

Chapter 5


Disruptive Logistics and Green Supply Chain Management

Yasin Galip Gencer

 <https://orcid.org/0000-0003-2133-351X>

Yalova University, Turkey

Ulas Akkucuk

 <https://orcid.org/0000-0001-6731-0634>

Bogazici University, Turkey

ABSTRACT

Today, when global warming and its negative effects are more apparent, companies and individuals have given importance to green logistics practices. At the same time that computer technologies and smart applications serve in this field, new and innovative ideas are emerging every other day. Examples of disruptive innovation can change the way we do business in an industry, such as the Uber application. These new players in the sector tend to disengage the existing players. In this chapter, sector-changing national and international instances of disruptive logistics will be presented and discussed. Also, the effects of Industry 4.0 and smart cities on green logistics will be explained.

INTRODUCTION

The green movement, which is among the main political movements, places more emphasis on environmental issues than ever before. One such issue is global warming. Anxiety about global warming is increasing worldwide. In this regard, the logistics sector, which is one of the sectors that contribute the most to global warming, stands out as an important player on this issue and efforts are concentrated under the green logistics framework. The logistics industry is already using technology to design and increase the leadership of innovative business models.

DOI: 10.4018/978-1-7998-4601-7.ch005

Some important concepts that have revolutionized the traditional logistics landscape are given below:

- 3PL
- DC
- LCL
- EDI
- RFID
- 4PL

In terms of green logistics the most important terms stand out as 3PL and 4PL. Third party logistics (3PL) service providers have emerged since the late 1980s, they are considered to be logistics outsourcing suppliers. 3PL has been growing rapidly as a new business since the 1990s. Continuing logistics activities with outsourcing has become a service that is frequently encountered today with the expertise and experience of 3PL service providers in helping customers. The concept of fourth party logistics started to appear in the logistics sector after 1990s due to the insufficiency of third party logistics companies. 4PL serves at the level of expertise on solutions of the complex logistics chains. The concept of 4PL was developed by the end of the 1990s. It is defined as an integrator enterprise bringing together 3PL service providers and businesses that will receive logistics services by using their own resources, technology, knowledge and skills, and providing logistics management solutions. The main policy that the 4PL service provider must follow in order to be successful is to bring together the most suitable 3PL service providers with the customers. Thus, 4PL service providers aim at the highest level of customer satisfaction by creating the best mix among 3PL service providers and aiming to highlight the advantages of each. It can be said that the contracts that companies will make with 4PL service providers should have a longer term compared to 3PL contracts. The main reason for this is that although 3PLs perform some of the logistics services, 4PL service providers aspire to perform all aspects of logistics management.

New applications using innovation and information technologies also lead to technologies that benefit green logistics. When innovative movements are evaluated, it is seen that they are generally three types. Three types of innovation can be listed as follows:

- Incremental
- Radical
- Disruptive

Incremental innovation includes all kinds of innovations that provide more benefits to consumers as a result of the improvement of a product or process that is generally released as a result of radical innovation. Incremental innovation that provides more satisfaction to consumers with less effort and includes minor improvements and changes in the final product or process to be used easily, on the one hand, increases the competitiveness of the companies, while providing better products or services to the consumers. The first mobile phone invented in 1973 weighed 850 grams. With the rapid development of technology since 1973, the quality of mobile phones has been continuously improved. First, a few additional features such as radio and flashlight were added to the mobile phone. Improvements were made with Bluetooth, color screen, sound recording feature, camera and the Internet. The memory has been expanded, Wi-Fi has been added, touch screens have been released and nowadays the iPhone stage

9 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

www.igi-global.com/chapter/disruptive-logistics-and-green-supply-chain-management/257465

Related Content

Research on Innovation Mechanism and Model of Logistics Enterprise: A Chinese Perspective

Zhang Mu, Li Wenli, Luo Jing, Ye Xiang, Ren Congying and Wu Chengjuan (2010). *International Journal of Applied Logistics* (pp. 62-87).

www.irma-international.org/article/research-innovation-mechanism-model-logistics/45905

Complementary Resources, Web-Based Applications, and the Development of Web-Enabled Supply Chain: A Case Study of Paint Supply Chain

Yootae Lee, Jay Kim and Jeffery G. Miller (2010). *Innovations in Supply Chain Management for Information Systems: Novel Approaches* (pp. 159-175).

www.irma-international.org/chapter/complementary-resources-web-based-applications/38436

Management and Organization in Transportation and Logistics

Nilüfer Rüzgar (2020). *Handbook of Research on the Applications of International Transportation and Logistics for World Trade* (pp. 224-235).

www.irma-international.org/chapter/management-and-organization-in-transportation-and-logistics/245392

Global Supply Chain Management Organization at Siemens in the Advent of Industry 4.0

Ioan Petrisor and Diana Cozmiuc (2020). *Supply Chain and Logistics Management: Concepts, Methodologies, Tools, and Applications* (pp. 1095-1114).

www.irma-international.org/chapter/global-supply-chain-management-organization-at-siemens-in-the-advent-of-industry-40/239318

COVID-19 Pandemic-Related Supply Chain Disruptions and Impacts on the Global Economy

Yeliz Demirkran (2023). *Managing Inflation and Supply Chain Disruptions in the Global Economy* (pp. 199-219).

www.irma-international.org/chapter/covid-19-pandemic-related-supply-chain-disruptions-and-impacts-on-the-global-economy/309569