

Chapter 1

From Information Technology to Social Technology: Opportunities and Challenges in the Knowledge Economy

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ABSTRACT

Stemming from the information economy, the knowledge economy represents an extension of technology-based production to include the leverage of technologies for value-added products and services. In this chapter, the author defines the knowledge economy and looks at the technology-based economic growth experiences of three places—the San Joaquin Valley in California, Ennis in Ireland, and Singapore—to show the importance of human capital development, social inclusion, and learning contexts in generating the foundation for continuous innovation. These themes highlight the opportunities and challenges involved in their bid to create a knowledge economy. The main argument in the chapter advocates the importance of going beyond the technologies to analyse the social context within which technologies function. Based on the author's larger study of the sustainable knowledge economy, this chapter comprises an empirical analysis of the three cases and a rigorous literature review to emphasise the shift in perspective from the information view of technology to the social perspective of technology.

INTRODUCTION

Amidst the backdrop of the information revolution, regions saw the growth of high technology industries that comprise information technology companies and capital investments in technology firms. High technology centres became key drivers of economic growth in the information economy.

Regions also experienced increasing penetration of information technologies, such as computers, personal electronic devices and electronic services. It is no surprise therefore, that governments, businesses and people began to leverage information technologies to form a networked society. Business activities in particular, became grounded on the flexible, networked society (Castells, 2001).

At the same time, the proliferation of information technologies in a society can facilitate

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increased segmentation among citizens, companies and regions (Rodrigues, 2003). Among other issues, the introduction of information technologies can also bring about unforeseen challenges such as unemployment. According to Menzies, the use of information technologies in labour-intensive regions that do not have a sufficient workforce capable of using and leveraging these technologies can lead to the unemployment of lowly skilled workers (Menzies, 1996).

The knowledge economy represents an extension from the information economy, where value-based inputs become necessary drivers for growth. In the current global economy, the most technologically advanced economies are knowledge-based, where information and knowledge are forces that drive production (World Bank, 1999). The advent of the knowledge economy is characterised by a shift in its economic base from tangible to intangible assets, such as human capital and innovation (DeVol et al., 2004). Knowledge-based inputs, in the form of value-added information, supplement material inputs as key productive forces in the economy.

RESEARCH OBJECTIVES

The goal of this chapter is to highlight the importance of the social dimension of information technology among regions developing a knowledge economy. Concepts such as human capital, social inclusion, learning contexts, continuous innovation as well as high tech initiatives were examined and discussed. The findings were generalised to a theoretical level to emphasise the importance of the social context in the study of technologies and leveraging them in a knowledge economy. For purposes of this paper, the term social technology was used to characterise this social view of technology. Since information technology is an integral part of the knowledge economy, the author refers to social computing

as a social approach to understand innovation in the knowledge economy.

This study comprises a comprehensive literature review on the knowledge economy, information economy, and regional economics, as well as empirical findings from the three case studies. A qualitative method was used, comprising in-depth interviews, observation, and document reviews. These findings are discussed in three layers. The first looks at the challenges extended from the information economy and how they are relevant for the knowledge economy. Based on these challenges, the second focuses on how regions can create opportunities that enable them to grow knowledge-building capacities. The third layer extrapolates these findings to a theoretical level to establish the importance of considering and understanding contextual factors in a successful knowledge economy. Relevant literature was reviewed to support this theoretical generalisation. As regions begin to initiate strategies to enhance their knowledge-building capacities, considerations given to local contextual and cultural characteristics – thus, the term social technology – may be useful to enhance their effectiveness. The chapter concludes with a broad theoretical perspective and possible future research directions.

DEVELOPING A SUSTAINABLE KNOWLEDGE ECONOMY

The knowledge economy is characterised by a rise in knowledge-based activities and increased globalisation. These activities refer to innovation that is the result of research and development (R&D) industries. Yeo (2009) argued that innovation is a key driver of growth in the knowledge economy. Therefore, governments are increasingly executing initiatives to develop knowledge-based industries to reflect a knowledge value chain. Among these initiatives are public policies that are designed to facilitate human capital development and information technology utilisation to increase

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