Chapter 14
Industry 4.0 and Its Effects on the Insurance Sector

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ABSTRACT

Industry 4.0 defines the fourth industrial revolution, a new level in the organization and management of products and production systems. This cycle consists of services that include the entire chain, including individualized customer requests, product development, production order, distribution, and recycling to the end user. One of the most important preconditions for the realization of the Industry 4.0 revolution is that companies have completed their digital transformations. New technologies and digitalization have brought a new understanding of insurance. Insurance companies are focused on four areas such as big data, artificial intelligence, internet of objects, and blockchain in the changing world. With the changing habits of consumers in their daily lives, new generation insurance needs emerged. The introduction of a new era shaped by the insurance industry with new products, services, competitors, and customer expectations will have various effects. This chapter describes how Industry 4.0 transforms the insurance sector.

INTRODUCTION

The main starting point for Industry 4.0 and Industrial Internet cases is the function of connectivity. The connectivity function here refers to software and culture differences that exist in different units of businesses (Bauernhansl, 2014). This reveals that the process of change that brings Industry 4.0 to the agenda should be more closely linked to the stakeholders of the enterprises' own ecosystems and value chain rings (Ersoy, 2019). Therefore, each enterprise (its suppliers, customers, support organizations) is increasingly convinced by the idea of more efficient and efficient cooperation with its stakeholders and aims to improve customer needs through horizontal cooperation initiatives (Goasduff, 2015).

Industry 4.0 provides opportunities for easier, better quality and cost-effective fulfillment of already built businesses. In addition, it has the potential to contribute to the creation of business models, ways of doing business, new processes and activities that do not exist yet.

DOI: 10.4018/978-1-5225-9416-1.ch014

The concept of Industry 4.0 was first introduced in 2011 as a proposal by a group of representatives from different fields (eg, businesses, politicians and academia) to increase competitiveness in the German manufacturing industry (Gilhuber, 2017). The main aim is to increase the dominance of the country in machinery and automotive manufacturing in this new industrialization. In this context, the German federal government adopted this idea in the 2020 High Technology Strategy (Alçin, 2016).

Industry 4.0; it can be defined as the sum of the developments in information and communication fields and the integration of internet technologies with the intensification and transformation of production processes (Avşar, 2016). In other words, Industry 4.0 will transform the entire value chain, revealing new ways and opportunities to develop innovative products and services (Baghare et al., 2015). The following figure illustrates the components of some Industry 4.0. Each component contains different sub-components in itself and analyzes innovative (innovative) products and services development techniques to better satisfy the needs of the enterprise / customer.

Industry 4.0 is expected to affect all sectors. It is expected that the insurance sector will experience change and transformation with Industry 4.0. It is inevitable that the insurance sector will be affected in many areas such as access to insurance customers, determination of insurance prices, sales of insurance policies and damage transactions (Banger, 2017). With Industry 4.0, dynamic and pay-per-use insurance products will become widespread and these insurance products will offer new opportunities based on consumer behavior (Shafig et al., 2015). The traditional products, which are renewed after 1 year of purchase, will change according to the behavioral models of individuals. Moreover, it is expected that micro products such as phone battery insurance, aircraft delay insurance, home appliance insurance will be formed and spread (Sanders et al., 2016). In this way, the special needs of the customers can be met instantly with comparative options from individualized product baskets of insurance companies.

The change and transformation that Industry 4.0 will make in the insurance sector will make itself felt in insurance branches (Blum, 2016). When self-driving autonomous vehicles go on the road, conversion in auto insurance will be inevitable. Driving habits of the drivers (sudden acceleration / braking), the ways in which they are frequently used, and the ways in which these roads are used in transportation according to the accidents reported on these roads can be known independently of the driver (Soh and Unkefer, 2014). In the event of an accident; where the accident occurred, the time of the accident, the weather at the time of the accident (rain, snow, excessive dry ground), the accident was noticed that the number of seconds before the brake was pressed, before braking is watched with how many km speed, the speed of the collision took place with how many km we have There will be a very rich data set, together with a few pictures to be taken from the scene, all these data sets and accident records can be created very quickly, and insurance companies can also distribute damage rates more objectively to drivers.

This section discusses the transformations and changes that Industry 4.0 will create in the insurance sector. Industrial revolution and the historical development of Industry 4.0, the interaction of the insurance sector with Industry 4.0, machine learning, the internet of objects, artificial intelligence and its impact on the insurance sector are detailed.

INDUSTRIAL REVOLUTIONS AND INDUSTRIAL 4.0

Industry 4.0 or 4th Industrial Revolution is a collective term that involves many modern automation systems, data exchanges and production technologies. This revolution is a set of values consisting of the Internet of objects, services of the Internet and cyber-physical systems (Long et al., 2016). At the