

Chapter 10

Integration of IoT and Blockchain for Smart and Secured Supply Chain Management: Case Studies of China

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ABSTRACT

This chapter will focus on the combination of supply chain management and digital technology. Starting from the popular digital terms in the current market, the authors examine the current environment of the development, including Chinese government policies and the industry situation, and then compare the different characteristics of Industry 4.0 before and after digitization by combining the two digital technologies (i.e., blockchain and internet of things [IoT]). Moreover, the advantages of the integration of internet of things and blockchain in supply chain management will be highlighted. At the same time, according to the changes brought by digitization, the added value of IoT and blockchain integration will be analyzed from the perspective of different stakeholders. In addition, some Chinese case studies will be introduced to show the innovative performance of and benefits for enterprises, to provide references for enterprises, and to implement IoT for smart economic growth.

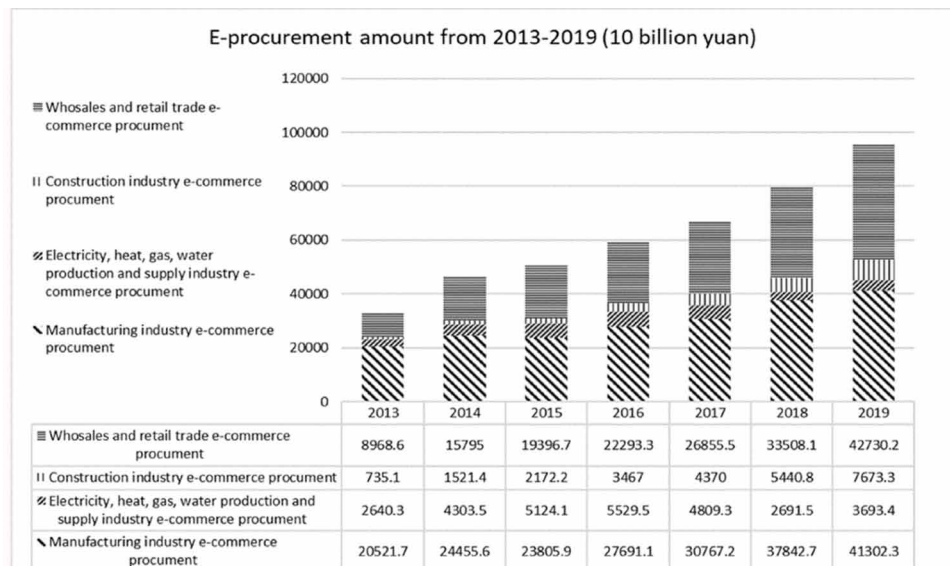
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INTRODUCTION

Since the 2008 financial crisis, many countries began to study digital technologies in order to cope with the complex financial environment. This led to changes in finance technology innovation and advancement in the technology; thus, created a fast-paced, technology-led finance environment. As a trading power, e-commerce has become a major factor in China which cannot be neglected. The earliest history of e-commerce in the world began in 1970s, when electronic trading was conducted mailing financial institution. As a result, the electronic data interchange (EDI) expanded the forms of transaction. In the 1990s, the World Wide Web (the “Web”) allowed the companies to send and receive texts and photos, and the term E-commerce was introduced. Afterward, the E-commerce has reformed from B2C to B2B, as in the Chinese case of Alibaba, and then to B2E, and will continue to develop in the future (Turban et al., 2018). With the economic development and the improvement of people’s living standards, technology expanded China’s commerce from the traditional offline to online commerce and expanded the national as well as the international market. In 2015, payment services, online loans, data analytics and automated investment have developed into the fastest-growing areas for big data in finance (Monaco, 2019).

The data on industry e-procurement in China from 2013 to 2019 published by the National Bureau of Statistics show a clear tendency. 2013, national e-procurement amounted only to 34662.9 billion Yuan. However, 6 years later that number more than tripled to 101275.1 billion Yuan, (National Bureau of Statistics, 2020). In Figure.1, the x-axis represents the years, while the y-axis represents e-procurement quantities in different years and the different colors on each column represent enterprises from different industries. All of the numbers are recorded in units of 10 billion yuan to show the yearly changes in the industry shares. As an important part of supply chain management (Chartered Institute of Procurement and Supply (CIPS), no date), the amount of e-procurement in different industries is gradually increasing in recent years.

Figure 1. E-procurement amount from 2013-2019
 Data source: National Bureau of Statistics



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