

Chapter 9

The Role of Technological and Institutional Affordances in Open Innovation: An Integrative Framework

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ABSTRACT

This study aims to advance studies on open innovation, digital technologies, and institutional infrastructures by building on extant research in the field. Most research to date focused on digital technologies and digital affordances, while institutional infrastructures and affordances are less explored. To provide a background for such an approach, this study identifies and integrates two major issues—technological affordances and institutional affordances—that enable or constrain open innovation practices within firms. The framework developed indicates that the degree of openness of the innovation practices is related to the availability of digital technologies and institutional infrastructures in a specific context and the practices of incumbent firms in mobilizing these structures.

INTRODUCTION

Nowadays, in line with the upsurge of knowledge-based economy, the major driver of economic growth has been innovation capacity rather than capital accumulation. In the knowledge economy, the creation, use, and diffusion of knowledge are critical for enhancing a firm's competencies in the innovation process and thus gaining a competitive advantage.

Digital transformation (Brennen & Kreiss, 2016) enables innovation in new products/services and the creation of new business models, new industries, and the transformation of existing industries such as education, transportation, insurance, finance, health, and agriculture. Furthermore, digitization and various implementations related to digitization has provoked engagement of various actors in politics, social realm and business. Supranational organizations like EU started to develop initiatives (for ex-

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ample, digital single market) for enhancing the growth of digital economy. The indicators of digital transformation in a specific country, region and around the globe can be listed as, investment intensity in information communication technologies (ICT), increasing number of start-ups and venture capitalists in information industry, increasing numbers of formal appropriations (patents and copyrights) in ICT. Despite these transformations “digital divide” remains as a salient issue. It is expected that by developing internet infrastructure availability and affordability will be improved and by drafting appropriate policies in education the skills to use internet, to develop content will be improved so that a more inclusive digital transformation will take place.

Digital transformation due to digital innovations brings new actors, structures, and practices that change the prevailing ways of doing business and are shaped by introducing new digital technologies, platforms, and digital infrastructure. New digital technologies, lower production, and transaction costs increase innovative products’ fluidity (OECD, 2020) and promote productivity gains in innovation (Nambisan et al., 2019). Platforms as data silos, intermediate different users, produce ‘network effects’, provide tools that facilitate users to develop their own products/services and provide a space where a diverse set of users are connected (Srnicek, 2017). Platforms and efficient digital infrastructures reshape the prevailing innovation paradigm by enabling new actors’ participation, new knowledge inputs, and processes.

In today’s business world, firms that can accelerate their innovation cycles, reach large data sets from various sources, and facilitate various actors’ collaboration are more likely to create a competitive advantage. The open innovation (OI) model can be instrumental in realizing such a turn. Extant literature shows that OI improves firms’ innovation effectiveness by offering a vast knowledge pool and generating commercialization opportunities (for example, Chen & Liu, 2018). As opposed to closed innovation, the open innovation model assumes that firms can make use of external and internal ideas for exploration (inbound knowledge flows) and use external and internal paths (outbound knowledge exchanges) to the market-exploitation (West & Bogers, 2014). Thus, the degree of openness of a specific firm is related to its ability to identify and absorb external innovations and expand markets that will utilize the innovations (Chesbrough et al., 2006). In the open innovation paradigm, innovation is taken as a mass activity, and it is expected that by creating synergies between inbound knowledge flows and outbound knowledge exchanges, the innovation capacity of a specific firm will be improved. Extant studies on open innovations and digital transformation explore the relation between platforms, digital technologies and open innovation (Nambisan et al., 2018; Bogers et al., 2018; Urbinati et al., 2020; Nambisan et al., 2019; Yoo et al., 2012) and explain the changing nature of innovations and the innovation process.

This Chapter, based on secondary resources and extant research, aims to develop a framework explicating the impact of digital technologies, platforms, and infrastructure on open innovation. More specifically, the Chapter focuses on the enabling role of digital and institutional affordances in developing open innovation strategies. Affordances (Gibson, 1977; Norman, 1999) can facilitate and constrain the innovation process. The proposed framework studies platforms and digital technologies as the provider of technological affordances. Institutional affordances and constraints provide a basis where the actions taken by various actors in a specific context can be transformed to open innovation initiatives. For institutional infrastructures, governance of the open innovation initiatives, control over inbound knowledge flows (for example, generativity in incorporating heterogeneous knowledge resources, usage of open data in enabling cooperation between various actors) and outbound knowledge exchanges (for example, the development of various types of intellectual property arrangements that enable the development of different paths to market) are studied.

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