

Strengthening the Knowledge–Base of Cities Through ICT Strategies

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INTRODUCTION

During the last two decades knowledge based development (KBD) has become an important mechanism for knowledge economies. In a knowledge economy information and communication technology (ICT) is extensively seen as a potentially beneficial set of instruments, which may improve the welfare and competitiveness of nations and cities. At present both public and private actors aim to exploit the expected benefits of ICT developments. ICTs offer unprecedented promise for social and economic development on all global, national, regional, urban, and local levels. This chapter seeks to investigate the potential of ICT strategies at both regional and urban levels, and in particular to shed light on various factors that influence urban ICT strategies in the public domain.

The chapter sets out to explain the KBD processes and challenges and opportunities in information acceptance and use in urban policy making. This chapter draws on providing a clear understanding on policy frameworks and relevant ICT applications of the Queensland Smart State experience.

The chapter is made of six sections. The first section following the introduction provides background information. The second section focuses on the KBD processes in Queensland. The third section offers a comprehensive analysis of the Queensland Smart State initiative, and it also identifies actors and goals of the agenda of Smart State experience. The fourth section reviews KBD and ICT applications and policies of the Queensland Smart State and Brisbane Smart City experiences, and their impacts on Brisbane's successful KBD. The fifth section discusses knowledge hubs and ICT developments within the Brisbane metropolitan area. Then the chapter concludes with conclusion and future trends section.

BACKGROUND

In the information era, sustainable economic growth and development is highly associated with knowledge economies (Metcalf & Ramlogan, 2005). The term knowledge economy was first introduced by the OECD in 1996. A knowledge economy creates, distributes, and uses knowledge to generate value and gives rise to “a network society, where the opportunity and capability to access and join knowledge and learning intensive relations determines the socio-economic position of individuals and firms” (Clarke, 2001). Rapid advances in ICTs during the last two decades established the infrastructure that enables the knowledge economy to scale up. The main novelty of the knowledge economy consisted of the need to manage an intangible asset that, in contrast to material resources, does not depreciate through use but rather becomes more valuable the more it is used (Laszlo & Laszlo, 2006).

According to Buckley and Mini (2000) a city's knowledge economy is the economic wealth and well being that results from the effective investment in people and ideas that create an environment where information, creativity, goods and services are produced and exchanged, drawing on best practices. It requires a skilled labor force, up-to-date knowledge, effective use of technology (primarily ICTs), and broad city resources that foster a productive urban economy. In this process, communication, good governance and partnerships are developed with all major stakeholders.

KBD is a powerful strategy for economic growth and the post-industrial development of cities and nations to participate in the knowledge economy. It is a strategic management approach, applicable to purposeful human organizations in general (Carillo, 2002). KBD has two purposes: The first one is, it is a strategy that codifies technical knowledge for the innovation of products and services, market knowledge

for understanding changes in consumer choices and tastes, financial knowledge to measure the inputs and outputs of production processes, and human knowledge in the form of skills and creativity, within an economic model (Lever, 2002). The later one is that, it indicates the intention to increase the skills and knowledge of people as a means for individual and social development (Gonzalez, Alvarado, & Martinez, 2005). KBD policies includes: developing and adopting the state of art ICTs, distributing instrumental capital, developing human capital, and developing capital systems (Carrillo, 2002).

To date, the structuring of most of the knowledge cities/regions has proceeded organically: in essence, as a dependent and derivative effect of global market forces. Urban and regional planning has responded slowly, and sometimes not at all, to the challenges and the opportunities of the knowledge city. Therefore, in recent years urban planning has consolidated its interest in the paradigm of post-modern social production under the rubric of knowledge based urban development (KBUD) (Yigitcanlar, Velibeyoglu, & Baum, 2008a). Planning sees KBUD as a new form of urban development for the 21st century that could, potentially, bring both economic prosperity and sustainable socio-spatial order to the contemporary city. The goal of KBUD is a knowledge city purposefully designed to encourage the production and circulation of abstract work (Yigitcanlar, Velibeyoglu, & Baum, 2008b). KBUD can also be regarded as a tool or an approach to nourish the transformation and renewal of a city into a knowledge city and its economy into a knowledge economy (Yigitcanlar, 2005).

KBD Possesses in Australia

Once Australia entered the information era and the new millennium, Australia needed to make a choice between two options for the continuum of her successful economy. The first option was competing as a low wage economy based on the excellent but now degrading natural resource base by reducing wages, living standards and environmental controls. And the second one was continuing with industries that are price takers (e.g., ICT, nanotechnology) in the global economy. Fortunately, Australia has chosen the later one, which is to be part of the emerging knowledge economy, an economy that has an emphasis on the use and dissemination of information as the basis for

innovation, competitiveness and growth (Marceau, Manley, & Sicklen, 1997).

Mainly because of the high level of knowledge base, business research and development (R&D), government support for business R&D, total investment in knowledge, communication and electronic commerce and venture capital in many respects Australia is well placed to compete in the global knowledge economy. Australia's prime strengths revolve around the following three key factors (McKeon & Lee, 2001):

- A reasonable strong knowledge and technology base
- A number of competitive industries linked to that knowledge base
- A rapid process of adjustment to new global realities.

The KBD process in Australia comprises five interrelated components. These are: ICTs; information networks; new industry processes (including innovation, research and development, and technological diffusion); human capital; and capital accumulation through the privatization and commercialization of knowledge (Munro, 2000).

QUEENSLAND SMART STATE STRATEGY

In terms of overall economic measures, Queensland is an outstanding performer and has been Australia's fastest growing regional economy over most of the last decade. Economic growth in Queensland has exceeded that for Australia for about a decade, and Australia itself has been acclaimed as one of the fastest growing economies in the OECD (Greenfield, Hammond, Milsom, & Rayner, 2006).

In 1998, Queensland was developing an extensive knowledge infrastructure centered on nine universities, and research agencies. Queensland also had emerging capabilities in niche areas such as ICT, nanotechnology, neuroscience, forensics, sports science and eco-tourism, as well as continuing her competitiveness in food and agribusiness, aviation and aerospace, mining, marine and environmental technology industries. However, many of the developments were not coordinated and there was insufficient recognition of these sectors' potential to generate wealth. The Queensland Gov-

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