Chapter 11
Big Data, Artificial Intelligence, and the Internet of Things in Cross-Border E-Commerce

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ABSTRACT

Today, the terms big data, artificial intelligence, and internet of things (IoT) are many-fold as these are linked with various applications, technologies, eco-systems, and services in the business domain. The recent industrial and technological revolution have become popular ever before, and the cross-border e-commerce activities are emerging very rapidly. As a result, it supports to the growth of economic globalization that has strategic importance for the advancement of e-commerce activities across the globe. In the business industry, the wide range applications of technologies like big data, artificial intelligence, and internet of things in cross-border e-commerce have grown exponential. This chapter systematically reviews the role of big data, artificial intelligence, and IoT in cross-border e-commerce and proposes a conceptually-designed smart-integrated cross-border e-commerce platform.

1. INTRODUCTION

The emergence in e-commerce and commercial globalization across the globe have powered by the advancement of cross-border e-commerce (Cui, Mou, Cohen, & Liu, 2019). The popularity of the Internet, rise of big data, advancement in e-commerce, emergence of knowledge and information society, existence of cyberspace and sensors the artificial intelligence has been tremendously emerged, that lead to a new evolutionary stage (B.-h. Li, Hou, Yu, Lu, & Yang, 2017). In recent years, the cross border e-commerce has been emerged promptly that greatly adding to the world economy (e.g.,Cheng, Su, & Zarifis, 2019; Cho & Lee, 2017; Song, Yan, & Zhang, 2019). Similarly, the improved global payment methods and its security, logistics arrangements and reverse logistics, less barriers in language, and so on have led

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the cross-border e-commerce to grow further (Hsiao, Chen, & Liao, 2017). For instance, the European Union has started many initiatives to encourage cross-border e-commerce by offering digital options to the public and business organizations (Valarezo, Pérez-Amaral, Garín-Muñoz, Herguera García, & López, 2018).

The cross border e-commerce has gained rapid attention and it has become significant form of foreign trade and business (J. Li, 2018). The IoT, big data, and cloud computing techniques could be adopted for the improvement of e-commerce logistics along with in all operational and decision-making levels (Barenji, Wang, Li, & Guerra-Zubiaga, 2019). The Internet as the accelerator that facilitates business entities to sell their products through cross-border e-commerce platforms (e.g.,Deng & Wang, 2016; Hsiao et al., 2017). In cross-border e-commerce B2C or B2B creates new revenue business models that could allow to do e-commerce activities in domestic and overseas territories (Cho & Lee, 2017). The cross-border e-commerce create superior benefits to countries and regions having same cultural and geographic features for instance the European Union (EU) (Cho & Lee, 2017). Among the cross-border e-commerce, China's economy has established a steady and prompt development (Ma, Chai, & Zhang, 2018). China has reached the leading cross-border business destination and its e-commerce export capacity will grow to $245 billion in 2020 (Du, Li, & Sun, 2019). Further, China is forecasted to exceed the USA, Germany, UK, France, and Japan and become the largest cross-border market by 2020 (Cui et al., 2019).

The objective of this chapter is to systematically review the role of big data, artificial intelligence and IoT in cross-border e-commerce and propose a conceptually designed smart integrated cross border e-commerce platform. This chapter is organized as follows. Next section discusses big data, artificial intelligence, Internet of things and cross border e-commerce trend, following this the applications of big data, artificial intelligence and Internet of things, then the recent trends and technology integration, the role of big data, artificial intelligence, Internet of things, and then reviewing cross-border E-commerce using prior studies, recent technologies, paradigm and new platform, and next proposing a conceptual integrated smart platform, opportunities and challenges created by big data, artificial intelligence and the Internet of things for cross-border E-commerce and finally, the future directions and prospects in cross-border E-commerce are discussed.

2. BIG DATA, ARTIFICIAL INTELLIGENCE, INTERNET OF THINGS AND CROSS BORDER E-COMMERCE TREND

The cross-border shopping is rising and cross-border e-Commerce is projected to reach $1 Trillion in 2020 (Saleh, 2020). The e-commerce has been received a significant attention among the researchers and industry practitioners in the past. Along with e-commerce, the terms artificial intelligence, big data, and Internet of things have also gained the popularity. The figure 1 shows the good trend for the terms big data, artificial intelligence, Internet of things and e-commerce from 2010 – 2020 at the business and industry category from worldwide. There is a rapid growth shown for the e-commerce, that denote there is a great chance for cross-border e-commerce to be expanded across the globe.

Companies are optimizing big data to develop customer tailoring that may also disclose some surprising shopping insights and behaviors. Similarly, big data platform with integrated predictive analytics capabilities can explore e-commerce customers' shopping behavior, make product recommendations, decide optimal product pricing, and make cart rejection flows. Artificial intelligence is used to develop