

Chapter 3

Effective Mechanisms for Accessing Technology and Innovation Strategies: Why and Who Innovate, How to Innovate?

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ABSTRACT

The present context of the knowledge-based economy and society has brought with it relevant changes with respect to how innovation has been conceptualized and explained within companies themselves. This chapter sets out to present and discuss a taxonomy of effective mechanisms for a company to accessing technology and innovation, while understanding the importance of resources and technological competences in defining how to innovate, in line with the type of company (profile) and the strategy of the business. An integrating view of the dimensions of “why,” “who,” and “how” to innovate is suggested, with the intention of helping companies to make choices. The case study shows the technological trajectory of an SME in the Portuguese software industry, based on development R&D alone and in partnership, following an offensive strategy. This will enable it to acquire advanced technological capabilities and an innovative culture for success.

INTRODUCTION

The desire to innovate is surely common to all companies. With innovation, companies are looking for an answer to the problems they are facing, whether these arise from meeting customers' needs by introducing new products or services or are prompted by the quest for internal efficiency with new working procedures and methods. Innovation can also provide an opportunity to attract new customers and break into new markets or offer a way to improve their brand image to make it a symbol of modernity and efficiency (Ganter & Hecker, 2013).

DOI: 10.4018/978-1-5225-9273-0.ch003

For most companies, innovation means new technologies (Kline & Rosenberg, 1986; Deeds, Decarolis & Coombs, 2000; Colombo & Grilli, 2005). Although the concept of innovation is much broader and reaches all areas of a company's activity, this chapter is concerned with the analysis of technological innovation. It is a fact that innovation does not have to be technological, it can simply be a new way of presenting, distributing or sending a product. But it is equally true that in today's world there is absolutely no area of activity that is not supported by some form of technology, or in which a technological innovation does not represent significant gains in terms of competitiveness (Dodgson, 1993; Carayannis, Rogers, Kurihara & Allbritton, 1998). Indeed, firms are right to see innovation as a meaning increasingly new technologies, and while all enterprises, particularly small and medium enterprises (SMEs), want to innovate and access new technology, only a few know how to do it. Most of them see technological innovation as almost unattainable, only within the reach of large industrial groups with R&D departments and, therefore, strongly linked to research.

In the current knowledge-based economy context (Nelson, 1990), firms must be able to adapt and progress if they want to survive in a competitive environment, and special competences are needed for this challenge. Today, therefore, the idea of innovation is widely accepted. It has become part of our culture. But even though the term is now part of our vocabulary, to what point, exactly, do we fully understand the concept? Furthermore, how can a SME access technology and innovate? What conditions must be in place for this? These and other issues are discussed in this chapter.

After the Introduction, Section 1 broadly discusses the relevance of innovation to economic development and explains some important concepts as we tackle this topic. Section 2 outlines the process of innovation from an evolutionary and dynamic perspective, from the linear model to the various contemporary interactive and systemic ones. Section 3 focuses on the discussion of innovation strategies from the standpoint of a firm's motivational capacity to access technology and innovate, representing the "why" innovate. This is followed, in Section 4, by the different characterizations of SMEs with respect to the resources and competences for exploiting scientific and technical knowledge, which represents the "who" innovates. Finally, Section 5 looks at the mechanisms and modes available to SMEs to enable them to access technology and innovate, representing "how" to innovate. The integration of the three perspectives of "why", "who" and "how", in relation to innovating, is achieved in Section 6, in which a dynamic approach to learning about the innovation process is also proposed. It is based on continuous learning, development of competences, and investment in material and human resources. To illustrate the concepts and conceptual structure, Section 7 provides a Portuguese case study of a software firm. The concluding section summarises the core idea that each company, whatever its situation, can innovate and modernize if it invests in developing its technology base, so as to better exploit market opportunities.

1. INNOVATION: RELEVANCE AND CONCEPTS

1.1. Relevance

The relevance of innovation to economic growth, where technology has a crucial role, is an old discussion (Louçã, 2014). Nonetheless, little attention has been paid to understand how that technological development contributes to this growth. Schumpeter (1934; 1942) was one of the first economists to underline the importance of new products as a stimulus for economic growth.

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