

# Chapter 7

## Collaboration Analysis in Supply Chain 4.0 for Smart Businesses

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### ABSTRACT

*This study aims to review collaboration in Supply Chain 4.0. For this objective, dimensions and outcomes of collaboration are analyzed based on businesses. An overview of the different dimensions and outcomes of collaboration was created in Industry 4.0 platform. Research data was obtained from literature review and then refined according to SC experts. The findings show that collaboration in Supply Chain 4.0, with the activation of dimensions including information and communication management, resource planning in the production and logistics process, collaborative decisions for business goals, technology and business development, motivational alignment, performance evaluation in integrated processes, marketing and customer orientation can lead to sustainable performance. In this study, a comprehensive approach is made to accessing collaboration concept among business partners in Industry 4.0 by creating a new conceptual framework to achieve economic, social, and environmental performance.*

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## **1. INTRODUCTION**

The main purpose of this section is identify and analyze the most important actors of Supply Chain Collaboration (SCC) that are effective on businesses in Industry 4.0 conditions. Industry 4.0 technologies changes supply chain management (SCM) from a linear situation to supply chain 4.0. Transforming traditional SCs (Tjahjono et al., 2017) and its developing is an opportunity that SC 4.0 has given to businesses (Frederico et al., 2019). These opportunities based on innovative technologies such as artificial intelligence, Internet of Things, blockchain, machine learning, etc., lead to the growth of capacities in order to develop businesses (Yildiz Ozenc et al., 2023). These technologies make proportions with current world situation in the SCM and defined as Industry Revolution 4.0 that is specify with empower business systems (Awan et al., 2021). Industry 4.0 has influenced business models, and this service & manufacturing paradigm entails a way of new communication management along SCs (Glova et al., 2014).

Understand of Industry 4.0 benefits and applications by companies for using it, needs to create a collaborative partnership among SC members. SCC considered as an essential and fundamental factor to businesses adaptation due to the trend changes, penetration of technologies and problems caused by companies' non-compliance with current conditions. Commercial organizations and their SCs face increasing challenges due to industry 4.0 conditions. This great challenge has restricted the flow of SC processes, adding uncertainties to the environment of companies. Controlling of these unprecedented changes for SC managers in market is so necessary due to neutralization of disrupting the actions and stability of SC. Therefore, SCC became a factor for the survival of all SC members (Al-Omouh et al., 2023). Therefore, a thorough inspection needed to uncover collaboration performance under the industry 4.0 technologies to use of businesses for now about a collaborative approach among companies. For this reason, it is important to know the dimensions and outcomes of collaboration in order to make a platform for SCC 4.0.

The latest technological progresses in businesses force SC digitization (Ali, 2022). Industry 4.0 transforms SCC through strategic changes (Veile et al., 2022). The severity of the competitive conditions and the change of customer expectations have led to essential changes in companies. SC partners can respond quickly to dynamic changes in the commercial environment with implementing collaborative activities (Misbauddin et al., 2023). Management applications of SCC 4.0 are also significant. Business partners throughout the SC don't collaborate with other actors in order to jointly develop projects. Collaboration results show coordination at a low level of implementation. It means that there is no close relation among partners to outsource activities that are not part of the company's core business. Therefore, a conceptual framework that businesses players can understand and use it, regardless

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