

# Chapter 17

## Entrepreneurship and Innovation in ICT Companies: A Picture of ICT Sector Applied to a Small European Economy

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### ABSTRACT

*This chapter studies entrepreneurship and innovation in ICT companies. The study presents a literature review considering the particular features of ICT companies and proposes an empirical study applied to ICT companies in a small open economy. Empirical study using a relevant sample of ICT Portuguese companies allowed an interesting characterization of this sector in several strategic dimensions. Most ICT companies contribute to the Schumpeterian process of creative destruction, assuming a catalytic role in the creation of new companies (and industries) and in mortality of the less fit companies. In this way, promoting the revitalization and competitive selection with impact on organizational structures and obvious implications for employment, directly or indirectly, tends to save the market friction and contribute to the reduction of transaction and context costs, with a positive impact on productivity and economic growth.*

### DEFINITION OF TECHNOLOGY: AN OPEN DISCUSSION

Generally technology businesses are considered as essential elements of the economy, although confronted with constant challenges, risk and uncertainty (Chorev e Anderson, 2006). However the study of these types of companies face

some challenges that impose a discussion about the concept of information and communication technology (ICT). It's possible to affirm that the concept of ICT is not yet perfectly defined and the difficulties in establishing a universal classification for ICT products and services dated back, at least, to 1998, when they were recognized by the OECD Working Paper through the Indicators for

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the Information Society (WPIIS1). Additionally, other challenges are related to the intrinsic characteristics of the goods or services, high technology change and the speed with which it operates. In this context, it is admitted that every definition should include activities heavily dependent on scientific and technological innovation, characteristics such as significant investments in R&D, human resources with higher education than are overall above of the average, or products with dynamic nature, innovative and technologically advanced, and short development cycles (Covin and Slevin, 1991; Medcof, 1999; Chorev and Anderson, 2006). Nevertheless, some definitions are linked with the set of technologies that support information systems and communications, i.e., information and communication technologies: ICT (ANA-COM, 2008). More thorough is the designation of ICT as a combination of modern technology and telecommunications, which include computers (hardware and software), peripherals, networks, and other machines and technological devices that support the process of storage, collation and distribution of information and communication within the company (Whitten and Bentley, 2007). However, the list with the highest systematization of products and services for information and communication technologies, is given in Annex 1A - Classifications of Information Economy Products, we can see on page 87 and following in the publication, *Measuring the Information Economy* OECD (2009). However, the listing remains under discussion due the frequency of systematic changes in technology.

## **DEFINITION OF ICT SECTOR: THE DISCUSSION REMAINS OPEN**

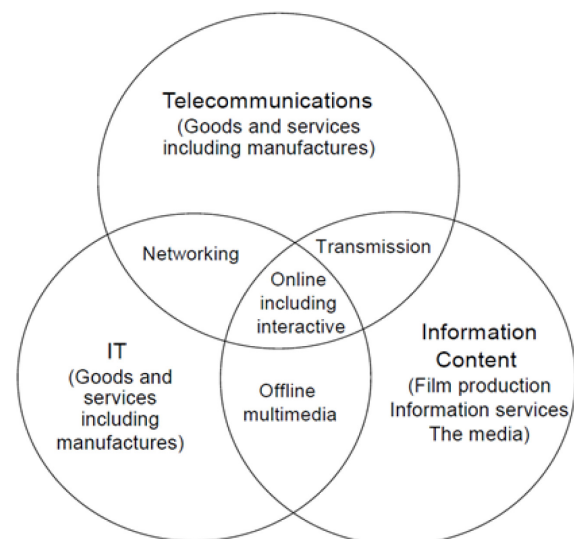
After the discussion about the definition of technology, it is now important to explain the concept at the sector level and, accordingly, in more detail, the Observatory for the Information Society and Knowledge (OSIC) proposed a classification that distributes companies in three categories<sup>2</sup>:

manufacturing, telecommunications services, and other services. However, the classification of economic activities related to that sector remains incomplete<sup>3</sup>, since other activities can easily be included in the spectrum. As well as the discussion about definition of ICT presented in the last section of this chapter, OECD has an important role in the definition of ICT activities. For further details we may consider Annex 1B: Definitions of the Information Economy Sectors, consulted on page 101 and following in the publication *Measuring the Information Economy*, OECD (2009). However, and over again as for goods and services in last section, the conceptualization of the sector is still under discussion. It's important to caveat that the model presented in Figure 1, is not consensual to all. Some OECD groups still argue that the sector should be defined only by entities that include areas of interception or in a more broadly approach.

Therefore, in relation to the delimitation of the sector, the consolidation is limited, appears around the technologies and several answers are possible. Nevertheless at its core, to a greater or lesser degree, all classifications refer to companies

*Figure 1. Conceptual model proposed to ICT sector*

*Source: OECD, 2009*



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