Chapter 17
Digital Cities:
Towards Connected Citizens and Governance

Leonidas Anthopoulos
TEI Larissa, Greece

Panos Fitsilis
TEI Larissa, Greece

ABSTRACT

The digital cities, from their online forms such as America-On-Line and Kyoto cases, to their ubiquitous forms such as Beijing, Hull (UK) and Trikala (Greece) cases, have achieved in simplifying citizen access to Local and Central Government services. Early digital cities succeed in delivering improved public services to citizens even with no digital skills, closing digital divide and establishing digital areas of trust in local communities. This chapter presents the evolution of the digital cities, from the web to the ubiquitous architecture, which can deliver multiple services to different target groups and can behave as a common "interface" between citizens and all kinds of public agencies. The chapter will focus on the latest digital city architecture, and on the experiences from the digital city of Trikala (Greece), in order to present how digital city impacts local attitudes regarding e-Government. Moreover, the chapter will attempt to evaluate digital city's progress and its performance concerning citizen contacts to e-Government.

INTRODUCTION

Multiple approaches have been given to the digital city: *digital environments collecting official and unofficial information from local communities* (Wang & Wu, 2001) *and delivering it to the public via web portals are called information cities* (Sairamesh, Lee, & Anania, 2004; Sproull & Patterson, 2004; Widmayer, 1999); *networks of organizations, social groups and enterprises located in a city area are called digital cities.* These definitions were given by major case studies such as the America-On-Line, the Kyoto's and the Hull's etc., which are analyzed in this chapter in order to present the ubiquitous environment that is generated in many areas all over the world.

Although digital cities were initiated as information based platforms (web portals, databases,

DOI: 10.4018/978-1-61520-933-0.ch017

virtual reality applications etc.), they soon evolved to wide(metro)-area information systems (IS) that deliver different kinds of services to the local communities. Their infrastructures concern network equipment (fiber optic channels and wi-fi networks in the city area), service oriented information systems (e.g. e-Government IS, e-Democracy portals, public Agency web applications etc.), public access points (e.g. wireless hotspots, info kiosks etc.), and social service systems (e.g. intelligent transport systems, tele-care and tele-health networks etc.). These environments composed a recent digital city definition (Anthopoulos & Tsoukalas, 2005): *city-area infrastructures and applications aiming to cover local needs and support local community's everyday life.* This definition evolved to the ubiquitous city or U-city (Wikipedia, 2009): *a city or region with ubiquitous information technology. All information systems are linked, and virtually everything is linked to an information system through technologies such as wireless networking and RFID tags*.

Both recent digital city and U-city approaches face various challenges: the opportunity for the digital city to become a) a common interface for public transactions in the city area, b) an area-of-trust for the citizens where they can exchange opinions, they can support decision making and they can describe their real needs to the political leadership. These approaches can develop a "global e-Government environment" in city areas, where citizens can access both local and central public services. This global environment can be called "Metropolitan e-Government environment" and its main targets concern: a) the collection of local information, b) the use of local information for the sustainable development of the city and c) the continuous evaluation and improvement of the architecture, and of the quality of the offered services.

In the Background section of this chapter the evolution of the digital city from the web to its recent ubiquitous architecture is presented. We mainly focus on the latest architecture of the digital city, in order to present how it affects social attitudes in local communities, concerning e-Government. We applied a recent evaluation framework –the Software Project Observatory Framework (SPoF)- (Fitsilis and Anthopoulos, 2008) in the digital city of Trikala (Greece), in order to investigate whether the Metropolitan e-Government environment can support the diffusion of the ICT and of the digital public transactions in a city area.

BACKGROUND

Since the early 90s different digital cities were implemented all over the world (Table 1). The first case was the *America-On-Line cities* (Wang and Wu, 2001), where web environments offered digital transactions and chatting options. America-On-Line simulated a city via grouping services according to civilian logic. The digital city of *Kyoto* (Japan) (Ishida, 2002; Ishida, Aurigiri & Yasuoka, 2001) and the digital city of *Amsterdam* (Lieshout, 2001) were web environments simulating the city and its local life (streets, enterprises, malls etc.). This version of the digital city offered virtual meeting rooms for specific common interests, inviting citizens to participate. These web approaches were evolved to virtual reality environments (Van den Besselaar & Beckers, 1998) operating beyond the physical boundaries of a city.

Some unique cases that exploit Information and Communication Technologies (ICT) for the social development were implemented: the *Copenhagen Base* (Van Bastelaer, 1998) was a public database containing useful local information. People could initially access the database via the Internet and via text-TV. Today the Copenhagen Base is open to people for data supply and entry. Moreover, the *Craigmillar* city of Scotland (Van Bastelaer, 1998) used the ICT to structure groups of citizens who shared knowledge and offered social services to the local community. In Craigmillar –an ex-industrial area-, citizens collaborated in order to handle local needs.