Chapter 2
Blockchain Revolution: Transforming International Trade Law for the Digital Age

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ABSTRACT

Blockchain technology defies the existing regulatory frameworks and raises urgent regulatory and governance issues worthy of the immediate attention of policymakers, international institutions and legal scholars. The digital divide in technological access and regulatory preparedness between developed and developing/underdeveloped countries aggravates the existing disparities in trade participation. The chapter explores the legal and practical implications of blockchain in simplifying cross-border trade and improving regulatory processes. It identifies the contemporary trade and supply chain issues and examines the potential of blockchain technology in resolving such issues. The chapter further critically examines the pressing concerns and regulatory challenges in the integration of blockchain into international trade and intends to provide solutions to address them. The chapter

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explores whether international organisations such as the WTO can play a pivotal role in enabling blockchain integration, curbing the digital divide and shaping a supportive regulatory environment for the same.

1. INTRODUCTION

The world is undergoing a seismic transformation driven by the Fourth Industrial Revolution, a technological shift characterized by the convergence of digital, physical, and biological systems (Schwab, 2016; Interaction Design Foundation, 2025; Kim, 2021). Unlike previous revolutions which relied on steam, electricity, or information, this thrives on interconnected, intelligent technologies such as artificial intelligence, internet, robotics, and blockchain. These technologies are not only automating and optimizing processes but are fundamentally reshaping how industries function, how economies are organized, and how nations trade (World Scientific, 2025).

This transformation is very evident in the realm of international trade. Traditionally, cross-border trade has been marred by bureaucratic inefficiencies, lack of transparency, siloed data systems, and the high cost of compliance with varying national laws (Grier, 2023; UNCTAD, 2023; Digicast Technologies, 2023). However, digitization is progressively replacing chapter-based transactions with digital equivalents, streamlining logistics, customs documentation, and payments (UNCTAD, 2023). The shift towards digital trade infrastructure is both a necessity and an opportunity, paving the way for greater inclusion, agility, and regulatory oversight in a globalized world economy (Digicast Technologies, 2023).

While blockchain first garnered attention as the foundational technology behind cryptocurrencies such as Bitcoin and Ethereum, its utility far exceeds digital finance (Nakamoto, 2008; Schwab, 2016; Forbes Technology Council, 2023). At its core, blockchain is a decentralized, tamper-proof ledger system that allows multiple parties to maintain a shared and synchronized record of transactions without the need for a central authority. This decentralized and transparent nature of blockchain makes it particularly well-suited to international trade, where the number of actors, intermediaries, and jurisdictions complicate the flow of goods and services (Trade Council, 2024).

Increasingly, blockchain is being deployed across global supply chains to verify the origin of goods, monitor shipments in real-time, automate contractual obligations through smart contracts, and ensure compliance with international regulations (Turing, 2023; MDPI, 2023; Sethi & Makwana, 2024). From tracking ethically sourced raw materials to verifying certificates of origin or automating trade finance settlements, blockchain has emerged as a revolutionary tool for enhancing trust, efficiency, and accountability in global trade.