

Chapter 3

The 4th Industrial Revolution: Business Models and Evidence From the Field

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ABSTRACT

The objective of this article is to analyze the impact of Industry 4.0 on business models considering technological change as a driver of strategic innovation. The research aims to provide the key to interpreting a process of innovation that, starting from the technological transformation, translates it into a broader change of business models. A structured literature review has been developed analyzing 144 sources divided into scientific papers, reports from consultancy firms and institutional reports. This method identified the importance given by the literature to the technologies and their impact on the building blocks of the business model. The research has led to the identification of 12 business models that can represent a framework to interpret the Industry 4.0 phenomenon strategically. A questionnaire analysis of a sample of 111 companies based in Italy allowed us to compare the results of theoretical research with the perceptions of Italian entrepreneurs.

1. INTRODUCTION

The concepts of “Innovation” and “Strategy” have become the fundamental themes of two rich areas of study in the nineties (Schlegelmilch et al., 2003). The literature focused on strategy defines the way to compete within a specific market sector and outlines the field of action of the organization through the

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choices needed to achieve a long-term or overall aim. On the other hand, the literature on innovation has focused its attention on the level of product and process innovation (Schlegelmilch et al., 2003). Therefore, while the literature on strategy focuses on the overall aims of the organization, the concept of innovation, until the mid-nineties, was never used at the enterprise level. The different focus of innovation and strategy are stimulating, especially considering the intrinsic nature of the term innovation. Indeed, innovation represents the ability to think and to practice new or better ways of doing things, and thus represents an exceptional mechanism, capable of unleashing the creative spirit. Innovation can be the trigger for opening the mind to possibilities that were previously unknown, leading to progress in areas essential for human development. Therefore, innovation leads to very demanding challenges but also extraordinary opportunities for companies pushing traditional approaches focused on product and process under a great pressure to expand their horizons (Porter, 1996). Because of the need to create a more comprehensive approach on innovation, from the nineties, the concepts of innovation and strategy have started to become more linked, thanks to the introduction of the concept of strategic innovation (Schlegelmilch et al., 2003). Strategic innovation consists in the development of a new concept (and therefore a model) of business, namely: new products or services, presented or combined in a new way, to create a radically new experience for clients, involving them also at an emotional level. Strategic innovation can also arise from the reconfiguration of the sector's value chain to change the rules of the game - exploiting, for example, the possibilities offered by new technologies to reach the final customer directly to enhance the distinctive competencies of the company (Buaron, 1981).

From that point on the literature agreed that strategic innovation goes beyond the simple adjustment of the current business strategy. Indeed, strategic innovation requires extensive changes both at the level of the structure and at the level of business processes. Therefore, it becomes necessary especially for companies anchored to "traditional" business models (BM) that are resistant to strategic change (Spender, 1989). The phenomenon of the new industrial revolution (Industry 4.0) has contributed to enhancing the complexity of the topic.

Given the new technological challenges and the impact on innovation provided by Industry 4.0, this study employs a structured literature review (SLR) approach according to Massaro et al. (2018) to understand how Industry 4.0 is changing companies' BM providing new opportunities and challenges. The analysis refers to 144 selected documents such as journal papers, books, reports, to understand the impact of Industry 4.0's technologies on BM. A questionnaire analysis of a sample of 111 companies based in Italy has been carried on to double check the results of theoretical research with the perceptions of Italian entrepreneurs.

The paper is novel since it starts from a literature review of recent and various sources to verify the impact of new technologies on BM. The results allow identifying which BM seem to be the more successful, and which technologies seem to have the power to influence the current BM. The results of the survey allow verifying what appears to be the state of the art for Italian entrepreneurs.

The paper is structured as follow. The first paragraph explains the literature review, and it is followed by the research methodology. Results and conclusions end the paper.

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