

# Chapter 6

## How Industry 4.0 Changes the Value Co-Creation Process

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### ABSTRACT

*The chapter analyses the literature on Industry 4.0 to understand the effect that Industry 4.0 has on customer co-creation process. The chapter is conceptual and is based on a literature analysis—conducted through ISI-Thompson Web of Science—that answers two research question: (RQ1) if and (RQ2) how the Industry 4.0 changes the customer value co-creation process. The results are summarized into a conceptual framework that shows how Industry 4.0 transforms the creation of value for customers, of customers, and with customers. The implications encourage managers and policymakers to implement a wider range of enabling technologies along the various phases of the supply chain and to adopt a new way to manage the company itself and the relations with customers involving them in the co-creation of products.*

### INTRODUCTION

The Fourth Industrial Revolution or Industry 4.0 (Kagerman, Helbig & Wahlster, 2013), has profoundly modified the factory by transforming it into a smart factory. The new scenario comes from the convergence of different emerging technologies that allow the transition to a digitalized era that introduces in the factories a smart environment in which machines, devices and products are interconnected to adapt, be flexible and respond quickly to market changes (Wei et al, 2017). Industry 4.0 has received increas-

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ing attention from policy makers, managers and academics. Current researches are mainly focused on technological development (more than 50% of existing studies are of engineering), while are still limited studies on how the changes in technical and production developments transform the factory, the management, the relations with stakeholders and the way value is created. Management research explores the phenomenon almost exclusively through conceptual studies or case studies that verify the effects of Industry 4.0 on individual and isolated aspects of the value creation such as the customer relationship management (Dukić, Dugandžić & Dukić, 2017), the business model innovation (Müller et al., 2018) and the service dominant logic (Bullinger et al., 2017). Industry 4.0 modifies genetic heritage and strategic design of the factory creating new opportunities and threats that need to be managed. Early studies show that these changes have a significant impact on relationships with several stakeholders. For instance, Industry 4.0 introduces controversial changes in the relationships with internal stakeholders reducing low skill occupations and introducing new high skill occupations. However, since the 90-95% of the value of a company is made by customers (Gupta & Lehmann, 2006), the paper aims to fill the gap investigating the potential changes that Industry 4.0 brings to the customer value co-creation process.

The paper has two research questions:

**Research Question One:** Does the Industry 4.0 changes the customer value co-creation process?

**Research Question Two:** How does the Industry 4.0 changes the customer value co-creation process?

The paper is conceptual and is based on a literature analysis conducted through ISI-Thompson Web of Science database to identify two research objects: (1) to analyze opportunities and threats of the single enabling technologies; (2) to identify if and how the Industry 4.0 modifies the customer value co-creation process.

The research is based on a critical review because there are only few studies that analyze the topic and the most of them are based on specific case studies. In addition, the studies identified analyze how Industry 4.0 changes individual aspects of the value creation, of the business model innovation, or of the supply chain. However, there are no studies that analyze, with a holistic approach, the specific implications of the Industry 4.0 in the customer value co-creation process.

The contribution to scholarship of the paper is to create an abstracting description of the Industry 4.0 phenomenon (finding its definitions and its main characteristics and mapping its opportunities and threats) and to re-conceptualize the existing theory on customer value co-creation process in the light of the Industry 4.0.

The originality of the paper is that it has reconstruct a conceptual framework, with a holistic approach, on opportunities and threats that Industry 4.0 has on customer value co-creation process.

*Figure 1. Conceptual framework*



Source: own elaboration

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