

# Chapter 15

## Blockchain and E-Governance: Insights From Bibliometric Analysis and Systematic Review

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### ABSTRACT

*This chapter explores the potential of blockchain technology in e-governance, focusing on its capacity to enhance transparency, security, and efficiency in public administration. To address fragmented research, a mixed-method approach is applied, integrating bibliometric analysis using VOSviewer with a systematic literature review (SLR) guided by PRISMA standards. The study examines a decade of literature (2014–2024) retrieved from the Scopus database, addressing two core questions: the current state of blockchain research in e-governance and the identification of emerging themes, challenges, and opportunities. Findings reveal significant growth in the field, emphasizing themes such as transparency, security, and regulatory frameworks while highlighting persistent challenges like technological barriers and legal complexities. By synthesizing these insights, the chapter identifies research gaps and proposes future research directions, offering a framework to advance blockchain integration in e-governance and inform strategic policy development.*

DOI: 10.4018/979-8-3693-9286-7.ch015

## INTRODUCTION

Blockchain technology has emerged as a transformative innovation with profound implications across diverse sectors, including finance, healthcare, and supply chain management (Du et al., 2020). Among these, its application in governance often termed as e-governance represents a critical area of exploration, given its potential to enhance transparency, accountability, and efficiency in public administration (Kassen, 2022). E-governance, defined as the use of digital technologies to deliver government services and engage citizens, has been instrumental in reshaping traditional governance structures (S. Khan et al., 2022). However, persistent challenges such as data security, trust, and operational inefficiencies continue to hinder its full realization (Pathak et al., 2024). The integration of blockchain into e-governance offers promising solutions to these challenges by providing decentralized, immutable, and transparent systems capable of securing sensitive data and fostering citizen trust (Fenwick et al., 2019). As this interdisciplinary domain gains increasing attention from both academics and practitioners, a comprehensive understanding of its potential and limitations is crucial for advancing research and policy-making. This study responds to this imperative by examining the intersection of blockchain technology and e-governance, shedding light on its transformative possibilities and critical challenges.

Recent scholarly investigations have illuminated the transformative potential of blockchain technology in addressing critical challenges within e-governance. For instance, (Batubara et al., 2018) conducted a systematic literature review identifying challenges in adopting blockchain for e-government, emphasizing the need for a comprehensive understanding of its applications and obstacles. Similarly, the work by (Hassan, 2018) explores the integration of blockchain in decentralized governance systems, highlighting its role in enhancing transparency and efficiency. Furthermore, (Warkentin & Orgeron, 2020) provide a conceptual framework linking blockchain applications to managerial implications in the public sector, underscoring the technology's potential to innovate public management practices. Collectively, this body of work affirms the potential of blockchain in transforming governance but also highlights the need for a more integrated and systematic understanding of its applications and challenges.

This study aims to systematically explore the intersection of blockchain technology and e-governance, addressing the critical need for a comprehensive understanding of this emerging field. By conducting a bibliometric analysis and a systematic review, the research seeks to identify and synthesize existing trends, challenges, and opportunities in the application of blockchain for governance purposes (Pelt et al., 2021). Specifically, the study endeavors to map the current research landscape, evaluate the transformative potential of blockchain in addressing governance inefficiencies, and uncover insights that can inform policy-making and practical implementation strategies. Through this analysis, the research not only aims to consolidate fragmented knowledge but also to provide a foundation for advancing both academic inquiry and the adoption of innovative governance solutions (S. S. Kim & Choi, 2019). In doing so, the study contributes to bridging the gap between theoretical advancements and practical applications, fostering a deeper understanding of how blockchain can revolutionize governance in the digital era (S. Khan et al., 2024). Therefore, based on this background, this research will answer how blockchain technology has been applied to e-governance and what emerging trends, challenges, and opportunities have been revealed through bibliometric analysis and a comprehensive systematic literature review?

Despite the growing body of literature on blockchain technology and its application in e-governance, significant research gaps remain that hinder a holistic understanding of this interdisciplinary domain. Current studies primarily focus on isolated aspects such as transparency, security, and citizen engagement, often lacking an integrated perspective that connects these dimensions to broader governance

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