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Digital Business Strategies in Blockchain Ecosystems

Transformational Design and Future of Global Business

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Preface

The newest technologies in blockchain environment have been transforming traditional business operations significantly in the last several years. Blockchain technologies are referred to as the decentralized integration of computers and distributed networks that are linked together safely based on the new growing list of records, so-called blocks, connecting the world to the future of business without regulation of any central authority. Adopting this new technology is a challenging issue for many strategists and managers. It is now time to make a fresh start to understand how the blockchain ecosystem works and shapes the existing business operations in the digital age. Moreover, it is also clear that managerial action is a necessity for coping with this new digital transformational change by adopting new business strategies and philosophies. In a business ecosystem, managing this transformational change is a significant pattern of concern for strategic thinking in front of many pioneering companies in different industries from aviation to communications.

In the existing literature, the latest developments and researches spotlighted the importance of the *blockchain ecosystem* which enhances the business performance in volatile conditions. Traditional studies in the past heavily concentrated on the organization-based or market-based factors mostly related to the side of human resources, leadership, robotic technologies, financial decision making, culture, optimization, and so on. Recently, the newest studies on digital business operations highlighted the importance of blockchain ecosystem components and their role in implementing competitive digital business strategies to maximize operational efficiency.

In the blockchain ecosystem, some important topics shaping business strategy-based studies include data security with quantum cryptography, value transfer via smart contracts, increased efficiency, sustainable optimal performance, and development of a smart solution. In addition to them, big data, neural networks, and artificial intelligence are today linked to blockchain studies. Although blockchain is still a new topic today for many researchers and strategists, they are seeking true answers and trying to locate a new approach to strategic thinking and structural design too.

In the existing literature, several studies highlighted that (1) there is a significant correlation between enhanced business performance and cybersecurity, (2) operational costs in transportation are decreased with the integration of blockchain systems, (3) effective communication through supply channels via data transfer systems embedded in blockchain ecosystem decreases delays in transportation process, and (4) blockchain ecosystem has positive effects on a firm's performance while optimizing production means via secured networks.

For many digital business enterprises, owners today also question the benefits of building enterprise-level blockchain applications which may have a broader impact on markets while they are costly investments in the short run. Investors are still confused about the benefits of adopting this new technology in business operations. Decision makers also still need answers on future business performance issues related to blockchain-based business strategies.

To which extent are these hot topics in the blockchain ecosystem successfully entitled to this digital transformational change? Are they capable of enhancing business performance? Could effective digital business strategies and firm performance be easily linked together within a blockchain ecosystem? New digital business strategies in the blockchain ecosystem will spotlight important clues for some questions too: Will it be possible to adopt traditional business strategies to a new digital era via the blockchain ecosystem? Will artificial intelligence really decide on the level of financial leverages or maximize the firm performance and value while determining WACC parameters? Will social media strategies be embedded in digital marketing activities with cluster learning? The authors of the chapters in this publication have contributed to the success of this book by the inclusion of their respective studies answering most of these questions.

This novel book emphasizes on the digital business strategies in blockchain ecosystems and transformational change coping with challenges in the digital era. It is anticipated to be one of the pioneering premier sources in this field with the contribution of scholars and researchers from different disciplines overseas. Contributors in this study formulated the new insights on the transforming process of business functions and the applications of digital business strategies in the business ecosystem via blockchain technologies. Our contributors to this study formulated the new competitive strategies for digital business in this new age. Thanks to interdisciplinary participation between world-class scholars with respect to their studies, it is now possible to mention that this book contributes in the development process of company strategic roadmap and provides a strategic toolkit for decision makers in business entities.

This book is composed of five contributory sections with 30 chapters. The first section outlines *the business model design in the digital era* within the blockchain ecosystem. Chapters in this section spotlighted the functionality of the blockchain ecosystem and the transformation of business. This book continues with section two outlining "Digital Transformation of Business Operations in the Blockchain Ecosystem." Chapters in this section assessed the digital transformation process of business functions and operations. The third section builds on the "Digital Business Strategies and Competencies." Chapters in this section determine key success factors

for strategic management and underline the evolution of digital business strategies with the adoption of blockchain technologies. Chapters in this section also develop strategic thinking for digital business and develop insights for digital business strategies for strategic entrepreneurship. The next section concentrates on the transformation of *accounting applications in the blockchain ecosystem* in the digital era. Chapters in this section develop a critical approach to the evolving role of accounting within the blockchain ecosystem. Finally, the ending section, "Cybercrime, Legal Aspects, and Relevant Topics," assesses relevant topics in digital business and blockchain technologies including cybersecurity, legal and social aspects, and future directions on blockchain-based studies.

Chapter 1 evaluates the transformation of the business model in the finance sector with artificial intelligence and robotic process automation. Dr. Met and his colleagues advocate that automation and data are driving fundamental changes in our daily lives and in the way of doing business. They evaluated that how financial institutions should change their business models in order to benefit from these two developments and a use case of a bank has been shared.

Chapter 2 features human–robot interaction in organizations. Dr. Tunc's study aims to explore how the interaction between humans and robots affects the workplace and in what aspects we can explain the nature of sociality and collaboration with robots. It also aims to put forward the advantages and disadvantages of human–robot interaction by presenting essential reference points and discussing many aspects of human–robot interaction in organizations.

Chapter 3 assesses the future of the Internet of Things in the blockchain ecosystem from organizational and business management perspectives. Dr. Zehir and Dr. Zehir focus on the Internet of Things (IoT) in blockchain ecosystems stating that IoT is a technological paradigm that bridges physical and digital worlds over a global network. They also highlight that there are a number of major challenges such as privacy and security. Blockchain can be a solution to these problems.

Chapter 4 introduces a blockchain-based framework for blood distribution. Dr. Cagliyangil and his colleagues propose such an Ethereum blockchain-based framework called KanCoin concerning this potential in order to manage and adjust the processes for efficient distribution planning in the blood delivery system from donors to distribution centers and patients at medical centers in a more effective way than the conventional procedures.

Chapter 5 develops an institutional view on developing a supportive culture in digital transformation. Dr. Gurkan and Dr. Ciftci state that organizations create a digital culture by adapting their culture to the new format in order to be successful during this challenging process. Culture is the most important element for the continuation of the core values and the participation of the employees with the least resistance. Thus, their study examines the effect of digital transformation and culture on this transformation process. Information is also provided about the digital organizational culture.

Chapter 6 develops an institutional approach to the digitalization of business functions under Industry 4.0. Dr. Cagle and her colleagues aim to highlight the role of each function within Industry 4.0. Moreover, the chapter will determine the

actualized benefit of transitioning toward Industry 4.0, separate from the recognized benefits under the literature.

Chapter 7 assesses a new marketing trend in the digital age with social media marketing. Dr. Sumer states that consumers can influence each other's preferences through comments that they share over social media. Their comments on social media are important in the promotion of goods and services. Therefore, it would not be wrong to say that social media is an effective marketing tool in today's business environment. This chapter is aimed at examining the concept of social media marketing and its effects on the marketing activities of businesses.

Chapter 8 develops a critical approach to the transformation of supply chain activities in the blockchain environment. In this chapter, the potential impact of the blockchain technology on supply chain management (SCM) was investigated to reveal the nature of transformation that it can result in the domain by Drs. Akyuz and Gursoy. Findings reveal that technology is expected to provide accurate and trustable transaction infrastructure as well as true visibility and traceability across partners. With its potential to provide a transparent and trustable multi-partner ecosystem, it appears that blockchain will accelerate and strengthen the realization of a collaborative, IT-based network paradigm. Hence, findings of the study support that the blockchain technology will be a critical enabler of the transformation of the supply chains into tightly coupled, transparent collaborative ecosystems.

Chapter 9 initially assesses the digitalization process in logistics operations and Industry 4.0 and develops an understanding of the linkages with buzzwords. Dr. Sorkun's study aims to initially introduce the Industry 4.0 enabling technologies (buzzwords), expected to be widely used in logistics operations in the immediate future, and then reveals the linkages between these technologies. To this end, this study applies the fuzzy-total interpretative structure modeling on the Industry 4.0 enabling technologies, which are big data analytics, Internet of Things, artificial intelligence, cloud technology, 3D printing, augmented reality, 5G connection, and autonomous vehicles. The results show that most Industry 4.0 enabling technologies are interdependent but to different degrees. These results provide guidance on which technologies firms should primarily focus on to achieve digital transformation in logistics operations.

Chapter 10 draws attention to the future directions of the digitalization of business logistics activities. Drs. Bayarcelik and Bumin Doyduk stated that Industry 4.0 enables communication between humans and machines in cyber-physical systems (CPS). The concept of Industry 4.0 was first brought up in Germany. With the promises of the concept and increasing demand in cost-effectiveness, flexibility, and sustainability, Industry 4.0 has drawn considerable interest globally. The Industry 4.0 era will lead to breakthrough chances in the business world. As the technologies of this era enable ubiquitous presence and real-time information about every single piece of a process, it has been used in many firms in developed countries for some time.

Chapter 11 develops a critical approach to the digital transformation of human resources management with an assessment of the digital applications and strategic tools in HRM. Dr. Vardarlier indicates that enterprises now use digital human

resources systems while carrying out their human resources functions. In this respect, while enterprises offer many innovations in the digital field to consumers, human resources management also applies similar innovations to employees or candidates. Therefore, digital transformation in human resources processes is more effective when used as part of a broader employment process. In this context, this study focuses on the use of digital applications in the human resources management of enterprises. However, the reflections of digitization on human resources processes have also been elaborated.

Chapter 12 analyzes the transformation of human resources management and its impact on overall business performance using big data analytics and AI technologies in strategic HRM. Prof. Zehir and his colleagues demonstrate that digitization in the workplace has already affected working methods and the working environment. The digital transformation of human resources management (HRM) is one of the most discussed topics in recent academic studies. In that context, this chapter investigates the transformation of strategic HRM by big data and artificial intelligence (AI) technologies and the impact on business performance. The authors discussed the impact of digital technologies on SHRM and how big data and AI technologies enhance the strategic development of HR. Secondly, the role of technology in HR evolution from 1945 to the present is explored. It can be seen that as technology develops, the business also changes the way it manages human resources. Third, the importance of the use of big data and AI technologies in HR functions is discussed. Finally, the ways in which HR contributes to business performance as a result of the digital transformation of HR are discussed. Suggestions and future directions are provided for both HR professionals and researchers to support overall business performance by transforming SHRM into digital SHRM.

Chapter 13 initially determines key success factors for strategic management in digital business. Dr. Met and his colleagues indicate that technology improves quickly and every object that comes into direct contact with life is being digitized. The developments in the field of information technologies and the need for digital transformation have led to a rapid change in the traditional ways of doing business. Both the biggest threat and opportunity come from technology. It can bring on fail for the companies that don't understand the technological developments correctly and adapt to the changing environment. It has become an important issue to create the right strategic management model in order to enable firms to evaluate the opportunities and minimize risk during digital transformation because every enterprise has a different approach to digitalization.

Chapter 14 explains the platform strategy for business transformation in a blockchain ecosystem. Prof. Ku's chapter explains blockchain platform strategies for business transformation in a blockchain ecosystem. The blockchain platform, which includes specific transaction records and distributed ledgers for certain time periods, can be defined as (1) a core asset in a blockchain ecosystem, (2) a common basic asset, (3) an asset possibly generating derivative content and services, such as complements, (4) the hub in the value chain in blockchain technology-based businesses, and (5) an asset retaining blockchain technology.

Chapter 15 demonstrates the practical evidence of blending business strategies with IT in the digital era. Dr. Met and his colleagues clearly state that the alignment of IT management and business is the key factor for the success of enterprises. The IT management must take care and understand the business strategies and proceed in this context for the management of data, application, and infrastructure architecture. The business must also implement methods to transfer the logic behind the strategies, vision, organization, the processes to improve, and the functions to develop to the IT management in the context of business architecture. Throughout blending business strategies with IT management, the enterprises can achieve more efficient business and IT operations, better return, reduced risk, and complexity; so, the organization becomes more agile among different distribution channels, project and change management is easier, and the software development costs will be lower.

Chapter 16 focuses on the recent developments of artificial intelligence in business logistics: a maritime industry case. Dr. Ceyhun highlights that fast-growing technological features of today drive all companies in all sectors to mechanization with automation by artificial intelligence (AI). As the maritime and logistics sector moves toward becoming fully digital, AI becomes a significant competition element for leading shipping companies in business logistics and maritime nations. Although the use of artificial intelligence requires a great investment in the short term, it brings profitability by reducing the costs in the long term.

Chapter 17 investigates on the use of artificial intelligence as a business strategy in the recruitment process and social perspective. The authors aim to reveal the benefits and risks of AI-based use on human and community in recruitment processes in the human resources department. The applications of artificial intelligence are explained with examples.

Chapter 18 highlights the importance of digital marketing strategies and business trends in emerging industries. Authors state that there are several difficulties an emerging industry faces while entering into a market such as high costs, uncertainty, complexity, and instability. Traditional marketing may not be effective enough in these industries to deal with these difficulties due to the ongoing transformation in the technology and digital marketing. This is expected to present more useful and effective results. Therefore, digital marketing potential in emerging industries will be presented in this study.

Chapter 19 explains the framework of the structure and strategy in virtual organizations and develops insights on the strategies for virtual travel organizations. Drs. Toylan and Cakirel address the network-based strategies of virtual travel organizations, which are in conformity with today's management mentality. In this sense, the concept of virtual organization has been defined in terms of the travel sector in particular. After referring to the concept of virtual travel organization, the structure, process, and characteristics are discussed. In conclusion, several strategy suggestions have been made for virtual organizations. The literature does not include many studies explaining the strategies on the basis of networks and exhibiting the components that affect the performance of VTO. The study contributes to the literature in those aspects and can also be a significant source of information for field students, scholars, and professionals.

Chapter 20 develops a futuristic view of the effects of blockchain technology on accounting applications. This chapter aims to exhibit the current accounting operation areas that blockchain technology impacts, as well as the future direction of the integration between technology and accounting.

Chapter 21 develops a critical approach to accounting in the digital era with the assessment of the impacts of Industry 4.0 on financials. The chapter focuses on the effects of Industry 4.0 on financial statements and financial statement analysis from a theoretical perspective. The possible effects of developing information technologies on financial statements and ratio analysis will be discussed.

Chapter 22 answers on the question of how to use blockchain effectively in auditing and assurance services. This chapter will explain how and when to use blockchain technologies and identify the potential new risks that await the auditor. Since no definitive rules and regulations have yet been made, this study is based on the opinions of several professional bodies that are currently tackling Bitcoin and other sub-tools that blockchain ecosystems are offering.

Chapter 23 takes a contrary view and discusses reflections of digitalization on accounting: the effects of Industry 4.0 on financial statements and financial ratios. This chapter aims to provide an assessment of the implementation outcome of the digitalization process and provides an in-depth understanding of the financial impact of Industry 4.0.

Chapter 24 examines the position of dark factories from an Industry 4.0 perspective with its effects on cost accounting and managerial accounting. The aim of the study was to investigate the Industry 4.0 effects on cost and management accounting. Within the scope of this study, the roles of cost and management accounting in dark factories, which have the potential to become the production business of the future, were discussed. This study suggested that the existing accounting perspective should be changed. As a result of completed studies, various suggestions in accordance with Industry 4.0 have been put forward to reduce human error and wastage, better manage time, increase production capacity and quality, reduce costs, and provide a competitive advantage.

Chapter 25 evaluates the cybercrime economy via MCDM and decision tree approaches with the case of Zonguldak. This study aims to evaluate the relations/determiners of CA damages and information technology (IT) investments to firms' economics and present the findings to the researchers/decision makers.

Chapter 26 draws a comprehensive framework of copyright and intellectual property in digital business with the issue of protection and retrieval of investment in intellectual creation. The aim of this chapter will be to explicate about copyright in digital business. The study begins with highlighting the overview of copyright law and digital business scenario. The chapter further scrutinizes the issues and challenges associated with the copyright in digital business.

Chapter 27 draws attention on the state of the art in blockchain research (2013–2018) with the scientometrics of the related papers in Web of Science and Scopus. The objective of this chapter is to present the current trends, statistics, and relationships from the growing body of literature on blockchain technology. This research is supported by scientometrics, which is the methodology used to analyze data

extracted from online scientific databases to obtain the major trends, research agendas, demographics, particular metrics, and networks and understand leading topics. This research is based on papers published in the Web of Science (WoS) and Scopus databases between 2013 and 2018. The intent of this research is to shed light on the holistic view of blockchain literature and to support the researchers and practitioners in this field.

Chapter 28 assesses blockchain-based smart contract applications in the tourism industry. The main aim of the study is to design the bases of the blockchain system and the creation of smart contracts and to generate a new blockchain in the financial payment system. In the scope of the study, the technology under the blockchain system and smart contracts were examined. In light of the information obtained, a reliable, transparent, accountable simplified blockchain data structure as a result of intensive use of data and goods can be used in smart contracts in the financial payment system in tourism enterprises.

Chapter 29 analyzes Bitcoin jumps and speculations finding empirical evidence from high-frequency data. The aim of this chapter is to investigate the relationship between the jump dynamics of Bitcoin prices and the speculations by using high-frequency data. Prof. Yalaman measures the significance of the jumps using Huang and Tauchen (2005) nonparametric test and Google's Trends statistics for the measurements of the speculation. The results show that there is a discrete jump in the Bitcoin price around speculations and the futures contracts do not have any significant effect on this relationship, but notably after the launch of the futures contract, the speculations have a much higher significant effect on the Bitcoin jumps.

Chapter 30 develops an institutional and practical approach to taxing the "Un"Taxed digital economy with a focus on India while decoding the outsourced holding company model. The chapter presents a theoretical model to show how liberal tax laws have always been attractive for shifting profits. In this background, the chapter discusses the outsourced holding company model of tax avoidance used by digital business platforms like Flipkart with a special focus on India and hence decoding the tax design that can be operationalized by the fiscal authority to ensure increased tax revenues from digital value creation under such a case.

This book gathers colleagues and professionals across the globe from multicultural communities to design and implement innovative practices for the entire global society of business, economics, and finance. The authors of the chapters in this premier reference book developed a new approach to transformational change in business operations in the digital era with an elaborate understanding of digital business strategies on the basis of the blockchain ecosystem.

Finally, distinguished authors and professionals contributed to the success of existing literature with their theoretical and empirical studies in this novel book.

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