



# Strategies for Managing the Impacts of Disruptions During COVID-19: an Example of Toilet Paper

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**Abstract** Due to the recent pandemic of coronavirus, known as the COVID-19 outbreak, the supply chains have been impacted most significantly. Manufacturers of certain items have experienced a substantial increase in demand, and on the other hand, raw materials supply, to produce those items, has reduced because of supply failure. To overcome these challenges, this paper proposes some strategies to improve service level during an extraordinary pandemic outbreak, such as COVID-19, for the most wanted products such as toilet paper. This study considers meeting the increased demand of the customers for an essential product of daily life like toilet paper during a pandemic is beyond the traditional economic objective, i.e., increase profit, of the manufacturers. Instead, this should be more about the social responsibility of all the manufacturers to ensure that they can serve more customers. Motivated by this and taking toilet paper as an example of the product, we first analyzed the current scenario of the manufacturing and the demand for the product and then proposed some strategies to deal with this unprecedented risk and analyzed the results. We have compared the results, using hypothetical data, between the current scenario and proposed strategies. The result shows that sharing information and resources from all manufacturers to produce under a single brand, emergency sourcing,

producing basic quality items, and packing in the smallest sizes have a significant positive impact on the service level. This paper first investigates the strategies for a high-demand and essential item during a pandemic situation and proposes strategies to deal with this unique, extraordinary disruption.

**Keywords** COVID-19 · High-demand items · Pandemic · Strategies · Supply chain disruptions

## Introduction

The coronavirus disease (COVID-19) outbreak, which was first reported in Wuhan, China, in December 2019, has affected 215 countries and territories with more than 9.5 million cases and more than 485 thousand deaths as of 25 June 2020 (Worldometers 2020). This outbreak has already affected almost all sectors and most of the countries across the globe (Dryhurst et al. 2020); therefore, the World Health Organization (WHO) has marked it as a pandemic on 11 March 2020. A pandemic is a unique case of supply chain disruptions that do have not only severe but also long-lasting impacts on the operations of a supply chain. Any epidemic outbreaks, which can be contained geographically, are generally perceived as disruptions that have high uncertainty (Paul et al. 2013; Paul et al. 2014a, b, c), long-term existence, and ripple effect (Ivanov 2020a). In recent years, firms have been experiencing more numbers of epidemic outbreaks. For example, the WHO reported 1438 epidemics between 2011 and 2018 with huge impacts such as loss of life and economic slowdown (Hudecheck et al. 2020). In the case of a pandemic, companies in various sectors experience different types of challenges. For example, while many companies in

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