

# Chapter 1

## The Role of the ICTS in Knowledge Transfer: A Special Focus in Fraunhofer AICOS

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### **ABSTRACT**

*The purpose of this chapter is to review the increasing importance of knowledge in society in general and in the economy in particular. Knowledge transfer is more and more important at different levels (e.g., micro and macro-level). The authors also intend to show the role played by ICTs in knowledge transfer. To illustrate this, they use some examples of institutions in Portugal. Specifically, they explore the case of Fraunhofer AICOS. Under the umbrella of the ICT4D concept, it is analyzed as ICTs can be used to surpass some difficulties of the least developing countries. However, there are also difficulties related to the acceptance and adoption of ICT solutions, as well as special requirements imposed by the reality of the countries.*

### **INTRODUCTION**

Information and knowledge have gained increasing importance in Economics and the emergence of the so-called knowledge-based economy highlights this. These concepts are closely related with knowledge because the latter only has a substantial impact on society transformation if it is shared and incorporated in new (or significantly improved) products, services, processes, organizational methods, ... Information and Communication Technologies (ICTs) have been an important means of dissemination of ideas and knowledge. In particular, ICTs facilitate knowledge diffusion to more remote or less developed areas

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and they allow solving or alleviating some society's problems. In this sense, several institutions have dedicated efforts to develop ICTs solutions to address issues in diverse areas such as: health, environment, ageing population and the evolution of less developed countries.

The aims of this chapter are to present some literature insights about knowledge transfer, to demonstrate knowledge transfer importance, and to show some examples of institutions that play an important role in knowledge transfer in Portugal with special focus on the Fraunhofer Portugal case. It is important to discuss this topic because the kind of actions developed by these institutions can provide lessons for other countries.

The present chapter is structured as follows. After this brief introduction, a section with some literature review and background considerations will be presented. Then, it will be presented the main focus of this chapter: the vital part of some institutions in knowledge transfer in Portugal, with a special attention on Fraunhofer Portugal. Afterwards, a set of recommendations will be pointed out. Some future research directions are discussed and the last section concludes.

## **BACKGROUND**

As information and knowledge become more and more relevant, in this section a brief overview on knowledge and innovation, presenting a bibliographic review and introducing the most relevant concepts,

Knowledge has become an essential resource for organizations (Gassmann, 2006) and, therefore, it has been considered one of the engines of the economy (Ancori et al., 2000; OECD, 2013; Silva and Neves, 2003). In fact, the term 'knowledge-based economy' has been frequently applied. According to OECD/EUROSTAT (2005), this expression is used to define trends in developed economies concerning a bigger dependence on knowledge, information and high skill levels as well as the growing necessity for ready access to the latter by the private and public sectors. Skyrme (1997) emphasizes the main differences between traditional economy and knowledge economy. The Portuguese Norm NP 4457:2007 (Instituto Português da Qualidade, 2007b) considers that knowledge is the basis of the wealth creation in advanced societies and I&D (investigation and development) are a way of creating that knowledge. Therefore, innovation is how that knowledge is transformed into economic development. From the recognition that knowledge is a more and more fundamental asset for organizations, it appeared the 'knowledge management' concept. Knowledge management can be considered as the series of procedures and means to generate, use and transfer knowledge in an organization (Silva & Neves, 2003). Lee and Yang (2000, p. 784) consider that knowledge management is *the collection of processes that govern the creation, dissemination and leveraging of knowledge to fulfill organizational objectives*.

However, after all, what is knowledge? According to Moran (1994), knowledge is the capture, the understanding and the expression of all dimensions of the reality in a broader and deeper way. Davenport and Prusak (1998) start by emphasizing that, although knowledge is neither data nor information, it is deeply connected to both. They define knowledge as *a fluid mix of framed experience, values, contextual information, and expert insights that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices, and norms* (p. 5). Sarmiento et al. (2000) also differentiate data, information and knowledge, enforcing the close relation among these terms and the consequent misunderstanding relatively their meaning. In spite of recognizing the difficulty and the lack of consensus about the knowledge defini-

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