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The Smart Cities Governance: From E-Government to Smart Governance

ABSTRACT

The smart governance is one of the characteristics of smart cities, has its roots in e-government, in the principles of good governance, and in the assumptions of participation and involvement of citizens in the public decision making. This chapter aims to answer the question: “What smart governance practices are being implemented in smart cities” through an extensive literature review in the areas of e-government, good governance, smart cities and smart governance and the content analysis of the websites of seven smart cities: Amsterdam; Barcelona; Copenhagen; Lisbon; Manchester; Singapore; and Stockholm. The objective was to identify the presence of factors related with e-participation; e-services; and functioning of the public administration in the cities websites. The chapter ends with directions for future research and the conclusion that all the smart cities analyzed presented some factors related with smart governance, but with different levels of development and application.

Keywords: E-Consultation, E-Decision Making, E-Government, E-Participation, E-Services, Governance, Local Administration, Public Administration, Open Data

INTRODUCTION

The smart city concept was recently introduced in the political arena and in academic research in order to highlight the relevance and importance of information and communication technologies (ICT) in the development, growth, productivity and competitiveness of modern cities (Caragliu, Del Bo & Nijkamp 2011). This is often associated with the idea of a digital city, with a high use of technologies, particularly in terms of security, communication infrastructures, transports, health, education and governance (Cebreiros & Gulin, 2014; Giffinger et al., 2007; Jucevicius, Patasiéné & Patasius, 2014). However, the concept of smart city goes beyond the technology and is also related with other determinants of sustainability and urban growth, namely: human capital, education, social and relational capital, sustainability and environmental issues (Caragliu et al., 2011; Cohen, 2012; Walravens, 2015).

Considering governance as one of the relevant aspect of smart cities (Cohen, 2012; Giffinger et al., 2007), due to the importance assumed by the administration and management of the city and the collaboration between the several stakeholders to achieve the desired levels of development, grow, sustainability and quality of life, the main objective of the present study is to analyze how smart cities are implementing smart governance.

Adopting the view of smart governance as emerging from the evolution of e-government, in a context of modernization, continuous growth and integration of ICT in public administration and from the involvement of the citizens in public decision, this study raises one research question: What smart governance practices are being implemented in smart cities?

The answer to the research question was achieved through the accomplishment of the research objectives:

- To consolidate the concepts relevant to the study based on the literature review of the topics: smart cities, governance, e-governance and good governance.
- To analyze, based on the literature, the evolution of ICT in public administration and the different development stages of e-government.
- To identify the role of ICT in local government and the concept of smart governance.
- To establish a set of categories to be included in a framework to analyze the smart governance in smart cities.
- To identify and select smart cities to be included in the case study.
- To apply the framework proposed to the identification of the smart governance practices adopted in the selected smart cities.

This chapter is organized into six sections including this introduction to the research question and main objectives. In the second section, “background”, are presented and discussed the relevant concepts to this study and in the third section “methodology” are exposed the adopted methodology to achieve the research objectives, the proposed framework of analysis, and the strategies applied to select the seven smart cities: Amsterdam; Barcelona; Copenhagen; Lisbon; Manchester; Singapore; and Stockholm. In the fourth section, “smart cities governance”, are synthesized and discussed the results of the content analysis of the smart cities websites. Finally, in the fifth and sixth sections are present respectively the future research directions and the conclusion.

BACKGROUND

Some terms and concepts related to the application of ICT and Internet to governance and public administration still don't have consensual definitions in the literature and is very common some of them be used indiscriminately. As an example, the concepts of e-government, e-governance, good governance, and smart governance are often used indistinctly, however, it beginning to exist a reasonable set of literature that analyzes and defends their differences (Bannister & Connolly, 2012; Bonsón, Torres Royo & Flores, 2012). It is not an aim of this chapter to discuss these differences, however it will be introduced the concepts and definitions that fit the research objectives, including the smart cities concept.

Smart cities

The concept of smart city is not consensual for all the researchers, depending on their research area there are different characteristics highlighted (Angelidou, 2014; Caragliu et al., 2011; Chourabi et al., 2012; Gil-Garcia, 2015; Hollands, 2008; Jucevicius et al., 2014). However, it is possible to identify some common denominators in the several definitions proposed in the literature, namely: ICT; sustainability; citizens' welfare; quality of life; collaboration; development and competitiveness (Caragliu et al., 2011; Cebreiros & Gulin 2014; Chourabi et al., 2012; Gil-Garcia, Pardo & Nam, 2015; Hollands, 2008; Jucevicius et al., 2014).

The application of ICT to the development and modernization of cities was reported by several authors as essential to the transformation of cities into smart cities (Angelidou, 2015; Cebreiros & Gulin, 2014; Cohen, 2012; Caragliu et al., 2011; Chourabi et al., 2012; Deakin, 2014; Giffinger et al., 2007; Hollands, 2008), especially due to the profound changes that they could represent to the several aspects of cities' life.

At the beginning ICT was a key factor of change in cities, with the development of applications specially designed and tailored for the problems of the life in urban environment, such as: traffic control, security, infrastructures, efficient use of resources, networking connection of all those involved in the life of the city, and even for education, research and public services. The implementation of ICT became a critical element for achieving political goals (European Commission, 2014) and was promoted by the European Union through programmes such as Horizon 2020 (European Commission, nd), with the objective to turn cities into smart cities and improve citizens' quality of life, lowering CO2 emissions, increasing energy efficiency, reducing bureaucracy and producing more competitive cities (Siso, 2015).

The increasing digitization of cities is essential but not enough to define a smart city (Caragliu et al 2011; Jucevicius et al., 2014) and some authors see it as a potential source of increased social inequalities due to different opportunities of access to ICT (Angelidou, 2014; Dillon, Deakins, Hofmann, Räckers & Kohlborn 2015; Walravens, 2015). So the technology has turned into facilitating instruments to smart cities' development instead of a main factor. The focus progressively turned to other determinants of sustainability and urban growth, namely: human capital, social and relational capital, sustainability and environmental issues (Cebreiros & Gulín 2014; Caragliu, 2011; Cohen, 2012; Walravens, 2015).

Several authors proposed a set of components to operationalize the concept of smart city. Meijer and Bolívar (2016) classified the definitions of smart city into three main groups, depending in their focus: smart cities as cities using smart technologies (technological focus), smart cities as cities with smart people (human resource focus) and smart cities as cities with smart collaboration (governance focus). Hollands (2008) identified the topics related with the concept of smart city as: information technology, business innovation, governance, communities and sustainability. Chourabi et al. (2012) considered as components of a smart city: technology, management and organization, governance, policy, people and communities, economy, built infrastructure, and natural environment. According to Cohen (2012, 2015) and Giffinger, et al. (2007), smart cities should exhibit six main interconnected characteristics: smart economy; smart people; smart governance; smart mobility; smart environment; and smart living.

In the present chapter is adopted a holistic view of smart city that involves an interconnected and closed relation between the several dimensions of the city's life, where technologies, human resources and collaboration between all the city actors are essential to the development and growing of the city. However, according to the research objectives, the dimension of governance, and specially the smart governance, proposed by some authors will be debated in a more deeply way.

Governance and Good Governance

Governance is related to the interaction between public sector, citizens and private entities and the ways how society organizes itself for collective decision making (UN, 2001, p. 54).

According to the definition of the Canada's Institute of Governance (nd), governance is the process whereby societies or organizations make important decisions, determine whom they involve and how they render account (Graham, Amos & Plumptre, 2003).

The term governance, particularly when referred in the context of public sector, appears in the literature closely linked to the principles of good governance. According to the United Nations (United Nations [UN], nd) and to the World Bank (WB), supported by several authors and organizations, including the Canada's Institute of Governance (nd), good governance is related to aspects of promotes: equity, participation, pluralism, transparency, accountability and the rule of law.

The United Nations (UN, 2006, p. 4) referred a definition of good governance of the Overseas Development Administration of the United Kingdom of Great Britain and Northern Ireland that includes four major components namely:

- Legitimacy: government should have the consent of the governed;
- Accountability: ensuring transparency, being answerable for actions and media freedom;

- Competence: effective policymaking, implementation and service delivery; and
- Respect for law and protection of human rights

In the Council of Europe (2008) view there are 12 principles for good governance at local level:

- Fair conduct of elections, representation and participation: the elections must be free, fair and free of fraud.
- Responsiveness: objectives, rules, structures, and procedures must be adapted to the expectations and needs of citizens, and the services, applications and complaints should be provided and answered within a reasonable time
- Efficiency and effectiveness: the results should meet the objectives; the available resources should be used efficiently and the efficiency and effectiveness of services must be evaluated and improved regularly.
- Openness and transparency: decisions should be taken and enforced in accordance with the rules and regulations and citizens must access to all not confidential information which could enable them to know about decisions, implementation of policies and results so that they can monitor and contribute effectively to the work of the local authority.
- Rule of law: local authorities should enforce the law and judicial decisions and apply the rules and regulations impartially and according to law.
- Ethical conduct: the public good must be placed above individual interests, corruption must be fought and conflicts of interest that might bias the decision making should be timely communicated.
- Competence and capacity: the technical and professional skills of those involved in governance should be continuously updated, improved and maintained in order to achieve better results.
- Innovation and openness to change: they should be sought innovative solutions to problems, and measures adopted and current methods to achieve better results.
- Sustainability and long-term orientation: there must be concern with community sustainability and its future, and in order not to transfer problems and tensions, be they environmental, structural, financial, economic or social, to future generations.
- Sound financial management: there should be a concern not to exceed the cost of public services, but at the same time does not reduce the provision of basic services.
- Human rights, cultural diversity and social cohesion: human rights must be protected and respected and all types of discrimination must be combated. Cultural diversity should be treated as an asset, and efforts should be made to ensure participation and involvement of all citizens in the local community.
- Accountability: all decision-makers, collective and individual, must take responsibility for their decisions and explain them properly.

Governance can be used in several contexts such as corporate governance, international governance, national governance and local governance. For the purposes of the present research was considered the local governance and as relevant dimensions:

- Openness
- Participation
- Transparency and accountability
- Human rights and social inclusion

ICT and E-Government

The developments of ICT were followed from the beginning by their integration in several related areas not only to research, but especially to business, day to day life and also to public administration. The use

of ICT has associated the idea of speed and efficiency, especially as regards the collection, handling, analysis and availability of data and information. In this context, the first uses of ICT by governments and public administration were essentially related with “mass processing tasks, using mainframe computers in areas such as collecting national statistics and taxation processing returns” (Organization for Economic Cooperation and Development [OECD], 2003, p. 22). In fact, the adoption of ICT by governments has influenced largely the development and adoption of ICT by other sectors (OECD, 2003).

It was in the 90s of the 20th century, with the generalization of the use of Internet, that emerged the first experiences of e-government with the purpose of providing public services, in the sense that it is now defined by the United Nations: “the use and application of ICT in the public administration to modernize and streamline public administration bringing it closer to citizens and to improve the quality of services” (UN, 2014, p. 2). However, the concept of e-government is more than Internet use or online services delivery, e-government is associated with a deep transformation in public administration and governance. (OECD, 2003). With the development of technology and Internet, e-government begun to integrate workflows and processes, to effectively manage data and information, enhance public service delivery, as well as expand communication channels for engagement and empowerment of people (Akman, Yazici, Mishra & Arifoglu, 2005; Gil-Garcia & Helbig, 2014; UN, 2014).

E-government includes ICT mediation of relations between (UN, 2003):

- Governments (government-to-government: G2G) in order to sharing data and conducting electronic exchanges between governmental actors, which involves both intra and interagency exchanges at the national level, as well as exchanges among the national, provincial and local levels;
- Government and enterprises (government-to-business: G2B) that involves business-specific transactions (e.g. payments with regard to sale and purchase of goods and services) as well as provision on line of business-focused services; and
- Government and citizens (government-to-consumer/citizen: G2C) involves initiatives designed to facilitate people’s interaction with government as consumers of public services and as citizens. This includes interactions related to the delivery of public services as well as to participation in the consultation and decision making process.

Governments had marked their first online presences though static pages with unilateral interaction. According to the United Nations report (UN, 2001) that was the “emerging information services” stage of e-government development, but other authors define this initial phase as “information” (Capgemini, Rand Europe, IDC, Sogeti, and DTi, 2009; OECD, 2003) and “one-way interaction” (Capgemini et al. 2009). Although this stage appears to be a very modest tentative to the public administration enter into the digital age, the truth is that this gave visibility to governments, allowed a reduction of costs and charges in public administration and improved citizens' access to information and public services (OECD, 2003).

In 2001 the United Nations prepared a report on e-government and concluded that 169 of its 190 members (89%) had marked its presence on the web with government websites. However, of these 169 countries, 36 marked their presence only through static websites with single entry portals. (UN, 2001).

The availability of information to citizens is still an aspect of government portals, but not the main aspect, currently most countries has evolved to more sophisticated forms of interaction with citizens and public services' supply. See, for example, the government web pages of Netherlands (<https://www.government.nl/>) or France (<http://www.gouvernement.fr/en/news>)

In a second stage e-government has begun to increase the importance of citizens in the design of the governmental portals, in the type of information and services provided by public sector and in the way of interaction between governmental institutions. These changes were due to awareness of the importance of citizens, the demands expressed by citizens and to the technological developments that allowed the development of more and more iterative usability solutions. This results in portals that enable not only

“one-way interaction but also two-way interaction” (Cappgemini et al. 2009), with the possibility of citizen to explore and interacted in a more personalized way with the public administration and with the information. There was possible to download forms for government services and applications, as for example the forms to print and fill out the tax returns. Some limited e-services enable the citizens to submit requests for non-electronic forms or personal information. The sites have audio and video capabilities and are multi-lingual. According to the United Nations report (UN, 2014) this was the “enhanced information services” stage of e-government development, and according to OECD (2003) this was the “interactive information level”.

This stage of e-government development required a greater effort and investment in accessibility of sites, but especially a “greater investment in thinking about how citizens will use that information, about rules for making certain information public and accessible, and about the target audience and the types of tools that can add value to the user experience, making it easier to find what he or she is looking for and / or tailoring information searches” (OECD, 2003, p. 74). Countries' online presence begun to expand as the number of its official websites increased. Contents were frequently updated and there were links to other official pages, ministries or departments (UN, 2001).

The adoption and use of ICT and Internet in all levels of society, as well as the continuous and rapid technological developments, computers and Internet high penetration rate among the population and the transition to web 2.0 took the e-government to the next level of public services delivery and interaction between public administration and the citizen. The interaction was essentially bilateral, the citizen won the possibility of expressing their opinion about public services, government programs and policies. In addition, the governmental portals have email address to which the citizen can send specific requests, there are also “suggestion boxes”, and even discussion forums for specific issues. In connection with the services, there is a growing possibility to make a set of operations online such as requests for certificates, delivery and payment of taxes. According to the United Nations report (UN, 2014) this was the “transactional services” stage of e-government development, and according to OECD (2003) and European Commission (Cappgemini et al. 2009) this was the “*transaction level*”. Some authors, to differentiate and enhance interactivity on this level of e-government, adopted the designation of “government 2.0” or “e-government 2.0” (Sun, Ku & Shih, 2015; UN, 2010). This stage of e-government development involves the exchange of personal and even confidential information, requires government platforms that ensure privacy and security conditions.

In the United Nations report published in 2001 it was concluded that the e-government had passed the stage of experience and was well implemented in about 89% of the UN countries, and it was a permanent part of the government process, although at different levels of development.

The United Nations continue to publish regular reports on the e-government situation and only in 2014 it appears that all countries that comprise the United Nations at the time (193) have a government presence on the Internet. However, there are few countries that could be considered to be in the “transactional level” and is being very difficult to go to the last e-government development level that was designated by the United Nations as the “connected services” stage of e-government development and to European commission (Cappgemini et al., 2009) as the “targetisation level”. OECD designed this stage as “data sharing” (OECD, 2003, pp. 74-75): “organization’s ability to share with other government organizations personal information, when approved by law and/or with the user's prior consent.”

The “connected services” stage is defined by United Nations (2014) as a stage where governments interacts with the citizens in a more proactive way, asking for opinions and information through web 2.0 and other interactive tools. The information, data and knowledge are shared and communicated between government agencies and citizens through integrated applications and the e-services are tailored to the needs and desires of the stockholders. “Governments create an environment that empowers citizens to be more involved with government activities to have a voice in decision-making.” (UN, 2014, p.195)

In Table 1 are presented the stages of the more significant e-government development models cited in this chapter.

Table 1. e-government development models (UN, 2014; Capgemini et al., 2009; OECD, 2003)

	United Nations (2014)	European Union (2009)	OECD (2003)
1 st stage	Emerging Information Services	Information	Information Level
2 nd stage	Enhanced Information Services	One-Way Interaction	Interactive Information Level
3 rd stage	Transactional Services	Two-Way Interaction	Transaction Level
4 th stage	Connected Services	Transaction Level	Data Sharing Level
5 th stage	NA	Targetisation/Automation Level	NA

The great challenge to e-government now consists in creating conditions not only technological but also human and in the public management structure to achieve the last two stages of development (UN, 2014). However, over the past decade and a half it was possible to identify other challenges and aspects of e-government that increasingly the focus on citizens and their active participation in the governance through the Internet and other electronic tools. So over time concerns and challenges related with the use of online and electronic tools were emerging as: e-services (UN, 2001); e-participation (UN, 2003), e-inclusion (UN, 2005); e-information (UN, 2008); e-consultation (UN, 2008); connected governance (UN, 2008); open-data (UN, 2010); e-decision making (UN, 2008, 2012); and open government data (UN, 2014).

Some countries, although are not still fully in the last level of development of e-government, have some characteristics of these levels, particularly with regard to e-participation and e-decision making. Could be present as examples two countries that in recent reports of the United Nations (UN 2010, 2012, 2014) showed high levels of development of e-government: Republic of Korea (<http://www.korea.net>) and Australia (<http://www.australia.gov.au/>)

Although the effort of a large number of countries to adopt e-government and achieve their highest levels of development, there are still several obstacles to its implementation, obstacles not concerned only with the development of technology, or the level of economic development and investment in the countries or even with human resources for development solutions and e-government tools (UN, 2014), but more with issues related with: different population access to ICT; digital literacy; and with the adherence of the citizens to this kind government. Citizens still have a lack of confidence in e-government systems, mainly because they fear for the safety of your data and information.

Smart Governance for Smart Cities

The implementation of e-government is also extended to other levels of government, in particular: regional, municipal and local. Although these levels of government adopt in large scale what is developed and implemented at national level (Gil-Garcia & Martinez-Moyano, 2007), and moreover they do not have the same financial, technological and human resources as the national government, the truth is that the local government has a privileged position among the population due to their physical proximity, which allows it to have a better perception of the needs, concerns and expectations of citizens (Gil-Garcia & Martinez-Moyano, 2007). Thus it gains special relevance the study and analysis of local e-government and tools to reach citizens and prompt them to be actively involved in the lives of their cities to get services, establish partnerships, make suggestions, present proposals or participate in public consultations.

The continuous evolution of ICT and the rapid expansion of Internet associated with the increase of users and the changes in their relationship with these technologies, in particular with web 2.0 tools (O'Reilly, 2007), promoted changes in behaviors, needs and demands of the citizens and stressed citizens' desire for involvement on their cities' governance, which can be facilitated by ICT, and led to the transformation of administrative decision making process (Giffinger et al., 2007). The use of Internet and ICT tools, similarly to what happened with government, could also extended to governance, giving rise to the term e-governance.

The term e-governance appears associated with the e-government although the concept of e-governance is broader and covers aspects of the use of ICT and Internet to facilitate the communication between the government and the citizens in order to provide information and tools that allow to citizens a more active and informed participation in decisions public which improves transparency and accountability of public administration, as well as social inclusion and confidence in the democratic process (Torres, Pina & Acerete, 2006). This means that e-governance includes aspects of e-government and aspects of the involvement of the citizens in public policy issues and decisions which corresponding to the higher levels of e-government development defined by the United Nations (UN, 2014).

The smart governance is debated by several authors and is considered as one of the key features in the implementation and management of a smart city (Chourabi et al., 2012; Cohen, 2012; Giffinger et al., 2007), and will unavoidably has a strong component of e-government and tools of e-governance, especially considering the local level, is based on communication and collaboration between government and citizens, mediated by ICT, and in the principles of good governance.

Giffinger, et al. (2007) present the smart governance as one of the six main features of a smart city: smart economy; smart people; smart governance; smart mobility; smart environment; and smart living. This six characteristics of a smart city are closely interrelated and it is important to note that each one have influence and are influenced by the others, though in different scales. For example, through a smart governance with greater transparency of government and free access to data related with a set of city's aspects (open data or e-information), the citizens will be more informed and have the opportunity to actively participate in the management and decisions of the city (e-decision making) and a consultation to the citizens carried out by the public sector (e-consulting), could influence the services provided particularly in terms of health and safety (smart living), infrastructure to be implemented namely in terms of communications (smart mobility) incentives for innovation and entrepreneurship (smart economy), environment protection (smart environment) or scientific, cultural and social activities (smart living) that will greatly improve the satisfaction and quality of life. In this perspective, and although this chapter limits the analysis to smart governance of smart cities it will always have links to other features of smart cities.

Several authors who have dedicated themselves to the study of smart cities discussed a set of indicators and factors related to smart governance.

According to Giffinger et al. (2007) smart governance presents the determining factors:

- Participation in decision making
- Public and social services
- Transparent governance

Cohen (2012) also provides the same six smart features proposed by Giffinger et al. (2007), including the smart governance, but used a slightly different set of indicators to smart governance:

- Enabling supply and demand side policy
- Transparency and open data
- ICT and e-government

In 2015 Cohen has an update of its smart governance indicators for its annual ranking of smart cities:

- Online services
- Infrastructures
- Open government

According to Scholl and Scholl (2014) smart governance is based on the key factors:

- Openness and transparency of government decision making and actions,
- Open information
- Stakeholder participation and collaboration
- Leveraging government operations and services via intelligent and integrated technology use
- Government's role of facilitator of innovation, sustainability, competitiveness, and livability

Chourabi et al., (2012) elaborated a literature review and summarized the factors of governance as follow:

- Collaboration
- Leadership and champion
- Participation and partnership
- Communication
- Data-exchange
- Service and application integration
- Accountability
- Transparency

The literature review allowed to identify some common elements in the different smart governance definitions, namely: participation in the public life of the city; online services, or e-services; and issues related with functioning of public administration.

The participation in the public life of the city is related to the involvement of citizens, both as individuals and as companies, in politics, social issues and relevant decisions of their city. A smart city must have mechanisms mostly supported by ICT to facilitate and encourage this involvement and citizen participation in city life. This participation, or e-participation, and involvement can have more passive or more active characteristics as defined in the report of the United Nations in 2014 (UN, 2014):

- e-information, where citizens have access to open data portals where they can consult information updated to freely use for their projects or business, contributing to the growth and development of the city;
- e-consultation, where citizens are invited to give their views on issues related to a set of issues of municipal and social policies; and
- e-decision making, in which the citizens participate in policy or in the co-production of services.

The availability of a wide range of public and social services supplied online, or the e-services, is a central issue in smart governance as well as the possibility to access these services via multiple devices, including mobile devices, and the ability to make online payments. It is also important the availability of communication channels between the stakeholders but especially that enable an effective communication between the citizen and the public administration.

Finally, the functioning of public administration, under this chapter is related to the practical functioning of the municipality as an all, in their day to day, in their municipal administration functions and with the image of efficiency, honesty and ethics that goes to the citizens, in terms of transparency, accountability, combating fraud, respect for human rights and efforts to social inclusion of all its citizens.

METHODOLOGY

[...]

SMART CITIES GOVERNANCE

Smart Cities Characterization

[...]

FUTURE RESEARCH DIRECTIONS

[...]

CONCLUSION

[...]

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