

Value Creation, Value Capturing, and Management Challenges in Innovation Ecosystems: A Qualitative Study of the Nano-Electronics Industry in Belgium and the Netherlands

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ABSTRACT

This study explores how organizations in innovation ecosystems co-create and capture value and what types of challenges they face in creating and capturing value. Based on a multiple case study, the authors show that organizations in nano-electronics establish innovation ecosystems to access not only knowledge and technology, but also other complementary assets. The analysis of various value creation and capturing mechanisms enables the authors to generate a framework to illustrate the potential challenges and required management activities in developing innovation ecosystems. Finally, the authors offer some reflections on the theoretical implications of this study and the lessons for managers and policymakers.

KEYWORDS

Innovation Ecosystem, Management Challenges, Nano-Electronics Industry, Qualitative Study, Value Capturing, Value Creation

1. INTRODUCTION

Companies increasingly depend on other organizations in their environment to innovate and be commercially successful. Ecosystems represent one way how companies can manage this growing dependency, and they are defined as “a set of actors with varying degrees of multi-lateral, non-generic complementarities that are not fully hierarchically controlled” (Jacobides, Cennamo, & Gawer, 2018, p. 2264). Innovation ecosystems, which are the focus of this study - focus on a particular innovation or a new value proposition and the constellation of actors that support it. Innovation ecosystems not only acknowledge interdependence across actors but also anchor the ecosystem unto a specific “focal offer” or “focal value proposition” for a (targeted) customer group. Kapoor (2018, p. 2), for instance views an ecosystem as “a set of actors that contribute to the focal offer’s user value proposition.” In this view, the ecosystem is a set of all the organizations that provide components and complements to the focal product or service in this “coherent” value proposition. The ‘innovation ecosystem’ perspective (Dhanaraj and Parkhe, 2006; Vanhaverbeke and Cloudt, 2006; Basole, 2009; Rohrbeck et al., 2009; Adner and Kapoor, 2010; Adner, 2012; Adner and Kapoor, 2016; Adner, 2017; Furr and

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Shipilov, 2018; Jacobides et al., 2018; Shipilov and Gawer, 2019) has been only recently developed as a framework to analyze how a set of organizations can succeed in delivering a “coherent” value proposition for a targeted customer group.

Since innovation ecosystems focus on how a set of actors that contribute to the focal offer’s user value proposition, it is essential to understand how ecosystem partners jointly create and capture value (Iansiti and Levien, 2004b; Vanhaverbeke and Cloudt, 2006; Rohrbeck et al., 2009; Adner and Kapoor, 2010; Lubik et al., 2013; Thomas and Autio, 2013; Autio and Thomas, 2014; Adner, 2017; Jacobides et al., 2018). Value creation has to be aligned to contribute effectively to the focal offer’s value proposition, and value capturing is a prerequisite for organizations to participate in an ecosystem: participation should allow them to grow and be more profitable. Effectively creating and capturing value in an innovation ecosystem is challenging; it follows a specific logic since actors do not function in isolation—instead, what they do and how they perform affects the performance of others and the ecosystem as a whole.

How can creating and capturing value in innovation ecosystems be studied in a useful way? The quest to create value starts with an understanding of the value drivers, i.e., the performance variables that create value. Value drivers can be diverse and multiple. In nano-electronics for instance, the costs and risks associated with the introduction of a new generation of chips have increased in the last decades. Firms can no longer bear R&D costs alone, and betting on the wrong technology has a detrimental effect on their performance for years. Prohibitively high R&D costs and mounting risks are value drivers pushing nano-electronics companies towards collaborations where they can share costs/risks to the benefit of all participants.

Value drivers and joint value creation cannot be considered separately. Each partner gains value from being a member of an ecosystem and if that does not occur, they will leave the ecosystem. The need to capture value automatically creates tensions. On the one hand, partners have to collaborate in an effective and trustworthy way to create value. On the other hand, partners have to generate profits and will, therefore, try to capture the most significant possible part of the value they create together. The value created also has to be shared, and that sharing process may lead to numerous tensions between partners. Consequently, it will deteriorate the collaboration between partners, leading to a weakening of the ecosystem. This inherent tension between joint value creation and capturing creates a series of challenges that must be managed at the ecosystem level. We pay attention to these challenges and how ecosystem management can solve or alleviate tensions stemming from these challenges.

To shed light on how value is created and captured in innovation ecosystems, we study six ecosystems in the Belgian and Dutch nano-electronics industry. We will explore the building blocks of these ecosystems—value drivers, value creation, and value capturing mechanisms—and identify the tensions that may occur among actors in the ecosystems.

2. BACKGROUND LITERATURE

In this section, we first explain the building blocks of innovation ecosystems (i.e. value drivers, value creation, and capturing mechanisms) based on prior literature. Second, we zero in on the management challenges within ecosystems and how ecosystem management can deal with them.

2.1 Ecosystem Building Blocks

According to Normann and Ramirez (1993), ecosystems are related to value systems that are set up to deliver value for a targeted customer group. Ecosystems offer a unique and coherent framework for understanding the alignment of incentives of actors (be it expressed as a set of formal inter-organizational ties or not) for the value proposition to be realized (Vanhaverbeke and Cloudt, 2006; Shipilov and Gawer, 2019). There are a variety of value drivers that encourage organizations to create value in ecosystems. First, organizations join an innovation ecosystem to access novel technologies and research methods. Porter (1985) suggested that new value is created when firms develop new

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