

# Chapter 2

## SCM 4.0: Not Just an Opportunity; It Is a Need

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### **ABSTRACT**

*The most important purpose of supply chain management is ensuring the maximum level of material and information flow within and outside the companies. However, supply chain management has gone through many changes in the 21st century. The developing IT sector, the digitalization, the appearance of smart tools are the results of Industry 4.0. Companies need to recognize the importance to adapt technical innovations and digitalize their processes. The influences of Industry 4.0 are digitalized supply chain management (SCM 4.0) and digitalized logistics (Logistics 4.0). The chapter defines the most frequently used tools of both areas. On the other hand, the chapter deals with the problems of supply chain coordination as well. The determined factors can be handled by the technical innovations, which are used by SCM 4.0 and Logistics 4.0. The chapter analyses the connection between the determined problems and smart tools as the solutions.*

### **INTRODUCTION**

In this world, where the environment around the companies is changing constantly, every company needs to have the tools, which help them to survive. In this context, survival means to keep the competitive advantages. These tools help the companies to stay in the game and motivate them to develop. But what are the characteristics of this era which is called digitalization? The chapter will answer this question.

First of all, the author will introduce the phenomena of the appearance of smart technologies, which are derived from the process of digitalization. The literature calls it industry 4.0, which name is already unavoidable in the everyday life as well. A brief historical introduction of the industrial revolution is needed to understand the importance of the adaption to this new, industry 4.0.

Industry 4.0 seeks into every area both in the industry and in the business life. That is the reason why smart logistics and smart supply chain solutions are used more and more frequently. These tools belong the logistics 4.0 and supply chain management 4.0. The chapter will focus on the topic of supply chain

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## **SCM 4.0**

4.0, but logistics 4.0 will be also introduced because they complement each other. Logistics 4.0 is a very important tool to manage, coordinate and optimize the internal processes, and the tasks of supply chain management 4.0 are concentrating on the whole supply chain, so manage, coordinate and optimize the external processes, which are between the partners, and the key processes for the high-level cooperation of the chain members. These tools can help to coordinate the supply chain very well (Frazzon, Rodriguez, Pereira, Pires, & Uhlmann 2019; Szymczak, 2019).

Because supply chains are getting to be global and it means they are so extended, they count many members, so the cooperation between the partners is a little bit difficult. Thus, the typical problems and factors need to be determined. If the problems are known, it is easier to recommend the solutions for them (Chandak, Chandak, & Sharma, 2014; Vidrová, 2020).

Thus, the research will highlight the importance of using these smart tools. In the digital era, companies need to handle more and more problems, because there are more and more partners. To keep in touch with these partners needs a system, because without these systems, information will be lost, and there will be barriers in the information- and the material-flow, which will lead to unforeseeable consequences. It means, if there is a gap or gaps in the information flow because of a supply chain member, the efficiency of the whole chain will decrease. The gap can derive for example from an un-digitalized member.

Thus, first of all, companies need to recognize that digitalization is not a chance or opportunity – it is a need. Second, the new situation causes new problems, especially in the coordination between the members. The many members result in the big data, that need to be handled. Besides that, the contact, the delivery, the warehousing, the purchasing, and the scheduling all are crying out for new solutions. That is the reason why the research is aiming to discover the potential digital solution for various problems. After the determination of the coordination problems, which are caused by the digital era, different IT solutions – especially focused on the digital tools of Supply Chain Management 4.0 and Logistics 4.0 – will be paired to the right problems.

## **BACKGROUND**

In 2018, in Roland Berger: Focus, there was a research of Bock (2018), which is focused on the digitalization of companies. The main question of this research was are the companies are ready to digitalize themselves. The result of this research has very surprising: based on the answers more than half of the surveyed companies – exactly 56% – are not ready for digitalization. 56% of the analyzed companies do not have the suitable, the right IT infrastructure to manage more complex software or robots. Furthermore, these companies are not able to integrate new, even a virtual process into their own operations. Thus, the main problem of these companies is that they do not have a digital vision referring to their future (Bock, 2018). However, if there is no vision, they will not be able to digitalize, which could be a significant disadvantage for the companies in terms of the market competition. And if the companies have disadvantages, it affects the whole supply chain, as well. The results are cooperation problems, efficiency problems, etc. which lead to the fall of the supply chain. The research also determined the problem of forecasting, which is based on the lack of digitalization. Companies can not eliminate the inventory surpluses, which hinder the existence of a supply chain that dynamically adapts to environmental and customer needs (Bock, 2018). But the biggest advantages derived from this: because of the ‘customer-is-the-king’ theory, if companies can adapt the customer’s needs and they strive to satisfy

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