



Blockchain technology model in the management accounting unit of manufacturing companies

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Abstract

In the present study, the blockchain technology model in the management accounting unit of manufacturing companies was discussed. The research method is qualitative and quantitative, and the research information was collected by means of a questionnaire. The statistical population of the study includes all accountants who are members of the Iranian Society of Certified Public Accountants and auditors of the Auditing Organization who have knowledge and study in the field of blockchain. Using the Cochran sampling formula and simple random sampling method, 385 people were selected as a statistical sample. The research findings showed that 3 categories emerged as the central categories, which include: technology, political factors, and legal factors. The other categories were placed in five categories for presentation in the visual model: causal conditions (4 categories), context or background (2 categories), intervening conditions (3 categories), strategies (3 categories), and consequences (5 categories). Next, based on the indicators, components, concepts, and categories of the proposed model, a 129-question questionnaire was developed, and based on the collected data, the relationships of the proposed model were examined, and ultimately the results showed the significance of the relationships and components of the proposed model.

Keywords: Blockchain Technology, Management Accounting Unit, Manufacturing Companies, Management Accountants.

JEL Classification: M41, Q32, M41, D2.

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INTRODUCTION

The digitalization of corporate systems enables them to adopt new technological tools to streamline business processes and change business models to innovate their operations (Gomber, et al. 2018). Because they can increasingly access advanced computing power and large databases (de Sousa, et al. 2019). Today, the world's most valuable businesses are internet- and platform-based (Iansiti, M., & Lakhani. 2017). Academics, social media, industries, and governments are spending a lot of time paying attention to digital forms of technology: blockchain, artificial intelligence, big data, the Internet of Things, and cloud computing. These innovations are transforming organizations and individuals to a great extent (Benlian, et al. 2018), with blockchain in particular providing the foundation for what Tapscott, & Euchner (2019) call the Internet of Things, which will fundamentally transform society and commerce. Blockchain, now considered the fifth pillar of the information technology revolution, is expected to become the foundational technology for the next generation Internet (Iansiti, M., & Lakhani. 2017; Shermin, V., 2017). Since Nakamoto, S. (2008) laid the groundwork for blockchain technology in 2008, the banking, finance, insurance, education, healthcare, and government sectors have been using blockchain technology to the point where 10% of global GDP will be recorded and stored on blockchain by 2027. The British multinational professional services firm estimates that blockchain could boost global GDP by \$1.76 trillion by 2030. Deloitte's Global Blockchain Survey shows that organizations are more committed than ever to implementing blockchain in their businesses (Deloitte, 2020). As blockchain matures, innovators are discovering new opportunities to create value and increase trust and resilience to digital transformation by combining blockchain with other forms of technology, particularly artificial intelligence, the Internet of Things, or cloud computing (Cuomo, J., 2020.). Blockchain is considered a potential game-changer for recording accounting transactions, as it enables triple-entry bookkeeping and real-time reporting. However, there is very little knowledge about the uptake of blockchain in accounting, and most blockchain accounting research is conceptual and lacks empirical evidence. Given the importance of blockchain in today's world, and specifically in the field of accounting and auditing, this study examines the blockchain technology model in the management accounting unit of manufacturing companies.

METHODOLOGY

The present study is a narrative analysis in this regard. In addition, the present study is a mixed exploratory study (first qualitative and then quantitative) in terms of data and data collection and analysis method, because the researcher used a literature review based on a mixed research effort to interview relevant individuals. Experiments, focus groups, and case studies had to be conducted. Finally, given the nature and context of the research, the present study is a cross-sectional study. Given that the researcher of this study has been conducting a structural model of the indicators and components of the efficiency of blockchain technology in the management accounting unit, the statistical population of this study includes experts, professors, and experts. In the field of accounting and auditing, whose opinions can be

attracted about the projects. In addition, in theorizing basic information, data collection is limited in terms of time. The stud support of officials in implementing blockchain, amending and improving blockchain laws, complying with legal requirements, adaptability to changes in laws, incentives and rewards. reaches saturation. That is, if the new information collected is no different from the previously collected information and becomes similar. In other words, if the sample reduces the cost of data collection, a suitable sample can be guaranteed. Lincoln and Guba stated that in a carefully conducted study in which sample selection is evolutionary and sequential, the saturation point can be reached with 12 and a maximum of 20 participants. Douglas estimated in his study that the 25 participants required for in-depth interviews before saturation is reached is sufficient for an approximate sample size of (10±15) to conduct interviews. Basically, this type of research in information theory is called theoretical research. Theoretical sampling is the process of collecting data for theory-building by which the researcher simultaneously collects, codes, and analyzes data and decides what data to collect and where in the future until he finds his theory, using the snowball method to refine the sample size. To select the sample size, respondents are asked to learn about the topics and background information for further interviews. The researcher predicted that a minimum of 15 and a maximum of 30 experts and specialists would be sufficient, with this volume of data collected, saturation had been reached and no further interviews were needed.

RESULTS

In this study, the strategy of qualitative theorizing bank data was adopted to achieve a comprehensive model or theory along with providing an appropriate model of indicators and components of the effectiveness of blockchain technology in the accounting and auditing sector. The analysis steps were carried out step by step based on the basic data theorizing approach and finally, based on the research literature and interviews conducted, 129 concepts and 20 categories were counted with five central numbers among the categories. In 17 cases, the components of information theory were identified, which are the basis of the results obtained from the research. Story and visualization were used to present the theory. The main component identified in this study is “technology, political conditions, legal conditions” which is used to infer the remaining components. The categories of causality (4 cases), strategy (3 cases), background or context (2 cases), mediating factors (3 cases) and consequences (5 cases) were placed in three categories to be presented in the visualization. It is as follows: Among all the categories, 3 categories of "technology, political factors, legal factors" are considered as the central category, where technology includes: taking advantage of opportunities, putting and removing transparent information, lack of risk in blockchain, lack of trial and error in blockchain, limiting conditions in blockchain, helping speed up operations, trust models based on algorithms, more time for research and development. Political factors include: appropriate infrastructure, balance between the country's positions and resources, understanding the opinions of financial managers, coordination of politicians' movements, success of policies. Legal factors include: creating a balance of positions and resources, investment security by enforcing the law, preventing capital flight, the care and

CONCLUSION

The other categories were placed in five categories for presentation in the visual model: causal conditions (4 categories), context or background (2 categories), intervening conditions (3 categories), strategies (3 categories), and consequences (5 categories). Next, based on the indicators, components, concepts, and categories of the proposed model, a 129-question questionnaire was developed, and based on the collected data, the relationships of the proposed model were examined, and ultimately the results showed the significance of the relationships and components of the proposed model.

Contribution of Authors

This research was conducted individually.

Ethical Approval

Informed written consent has been obtained from the individuals for the publication of their anonymous information in this study.

Sponsor

The present study had no financial sponsor.

Conflict of Interest

No conflict of interest has been declared by the authors.

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