly crucial need for innovation and revitalization of competitiveness. Among the different solutions that Italian public administrations have been adopting, sustainable cloud computing frameworks have been chosen, with minimal management effort, for their contribution to smart working, and their capability of reconciling economic demands, environmental resilience, and social equity. This chapter aims to explore the ongoing change in the technological architecture for e-Government in Italian municipalities and the effects of the activation of sustainable cloud computing frameworks for this purpose, with particular emphasis on personnel's empowerment. On the basis of the benchmarking of the best practices, recommendations will be provided for an effective implementation of Google Apps as a sustainable cloud computing solution to foster staff's continuing professional and personal development in Italian municipalities.

INTRODUCTION

Cloud computing represents the most recent evolution of the approaches to the organization and management of information technology (IT) resources, and is based on their remote accessibility (Mantelero & Iemma, 2012). More in general, the expression “cloud computing” typically indicates a new range of IT resources and services (infrastructures, platforms and software) distributed online (Corcioni, 2012).

DOI: 10.4018/978-1-5225-7501-6.ch017

The European Commission aims at enabling and facilitating faster adoption of cloud computing throughout all sectors of the economy which can cut information and communication technologies (ICT) costs, and when combined with new digital business practices, can boost productivity, growth and jobs (European Commission, 2012). In order to do so, considerable investment is necessary, particularly in broadband, which happens one of the key enabling infrastructure (European Commission, 2013a).

In Italy the adoption of cloud computing has been evaluated since 2008 (Flick & Ambriola, 2013; Biancofiore & Leone, 2014). Nevertheless, the inadequate relevance of ICT has unfortunately been a permanent systematic feature for some years in Italy. While the biggest world economies have been boosted by digital technologies, data highlight an infrastructural and literacy digital divide due to a persisting lack of programmed measures, or, at least, of an effective coordination of inherent initiatives (Corso, Mainetti & Piva, 2012). Indeed, Italy shows a low long-term contribution of the ICT capital to the growth of its gross domestic product (GDP), by investing in ICT only 2% of its GDP (i.e., 10% of its total investments), against 3.5% of the USA (i.e., 25% of their total investments) (Bilbao-Osorio, Dutta & Lanvin, 2013).

Lately, under the pressure of the *Digital Agenda for Europe 2020*, the Italian government has started the national strategic plan for the digital modernization of the country, posing particular attention to e-Government as one of the results of a possible and hopeful evolution of the current Public Administration (PA). E-Government is the short for electronic government, also indicated as e-gov, digital government, online government, or connected government (Jeong, 2007). Although definitions of e-Government by different sources may vary widely, a common understanding is that e-Government involves using IT and the Internet to ameliorate the delivery of government services to citizens, businesses, and other government agencies (Palvia & Sharma, 2007). e-Government enables a renewed look at the PA in order to make it transparent, fast, efficient, and capable of meeting the needs of a modern country and of reducing its digital divide (Carnevaletti, 2012).

The expression PA can be referred to by its objective and subjective meaning. In its objective sense, the PA is the body of administrative acts aiming at the care of the community's interests (public interests). In its subjective sense, the PA is the set of institutions that perform this function (e.g., the Government) (Napolitano, 2009). Within this work, the term PA is used in its subjective meaning.

Specifically, municipalities are local, territorial and autonomous PAs, whose competence and responsibility is limited to represent their own community, to take care of their community's interests and to promote their community's development (Napolitano, 2009).

In 2012 most larger enterprises in the European Union (EU) used the Internet for interactions with public establishments; for small enterprises, instead, the EU-27 average was 85%. The use of the Internet for interactions with PA by small enterprises in Italy (82%) is below the EU average.

The take-up of eGovernment services in 2012 reached, on average, 52.5% of EU citizens aged 25-54 years old (compared to 49.3% in 2011). Italy shows a very low level (23.9%) of take-up of e-Government services by citizens (European Commission, 2013c).

The analysis of the initiatives of e-Government and of the projects of digitalization of Italian PA has allowed to identify efficiency and innovation, through the adoption of cloud computing, as the two success features to meet the requirements of the spending review and a higher quality of the services.

Most of the companies that operate in Italy appear reluctant to embrace cloud computing, and show a preference for internal cloud infrastructures. Among PAs, a growing number has been activating cloud computing, by different solutions, among which Google Apps for its constant improvement and

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