Chapter 4
Opening Closed Business Ecosystem Boundaries With Digital Platforms:
Empirical Case of a Port

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ABSTRACT

Applying a business model approach, this chapter identifies various challenges in digital platform and platform-based business model development in the case of a physical port ecosystem. Using an empirical case, the chapter identifies the prerequisites and consequences of opportunities, value, and advantages for an existing ecosystem that aims to create a "digital twin." It contributes to academic discussions on the intersection of ecosystems, platforms, and business models by exploring the antecedents and controversies of configuring ecosystem boundaries in a digital context. Moreover, the chapter contributes to research by analyzing how a previously closed ecosystem seeks to open its boundaries and interfaces, both internally among the internal ecosystem members and externally to the outside business environment.

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INTRODUCTION

Ecosystem as a concept has gained momentum within a wide array of research topics. Ecosystems are characterized as highly complex, interdependent, cooperative, competitive, and co-evolutional in pursuit of new innovations (Iansiti & Richards, 2006). Several types of ecosystems have been identified in previous studies (Ahokangas et al. 2018), such as business ecosystems (Moore, 1993; Iansiti & Levien, 2004), innovation ecosystems (Adner, 2006; Adner & Kapoor, 2010), industrial ecosystems (Frosch & Gallopoulos, 1989) entrepreneurial ecosystems (Isenberg 2010), and knowledge ecosystems (van der Borgh, Cloodt, & Romme, 2012). Common to all these typologies is the fact that they stress constant innovation and the joint creation and capture of value (Ahokangas, Boter, & Iivari, 2018).

Recent research on ecosystems has addressed such issues as the types of complementarity and interdependence (Jacobides, Cennamo, & Gawer, 2018), the roles of actors (Dedehayir, Mäkinen, & Ortt, 2018), orchestration (e.g. Pikkarainen, Ervasti, Hurmelinna-Laukkanen, & Nätti, 2017), interfaces of collaboration (Davis, 2016), and strategies for aligning actors and value proposition (Walrave, Talmar, Podoynitsyna, Romme, & Verbong, 2018). Moreover, extensive literature reviews have been conducted on ecosystems (see, e.g. Scaringella & Radziwon 2018; Tsujimoto, Kajikawa, Tomita, & Matsumoto, 2018). Academics have also proposed methodological frameworks for the study of ecosystems (e.g. Phillips & Ritala, 2019) and developed more practical tools for mapping, analyzing, and designing ecosystems (e.g. Talmar, Walrave, Podoynitsyna, Holmström, & Romme, 2018). Ecosystems can be studied based on context, how they are configured, and how organizations within them co-operate and relate to each other (Scaringella & Radziwon 2018).

Digital business ecosystems, digital platform operated ecosystems (Gawer & Cusumano, 2014; Phillips & Ritala, 2019), or technology ecosystems (Thomas & Autio, 2019) have been identified as distinct types of a business ecosystem. Digital business ecosystems are based to a large extent on open-source thinking, meaning that services and applications, together with software components and business models alike, interact, reproduce, and evolve (Pilinkiené & Maciulis, 2014). Digital business ecosystems can self-organize, adapt, and sustain themselves under different circumstances within the physical business ecosystem (Galateanu & Avasilcai, 2013). Digital business ecosystems can therefore be considered a partial digital representation of a physical business ecosystem (Nachira, Dini, & Nicolai, 2007). A so-called "digital twin" may be critical for the competitiveness and existence of an ecosystem, since digitalization can help physical ecosystems broaden the avenues of innovation as they span organizational and industry boundaries, foster new forms of collaboration among firms, and enable the creation of new kinds of services (Lanzolla, Pesce, & Tucci, 2020; Zott, Amit, & Massa, 2011). Hence, digital business

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