

## Chapter 17

# The Role of Innovative and Digital Technologies in Transforming Egypt Into a Knowledge-Based Economy

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### ABSTRACT

*Digital technology, artificial intelligence, the internet of things, and innovative technology applications are gradually transforming businesses and governments in emerging markets making them more competitive and offering opportunities for economic growth and prosperity. This chapter demonstrates Egypt's potential to enable a knowledge society through the deployment of emerging technology tools and applications across different sectors of the society. The chapter analyzes the critical success factors that are necessary for the realization of a digitally driven society where information is seamlessly exchanged for the optimal utilization of resources for decision-making purposes at the government, public, and private sector levels. The chapter highlights the need for the formulation of a nation-wide entrepreneurial ecosystem that promotes a tech-startup culture that can effectively contribute to transforming the society by enabling inclusion, universal access to the internet, more diversified educational opportunities and a comprehensive and conducive environment to development.*

## **OVERVIEW**

Emerging information and communication technologies are transforming the global marketplace into becoming more competitive, agile and dynamic. Consequently, these technologies represent an invaluable vehicle for business and socioeconomic development. They are also providing platforms and innovative organizational structures that are not constrained by distance or time barriers. Egypt, as an emerging economy, has strived to achieve the potentials of ICT since the 1960s and has increasingly invested in building its infostructure and infrastructure in an effort to expand the economy's disposition as an important player in both the regional and global economies. In addition, with the growing influence of the millennials and their tech-savvy, passionate, connected, engaged and exposed young generation, the digital transformation and the impact on the economy in specific and the society at large represents an invaluable opportunity for Egypt (Rizk & Kamel, 2013).

This chapter highlights Egypt's progress towards a knowledge society through assessing the socio-economic implications of the diffusion of ICT. It demonstrates the steps that Egypt has taken towards transforming itself into becoming a knowledge-based society through answering a set of questions. This includes how have the ICT for development policy, strategy formulation and infrastructure deployment evolved? How ICT has become a platform to access knowledge and a vehicle for development towards a knowledge society? What are the challenges hindering the realization of a knowledge society? How can an innovative and entrepreneurial tech-startup contribute in the development of a knowledge society in an emerging economy? What are the human capital requirements needed as an integral element in the development of a nation-wide entrepreneurial ecosystem that can transform the economy? What are the skillsets required to enable the community to be ready for a digital society that is connected and driven by innovation technology platforms?

## **The Evolution of Information, Knowledge, and Technology Diffusion in Egypt**

Through its ancient history that extends over 3000 years B.C, Egypt has witnessed massive information flows from the Rosetta stone and papyrus papers, to the establishment of the Library of Alexandrina. During the middle ages, Arabic manuscripts became one of the most common means for information and knowledge dissemination. In the early 19<sup>th</sup> century, Egypt witnessed the publishing of the first journal and the establishment of the first national archive system (Kamel, 1998a). However, until late in the 20<sup>th</sup> century and prior to 1985, Egypt was perceived as being rich in data but poor in information. Computers were viewed as ends and not means; accumulated bureaucracy through red tape and the existence of islands of innovation with no connecting bridges restrained the production of information (Kamel, 1998b).

Moreover, the government focus was more on technical issues and not on decision outcomes; multi-sector coordination was poor and synergy between information and socioeconomic development strategies was lacking. Given how important and useful ICT has proven to be to socioeconomic development especially for emerging markets; building the required information infrastructure for Egypt was a necessity and surely innovative ICT presented a good opportunity. The strategy deployed had to have a two-tier approach where society with its different stakeholders can contribute in shaping the infostructure, which in turn effectively contributes in the socioeconomic development and growth. Table 1 demonstrates the evolution of the information society in Egypt over the last four decades (Kamel, 2007).

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