

Chapter 15

The Digitalization in the COVID–19 Era: A Review, Synthesis, and Challenges – Mitigating the Impact of COVID–19 via Digitalization

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ABSTRACT

In December 2019, a new viral pneumonia called COVID-19 appeared in Wuhan, China causing a health crisis that then turned into an economic and social crisis. Since then, entire sectors of the economy have been slowing down, forcing them to integrate innovative digital processes to mitigate the negative impact of this crisis. In this regard, the purpose of the chapter is to initiate a reflection on digitization processes based on a review of the literature to help explain the concept. This work allowed spotlighting the existing research on digitalization through practical case studies in business, education, and health systems, and how organizations perceive digitalization during the COVID-19 pandemic. The authors analyze how digital platforms can increase the survival rate of businesses in times of crisis and ensure the continuity of customers' access to the various goods and services. The purpose behind this is to serve as a basis for further empirical research for academics and improve the knowledge base by providing insight into the efforts of the sectors studied.

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INTRODUCTION

Last decades, the whole world has been facing recessions, following changes in policy, resulting from the fluctuation in the price of oil, gold or even financial bubbles usually followed by a reversal of expectations and a sharp fall in prices which may be combined with a financial crisis. In December 2019, a virus was suddenly observed in Wuhan, China. Due to the high rate of growth of cases, this epidemic was declared a public health emergency of international scale on January 30, 2020 by the World Health Organization's (WHO) Emergency Committee (Velavan and Meyer, 2020). To deal with the extreme impact of this pandemic, named as COVID-19, most countries are using digital technologies by investing in their abilities to do business on the Internet as it is more resilient to eventual lockdowns.

According to Seetharaman, (2020) Firms that produce physical products, such as labor-intensive companies, face problems of downsizing and even temporary closure, while those that offer information products and services have managed to stay in business.

In this situation, the COVID-19 has compelled businesses to explore digital alternatives or find new ways to offer their goods and services with limited physical contact and security. Therefore, to prosper in the new ecosystem, businesses must be responsive and have dynamic skills that will help them adapt to the new times (Tronvoll et al, 2020).

This paper reviews the literature that assesses the effects of COVID-19 with a focus on digital solutions and technologies that respond to several business needs. In accordance with our knowledge, it is the first paper emphasizing the link between the impact of COVID-19, study topics and digitalization. The approach adopted in this work, focuses on pre-selecting articles based on a number of keywords related to digitalization and digital transformation process. We begin with a presentation of methods used in the literature to measure digitalization. The review of these measures is important for researchers and especially, for economists aiming to assess firms' digitalization level.

This chapter is structured into six main sections. First the authors introduce the context. Next, the chapter reviews digital transformation and digitalization definitions and measures. The third section discusses the impact of digitalization impact on the study topics. Further analysis on the relationship between the impact of COVID-19 and digitalization is provided in section four. Finally, a set of recommendations is discussed in the fifth section before the concluding section.

DIGITAL TRANSFORMATION DEFINITION AND MEASURES

Digitalization and Digital Transformation: Definition

Digital is a sector with a lot of innovation that moves very fast. Nearly, every three or four months there is something new. That's why there is a large number of published articles and various definitions of digitalization and digital transformation in the literature. The concept of "digitalization" is substituted by the concept of "digital transformation" which goes further than that. Digital transformation refers it refers to the integration of technological innovations in the functional process of the company concerned, taking into account strategic and individual dimensions. In this framework, we present some definitions related to "digitalization" and others related to "digital transformation" to clarify the difference between them.

Firstly, for the digitalization, it presents the application of digital technologies (Srai and Lorentz, 2019; Clerck, 2017) and data to generate revenue, expansion of trade, restructure business processes,

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