Chapter 3
Quality in E-Environment Development and Sustainability of Smart Cities

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ABSTRACT

Quality is a significant issue to consider when thinking about optimizing processes, improving the quality of services and products, increasing customer or client satisfaction, or just reducing costs that are related to waste or non-optimization in processes. E-environments and smart territories are not an exception, so, quality is a key success factor when considering and developing them. Quality has always been considered a part of the management system and processes in a company. Quality stands for the required perspective in the strategy of an enterprise and leads to accomplishing all quality requirements and goals previously defined in the company. There are several reasons why quality should be considered in an e-environment or a smart city.

INTRODUCTION

A smart city is a concept that is becoming more and more popular nowadays. Thus, we must take it into account when thinking about developing new cities or improving those that already exist. There are lots of definitions of this concept, and each of them includes issues, factors, and features of smart cities that may be considered when analyzing them. The European Union is making efforts towards the definition of sustainable strategies for smart urban growth for its metropolitan areas (Caragliu, del Bo, & Nijkamp, 2009; Piro, Cianci, Grieco, Boggia, & Camarda, 2014).

Nevertheless, there is an issue that must be taken into account, and that is the sustainability of smart cities because this becomes an important requirement when designing cities or developing them. It is a key point to consider due to the increase in the number of projects developed related to smart cities and the increasing interest in them. These cities are usually defined attending to a set of objectives and goals,

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which are related to the future, competition, efficiency, quality of the services offered, effectiveness, and resources optimization of these cities, together with other features. These cities must be designed or adapted to achieve these aims.

There are lots of factors that might influence smart cities’ development and sustainability; for example, new Information and Communication Technologies (ICTs), Big Data features and evolution, human factors, knowledge management, or human capital. All these factors must be managed in order to control the evolution of the smart city and guarantee the proper integration of all the systems involved. That is not an easy task and requires to understand the aims of the city and plan to build the new city or rebuild it successfully.

On the other hand, there are a lot of issues and data that a smart city may monitor and integrate to get the required information to be able to decision make and to manage properly the smart city, including all the plans and projects related to it. The management of these data is very important and should be considered carefully so that we can get all the value needed to be associated with these data. However, sometimes, it is not taken into account when developing a project in a smart city.

In this scenario, the success and sustainability of smart cities is a complex responsibility, and the quality of the services delivered in the smart city to citizens is a key issue that may help to succeed. In this chapter, this perspective will be analyzed trying to identify issues that impact on the success of a smart city and all the projects developed in it, and the steps and actions to achieve them, assigning a proper weight to all of them. This chapter also highlights the role of quality in smart cities regarding the sustainability and success of it; it will be explained, together with a mechanism and proposal to measure this quality of the services of a smart city. This proposal will help to understand how these factors work together to assure the success of a project related to a smart city and help to increase its sustainability.

FEATURES TO BE CONSIDERED IN A SMART CITY

Cities nowadays have detected several problems related to their sustainability during the next years (Lazaroiu & Roscia, 2012) and the shortage of natural resources (Pellicer et al., 2013). A sustainable urban model is incentivized by the European Commission using the strategic energy technology plan. Moreover, that is because cities are accommodating a huge part of the world population (Perera & Zaslavsky, 2014), creating pressure on every aspect of urban living, and there is an increasing concern about the shortage of natural resources. Recent changes in service environments have changed the conditions of their production and consumption (Anttiroiko, Valkama, & Bailey, 2014).

A city may be considered smart if it has intelligence functions that allow it to integrate and synthesize this data to some purpose (Batty et al., 2012): improving efficiency, equity, sustainability, and quality of life. There are several issues and areas to be considered when managing a smart city: infrastructure integration (Batty et al., 2012), data collection, and mechanisms that allow this, data mining, and services delivery in a new city concept. According to Harrison and Donnelly (2011), application of information technology can support the goals and challenges of cities in both developed and emerging economies, thanks to the new progress in technologies, such as digital sensors or digital control systems, wireless networks, semantic models for data, computing power and new algorithms. Government and private sector businesses are investing in ICTs to implement solutions to solve these issues and reach these goals (Perera & Zaslavsky, 2014). ICTs play a key role in interconnecting all systems and actors in a smart city (Piro et al., 2014).
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