Enablers and Barriers for the Transformation of Manufacturing After the COVID–19 Global Crisis

Erdinç Koç

https://orcid.org/0000-0002-8209-5714

Bingol University, Turkey

EXECUTIVE SUMMARY

It is obvious that COVID-19, which is one of the main agenda items of humanity, has an effect on global production facilities. It has been tried to create a roadmap for producers to overcome existing and similar crises with proactive solutions. The reflections of the global crisis on production are carefully examined in the study. The epidemic is not limited to a single country, but affects all parts of the world, leaving supply chains and manufacturers in a difficult situation. Just as the concept of the new normal for consumers has come to the fore, the necessity of adapting to the new norm by implementing certain technologies that have been emphasized in recent years is now more clearly felt for manufacturers. The pandemic process experienced and the difficulties and enablers that producers face/will face afterwards are explained in detail under the headings of human resource management, flexibility, sourcing, technology level, logistics.

INTRODUCTION

It is claimed that the period of global recession that started in the pre-pandemic period was caused by the tension between China and the USA. This trade war between the world's two superpowers is the trigger of the stagnation in production. However, during this period, the recession in manufacturing remained limited. The manufacturing sector contributes 10-40% to most developed economies (Roberts, 2019). The ongoing upward trend in the service sector has enabled economies to absorb the contraction in the manufacturing sector.

On March 11, 2020, COVID-19 was declared a pandemic by the World Health Organization (WHO). With this declaration, governments, businesses, institutions and individuals began to predict what this process would bring them (Brannen, Ahmed, & Newton, 2020). The World Bank predicts that the world gross domestic product will decrease by 2%, developing countries 2.5% and developed countries 1.8% in 2020 due to the pandemic (Maliszewska, Mattoo, & Van Der Mensbrugghe, 2020). COVID-19 is spreading rapidly all over the world and manufacturers face significant operational challenges. Some companies appear to be temporarily closing manufacturing facilities in response to government restrictions and falling demand (Furtado et al., 2020). Global outbreaks are known to significantly reduce global economic production and increase unemployment (Tisdell, 2020). Volkswagen AG, Daimler AG and BMW AG produced 37% less production in March 2020 than in 2019. Rolls Royce, one of the important manufacturers in the aviation sector, announced that it will lay off 9000 people, and the automobile manufacturer McLaren, more than 1000 people due to the coronavirus. U.S. Bureau of Labor Statistics reports that, "*in the second quarter of 2020, productivity decreased 28.4 percent in durable goods manufacturing, reflecting a 58.1-percent decrease in output*". According to the simulation of the global effects of the pandemic, the manufacturing industry will shrink by 3.61% in China, 2.45% in the United States, 2.77% in Japan, 3.98% in India and 3.13% worldwide (Maliszewska et al., 2020). In a study where predictions were shared with policy makers, it was stated that worldwide economic loss could be 10%, 24.8% or 37.3% according to different scenarios (Acemoglu et al., 2020).

The COVID-19 outbreak shook manufacturers unexpectedly and unprecedented. For the first time in the history of modern production, supply, demand and labor have been affected simultaneously on a global scale (Kroupenev, 2020). According to the 2020 third-quarter outlook survey of the National Association of Manufacturers (NAM), the expectations of companies to return to their pre-pandemic revenues are as follows. 17.6 percent of the companies stated that they currently have the income level before the pandemic. 6.9 percent of the companies are in the third quarter of 2020, 5.6 percent in the fourth quarter of 2020, 19.5 percent in the first half of 2021, 22.3 percent in the second half of 2021, 12.7 percent in the first half

Related Content

Data Provenance
Vikram Sorathia (2009). *Encyclopedia of Data Warehousing and Mining, Second Edition (pp. 544-549).*
www.irma-international.org/chapter/data-provenance/10873

Tabu Search for Variable Selection in Classification
Silvia Casado Yustaand Joaquín Pacheco Bonrostro (2009). *Encyclopedia of Data Warehousing and Mining, Second Edition (pp. 1909-1915).*
www.irma-international.org/chapter/tabu-search-variable-selection-classification/11080

Rough Sets and Data Mining
Jerzy W. Grzymala-Busseand Wojciech Ziarko (2009). *Encyclopedia of Data Warehousing and Mining, Second Edition (pp. 1696-1701).*
www.irma-international.org/chapter/rough-sets-data-mining/11046

Learning Exceptions to Refine a Domain Expertise
Rallou Thomopoulos (2009). *Encyclopedia of Data Warehousing and Mining, Second Edition (pp. 1129-1136).*
www.irma-international.org/chapter/learning-exceptions-refine-domain-expertise/10963

Mining Data with Group Theoretical Means
Gabriele Kern-Isberner (2009). *Encyclopedia of Data Warehousing and Mining, Second Edition (pp. 1257-1261).*
www.irma-international.org/chapter/mining-data-group-theoretical-means/10983