


Chapter 11

The Effects of Digital Transformation on Organizations

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ABSTRACT

The developments in information and communication technologies in the digital age have significant and varying effects on organizations. Changes in traditional business ecosystems have created new business environments called “digital business ecosystems.” Digital transformation (DT) studies are continually being carried out in organizations to adapt to these new digital business ecosystems. Besides technological adaptation, structural changes in processes, human resources, and company culture also occur in DT process. Under these conditions, organizations need to create their strategies and road maps. In this context, it is aimed to develop a conceptual framework for examining the effects of DT on organizations by taking into account Michael E. Porter’s value chain framework and Henry Mintzberg’s typology of organizational configurations. The proposed framework is expected to make contribution to the literature in terms of adapting Porter’s value chain to the organizational structures in digital age and will be adaptable to different types of organizations.

INTRODUCTION

In this section, brief introduction about the information age, digital era, digital business ecosystems, management understanding in digital business ecosystems, and digital culture are given respectively, to provide a basis for the topics that will be discussed in the remaining sections of the study.

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The Modern Era, which is the last of the four eras after the invention of the writing, began with the French Revolution in 1789. Historical events such as revolutions, inventions, migrations, etc. led to the beginning of important periods in human history. The introduction of the internet to people's use had started the period called "information age", although it is not yet accepted among the historical ages.

In this age, accessing information became much easier than before, with development of ICTs.

Between the years 2000 and 2010, there was a significant increase in the awareness of the use of information in business life. Information and knowledge exchange through ICTs in high volumes led to structural changes in business ecosystems, and made it possible for organizations to collect, store and process the data to be used for obtaining meaningful results. The fact that data, which is the basic element of information, could be used by organizations to achieve seamless results, raises the question whether a new period had started or not.

In order to obtain meaningful results from the data, the methods other than the analogue ones had to be used. Because, analog methods had many disadvantages in collecting data. For example, the size and the variety of the collected data was not sufficient to analyze the processes to increase efficiency. In addition to the inadequacy of the data size and variety, transfer of the collected data to a computer environment by analog methods, was time-consuming and low quality. The accuracy and speed of this transfer process was strongly dependent on the people involved in the process. Developments in ICTs, especially in the second decade of the twenty-first century, enabled the use of digital methods instead of the analog ones. This paradigm shift was the main enabler of the beginning of the digital era for organizations in business ecosystems.

Along with the digital age, there occurred many changes in business ecosystems, as well as in other areas. Addressing the "ecosystem" and "business ecosystem" concepts would be useful to understand the business ecosystems in the digital age.

An ecosystem is the ecological system of living and non-living environments. As its name implies, it is basically a system and consists of components, relations, and boundaries. There are four basic components in a biological ecosystem: abiotic components, producers, consumers, and decomposers. In order to maintain the continuity of the ecosystem, these four fundamental components remain in a harmony in order to fulfill certain functions.

Business ecosystems are ecosystems that host business environments. The most important part of a business ecosystem, which differs from a biological ecosystem, is that the business environments consist of their own components and relationships. There are industrial-based variations in business ecosystems. Each industry has its own environment and sub environments. Despite their differences, organizations in business ecosystems must be able to fulfill certain functions, as the components in the biological ecosystems, in order to survive.

Business ecosystems include manufacturers, service providers, suppliers, customers, and many other stakeholders. These stakeholders need to make necessary preparations in order to continue their existence in the future. Here, strategic decisions will have significant impacts on the future structure of the organizations rather than their current structure. One of the main reasons why strategic-level decisions are much more difficult than the decisions at the lower levels, is the ambiguity and uncertainty about the future.

Changes in the business ecosystems affect the strategic decisions of the organizations related to the internal and external environment. The size and frequency of these changes are the parameters that make the concept of change more meaningful. Until 2010, the size and frequency of the changes in business ecosystems were thought to be manageable by organizations. In parallel with the developments in ICT, the frequency of change has increased significantly. Nowadays, it cannot be said that all organizations

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