

## Chapter 8

# Knowledge and Quality Innovation in the Health Sector: The Role of Public Research Organisations

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### ABSTRACT

*In the pursuit of innovation and quality, firms interact with other organizations, such as firms, universities, research centres, and governmental institutions, to exchange, gain, and develop various kinds of knowledge and other resources. This chapter explores the role of Public Research Organizations (PRO)<sup>1</sup> in the innovation process of the health sector in Mexico. Patient indicators are used in order to give account of the role of PRO in that process. Some patterns are identified regarding PROs' main research and inventive activities and the type of collaboration they have had with other agents. Findings substantiate that collaboration between PRO and other actors are too weak. However, they have built capabilities orientated to the development of artefacts (new or improved products), methods (for diagnosis, clinical testing, and attack of particular diseases) and vaccines-substances (for tackling existing or new diseases).*

### INTRODUCTION

Innovation and quality refer to a business capability associated with the improvement or adoption of something new. In both processes, the firm is considered to be at the centre. However, the business firms are not isolated in those strategic

activities. Innovation and quality happens through a complex set of interactions and relationships with other organizations and institutions. The essence of a system able to generate and develop creative ideas for the improvement or the creation of new products, services and processes, lies on a network of canals and interactions among different agents involved in the use and production of knowledge. Networking constitutes the infrastructure by means

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of which information, knowledge creation and diffusion, as well as the learning process occur within the system. The firms' strategic behaviour and alliances, as well as the interactions between firms, research institutes, universities and other institutions, are at the heart of analysis of the innovation process. According to Freeman (1987), Lundvall (1993) and Edquist (1997), innovation is an interactive process carried out on a set of actors (firms and, particularly, other institutions such as universities, research organisations, etc.), as well as on the links between these actors in the innovation and diffusion processes. Quality and innovation are part of an integrated system of organizations that seeks to achieve a high level of satisfaction of end users, and that system is based on active interaction of the different agents.

In this context, our paper explores the way and the extent to which Public Research Organizations (PRO) have been present in the innovation process of the health sector in Mexico. Literature on academy-industry linkages has acknowledged that universities and public research centres can play a key role in the innovation process because of their focus on the generation and transfer of knowledge, and the building of learning capabilities (Cohen, Nelson and Walsh, 2002; Arocena and Sutz, 2005). The study focuses on the innovation process in the health sector because of the complexity of interactions one could expect to find in it, and also because of the social impact of its activities. Patents indicators are used in order to give account of the role of PRO in that process.

We focus on two groups of PRO: the Health Sector Institutes administered by the Ministry of Health (HSI) and the Health Research Institutes from the National Autonomous University of Mexico (UNAM-HRI). We also ask for the extent to which these centres have collaborated with firms and other research institutes and agents of the Health Sector System of Innovation in Mexico (HSSIM), trying to identify if there are some patterns regarding the PRO research and inventive activities. In order to do that, this chapter is

divided into five sections. After this introductory part, in section one we aim to introduce the reader to the discussion on the interrelationship between innovation and quality. This part also provides a brief background on the importance of PROs in the innovation process, and the characteristics that makes the health sector a good object of study according to the proposed objective. Section two presents the specific objectives, research questions and methodology. The third section describes the characteristics of the Health Sector System of Innovation in the case of Mexico, localizing the PRO, subject of this study, within that complex of activities and institutions. Section four contains the analysis of the patterns of collaboration of PRO with firms and other actors of the Sectoral Health Innovation System in Mexico, as well as the kind of inventive/innovation capabilities according to the type of granted patents they have developed. Four cases of PRO are described to illustrate the patterns. We then present the main findings and conclusions.

## **BACKGROUND**

There is a current discussion regarding the relationship between quality and innovation, and also about the importance of the active engage of universities and public research centres in that process. In order to set the scenery for our analysis, this part provides a brief literature review on these issues as well as some background on the inventive activity and the role of the PROs in Mexico.

### **Innovation and Quality: Towards an Integrated Framework**

Innovation and quality are increasingly high-profile activities for all kind of business organizations, usually associated with gaining competitive advantages. While early visions have supported the idea that these concepts refer to very differentiated activities (Lawton and Parasuraman, 1980;

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