

Cuadernos de economía



www.cude.es

ARTÍCULO

The Role of Block Chain Technology Adoption on the Budget Performance Management: Moderating Role of Institutional Support

Chen Yuhua^{1,2}, Hasri Mustafa², Feng Ziqin³, Rosmila Senik⁴

Jel Codes:

M14; N14

Keywords:
Blockchain technology
adoption, perceived
ease of use,
institutional support
perceived usefulness,
budget performance
management,
behavioral intention to
use.

Abstract: Adopting technology is essential to an organization's excellent performance, and this issue requires the researchers' attention. Therefore, the current study investigates the effect of blockchain technology adoption (reported ease of use, perceived usefulness, and behavioral intention to use) on the budget performance management of Chinese manufacturing organizations. This study examines the moderating effect of institutional support on perceived ease of use, perceived usefulness, behavioral intent to use, and budget performance management in Chinese manufacturing organizations. Using survey questionnaires, the researchers obtained the key data. Using Smart-PLS, the researchers additionally examine the relationship between the understudy components. The results suggested that perceived simplicity of use, usefulness, and behavioural intention to use positively relate to budget performance management in Chinese manufacturing organizations. The results also revealed that institutional support significantly moderates the relationship between perceived ease of use, perceived usefulness, behavioral intention to use, and budget performance management in China manufacturing organizations. The research assists authorities in formulating rules about high-budget performance management utilizing efficient blockchain technology.

¹Zhongyuan Institute of Science and Technology, Zhengzhou, Henan, China; gs60188@student.upm.edu.my

²Department of Accounting and Finance, University Putra Malaysia, Serdang, Malaysia

³North China University of Water Resources and Electric Power, Zhengzhou, Henan, China

⁴Department of Accounting and Finance, University Putra Malaysia, Serdang, Malaysia

^{*}Correspondence: gs60188@student.upm.edu.my

1. Introduction

It is permissible to argue that a person who fails to plan must plan to fail. Budgeting closely resembles planning. It prepares expenditures for the company based on income and expenses. It evaluates available capital, aids in total spending, and aids revenue forecasting. The planning of expenditures facilitates the creation of company operations and the establishment of financial objectives for a certain period (Nasri et al., 2022). Budgeting provides a detailed procedure for making appropriate spending. Effective planning is the driving force behind the company's success. An effective budget describes allocating resources and managing assets through expenditures and business practices that take priority into account. It serves as a tool for prioritizing spending and managing cash. Given that an action plan is based on a budget, it provides a comprehensive framework for evaluating the success of company activities at any given time. Appropriate expenditure at the proper time satisfies corporate plans and contributes to achieving financial objectives. For this reason, businesses must construct their budgets meticulously, considering all relevant information, future objectives, resources, etc. (Bandiyono et al., 2019).

Blockchain is a decentralized, immutable, and network-wide database. It is intended to facilitate the storage of business transactions and tracking of network-accessible company assets. Any forms of assets, including tangible assets (currency, machine, building, land, or car) and intangible assets (patent rights, copyrights, brand image, and intellectual property), can be recorded and tracked using blockchain technology (Zhang, 2022). The adoption of blockchain technology is contingent on perceived ease of use, perceived usefulness, and behavioral intention of use. Blockchain technology can be effectively used if users perceive its ease of use and usefulness and have a high behavioral intention of usage. Blockchain technology builds a decentralized structure and facilitates the formation of trustworthy relationships. It enhances security and privacy, reduces costs, increases speed, guarantees transparency and traceability, and organizes high-quality data (Wei et al., 2022). Due to these advantages, the financial managers and executives responsible for establishing and announcing a budget can better comprehend the situation, prioritize demands, evaluate financial resources, and make the proper judgments. Hence, the budget performance can be enhanced (Ramadhan et al., 2022). This article sheds light on budget performance management in Chinese manufacturing enterprises. Genuine value-added manufacturing has created up to \$3.7 trillion in profits for the nation. These improved revenues have positioned the country ahead of the United States, South Korea, Germany, and the United Kingdom. The Chinese manufacturing industry is closely related to the world's largest domestic market. The estimated size of China's manufacturing sector is substantial, and the country has created advanced manufacturing supply chains (Jiang et al., 2022). The manufacturing sector successfully contributed 40.5% of the nation's nominal GDP at the end of 2022. China's proportion in the global economy increased from 8% in 2009 to 19.8% in 2014, propelling it to third among the world's economies in the global output of manufactured goods. Emerging companies in China's manufacturing sector include the following: Aluminum, iron and steel, machinery, textiles and apparel, armaments, petroleum, coal, chemical, cement, fertilizers, automobiles, food processing, and other transportation equipment, ships, and aircraft, including rail, automobiles, and locomotives.

telecommunications and information technology, consumer goods including toys, footwear, and electronics (Zheng et al., 2022).

The enterprises that make up China's manufacturing sector plays a major position in the country and contribute significantly to economic growth via rising GDP, exports, foreign exchange, and technological advancement. Yet, many manufacturing companies are growing at a slower rate and are experiencing financial difficulties. If these companies effectively manage their finances through budget performance management, they can overcome obstacles and increase the rate of progress (Vilkov et al., 2019). The present article discusses the management of budget performance. This study investigates the relationship between blockchain technology adoption, perceived ease of use, perceived utility, and behavioral intent to use in budget performance management. In addition, this study intends to investigate the relationship between institutional support and blockchain technology adoption, perceived ease of use, perceived utility, behavioral intent to use, and budget performance management.

The present work builds on prior research and contributes significantly to the literature: First, numerous authors have addressed budget performance or budget performance management in prior research, and some studies have examined the role of blockchain technology in budget performance management. However, the current study, which explores the effect of perceived simplicity of use, perceived utility, and behavioral intention of using blockchain technology in budget performance management, contributes to the existing body of knowledge. Second, most past research has primarily examined the role of institutional or organizational support in budget performance management. This study investigates the role of institutional support as a moderator between perceived ease of use, perceived utility, and behavioral intention to use blockchain technology and budget performance management. Therefore, it contributes to the literature. Third, although China's manufacturing and other economic sectors require improvement in budget performance management, this is the first attempt by the authors to investigate the role of perceptions and behavioral intention of blockchain technology in China's manufacturing sector's budget performance management. This comprises the following distinct yet interconnected parts: In the second section, a literature review investigates the relationship between perceptions and behavioral intentions about blockchain technology and budget performance management. In the third section, the writers describe research methodologies and procedures in depth, and in the following section, hypotheses are tested, and results are provided. In the discussion section, the results are consistent with past research. The study's findings, consequences, and limitations are then briefly discussed.

2. Literature Review

Blockchain is a revolutionary information technology that comprises a shared, decentralized, and unchangeable business network database. It records business transactions in blocks linked in a specific order and cannot be altered at a single network node. All tangible and intangible assets can be tracked using blockchain technology, and other transactional data can be exchanged. For blockchain technology to be adopted, positive impressions and behavioural intentions must exist (Arodhiskara et al., 2022). The relationship between perceived

ease of use, perceived utility, and behavioral intention of use of blockchain technology and budget performance management has been extensively discussed in the prior literature. Several articles are listed below for hypothesis development.

Blockchain technology is a complicated database designed to manage the data or information of a business. The use of blockchain technology improves information management and eliminates associated obstacles. Yet, its acceptance is correlated with user assessments of the technology's usability (Namazi et al., 2020). Budget management will benefit if blockchain technology is implemented within an organization and employees find it easy to use. Budget performance management is enhanced due to the ability to foresee risks and benefits connected with expenditures (Virgil et al., 2022). A research article by Abdullahi et al. (2021) examines the impact of blockchain technology's perceived usability on budget performance management. The study suggests that organizational workers with an understanding of and experience with blockchain technology generate an impression that this revolutionary technology is simple to use. This positive impression enables them to effectively and appropriately implement blockchain technology and organize accurate, trustworthy, and transparent data for the firm. In this circumstance, it is simple to determine which income sources have been more profitable and which activities must be avoided. Hence, budget management performance may be enhanced. Secretary-General (2019) asserts that the perception of simplicity encourages using blockchain technology. As a result, the adoption of blockchain technology demonstrates that financial managers must allocate resources and distribute capital to create an effective budget. Given the above debate, we may conclude:

H1: Perceived ease of using blockchain technology positively links with budget performance management.

Blockchain technology, the technical instrument that delivers transparent and correct information and ensures business data security, is useful for formulating an effective budget. However, the efficiency of blockchain technology is contingent on the organizational personnel's utilization skills. If people have positive impressions of the utility of blockchain technology, they are more motivated and competent to implement the technology. Budget performance can be better monitored when this database is utilised more effectively within the firm (Shukla et al., 2022). Ciaian et al. (2021) presented a study to determine the relationship between blockchain technology as assessed by perceived utility and budget performance management. The study asserts that if employees are made aware of the advantages of adopting a novel technology called blockchain and trained on how to take advantage of those advantages, they will create a desire to replace the existing information and bookkeeping technology with this novel technology. Using blockchain technology across a network of company departments and stakeholders enables instant access to data about past events or transactions. This improves budget management agility and provides risks and cost-affecting benefits. Pincheira et al. (2021) also demonstrate that if organizational personnel perceive the utility of blockchain technology to perform tasks unique to the recording of transactions and ownership of assets, they implement the technology and interact with the database for budget management. Hence, budgetary performance improves. The literature presented supports the following hypothesis.

H2: Perceived usefulness of blockchain technology has a positive link with budget performance management.

The behavioral intention of employees impacts the efficiency with which they do the specific duties for which they intend. With the adoption of blockchain technology, the intent of use also plays a significant role. With the behavior intention to use, employees get more familiar with blockchain technology, its functionality, and its use, and efficiently implement it. Effective working technology helps managers evaluate their income and expenditures for a certain period and notifies them of the available assets. So, managers can submit a budget with enhanced performance (Sandi et al., 2021). Aiping (2020) examines behavioral intent's role in implementing blockchain technology in budget performance management. Using many econometric approaches, the authors conclude that behavioral intent to utilize blockchain technology positively impacts budget performance management. The behavioral purpose of using blockchain technology engenders a commitment to learning about it and acquiring the necessary abilities to deal with it. Employees who are knowledgeable, talented, and skillful utilize technologies effectively and use them to manage resources and asset allocation, resulting in enhanced budget performance. Yee (1996) studies the impact of behavioral intention to implement blockchain technology on budget performance management. The research reveals that behavioral intention is crucial in blockchain technology adoption and budget performance management. The literature cited above contributes to the development of this idea.

H3: Behavioral intention to use blockchain technology has a positive link with budget performance management.

The firms that use HR policy to support their employees promote and strengthen their relationships with them, give them innovative and high-quality resources, recognize their performance, and train them for greater productivity (Hutama et al., 2019). With such an organizational culture, people can be trained on blockchain technology and gain the necessary abilities to engage with it while executing their tasks. This enhances the notion of blockchain technology's usability. As a result, financial managers who must make the correct decision when establishing a budget for a given period analyze the information stored in chronological blocks and achieve appropriate budget management objectives. institutional support influences the relationship between the perceived ease of use of blockchain databases and budget performance management (Pribadi et al., 2020). Anggadini et al. (2021) investigate the connection between institutional support, perceived ease of utilizing blockchain technology, and budget performance management. According to the survey, supporting organizations care about their employees' facilities and demonstrate their value to corporate performance. Some companies have no qualms about employing cutting-edge technologies and making their staff aware of the resulting convenience. The notion of blockchain's simplicity of use enhances staff skills, comprehension, observation, anticipation, decision-making, and problem-solving, all of which are essential to budget performance management. Hence, we can say:

H4: Institutional support significantly moderates the perceived ease of using blockchain technology and budget performance management.

After introducing novel technologies and technical processes, supportive institutions do not simply let employees operate the

technologies and processes independently. Rather, the staff is provided with the necessary knowledge and abilities. When employees have a clear understanding of the benefits of blockchain technology and are taught how to interact with novel technology properly, they have the self-assurance and commitment to using it to its fullest potential (Arnold et al., 2019). The use of blockchain technology fosters trust and collaboration between employees. Hence, resource integration is optimal, and the performance of the budget can be enhanced. Therefore, institutional backing establishes a connection between the perceived utility of blockchain technology and budget performance management (Li et al., 2019). Mauro et al. (2021) examines the connection between institutional support, perceived ease of implementing blockchain technology, and budget performance management. The study reveals that in the financial department, the officers must organize high-quality information and safeguard the transactional data. So that they can make sound choices on generating revenue and the expenditures or expenditure plans if there is institutional support for employees, they have to recognize the utility of blockchain technology. By employing it, they can make the appropriate budgetary decisions. In this

H5: Institutional support plays a significant moderating role between the perceived usefulness of blockchain technology and budget performance management.

A helpful organization is always concerned with the welfare of its employees and does not harm its relationships with its stakeholders. This organization may successfully acquire innovative technologies, inspire staff to think creatively, and adopt a behavioral intent to use innovative technologies (Pepe, 2021). The organization efficiently adopts the technology that cultivates employee desire to interact with blockchain technologies and assists them in their implementation. Furthermore, individuals who influence an organization's budget carry out their duties with a sense of responsibility towards the organization. So, when organizational support exists, behavioral intent to adopt blockchain technology for budget performance management increases (Alsharqawi et al., 2021). Chidinma (2022) investigates the relationship between institutional support, behavioral desire to utilize blockchain technology, and budget performance management. The study hypothesizes that employees are emotionally attached to the Table 1. Statistic description of dependent variables

firm in supporting organizations and intend to implement blockchain technology. The use of blockchain technology increases budget performance management. Hence.

H6: Institutional support significantly moderates behavioral intention to use blockchain technology and budget performance management.

3. Research Methods

This study investigates the impact of perceived ease of use, perceived usefulness, and behavioral intention to use blockchain technology on budget performance management, as well as the moderating role of institutional support in the relationship between perceived ease of use, perceived usefulness, behavioral intention to use, and budget performance management of manufacturing organizations in China. Using survey questionnaires, the researchers obtained the key data. The variables were measured using the items. For instance, perceived ease of use is measured using five items extracted from Wicaksono et al. (2020), perceived usefulness is measured using eight items taken from Gunawan et al. (2019), behavioral intention to use is measured using five items adapted from Unal and Uzun (2021), institutional support is measured using five items extracted from Ahsan et al. (2021). Budget performance management is measured using six items extracted from De Rooij et al. (2019).

As respondents, the researchers selected the personnel of the industrial organization's information technology department. The surveys were sent by mail to the employees. A simple random sample chose the employees. The researchers sent out approximately 533 questionnaires, but only 295 legitimate responses were obtained, representing a response rate of approximately 55.35 percent. Using Smart-PLS, the researchers additionally examine the relationship between the understudy components. It gives the most accurate findings with big data sets and complicated models and the most accurate results using primary data. Three factors were utilized by the researchers: perceived ease of use (PEU), perceived usefulness (PUF), and behavioral intention to use (BIU) (BIU). In addition, the researchers utilized a moderating variable referred to as institutional support (IS) and a dependent variable referred to as budget performance management (BPM). Figure 1 depicts the presented variables.

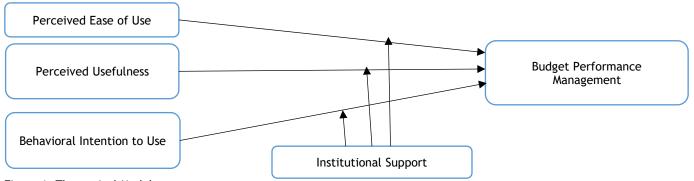


Figure 1: Theoretical Model

4. Research Findings

The study's results revealed convergent validity or the correlation between items. The results indicated that the Alpha and composite reliability (CR) values exceed 0.70. In addition,

the results demonstrated that the average variance extracted (AVE) and factor loadings are greater than 0.50. These numbers revealed a strong link between variables. These numbers are presented in Table 1.

Table 1: Convergent Validity

Constructs	Items	Loadings	Alpha	CR	AVE
Behavioral Intention to Use	BIU1	0.864	0.899	0.929	0.766
	BIU2	0.876			
	BIU3	0.882			
	BIU5	0.880			
Budget Performance Management	BPM1	0.822	0.827	0.878	0.594
-	BPM2	0.819			
	BPM3	0.841			
	BPM4	0.650			
	BPM6	0.701			
Institutional Support	IS1	0.937	0.944	0.958	0.820
•	IS2	0.857			
	IS3	0.935			
	IS4	0.938			
	IS5	0.856			
Perceived Ease of Use	PEU1	0.878	0.868	0.905	0.658
	PEU2	0.773			
	PEU3	0.732			
	PEU4	0.779			
	PEU5	0.881			
Perceived Usefulness	PUF1	0.930	0.975	0.979	0.871
	PUF2	0.946			
	PUF3	0.935			
	PUF4	0.941			
	PUF5	0.944			
	PUF7	0.901			
	PUF8	0.936			

Table 2: Fornell Larcker

	BIU	BPM	IS	PEU	PUF
BIU	0.875				
BPM	0.381	0.770			
IS	0.380	0.498	0.905		
PEU	0.418	0.505	0.510	0.811	
PUF	0.411	0.497	0.500	0.480	0.933

Table 3: Cross-loadings

	BIU	ВРМ	IS	PEU	PUF
BIU1	0.864	0.323	0.299	0.300	0.354
BIU2	0.876	0.328	0.347	0.391	0.357
BIU3	0.882	0.309	0.312	0.373	0.351
BIU5	0.880	0.369	0.365	0.397	0.375
BPM1	0.327	0.822	0.491	0.442	0.397
BPM2	0.359	0.819	0.450	0.463	0.426
ВРМ3	0.319	0.841	0.389	0.441	0.398
BPM4	0.185	0.650	0.285	0.293	0.354
ВРМ6	0.242	0.701	0.248	0.253	0.330
IS1	0.322	0.456	0.937	0.753	0.457
IS2	0.373	0.451	0.857	0.706	0.442
IS3	0.324	0.457	0.935	0.744	0.460
IS4	0.324	0.444	0.938	0.760	0.461
IS5	0.374	0.447	0.856	0.703	0.444
PEU1	0.330	0.409	0.662	0.878	0.388
PEU2	0.351	0.449	0.732	0.773	0.450
PEU3	0.329	0.392	0.541	0.732	0.317
PEU4	0.348	0.380	0.670	0.779	0.398
PEU5	0.332	0.407	0.661	0.881	0.382
PUF1	0.380	0.446	0.467	0.441	0.930
PUF2	0.400	0.467	0.461	0.459	0.946
PUF3	0.407	0.448	0.454	0.466	0.935
PUF4	0.376	0.459	0.475	0.448	0.941
PUF5	0.396	0.468	0.466	0.454	0.944
PUF7	0.354	0.495	0.473	0.429	0.901
PUF8	0.376	0.458	0.471	0.442	0.936

The investigation results revealed the association between variables, known as discriminant validity. The study used Fornell Larcker and cross-loadings to determine the correlation between the variables. The results suggested that the numbers that revealed the nexus between the variable and itself were greater than those that revealed the nexus between the variable and other variables. These numbers suggested a weak relationship between factors. These numbers are shown in Tables 2 and 3.

The study also employed the Heterotrait Monotrait (HTMT) ratio to examine the association between the variables. According to the results, the figures are less than 0.90. These numbers suggested a weak relationship between factors. These numbers are presented in Table 4.

Table 4: Heterotrait Monotrait Ratio

	BIU	ВРМ	IS	PEU	PUF
BIU					
BPM	0.430				
IS	0.410	0.548			
PEU	0.472	0.579	0.592		
PUF	0.439	0.551	0.521	0.520	

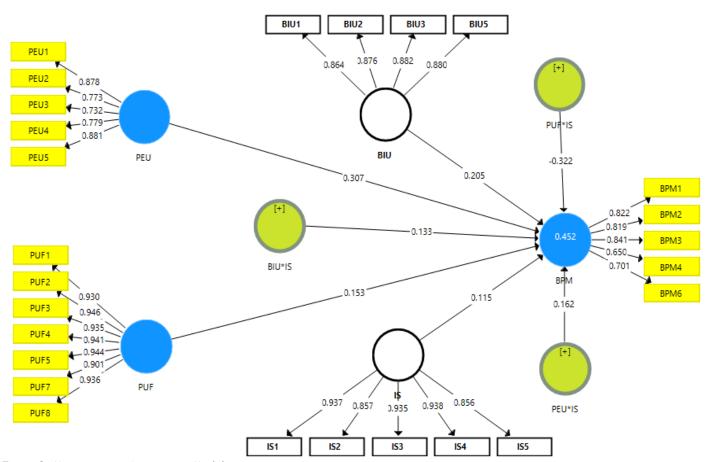


Figure 2: Measurement Assessment Model

The results suggested that perceived simplicity of use, usefulness, and behavioral intention to use favorably correlate with budget performance management in China. Therefore H1, H2, and H3 can be accepted. In addition, the results revealed that institutional support significantly

moderates the relationship between perceived ease of use, perceived usefulness, behavioral intention to use, and budget performance management in China, accepting hypotheses H4, H5, and H6. These numbers are presented in Table 5.

Table 5: A Path Analysis

Relationships	Beta	Standard Deviation	T Statistics	P Values
BIU -> BPM	0.205	0.072	2.857	0.003
BIU*IS -> BPM	0.133	0.064	2.093	0.019
IS -> BPM	0.115	0.066	1.733	0.043
PEU -> BPM	0.307	0.092	3.333	0.001
PEU*IS -> BPM	0.162	0.074	2.174	0.016
PUF -> BPM	0.153	0.074	2.078	0.020
PUF*IS -> BPM	-0.322	0.052	6.136	0.000

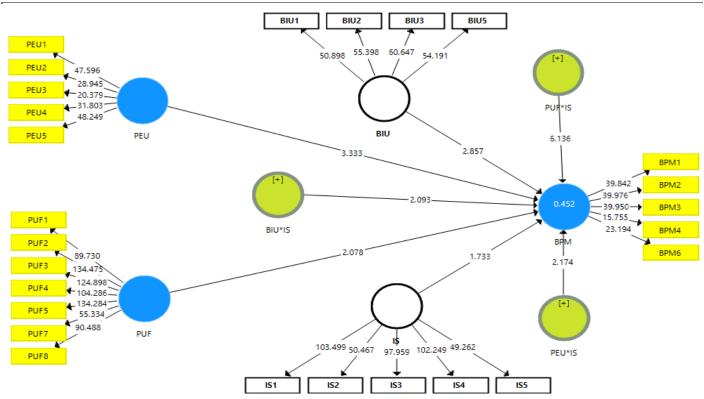


Figure 3: Structural Assessment Model

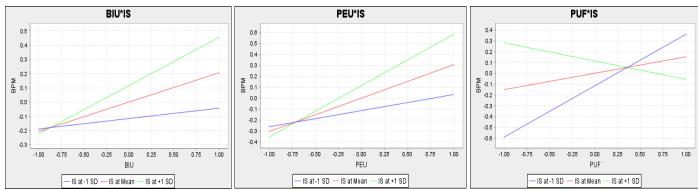


Figure 4: Moderation Analysis

5. Discussions

The results demonstrated a positive correlation between the perceived usability of blockchain technology and budget performance management. The findings are consistent with Park and Jang's (2021) assertion that positive opinions of blockchain technology's ease of use inspire organizational staff to adopt the technology. Using blockchain technology gives transparent data and enables the firm to manage its budget effectively. These findings are also consistent with (Mutiarin et al., 2020), which indicate that blockchain technology adoption, because of its perceived ease of use, helps the business to appropriately allocate resources, create more revenues, lower expenses, and forecast outcomes. It results in budget management effectiveness.

The results demonstrated a positive correlation between the perceived usefulness of blockchain technology and budget performance management. The findings are consistent with Zamfir et al.'s (2019) assertion that the awareness of blockchain technology's utility, particularly in performing management duties, enhances the adoption of blockchain technology to plan budgets in less time and attain financial objectives. These results are also consistent with Zewide and Swapna's (2021) assertion that blockchain technology's use for acquiring,

collecting, and processing comprehensive data makes its role in budget performance management beneficial.

The results demonstrated a positive relationship between behavioral intention to embrace blockchain technology and budget performance management. The outcomes correspond to Juhana et al. (2020). This past study hypothesizes that budget performance management will be successful if budget managers are motivated to interact with blockchain technology to obtain accurate information and direction. These findings are also consistent with Clohessy et al.'s (2019) findings, which suggest that firms where employees have a positive behavioral intention to use blockchain technology to manage information and accounting are more likely to manage corporate management efficiently.

The findings indicated that institutional support moderates the relationship between the perceived ease of utilizing blockchain technology and budget performance management. The outcomes concur with Kiayias et al. (2022). If an organization supports its employees, it will provide blockchain technology and training on using it. If the technology is user-friendly, there is high-quality data that influence budget management. These findings are also consistent with Prux et al.'s (2017) assertion that institutional support enhances the role of perceived ease of use of blockchain technology in budget performance management.

The results indicated that institutional support moderates the relationship between the perceived use of blockchain technology and budget performance management. According to Yadav et al. (2022), organizational support increases the perceived usefulness of blockchain technology and budget performance management. Thus, their bond strengthens. These results concur with those of Liu et al. (2021). According to the authors' views, if an organization is supportive throughout the formation of human resources practices, it increases employees' perceptions of the utility of blockchain technology. Hence, the application of blockchain technology enhances budget performance management.

The results indicated that institutional support moderates the relationship between behavioral intent to implement blockchain technology and budget performance management. The outcomes are consistent with Carvalho's (2020) finding that institutional support fosters behavioral intent to adopt blockchain technology and enhances its involvement in budget performance management. These findings are consistent with Rauchs et al.'s (2019) assertion that institutional support strengthens the association between behavioral intent to embrace blockchain technology and budget performance management.

6. Implications

This study provides instructions for academic work for researchers. The study uses blockchain technology to investigate the role of perceived ease of use, perceived utility, and behavioural intention in budget performance management. After extensive research on budget management, this is the first time the moderating influence of institutional support between perceived ease of use, perceived utility, and behavioral intention of using blockchain technology and budget performance management has been investigated. In addition, the report examines the role of blockchain technology adoption in China's manufacturing enterprises' budget performance management.

The study has tremendous significance for emerging economies because it could help corporate organizations achieve their financial objectives through improved budget performance management. This study suggests that blockchain technology must be considered user-friendly to promote its use and enhance budget performance management. There is a recommendation that business management should cultivate the perceived utility of blockchain technology to strengthen budget performance management. In addition, the report recommends that HR management build the behavioral intent to adopt blockchain technology and enhance employees' budget performance management skills. The study also recommends that institutions provide adequate support so that staff finds it simple to implement blockchain technology and enhance budget performance management. The research assists regulators in formulating legislation for managing high-budget performance utilizing efficient blockchain technology. A guideline for business management stipulates that blockchain technology must be perceived as beneficial by employees. It would improve the management of budget performance.

7. Conclusion

The authors sought to study the effects of blockchain technology adoption on budget performance management regarding perceived ease of use, perceived usefulness, and behavioral intent to use. It was also intended to examine the influence of institutional support on perceived ease of use, perceived usefulness, and behavioral intention to adopt blockchain technology for budget performance management. The Chinese manufacturing industry was surveyed to acquire primary data. According to research findings, blockchain

technology adoption, perceived ease of use, perceived usefulness, and behavioural intent to use are positively influenced by budget performance management. The results found that when blockchain technology is perceived as userfriendly, its adoption increases and higher-quality data facilitates budget performance management. When staff knows and implements blockchain technology's utility, the outcomes suggest a transparent financial position and enhanced budget performance monitoring.

Similarly, if employees have the behavioral intent to utilize blockchain technology, there is improved budget performance management due to accurate, timely, reliable, and secure information. The results indicated that institutional support moderates the relationship between perceptions of blockchain technology and budget performance management. In the case of institutional support, budget performance management is enhanced by blockchain technology perceptions and behavioral intent.

8. Limitations

The study is limited because it examines the relationship between blockchain technology and employee perceptions and behavioral intentions about budget performance management. Many strategic and financial factors impact budget performance management, yet these are absent. Therefore, it is anticipated that future authors will broaden the scope of the study to include an investigation of these factors. In addition, the writers collected data from China's manufacturing sector and studied the relationship between these characteristics considering empirical evidence. Future researchers should collect data from many businesses and nations to examine these elements' relationships.

Funding

This paper was supported by: 1. National Social Science Foundation of China (Grant No. 21BGL040); 2. Soft Science Research Project of Henan Science and Technology Department (Grant No.202400410419)

References

Abdullahi, A., Soba, N. H., & Umar, A. (2021). An assessment of capital budget performances: The study of Gombe State, Nigeria 2008-2011. *International Journal of Intellectual Discourse*, 4(3), 308-322. Retrieved from https://ijidjournal.org/index.php/ijid/article/view/183

Ahsan, M., Adomako, S., & Mole, K. F. (2021). Perceived institutional support and small venture performance: The mediating role of entrepreneurial persistence. *International Small Business Journal*, 39(1), 18-39. doi: https://doi.org/10.1177/0266242620943194

Aiping, Y. (2020). Influence of Budget Reform on Financial Innovation in Colleges and Universities Based on Ahp. Solid State Technology, 63(3), 5563-5573. Retrieved from http://www.solidstatetechnology.us/index.php/JSST/article/view/7592

Alsharqawi, M., Abu Dabous, S., Zayed, T., & Hamdan, S. (2021). Budget optimization of concrete bridge decks under performance-based contract settings. *Journal of Construction Engineering and Management*, 147(6), 4021-4038. Retrieved from https://ascelibrary.org/doi/abs/10.1061/%28ASCE%29CO .1943-7862.0002043

Anggadini, S. D., Wulansari, L., & Damayanti, S. (2021). The Influence of Budget Participation and Organizational Commitment to the Performance of Regional Government Apparatus. International Journal of Management Science

- and Information Technology, 1(2), 6-19. doi: https://doi.org/10.35870/ijmsit.v1i2.270
- Arnold, M., & Artz, M. (2019). The use of a single budget or separate budgets for planning and performance evaluation. *Accounting, Organizations and Society, 73,* 50-67. doi: https://doi.org/10.1016/j.aos.2018.06.001
- Arodhiskara, Y., & Hatta, M. (2022). The Effect Of Regional Financial Efficiency Level On Budget Performance Of Regional Original Income In Parepare City For 2014-2018 Period. *Journal AK-99*, 2(2), 141-149. Retrieved from http://jurnal.umpar.ac.id/index.php/ak99/article/view/1993
- Bandiyono, A., & Utami, W. (2019). Determinants of governmental budget performance in Indonesia: case study at ministry of finance. *RELIGACIÓN. Revista de Ciencias Sociales y Humanidades*, 4(15), 172-183. Retrieved from https://www.redalyc.org/journal/6437/643770319004/643770319004.pdf
- Carvalho, A. (2020). A permissioned blockchain-based implementation of LMSR prediction markets. *Decision Support Systems*, 130, 113-129. doi: https://doi.org/10.1016/j.dss.2019.113228
- Chidinma, U. (2022). Performance Measurement in an Organization Via Budget and Budgetary Control. *Journal of World Economy*, 1(2), 1-8. Retrieved from https://www.pioneerpublisher.com/jwe/article/view/81
- Ciaian, P., Kancs, d. A., & Rajcaniova, M. (2021). Interdependencies between mining costs, mining rewards and blockchain security. *arXiv preprint arXiv:2102.08107*, 7, 65-79. doi: https://doi.org/10.48550/arXiv.2102.08107
- Clohessy, T., & Acton, T. (2019). Investigating the influence of organizational factors on blockchain adoption: An innovation theory perspective. *Industrial Management & Data Systems*, 119(7), 1457-1491. doi: https://doi.org/10.1108/IMDS-08-2018-0365
- De Rooij, M. M., Janowicz-Panjaitan, M., & Mannak, R. S. (2019). A configurational explanation for performance design management systems' in project-based organizations. International Journal of Project 616-630. Management, *37*(5), Retrieved https://doi.org/10.1016/j.ijproman.2019.03.002
- Gunawan, F., Ali, M. M., & Nugroho, A. (2019). Analysis of the effects of perceived ease of use and perceived usefulness on consumer attitude and their impacts on purchase decision on PT Tokopedia in Jabodetabek. *European Journal of Business and Management Research*, 4(5), 1-11. doi: https://doi.org/10.24018/ejbmr.2019.4.5.100
- Hutama, R. S., & Yudianto, I. (2019). The Influence of Budget Participation, Budget Goals Clarity and Internal Control Systems Implementation on Local Government Performance. Journal of Accounting Auditing and Business, 2(2), 58-76. doi: https://doi.org/10.24198/jaab.v2i2.22640
- Jiang, T., Song, J., & Yu, Y. (2022). The influencing factors of carbon trading companies applying blockchain technology: evidence from eight carbon trading pilots in China. *Environmental Science and Pollution Research*, 8, 1-13. doi: https://doi.org/10.1007/s11356-021-18425-y
- Juhana, J., Wasistiono, S., & Tahir, I. (2020). The Importance of Delegation of Authority, Budget Allocation and Leadership in Improving Performance. *International Journal of Science and Society*, 2(1), 221-228. doi: https://doi.org/10.54783/ijsoc.v2i1.72
- Kiayias, A., & Lazos, P. (2022). SoK: blockchain governance. arXiv preprint arXiv:2201.07188, 57-72. doi: https://doi.org/10.48550/arXiv.2201.07188
- Li, M., Yumer, E., & Ramanan, D. (2019). Budgeted training: Rethinking deep neural network training under resource constraints. *arXiv preprint arXiv:1905.04753*, 7, 48-65. doi: https://doi.org/10.48550/arXiv.1905.04753

- Liu, W., Wu, H., Meng, T., Wang, R., Wang, Y., & Xu, C.-Z. (2021). AucSwap: A Vickrey auction modeled decentralized cross-blockchain asset transfer protocol. Journal of Systems Architecture, 117, 121-138. doi: https://doi.org/10.1016/j.sysarc.2021.102102
- Mauro, S. G., Cinquini, L., & Pianezzi, D. (2021). New Public Management between reality and illusion: Analysing the validity of performance-based budgeting. *The British Accounting Review*, 53(6), 182-197. doi: https://doi.org/10.1016/j.bar.2019.02.007
- Mutiarin, D., Fathani, A. T., Sakir, S., & Atmojo, M. E. (2020). Performance-based budgeting review from local government budget: West Sumatra in 2017-2018. *Journal of Governance and Public Policy*, 7(3), 191-202. doi: https://doi.org/10.18196/jgpp.73133
- Namazi, N. R., Rezaee, G. R., & Kheibargir, S. M. (2020). Investigating the effects of budgetary control system on budgetary performance considering the mediating role of budgetary perception in public hospitals (Case Study: Hospitals in Fars province). *Journal of Healthcare Management*, 11(36), 95-109. Retrieved from https://jhm.srbiau.ac.ir/article_16271.html?lang=en
- Nasri, H., Nurman, N., Azwirman, A., Zainal, Z., & Riauan, I. (2022). Implementation of collaboration planning and budget performance information for special allocation fund in budget planning in the regional development planning agency of Rokan Hilir regency. *International Journal of Health Sciences (IJHS) Ecuador*, 6(S4), 639-651. Retrieved from http://repository.uir.ac.id/id/eprint/10227
- Park, S.-J., & Jang, S. (2021). Asymmetric information and excess budget: the influence of performance-based budgeting on budgetary slack in US states. *International Review of Public Administration*, 26(4), 353-372. doi: https://doi.org/10.1080/12294659.2022.2027599
- Pepe, A. (2021). Multi-temporal small baseline interferometric SAR algorithms: Error budget and theoretical performance. *Remote Sensing*, 13(4), 557-568. doi: https://doi.org/10.3390/rs13040557
- Pincheira, M., Vecchio, M., Giaffreda, R., & Kanhere, S. S. (2021). Cost-effective IoT devices as trustworthy data sources for a blockchain-based water management system in precision agriculture. *Computers and Electronics in Agriculture*, 180, 105-118. doi: https://doi.org/10.1016/j.compag.2020.105889
- Pribadi, L. D., Kanto, D. S., & Kisman, Z. (2020). Budget absorption performance in financial education and training agency. *Journal of Economics and Business*, 3(2), 46-59. Retrieved from https://ssrn.com/abstract=3599129
- Prux, P. R., Momo, F. d. S., & Melati, C. (2021). Opportunities and challenges of using blockchain technology in government accounting in brazil. *BAR-Brazilian Administration Review*, 18, 39-55. doi: https://doi.org/10.1590/1807-7692bar2021200109
- Ramadhan, R. N., & Nordiawan, D. (2022). Analysis of Strategies to Improve the Quality of Budget Performance Information using Logic Models. *Budapest International Research and Critics Institute-Journal (BIRCI-Journal)*, 5(2), 67-81. doi: https://doi.org/10.33258/birci.v5i2.5508
- Rauchs, M., Blandin, A., Bear, K., & McKeon, S. B. (2019). 2nd global enterprise blockchain benchmarking study. Available at SSRN 3461765, 6, 38-57. doi: https://dx.doi.org/10.2139/ssrn.3461765
- Sandi, H., Yunita, N. A., Heikal, M., Ilham, R. N., & Sinta, I. (2021). Relationship Between Budget Participation, Job Characteristics, Emotional Intelligence and Work Motivation As Mediator Variables to Strengthening User Power Performance: An Emperical Evidence From Indonesia Government. *Morfai Journal*, 1(1), 36-48. doi: https://doi.org/10.54443/morfai.v1i1.14

- Secretary-General, U. (2019). Budget performance of the United Nations Interim Administration Mission in Kosovo for the period from 1 July 2018 to 30 June 2019: report of the Secretary-General. 6, 58-73. Retrieved from https://policycommons.net/artifacts/67653/budget
- Shukla, V., Misra, M. K., & Chaturvedi, A. (2022). Journey of cryptocurrency in India in view of Financial Budget 2022-23. arXiv preprint arXiv:2203.12606, 7, 47-63. doi: https://doi.org/10.48550/arXiv.2203.12606
- Unal, E., & Uzun, A. M. (2021). Understanding university students' behavioral intention to use Edmodo through the lens of an extended technology acceptance model. *British Journal of Educational Technology*, 52(2), 619-637. doi: https://doi.org/10.1111/bjet.13046
- Vilkov, A., & Tian, G. (2019). Blockchain as a solution to the problem of illegal timber trade between Russia and China: SWOT analysis. *International Forestry Review*, 21(3), 385-400. doi: https://doi.org/10.1505/146554819827293231
- Virgil, C., & Andreea, O. (2022). Budgetary Performance In The Case Of Local Public Authorities, A Target To Reach, But More Than That, A Must. Management Strategies Journal, 55(1), 13-19. Retrieved from http://www.strategiimanageriale.ro/images/images_site/articole/article_480905633163b1d1e3ef9dc31c78e3bc.p
- Wei, W., & Shannan, Z. (2022). Development course and achievements of budget performance management of administrative institutions in China. *GSC Advanced Research and Reviews*, 11(1), 100-105. doi: https://doi.org/10.30574/gscarr.2022.11.1.0100
- Wicaksono, A., & Maharani, A. (2020). The effect of perceived usefulness and perceived ease of use on the technology acceptance model to use online travel agency. *Journal of Business and Management Review*, 1(5), 313-328. Retrieved from https://doi.org/10.47153/jbmr15.502020
- Yadav, S. P., Agrawal, K. K., Bhati, B. S., Al-Turjman, F., & Mostarda, L. (2022). Blockchain-based cryptocurrency regulation: An overview. *Computational Economics*, 59(4), 1659-1675. doi: https://doi.org/10.1007/s10614-020-10050-0
- Yee, C. M. (1996). The critical review on article entitled 'central america: The effect of organizational complexity, competitive fears, budgetary work role importance and budget criticality on budgetary motivation and performance. 7, 48-64. Retrieved from https://journal.berjaya.edu.my/wp-content/uploads/2020/07/July-2020_17-23.pdf
- Zamfir, M. P., & Florea, C. F. (2019). The Budget-Reference System in Assessing the Performance of the Public Enterprise. Academic Journal of Economic Studies, 5(2), 144-158. Retrieved from https://www.ceeol.com/search/article-detail?id=779234
- Zewide, B. T., & Swapna, H. (2021). Budget Practice, Control And Problems With Reference To Ministry Of Peace In Ethiopia. International Journal of Future Generation Communication and Networking, 14(1), 1023-1027. Retrieved from https://www.researchgate.net/profile/Swapna-H-R/publication/354352728
- Zhang, J. (2022). Data Analysis of Fiscal Expenditure and GDP Based on Financial Budget Performance Evaluation Indicators. *Discrete Dynamics in Nature and Society*, 2022(7), 1-11. doi: https://doi.org/10.1155/2022/1141618
- Zheng, S., Hu, Y., Chong, A. Y. L., & Tan, C.-W. (2022). Leveraging blockchain technology to control contextualized business risks: evidence from China. *Information & Management*, 59(7), 1628-1646. doi: https://doi.org/10.1016/j.im.2022.103628