

## Chapter 65

# Blockchain Technology in International Trade in Goods

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### ABSTRACT

*No other technology has been mentioned as frequently as blockchain technology. No less than a technical revolution should go along with it. In addition to a brief introduction to the functionality of the blockchain technology, this chapter will also highlight various fields of application and the related legal challenges in international trade. The transport industry may be mentioned as an example. Especially in the transportation of goods, a large number of documentation obligations must be adhered to and permits must be obtained. Packing lists, export licenses, and product certificates are examples of this. All mentioned documents are based on the same data set, namely the details of the type, origin, and quantity of the goods. Large parts of these documents must be carried along with the goods and presented on instructions, which causes considerable bureaucracy and makes transportation more difficult and expensive. These documents could be displayed on the blockchain in the future.*

### INTRODUCTION

In the context of globally and digitally networked companies, blockchain technology will gain considerably in significance in the future. The technology is intended after the initial considerations to increase the security of digital processes, reduce data loss and increase confidence in organisational processes. The extent to which it can also accompany transactions in international trade of goods in particular in the declaration of goods and freight, which are increasingly triggered autonomously by cyber-physical systems in the environment of industry 4.0, will be discussed in this article.

First of all, the functionality of blockchain technology has to be introduced. Subsequently, an outline of various fields of the application of blockchain technology in international trade will be given. The associated legal challenges in particular with reference to the International Sales and Trade Law will be highlighted. In the conclusion it will be evaluated, to what extent the blockchain technology can support the international trade under the current law.

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## **BLOCKCHAIN AND TECHNOLOGY**

### **Blockchain and Functionality**

#### **Increasing Importance of Blockchain Technology**

In the past ten years, the blockchain technology has gained notoriety especially due to the publicity of the cryptocurrency “Bitcoin”. Under the impact of the financial crisis, Satoshi Nakamoto published his white paper on a new currency concept, which was made to take place “peer to peer” and therefore without financial intermediaries. (Nakamoto, 2008, p. 2). Because of the validity of the used algorithms, whose technological foundation forms the “blockchain technology”, the cryptocurrency “Bitcoin” should be trustworthy.

While the Bitcoin underlying blockchain technology would soon be relatively unnoticed and would only contribute to the operating principle of the new currency concept, it recently attracted increased attention. The interest on the blockchain technology increases exponentially due to its very special network architecture, which does not require any intermediaries. Almost every day, new ideas for possible blockchain applications are born. In addition to the payment traffic, among other things the blockchain will already be associated with the insurance industry, the healthcare sector, the energy supply or the logistics control.

#### **How the Blockchain Technology Works**

Blockchain technology is based on the “Distributed Ledger Technology (DLT)” (Kaulartz, 2017, pp. 3 ff.). DLT represents by definition a special form of electronic data booking, which is carried out by the write- and read-authorized network participants (so-called node) in a decentralized database (Distributed Ledger or shared digital account book). The special feature of the digital account book is, the continuously expandable list of entries or records for transactions (so-called blocks), which in turn are linked together by a cryptographic process. The blockchain is realized by a decentralized peer-to-peer network, in which the individual transactions are mapped, verified, validated and summarized into blocks and finally updated on an ongoing basis.

In other words, blockchain technology is a distributed database. The so-called nodes, the initiated members of the blockchain, can create a new “data block” to this database. These “blocks” can contain information, regardless of a specific content. The created “blocks” will be afterwards encrypted and broadcasted in the network, so that every party would get access, but only by using utilizing cryptography. In this way it is guaranteed, that the content of each transaction will not be made public. Other network nodes will collectively determine the validity of the block. Therefore, a pre-defined algorithmic validation method, which can be named as “consensus mechanism” is utilized. After the validating process, the new “data block” will be added to the whole blockchain. The transaction ledger is updated with the results and furthermore distributed across the blockchain network (CPMI, 2015, p. 5.).

For a better understanding, the special features of the blockchain technology will be explained in detail.

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