


Chapter 1

Digital Transformation and the Evolution of the Platform Economy

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ABSTRACT

This chapter provides an overview of the evolution of the platform economy through the lens of digital transformation and transit from Industry 3.0 (I3.0) to Industry 4.0 (I4.0). The platform economy belongs to both I3.0 and I4.0 and goes through two cycles of digital transformation within them. In I3.0, the starting point of the platform economy is the digitization of social and commercial interactions over user-generated content. The resulting issues of trust and regulation of user interactions find solutions in new business models based on online reputation systems and algorithmic regulation. The specificity of I4.0 is the tendency to platform products, homes, factories, and cities through broad digitization of interactions between humans and things, and things and things. For the platform economy, the new cycle of digital transformation in the context of I4.0 means creating business models based on the ultimate customization of both the production and consumption of product-as-platforms and the rental of digital product models.

INTRODUCTION

At the start of the third decade of this century, the evolution of digital platforms and the platform economy has attracted increasing scholarly attention. In previous years, the emergence and diffusion of a new business model associated with “an intermediary owning a digital exchange platform or marketplace” (Ertz et al., 2019, p. 30) focused the interest of researchers to describe the different forms of this business model, its technical, commercial, social and legal facets. At the same time, the study of the internal logic of the development of digital platforms during the 2010s remained a marginal area in the academic literature. Few studies have focused on the evolutionary dynamics of individual platforms as ecosystems

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(Tiwana et al., 2010; Basole and Karla, 2011). De Reuver et al. (2018) noted a lack of understanding of platform dynamics in the long run.

By 2022, more than two decades of digital platforms have accumulated enough material to create holistic models of their evolution. Montealegre and Iyengar (2021) develop a framework for understanding the evolution of digital platforms through the lens of ambidexterity, which refers to the organization's ability to balance renewal (exploration) and refinement (exploitation) simultaneously over time. This framework presents three phases of a digital platform evolution: initiating, developing, and growing. Sun and Ertz (2021) explore the internal structure and growth mechanism of a transportation platform from a systemic perspective. Su and Liu (2021) offer a broader view of the development stages of the e-commerce platform in China through the lens of introducing technologies such as big data, cloud computing, and algorithms. However, the paper is rather descriptive and does not offer a model capable of explaining the evolutionary logic described.

Meanwhile, the technological context of the deployment of the platform economy and e-commerce, epitomized in the concepts of digital transformation and the transit from Industry 3.0 (I3.0) to Industry 4.0 (I4.0), encourages the consideration of the platform economy as a whole within global processes of technological and organizational drift. The platform economy as one of the offspring of the digital revolution or its phase (Kenney and Zysman, 2018) can be seen as part of the process of digital transformation of business and societal life. Therefore, it makes sense to consider the evolution of the platform economy through the framework of the global digital transformation.

However, this framework faces significant theoretical constraints. First, considering the evolution of the platform economy in the context of digital transformation requires a solid theory or model of digital transformation itself as an evolutionary process. Today, however, the theory of digital transformation is in its primary formative stage and needs to be refined. Secondly, in the third decade of the 21st century, digital transformation is associated with the spread of a new generation of digital technologies united under the label of I4.0, but so far, the conceptual links between the concepts of digital transformation and I4.0 have not been revealed in the academic literature.

Furthermore: the concepts of digital transformation and I4.0 problematize each other. Digital transformation has its origins in I3.0, which has also been identified with "the digital revolution" (Hermann et al., 2016), and this raises the question of the qualitative difference between the new digital technologies that allow the boundary between I3.0 and I4.0 to be drawn. I4.0 may be identified with digital transformation and digitalization (Tinmaz, 2020). This approach ignores the fact that the digital revolution that launched the digital transformation began in I3.0. Digital transformation can be seen as a process that combines I3.0 and I4.0 (digital transformation = I3.0+I4.0). Then the legitimate question arises whether it is easier to talk about stages of digital transformation rather than a new type of industry. Digital transformation can be considered a set of technologies (and models of their application in the industry) necessary to transition from I3.0 to I4.0 (Adeyeri, 2018). Then $I4.0 = I3.0 + \text{digital transformation}$. This then begs the question of the relationship between digital transformation and the digital revolution that began amid in I3.0 (VINT, 2014): if the rapid spread of digital technologies from the early 1990s to the late 2010s was not digital transformation, then what was it?

Thus, the state of the art of the theory of digital transformation as a global process, which began with the digital revolution, does not allow a nuanced description of the differences between I3.0 and I4.0 and consequently limits the possibilities of conceptualizing the evolution of digital transformation in the context of both types of industries. In our opinion, the development of the theory of digital transformation requires a methodological turn and a change of viewpoint on the relationship between

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