

## Chapter 15

# Digital Economy and Innovative Practices in Healthcare Services

**Riccardo Spinelli**

*Università degli Studi di Genova, Italy*

**Clara Benevolo**

*Università degli Studi di Genova, Italy*

### ABSTRACT

*In this chapter, the authors analyze the impact of the new ICT-driven economic paradigm—the digital economy—on healthcare services. The increasing adoption of ICT in healthcare has been very fruitful and has led to the innovative approach to healthcare practice commonly known as e-health. Here the authors first propose a framework, consisting of six elements, whose mutual interaction outlines the structure and the dynamics of the digital economy. Then, a classification scheme of services is presented, which considers their characteristics and their delivery modes; this scheme supports understanding the way in which the adoption of ICT impacts healthcare services. Finally, an overall explanatory outline is constructed that allows one to analyze and understand the origins, implications, and future perspectives of the changes that ICT has brought to healthcare services. Examples of e-health applications are traced back to the building blocks of the framework, isolating the impact of each driver on their structure, configuration, and delivery modes.*

### INTRODUCTION

The advent of the so-called “ICT revolution” can be undoubtedly considered a turning point in economic history, due to the strong impact it has had on the structure of the economic system and

on the way business is done. Many authors—see, among others, Castells (2000), Porter (2001), Rullani (2001), and Burman (2003)—have theorized the progression from the traditional industrial economic paradigm to the so-called “digital economy,” stressing the central role that ICT and digital technologies play in this progression. Underlying this shift in paradigms has been the

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increasing digitalization of information—that is the process of representing any kind of information as a sequence of *bit*, that is *binary digits*—which has come into conflict with real world processes that remained substantially analog based (Tocci, 1988) and not always reducible to binary storage. However, modern digital technologies allow for an accurate digitalization of information from many different sources (words, sounds, images, etc.), without losing any relevant aspect of the processed information. In other words, more and more typologies of data and information can be properly turn to the digital format or, in short, “digitalized” (Aldrich & Masera, 1999).

Coming back to the concept of the digital economy, Atkinson and McKay (2007) state that it “represents the pervasive use of IT (hardware, software, applications, and telecommunications) in all aspects of the economy, including internal operations of organizations (business, government, and non-profit); transactions between organizations; and transactions between individuals, acting both as consumers and citizens, and organizations” (p. 7). While we recognize the value of this technology-focused definition; nevertheless, the advent of the digital economy has not only a technological origin, but is also the result of several more complex dynamics, which—together with the innovation in ICT—contribute to shape the new economic paradigm. Consequently, there is the need for a more articulated analysis on the constituents of the digital economy, which we propose later in this chapter.

The consequences of the evolution from the traditional to the digital economy are deep and involve almost every aspect of economic activities. In this chapter, the attention is focused on how the development of the digital economy influences one of the most important service sectors that is the healthcare industry.

Over the last decades, the economic scenario and the structural and operative conditions of service firms have deeply changed. First, deregulation, liberalization, and globalization processes

have had an impact on the general environment; the healthcare industry has been certainly involved in this processes, even if the industry has been “partially protected” by some structural peculiarities (in particular the significant presence of national public operators along with national public policies and regulations) which have keep it somewhat protected from the new and more intense forms of competition. Then, industrialization, digitalization, IT networks, evolution in communication and transport, virtualization demand-side changes have strongly modified the way of conceiving, producing and delivering services (Javalgi, Martin, & Todd, 2004; Rahman, 2004). In particular, “the industrialization of at least some processes and the digitalization of information [have changed] the options about ‘how’ to produce and deliver services (e.g. reducing the contact with the consumer) and ‘where’ (from a distance or across the borders)” (Benevolo & Spinelli, 2011, p. 252).

This process has certainly involved healthcare services too; in fact, the increasing adoption of ICT in that industry has been very fruitful and has led to the innovative approach to healthcare services commonly known as e-health.

Our opinion—which motivates the present study—is that to fully appreciate the origins, the structure and the great potential of e-health applications it is important to understand their deep drivers; we refer to those economic, technological, and social phenomena which lead to the creation of those applications and which condition the way in which they are performed. If those underlying forces are not made clear, the development of innovative practices in healthcare may suffer strategically.

The main objective of the chapter is accordingly to support the understanding of the digitalization process of healthcare services, by tracing them back to the drivers of the evolution towards a digital configuration of the economic system as a whole.

To this purpose, after discussing the key features of e-health we identify these drivers and

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