Chapter 21
University-Based Entrepreneurial Ecosystems: Evidence From Technology Transfer Policies and Infrastructure

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ABSTRACT

Embedding entrepreneurship into the university mission and culture in developing countries is key to national economic growth and social development. Therefore, having a better understanding of university-based entrepreneurial ecosystems considered as benchmark cases is a good start to introduce to the topic. For such reason, the objective of this chapter is to describe the situation of the entrepreneurial ecosystem at Tecnológico de Monterrey in Guadalajara, Mexico, its leading actors and roles, and how they have been relevant to promote entrepreneurial initiatives among higher education students, alumni, and faculty members. Along with the case description and based on a previous study, the authors present a comparison of Tecnológico de Monterrey case with four universities’ entrepreneurial ecosystems. Findings suggest that the strategy followed to promote university-based entrepreneurship depends on the internal capabilities of each institution and the capacity of the region to support it.

INTRODUCTION

Universities have a crucial role in the regional entrepreneurial environment. Traditionally, universities have focused on forming students but also in research that derives in the creation of knowledge that can be used to develop new technological products and services. Therefore, universities are prompt to become seedlings of new companies (Edmondson & McManus, 2007). Etzkowitz (2001) suggest that
there is a second academic revolution: the first one added research as a mandate next to the education of students, today entrepreneurship has become the third mandate of universities.

In this sense, universities have created new approaches to teach and to encourage entrepreneurship among their students, faculty, and staff. According to Mandel et al. (2015), regardless of the way in which experiential entrepreneurship education is delivered, the center of these programs is the student and its interaction with the complexity of entrepreneurial teams. As such, students face different situations in which they learn to deal with uncertainty and real entrepreneurial scenarios. Consequently, students not only develop disciplinary capabilities like designing strategy, or identifying entrepreneurial opportunities, but individual competencies such as critical thinking and decision making in complex environments, complemented with cognitive capabilities (Saiz-Alvarez, Cuervo-Arango, & Coduras, 2013).

In this chapter, our objective is to contribute to the discussion of what are the initiatives that have proved to be successful during new venture formation. We do so by exploring the case of the entrepreneurial ecosystem at Tecnológico de Monterrey in Guadalajara, located in an emerging country, its primary purpose, actors and strategy, as well as how it integrates the academic and practical approaches, in order to promote students, alumni, faculty and staff participation in the process of creating a new business. In the opinion of the authors, the entrepreneurial ecosystem at Tecnológico de Monterrey in Guadalajara is thriving in terms of its impact on the community (internal and external). In addition, this chapter presents a comparison between five universities in terms of their technology transfer strategy and its infrastructure available to promote entrepreneurship.

The chapter goes from the general to the particular. It describes first the definition of an entrepreneurial ecosystem and two approaches that emphasize the importance of the context. Later on, the authors introduce the universities as critical actors in promoting entrepreneurship and describe how such institutions have adopted the entrepreneurial approach based on two models. Afterward, the chapter presents a case and explains thoroughly the main features of Tecnológico de Monterrey in Guadalajara, as well as the actors and areas that bring to life the entrepreneurial ecosystem. Then, the authors present the results of a comparison of five universities in terms of their technology transfer strategy and the infrastructure dedicated to supporting entrepreneurship. Finally, in the conclusions section, authors make some recommendations to people leading universities.

**ENTREPRENEURIAL ECOSYSTEMS**

Some authors consider the concept of entrepreneurial ecosystems as an emerging approach (Napier & Hansen, 2011; Malecki, 2011; Kantis & Federico, 2012). Moore (1993), who claimed that businesses do not evolve in a ‘vacuum,’ and noted the relationally embedded nature of how firms interact, initially coined the term ecosystem with suppliers, customers, and financiers. Moore was one of the pioneers setting the basis for research emphasizing the businesses context. In this line of thought, Rosted (2012) recently suggested that in dynamic ecosystems new firms have better opportunities to grow and create employment, compared with firms established in other locations.

In this chapter, the authors agree with Mason and Brown (2014) and their entrepreneurial ecosystem definition as a “set of interconnected entrepreneurial actors, entrepreneurial organizations (e.g. firms, venture capitalists, business angels, banks), institutions (universities, public sector agencies, financial bodies) and entrepreneurial processes (e.g. the business birth rate, numbers of high growth firms, number of serial entrepreneurs, degree of sell-out mentality within firms and levels of entrepreneurial ambition).