Book Review of Handbook of Blockchain Technology

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ABSTRACT

The Handbook of Blockchain Technology, edited by Marinos Themistocleous, offers a clear and engaging overview of blockchain's growing impact across technology, business, and society. The book is organized into four parts, covering blockchain's role in the Metaverse, the rise of NFTs and tokenization, decentralized governance through DAOs, and the challenges of global adoption. With contributions from both academics and industry experts, it blends theory with practical insights, highlighting how blockchain is reshaping ideas of ownership, trust, and digital infrastructure. This handbook is a timely and accessible resource for researchers, professionals, and policymakers seeking to understand the evolving blockchain landscape.

KEYWORDS

Blockchain Technology, Metaverse, NFTs, Tokenization, Cryptocurrency, Decentralized Governance, Consensus Mechanisms, DAOs, Digital Ownership, Blockchain Adoption, Algorithmic Governance

BOOK REVIEW: HANDBOOK OF BLOCKCHAIN TECHNOLOGY

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    Innovation, University of Nicosia, Cyprus 392pp.
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The financial crisis of 2008 revealed the weaknesses of centralized institutions, (i.e., the absence of trust and transparency). It triggered a wave of innovation as new ideas and technologies expanded to remedy the reasons for the crisis. These drawbacks were responded to by Satoshi Nakamoto with the introduction of blockchain technology as an open, peer-to-peer decentralized network that facilitates immutable, open, secure, and traceable transactions. The Handbook of Blockchain Technology is structured to research many of the questions surrounding the blockchain area. The book is set to contribute to the body of knowledge through enhanced understanding of the topic and analysis of applications, potential, limitations, ramifications, and existing and future trends in blockchain technology.

Part I. Blockchain and the Metaverse

The first section of the handbook examines the convergence of blockchain technology and the Metaverse. The Metaverse is a newer type of "world" that utilizes technologies including blockchain, NFTs, cryptocurrency, artificial intelligence (AI), and virtual/augmented reality (VR/AR) to construct the next-generation Internet applications. Although still in its early days, the Metaverse is on track to become an estimated multi-trillion-dollar market by 2030. Due to its significance,

Part I is dedicated to blockchain and the Metaverse, bringing readers into the virtual realms and exploring how blockchain makes the Metaverse's infrastructure possible and how the combination of the technologies behind the Metaverse is the key to innovation. Theory and practice prove blockchain can be implemented as an independent technology or as an ingredient for other platforms. The Metaverse is the best example of the latter: blockchain provides the base for different layers of Metaverse architecture, including (a) decentralization, (b) the Metaverse economy, (c) interoperability, and (d) security. In addition, blockchain extends the functionality of the Metaverse through features such as digital ownership and verifiably digital possessions. In the last few years, the Metaverse has become the future of the digital space with promising potential for business, the economy, and society.

In Chapter 1, "Decoding the Metaverse: An In-depth Exploration of Layers and Technological Foundations," the authors seek to dispel the fog about the Metaverse through an exhaustive examination. Its primary contribution is an evaluation of the existing Metaverse architectural layer approach, an outline of the restrictions, and the introduction of an integrative approach that offers better definitions and insights into the Metaverse's architectural layers. Chapter 2, authored by Clint P. Rowe and Soulla Louca, utilizes an AI-enabled systematic literature review of cryptocurrency and NFT adoption in the Metaverse as an extension to the standard review procedure using AI. This model provides insight and supports the categorization of the applications of cryptocurrency and NFT in the Metaverse. The study is an accessible reference for policymakers, academia, and practitioners in the industry as it provides insight and is the foundation for further studies on the matter. Chapter 3, written by Leonidas Katelaris, Marinos Themistocleous, Klitos Christodoulou, and Stamatis Papangelou, examines the role of NFTs in the Metaverse. It identifies key parameters influencing both NFT adoption in the Metaverse and the adoption of the Metaverse itself. These driving factors include interoperability, legal and intellectual property considerations, user interface and experience, scalability, and NFT market valuation.

Part II. NFTs and Tokenization

The second section is where attention is on the tokenization and on the NFTs. The two are highly transformative: one recasts concepts of ownership and authenticity, the other sees new business models (asset tokenization).

Chapter 4, "Blockchain and the Arts: Foes – or Unlikely Allies?" by Christos A. Makridis and Bjorn Hanneke, explores the use of NFTs in the arts and highlights their potential to enhance artists' financial stability. The authors also discuss the challenges and constraints facing the adoption of blockchain in the art world. Chapter 5, by Marinos Themistocleous, Klitos Christodoulou, and Leonidas Katelaris, delves into the emerging phenomenon of Bitcoin NFTs, specifically the introduction of Bitcoin Ordinals and BRC-20 tokens. The authors offer a comprehensive analysis of the applications, potential, and limitations of these innovations, providing valuable insights into this novel area and sharing noteworthy perspectives. Chapter 6, by Stavros Ioannou, Soulla Louca, Charis Savvides, and Elias Iosif, employs a systematic literature review to examine the landscape of tokenization. Drawing on the normative literature, the authors discuss the positive and negative aspects of tokenization, its transformative potential and impact, as well as recent developments and future trends.

Part III. Algorithmic Governance and Consensus Mechanisms

The third section of the book covers how blockchain enables decentralized decision-making using smart contracts, governance tokens, and Decentralized Autonomous Organizations (DAOs). The

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