Information and Communication Technology for E–Regions

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INTRODUCTION

Information and communication technologies (ICTs) are essential components of the knowledge economy, and have an immense complementary role in innovation, education, knowledge creation, and relations with government, civil society, and business within city regions. The ability to create, distribute, and exploit knowledge has become a major source of competitive advantage, wealth creation, and improvements in the new regional policies. Growing impact of ICTs on the economy and society, rapid application of recent scientific advances in new products and processes, shifting to more knowledge-intensive industry and services, and rising skill requirements have become crucial concepts for urban and regional competitiveness. Therefore, harnessing ICTs for knowledge-based urban development (KBUD) has a significant impact on urban and regional growth (Yigitcanlar, 2005). In this sense, e-region is a novel concept utilizing ICTs for regional development.

Since the Helsinki European Council announced Turkey as a candidate for European Union (EU) membership in 1999, the candidacy has accelerated the speed of regional policy enhancements and adoption of the European regional policy standards. These enhancements and adoption include the generation of a new regional spatial division, NUTS-II statistical regions; a new legislation on the establishment of regional development agencies (RDAs); and new orientations in the field of high education, science, and technology within the framework of the EU's Lisbon Strategy and the Bologna Process. The European standards posed an ambitious new agenda in the development and application of contemporary regional policy in Turkey (Bilen, 2005). In this sense, novel regional policies in Turkey necessarily endeavor to include information society objectives through efficient use of new technologies such as ICTs. Such a development seeks to be based on tangible assets of the region (Friedmann, 2006) as well as the best practices deriving from grounding initiatives on urban and local levels. These assets provide the foundation of an e-region that harnesses regional development in an information society context.

With successful implementations, the Marmara region's local governments in Turkey are setting the benchmark for the country in the implementation of spatial information systems and e-governance, and moving toward an e-region. Therefore, this article aims to shed light on organizational and regional realities of recent practices of ICT applications and their supply instruments based on evidence from selected local government organizations in the Marmara region. This article also exemplifies challenges and opportunities of the region in moving toward an e-region and provides a concise review of different ICT applications and strategies in a broader urban and regional context.

The article is organized in three parts. The following section scrutinizes the e-region framework and the role of ICTs in regional development. Then, Marmara's opportunities and challenges in moving toward an e-region are discussed in the context of ICT applications and their supply instruments based on public-sector projects, policies, and initiatives. Subsequently, the last section discusses conclusions and prospective research.

BACKGROUND

New Regionalism and Information Society in Turkey

In the 1950s, Turkey was divided into seven geographic regions based on topographic and climatic conditions without paying attention to administrative aspects. In terms of territorial division, Turkey has a national administration, and 81 province, 873 district, and 3,227 local administrations. Provinces and districts are both administrative units of the national government and territorial units of local government. Representatives of the national government, governors of provinces, and heads of districts on the one hand, and local government bodies and provincial local governments on the other hand work in the same areas but carry out different duties (Sagbas, 2003). The administrative reorganization and spatial division of regions have been under review posed by

the new regulations covering the establishment of RDAs and NUTS-II statistical regions.

Adoption of EU's regional standards and information society objectives are challenging ambitions for Turkey. The EU's Lisbon agenda (2000) has also come up with a similar ambitious plan with a strategic vision to become the most competitive and dynamic knowledge economy in the world that is capable of sustainable economic growth with more jobs and greater social cohesion (Campano et al., 2004). To address these objectives, a comprehensive e-transformation program, e-Turkey, was prepared rapidly after Turkey participated in the e-Europe initiative in 2001. The main goals of this initiative include cheaper, faster, and secure Internet; investing in people and skills; stimulation of Internet use in European regions; and acceleration in forming information society foundations (Tuzun & Sezer, 2002). In conjunction with this initiative, the e-transformation Turkey project was launched in 2002. The information society department of the State Planning Organization (SPO) was assigned for the coordination of this project. The prime ministry, nongovernment organizations, and all public institutions are identified as affiliated organizations for the project (SPO, 2004).

Local governments play a key role in developing local ICT policies in order to coordinate with national-level policy implications, which are indexed to the e-Europe initiative (Akin, 2005). The e-Turkey initiatives, however, are undertaken by both national and local governments, where no coordinating regional authority is allotted with these initiatives. These regional policy initiatives focus on the promotion of wealth, welfare, and sustainability in a broader information society context. Therefore, focusing on the regional level would likely increase the success chance in the implementation of ICT applications within the e-Turkey initiatives.

E-Region and ICT

E-region can be considered as the set of innovative actions to achieve economic and social cohesion and to raise the technological level of regions through the use of information ICTs.

ICTs are the backbones of the knowledge economy and in recent years have been recognized as effective tools for promoting economic growth and sustainable development (Chen & Dahlman, 2005). According to Millard (2002), the five *E*s (entity, economy, equity, environment, e-technology) provide basic conditions to achieve sustainable regional development. For example, entity promotes territorial identity and integration; similarly, economy is the engine for growth and efficiency, equity resembles cohesion and inclusion in encountering the spatial digital divide and promoting welfare, and environment is an important tangible asset for regions inducing sustainability. E-technology or ICTs complement the other four dimensions and can widen the spectrum of innovativeness and creativity of a region.

Another emphasis for the development of the knowledge economy is to enhance regional governance. It is widely accepted that good governance and effective institutional structure are important sources of regional competitiveness. This requires the partnership of private-, public-, and voluntary-sector bodies aimed at driving forward a region's e-agenda.

The EU's regional approach and projects for the information society and urban technologies have a good framework toward understanding e-regions. These policies have been discussed under three major objectives: Support the provision of ICT infrastructure to reduce the digital divide and regional disparities, stimulate new electronic services and innovative ICT applications ranging from e-commerce to e-governance, and invest in people to ensure necessary skills and capabilities via distance learning and digital literacy (European Commission [EC], 2006). In this context, a variety of e-region initiatives in the European region has been under way: Kaunas E-Region (Latvia), E-Region Blagoevgrad (Bulgaria), E-Bourgogne Programme (France), Kuyavia and Pomerania E-Region (Poland), and E-Region Schleswig-Holstein (Germany). These initiatives are parts of the e-Europe region, which represents the information society at the service of regional development.

MARMARA: TOWARD AN E-REGION?

Marmara is the most developed region in Turkey, covering approximately 60% of the output of the Turkish manufacturing industry, 37% percent of the gross domestic product (GDP), and 26% of the total population. The region's dominant position also reflects the share of public investment (28.7%) and private investment incentives (46.3%; Karadag & Deliktas, 2004). On the other hand, Marmara has also been highly innovative in the implementation of cutting-edge ICT applications and associated public-sector (national and local governments) supply instruments, which is explored based on the categories posed by Heeks (2005).

Supply Environment (Policies, Strategies, and Legislations)

Grounding the national-level ICT policies such as e-Turkey to the urban and regional level is a major challenge that needs to be tackled. Within the frame of e-Turkey, Yalova province in Marmara is selected as a pilot city for the initiative. ICT projects of Yalova were presented as best practices in various national and international conferences, meetings, and platforms. In this context, various local ICT policies have been deployed in order to enhance public Internet access (public Internet kiosks), economic development (call centers), e-literacy (adult IT certification programs), and online

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