THE NEXUS BETWEEN DIGITAL INNOVATION TECHNOLOGY AND COMPETITIVE ADVANTAGE: MEDIATED BY MANAGEMENT BUSINESS STRATEGY

Ida Farida *, Bambang Sutopo **

* *Corresponding author*, Universitas Sebelas Maret (UNS), Surakarta, Central Java, Indonesia; Department of Accounting, Harapan Bersama Polytechnic, Tegal, Central Java, Indonesia
Contact details: Department of Accounting, Harapan Bersama Polytechnic, Tegal 52117, Central Java, Indonesia
** Department of Accounting, Faculty of Economics and Business, Universitas Sebelas Maret (UNS), Surakarta, Central Java, Indonesia

OPEN ACCESS

How to cite this paper: Farida, I., & Sutopo, B. (2023). The nexus between digital innovation technology and competitive advantage: Mediated by management business strategy. *Corporate Governance and Organizational Behavior Review, 7*(1), 18–28.
https://doi.org/10.22495/cgobrv7i1p2

ISSN Online: 2521-1889
ISSN Print: 2521-1870

Received: 18.06.2022
Accepted: 12.01.2023

JEL Classification: L7, M21, M41, Q56
DOI: 10.22495/cgobrv7i1p2

Abstract

This research was carried out specifically by exploring the interaction between management business strategy with a competitive advantage and digital innovation technology on micro, small and medium enterprises (MSMEs) in Central Java. The population of this research is SMEs in construction and real estate services in Central Java. The analytical method uses the partial least square (PLS) method through a variance-based structural equation model (SEM) statistical test tool. Data analysis was carried out using SmartPLS and applying verification analysis (measurement of the outer model, evaluation of the structural model (inner model), and testing of research hypotheses). The data analysis that has been carried out has found that digital innovation technology has a positive and significant impact on the competitive advantage of MSMEs in construction and real estate services in Central Java. Meanwhile, testing through a management business strategy as a mediation between digital innovation technology and the competitive advantage of MSMEs in construction and real estate services in Central Java shows a unidirectional relationship. These results show that MSME actors have used digital innovation technology to support the company's competitive advantage (Khalil et al., 2022).

Keywords: Business Strategy, MSMEs, Digital Innovation Technology, Competitive Advantage

Authors' individual contribution: Conceptualization — I.F.; Methodology — I.F.; Formal Analysis — B.S.; Writing — Original Draft — I.F.; Writing — Review & Editing — I.F. and B.S.

Declaration of conflicting interests: The Authors declare that there is no conflict of interest.

1. INTRODUCTION

The Industrial Revolution 4.0 introduced digital innovation technology that has changed human life in various fields, and scrape the conventional, wrong only when looking for information (Ruiz-Real et al., 2021; Rusly et al., 2021). This triggers the public perception that digital media will erode conventional media so the transformation of digital innovation technology is also important for business people in Indonesia (Trinugroho et al., 2022). The development of digital innovation technology has changed people's lifestyles ranging from changes in people's behavior, including how goods and services are

purchased, both of which can be done online to improve service, effectiveness, speed, and from a security perspective, making it easy for customers (Yeung, 2021). This, of course, also contributes to the development of micro, small and medium enterprises (MSMEs), especially changes in the methods of commercial transactions carried out (Rusdana et al., 2022).

MSMEs play a very crucial role in economic development in Indonesia (Halim, 2020). In Indonesia, the percentage of MSME growth reaches 99.99% for all business sectors, so it is called the engine of the national economy because it has a fairly enormous growth in employment. From time to time, data on innovation and uniqueness of various products always show very significant developments (Yeung, 2021), this is done as one of their strategies that are different/unique from other competitors, and are able to be competitive in the global market (Trinugroho et al., 2022). Thus, to be competitive, SMEs must innovate and show the uniqueness of their products (Yeung, 2021), and can update technology related to current and future business developments (Jaya, 2019). Technologies that can increase sales and business-related information, namely e-commerce and social media (Trinugroho et al., 2022). This can be seen from the tendency of Indonesian people to use social media as the most accessible source of information (Wijaya et al., 2020) and by using e-commerce as a marketing and trading medium, it can be easily reached by all groups, so that market development activities and services can be carried out optimally (Farida et al., 2019), so that e-commerce and social media platforms have the potential and become a place to promote, encourage and increase business transactions to improve MSME performance in the future.

The difficulty faced by Indonesian MSMEs is determining the digital innovation technology to increase competitive advantage (Lee et al., 2018). Competitive advantage can increase growth opportunities and optimize profits, contributing to the country's GDP (Anwar et al., 2018). The application of this competitive advantage certainly requires the development of a strategy to determine the level of socio-cultural and environmental volatility (Bellamy et al., 2019). Previous research on strategy provides answers about the importance, uniqueness, and impact of strategy on MSME performance (Leitner & Güldenberg, 2010). Previous research by Farhikhteh et al. (2020) explained that the effective factors in competitive advantage comprise competitive intelligence, organizational ability, environment, and communication. Competitive advantage is a special unique quality, capability, or characteristic that represents value to customers (Borseková et al., 2015). Previous research explains that competitive advantage mediates the relationship between dynamic capabilities and business performance (Correia et al., 2020). The induced competitive advantage is able to create synergies within the company with the support of IT and competitive advantage with the support of resources (human, knowledge, and capital) (Al Khasabah et al., 2022; Iqbal & Suzianti, 2021). In their research, Al Khasabah et al. (2022) and Iqbal and Suzianti (2021) explain the limitations of the need to conduct further research on information technology creating competitive advantage through differentiation, innovation, channel dominance, cost reduction, and efficiency improvement.

Digital innovation technology is like a weapon that has two sides, one of which provides opportunities and the other provides challenges for MSME actors. Companies that can implement their business strategies well can use them as a competitive advantage (Al Khasabah et al., 2022), but if MSME actors are not ready for the development of digitalization (Yeung, 2021), then this development can actually make them lag their competitors or lose in competing in their industrialization. Several studies have proven the importance of the role of digital innovation technology. Digitization is proven to emphasize the ease of accessing international markets as a complementary or even alternative way (Jean et al., 2010). Digital innovation technology has also been shown to reduce distances and costs of entry, reducing barriers to commercial, marketing, and sales. In addition, digital innovation technology can gain connectivity with business partners, suppliers, distribution networks, and customers, so that they are globally integrated (Di Maria et al., 2019). Although the focus of some previous studies has only focused on business organizations, especially to assess the digital transformation process, starting from the adoption, diffusion, and deployment of digital innovation technology through a) conducting marketing and promotion activities (e-marketing) (Wijaya et al., 2020); b) conducting transactions between businesses and consumers (e-commerce) (Etter et al., 2019), and c) to improve production processes, customer engagement processes, and internal management processes (e-business) (Alqaraleh et al., 2022). In addition, if viewed according to the resource-based view (RBV), previous research also only emphasizes the complementary role of resources as a source of sustainable competitive advantage to explain differences in company performance. So that, the contribution of SMEs as major roles in global and regional economies will be an interesting topic for further research (Kolapo et al., 2018).

This research was carried out specifically by exploring the interaction between management business strategy with a competitive advantage and digital innovation technology on MSMEs in Central Java. MSMEs in construction and real estate services in Central Java was chosen because the number of actors is the largest and dominant in Java, which is 575 SMEs in construction services and real estate. We got temporary data from the results of interviews with the regional leadership council of real estate Indonesia in 2022. In addition, previous research belonging to Trinugroho et al. (2022), only focuses on technology adoption for MSMEs and has not comprehensively included the influence of digital innovation technology on management business strategy and competitive advantages. This variable is used because the previous findings stated these MSMEs had problems not being able to compete and obstacles in financial management (Sasongko et al., 2020). Based on this explanation, this study will also explain how management business strategy mediation affects digital innovation technology in the competitive advantage of SMEs.

The contribution of this research is the first to be carried out on construction and real estate MSMEs in Central Java so that volunteers can make the first findings about the competitive advantage ability of MSMEs in construction and real estate services and consideration for policymakers to pay attention and empowering construction and real estate MSMEs in Indonesia. Indonesia, through appropriate business strategies and digital innovation technology, and improve business continuity.

The remainder of the paper is structured as follows. Section 2 will explain the theoretical basis used in this research, namely resource-based view theory, then also explain the development of hypotheses based on a summary of theoretical thinking and several previous studies. Section 3 will explain the research method used to facilitate the processing of survey data. Section 4 will explain the results of the test data. Section 5 will explain the findings that provide important information and opportunities for further research in the future.

2. LITERATURE REVIEW

2.1. Resource-based view theory

The success or failure of an organization highly depends on the resource factor (Onufrey & Bergek, 2021). The competitive advantage of an organization is a company strength that is strongly supported by excellent resources within the framework of a strategic, integrated, interconnected, and united resource management system (Correia et al., 2020). Competition is the essence of a company's success or failure (Dupire & M'Zali, 2018). The competition requires the accuracy of the activities of a company, such as innovation and good work culture (Jensen, 2021). Companies that have employees with high competence will be better able to provide products and services that are under the needs and desires of customers (Nemati et al., 2010). Therefore, companies with superior competencies can gain a sustainable competitive advantage and can further improve their performance (Exposito & Sanchis-Llopis, 2018). In order to maintain this competitive advantage, the competencies possessed by the company must be able to add value, are rare, difficult to imitate, and difficult to replace (Soewarno & Tjahjadi, 2020). Competencies that are not easily imitated are the core of resource-based theory and are central to the understanding of sustainable competitive advantage. Resource-based view theory explains that companies that have valuable, rare, or irreplaceable internal and external resources and capabilities will gain a competitive advantage. The resource-based view is a good management science because it encourages discussion in strategic management, namely good science is delightful conversation and the study of competitive advantage is the discussion from the RBV.

Resources are the major assets of the company and can be divided into tangible and intangible resources. Patents, brand names, knowledge, and information are some examples of intangible assets, while funds, physical infrastructure, human resources, and technology are among those categorized as tangible. Capability refers to an organization's ability to align resources to better understand and seize opportunities. It results from the dynamic interaction of various external environments and is less transferable, which helps to create a competitive advantage (Wong, 2017). The implication of this theory is that the company's unique resources can win the competition. The uniqueness of this resource should not be imitated easily. In this research, competitive advantages, digital innovation technology, and management business strategy are unique company resources that must properly increase the success of MSME performance.

2.2. Digital innovation technology and competitive advantage of MSMEs

MSME is defined as a small company owned and managed by a small group of people with certain wealth and income (Latifah et al., 2021). MSMEs have their own plans to maintain their business continuity by identifying and managing risks in order to avoid threats that disrupt the service process, and ensure that a processor or service can be achieved significantly. The plan is also expected to maintain business continuity. From the perspective of RBV, the adoption of a digital innovation technology system in a company influences increasing the company's competitive advantage (Khan et al., 2021; Pagani & Pardo, 2017; Rusly et al., 2021). Things that can be done by MSME actors in adopting digital innovation technology are done with information mediation, e-commerce (Gregory et al., 2007), social media (Eggers et al., 2017), and others in their business (Foroudi et al., 2017; Neubert & Zhu, 2018; Pagani & Pardo, 2017). Adopting this digital innovation technology can directly or indirectly create a competitive advantage in the digital economy (Lee et al., 2018).

Lots of companies use and use digital resources to plan and implement strategies for digital business, with the purpose of a company can suppress costs, improving company performance, and achieving sustainable business competition. However, the difficulty experienced by MSME actors is how to determine the appropriate digital innovation technology suitable for use, in the business process and explore it as a competitive advantage in the future (Bellamy et al., 2019). Based on the explanation, the following hypothesis is planned:

H1: Digital innovation technology has a positive effect on MSME's competitive advantage.

2.3. MSME's management business strategy and competitive advantage

Management business strategy is needed by MSMEs to create a competitive advantage (Onufrey & Bergek, 2021), and the strategy used must be adjusted to the suitability of the resources owned by MSME actors (Istianingsih & Suraji, 2020). In RBV theory, company resources include all assets, capabilities, organizational processes, company attributes, knowledge, and other factors controlled by the company that can understand and implement strategies to compete effectively and efficiently.

Ali et al. (2021) highlight the importance of digital assets to inform marketing strategy business decisions and implement them, companies can achieve superior marketing and financial performance (Khan et al., 2021; Lebdaoui & Chetioui, 2020). The RBV theory reveals that competitive advantage is the crucial factor in winning the competition (Lestari et al., 2020). The basic dimensions of management business strategy, such as resource stability, competitive strategy, and the ability to transfer technology as the main idea and competitive advantage can be achieved through four elements, namely removing barriers to enter the competition, strength of suppliers, power of buyers, and accuracy in deciding if something happens. The intensity of competition in the market, so it is concluded that management business strategy has an important and positive impact on competitive advantage (Ali & Anwar, 2021; Elrehail, 2018). Using a competitive advantage theory approach, and resource-based RBV theory shows that there is a positive and significant relationship between entrepreneurship, innovation, and management business strategy. Based on the explanation, the following hypothesis is planned:

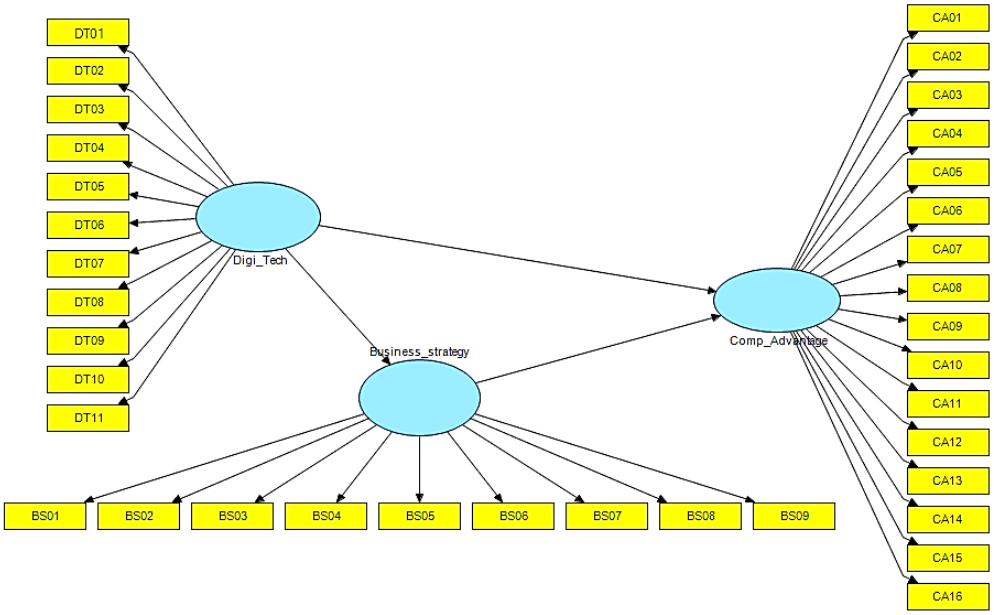
H2: Management business strategy has a positive effect on MSME's competitive advantage.

2.4. Management business strategy on competitive advantage through digital innovation technology

The lack of focus on a coherent strategic orientation causes MSME actors to experience obstacles in their sustainability and competitiveness. This is primarily concerned with the pattern of decisions a firm's manager makes when determining in which market he will compete and how his business can add more value to buyers in order to gain more advantage than competitors. As the spearhead of the economy towards the global market, it is very important to increase the competitiveness of MSMEs by using good marketing communication strategies and the right implementation of digital innovation technology in order to affect MSME performance and gain a competitive advantage (Rusdana et al., 2022). In terms of MSME business operations, when it is appropriate to use digital innovation technology, its business performance can be realized optimally and all work activities also run effectively and efficiently. This can certainly produce an optimal competitive advantage (Lestari et al., 2020). Based on the explanation, the following hypothesis is planned:

H3: Management business strategy can mediate the strong relationship between digital innovation technology and MSME's competitive advantage.

Figure 1. Research framework



3. RESEARCH METHODOLOGY

This study uses quantitative methods by distributing surveys designed in a cross-sectional manner to collect several data from respondents. The survey is conducted online using Google Forms and disseminated to all respondents in Central Java via email or the construction and real estate MSME association forum in Central Java. The population of respondents used in this study was SMEs in construction services and real estate in Central Java, with 575 respondents. The sampling technique used was random sampling. Sample data will be taken based on the response rate of the questionnaire return rate scale. The assessment on the questionnaire sheet uses a 5-point Likert scale, namely comprising "Strongly disagree", "Disagree", "Neutral", "Agree", and "Strongly agree". The indicator variables of this study are described in Table 1, while the definitions are as follows.

Table 1. Measurement of research variables

Research variable	*Variable indicator*	*Variable measurement*
Management business strategy is the direction or path that an organization will take in order to carry out its business mission in order to achieve its business vision (Latifah et al., 2021).	1. Employee skills and competencies; 2. Product market strategy; 3. Competitive products; 4. Good service quality; 5. Low price strategy (Latifah et al., 2021).	Likert scale
Competitive advantage is a competitive strategy that is difficult for competitors to imitate, namely making products that truly have regional unique values and are carried out sustainably, so that competing products cannot attract consumers' attention.	1. Innovation; 2. Quality; 3. Price; 4. Delivery dependability; 5. Time to market.	Likert scale
Digital innovation technology in the research focuses on e-commerce, e-business, digital skills, and innovation.	1. Market innovation; 2. Customer satisfaction; 3. Services and products; 4. R&D innovation (Cassetta, Monarca, Dileo, Di Berardino, & Pini, 2019).	Likert scale

The analytical method in this study uses the PLS method through a statistical test tool for the variance-based structural equation model. Data analysis of this research was carried out using SmartPLS and applying verification analysis comprising three stages, namely measuring the outer model, evaluating the structural model (inner model), and testing the research hypotheses.

The test outer model uses composite reliability indicator block data, which measures a construct by evaluating the composite reliability value. Dimensions are reliable if they have a composite reliability value above 0.7. The inner structural model is evaluated using R-squared for the dependent construct, a Stone–Geisser's Q-squared test of predictive relevance. If the R-squared value is greater than 0.2, it can be interpreted that the latent predictor has a major influence on the structural level. The inner structural model is also evaluated by looking at the Q-square predictive relevance for the constructed model. Q-squared measures how well the observed values generated by the model and also the parameter estimates are. A Q-squared value greater than 0 (zero) shows that the model has predictive relevance, while a Q-squared value less than 0 (zero) shows that the model lacks predictive relevance.

4. RESULTS

After distributing the questionnaires, the sample data from 132 respondents were got, with details as follows.

Table 2. Details of research respondent data

Respondent criteria	*Amount*
SMEs in construction services and real estate in Central Java registered in Indonesia.	575 respondents
SMEs in construction and real estate services in Central Java who are not active in submitting their annual financial reports.	400 respondents
The perpetrators of MSMEs in construction services and real estate in Central Java are still active in submitting their annual financial reports.	157 respondents
SMEs in construction services and real estate in Central Java who does not respond to filling out and returning the questionnaire.	25 respondents
The perpetrators of MSMEs in construction services and real estate in Central Java responded well to filling out and returning the questionnaire.	132 respondents

Note: 132 respondents were MSME construction and real estate in Central Java have been got, then the characteristics are identified as follows.

4.1. Characteristics of respondents

This explanation of the respondent's characteristics is carried out to inform the reader about the profile of the respondent used as a sample in this test. The respondent's profile includes gender, educational background, length of business, and the number of employees owned by the respondent. The respondents are from construction and real estate SMEs in Central Java.

Figure 2. Respondents by educational background

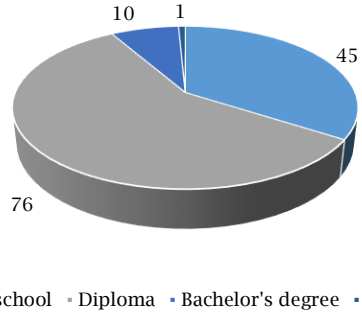


Figure 3. Respondents by the years in the business

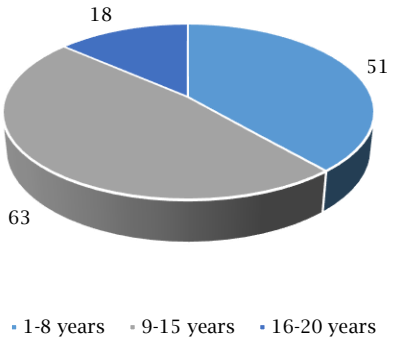
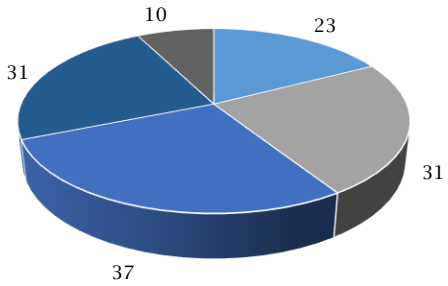


Figure 4. Businesses by the number of employees



Respondents who became the sample of this study have characters including male sex dominates compared to women, this is because men are smarter in developing the MSME contractor and real estate business, considering that a business like this is full of various problems that arise at the project site so that men prevail in this business. Men dominate business because they use a logical basis when deciding, so they are more careful in calculating the risks of every business they do (Low et al., 2015; Reguera-Alvarado et al., 2017). Then, the educational background that was got by several contractors and real estate MSME actors was dominated by diploma graduates. The length of business of the respondents also varies, ranging from 1 year to over 20 years, but the sample data shows that the length of business of the respondents who dominate this research is between 9–15 years. All businesses run by these respondents have various numbers of employees, ranging from 5 to 25 employees, but in this research sample, the average number of employees owned by respondents is still between 16–20 employees.

4.2. Validity and reliability test

Table 3 shows that all the question items from the management business strategy, competitive advantage and digital innovation technology variables, are under the established provisions, namely the value of r-count > r-table, so that with 132 questionnaire data, then by using the equation of freedom (DF = n – 2) or DF = 132 – 2 = 130, then the r-table value of 130 is got by 0.172. These results mean that all the statement items are entirely valid and can be used in research.

Table 3. Validity and reliability test (Part 1)

Variable	*Items*	*Correlation (r)*		*Coefficient*	
		r	*Status*	*Alpha*	*Status*
Management business strategy	SB01	0.980	Valid	0.788	Reliable
	SB02	0.970	Valid		
	SB03	0.954	Valid		
	SB04	0.400	Valid		
	SB05	0.980	Valid		
	SB06	0.980	Valid		
	SB07	0.400	Valid		
	SB08	0.980	Valid		
	SB09	0.980	Valid		

Table 3. Validity and reliability test (Part 2)

Variable	*Items*	*Correlation (r)*		*Coefficient*	
		r	*Status*	*Alpha*	*Status*
Competitive advantage	CA01	0.915	Valid	0.761	Reliable
	CA02	0.915	Valid		
	CA03	0.901	Valid		
	CA04	0.882	Valid		
	CA05	0.516	Valid		
	CA06	0.915	Valid		
	CA07	0.915	Valid		
	CA08	0.400	Valid		
	CA09	0.915	Valid		
	CA10	0.915	Valid		
	CA11	0.400	Valid		
	CA12	0.516	Valid		
	CA13	0.432	Valid		
	CA14	0.504	Valid		
	CA15	0.915	Valid		
	CA16	0.400	Valid		
Digital innovation technology	DT01	0.400	Valid	0.760	Reliable
	DT02	0.400	Valid		
	DT03	0.428	Valid		
	DT04	0.909	Valid		
	DT05	0.909	Valid		
	DT06	0.909	Valid		
	DT07	0.909	Valid		
	DT08	0.400	Valid		
	DT09	0.909	Valid		
	DT10	0.909	Valid		
	DT11	0.400	Valid		

Meanwhile, based on the results of the reliability test, it is known that the value of Cronbach's alpha for all variables is greater than the standard determination of the reliability test, which is 0.70 (Sugiyono, 2018). The reliability coefficient denoted by r_x and x is the index sought. Reliability testing uses Cronbach's alpha formula, as follows:

$$r_x = \left(\frac{n}{n-1}\right)\left(1 - \frac{\sum \sigma_t^2}{\sigma_t^2}\right) \quad (1)$$

where,
r_x = reliability sought;
n = number of question items;
$\sum \sigma_t^2$ = total score variance of each item;
σ_t^2 = total variance.

Cronbach's alpha value range:

– If the alpha value < 0.50, then the reliability is low 0.50 < alpha < 0.70, then moderate reliability.

– If the alpha value > 0.70, then the reliability is sufficient (sufficient reliability).

– If the alpha value > 0.80, then the reliability is strong.

– If the alpha value > 0.90, then the reliability is perfect.

The smaller the alpha value, the more unreliable items. The standard used is alpha > 0.70 (sufficient reliability). Based on the test results, the data shows that all statement items from all variables are reliable and can be used in research.

4.3. Outer and inner models testing

This outer model test uses composite reliability data, which measures a construct. Dimensions are reliable if they have a composite reliability value (ρc) above 0.7, as follows in Figure 5.

Figure 5. Test results of outer and inner models

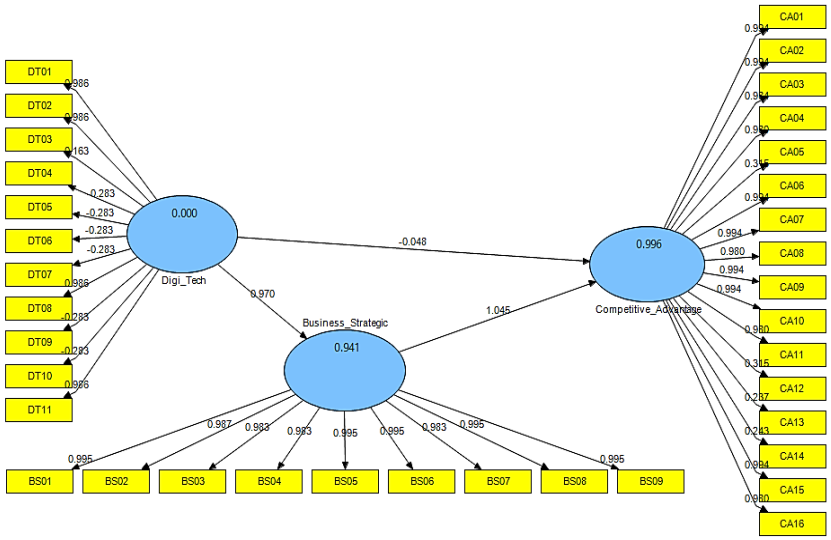


Table 4. Composite reliability calculation results

Dimension	*Composite reliability*	*R-Squared*
Digital innovation technology (X)	0.467	–
Management business strategy (Y1)	0.997	0.940
Competitive advantage (Y2)	0.977	0.996

The inner model is evaluated using R-squared for the dependent construct. The results of the calculations that have been carried out to find that the R-square value between digital innovation technology and management business strategy for competitive advantage shows a value of 0.940 or 94.0% and 0.996 or 99.6%, respectively. These results mean that the influence of digital innovation technology variables on competitive advantage and digital innovation technology on competitive advantage through management business strategy has a very dominant and large influence. So that, the more appropriate the implementation and selection of digital innovation technology in MSMEs as one of the management business strategies implemented by the company, the more competitive advantage of MSMEs in contractor and real estate services in Indonesia will also be in the future.

4.4. Structural equation modeling (SEM) test

Hypothesis testing is done by comparing the t-count value with the t-table value, if the t-count value is greater than the t-table, then the relationship is significant between the variables, and vice versa when the t-count is smaller than the t-table, then there is no significant relationship between the variables. The number of data tested is 132, then the value of the t-table (α = 5%) got 1,978. The presentation is as follows.

Figure 6. Hypothesis test results

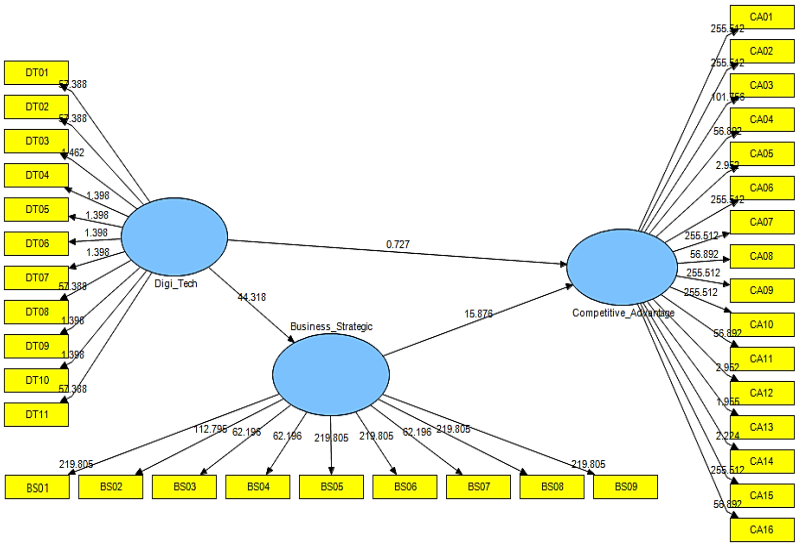


Table 5. Test the research hypothesis

Hypothesis							*T-count*	*Koefisien path*	*Information*
H1	Digital innovation technology	→	Competitive advantage				41,385*	0.023	Sig.
H2	Management business strategy	→	Competitive advantage				15,867*	0.065	Sig.
H3	Digital innovation technology	→	Management business strategy	→	Competitive advantage		44,318*	0.021	Sig.

5. DISCUSSION

Digital innovation technology has a positive and significant effect on competitive advantage. This finding is supported by the value of t-count > t-table (41.385 > 1.978) and a path coefficient of 0.023. This coefficient shows that there is a significant positive relationship between digital innovation technology and competitive advantage. The more precise the implementation of digital innovation technology, this will also increase the competitive advantage of MSMEs in construction and real estate services in Central Java. This finding also shows that the first hypothesis (*H1*) is accepted.

Management business strategy has a positive and significant effect on competitive advantage. This finding is supported by the value of t-count > t-table (15,867 > 1,978) and the path coefficient is 0.065. This coefficient shows that there is a positive relationship between management business strategy and competitive advantage. The MSMEs in construction and real estate services in Central Java have implemented a management business strategy in an effort to increase their competitive advantage in the future, as well as for the sustainability of their organization. This finding shows that the second hypothesis (*H2*) is accepted.

Management business strategy can mediate the strong relationship between digital innovation technology and competitive advantage. This finding is supported by the value of t-count > t-table (44.318 > 1.978) and the path coefficient is 0.021. This shows that the higher or stricter the implementation and determination of business strategies through the use of digital innovation technology, the impact on the company's competitive advantage. The results that MSME actors who use e-commerce and social media as a forum to market their products are slowly starting to take full advantage of them so that the company's competitive advantage in the next period can be more optimal (Vale et al., 2021). Companies that have the right management business strategy and can be implemented properly can certainly improve the organization's business performance well and according to the set targets (Lanzolla & Markides, 2021). Other contributions that it creates also provide a competitive advantage for the organization to compete with other competitors. Although, there are still some MSME actors in construction and real estate services in Central Java, who do not have confidence and lack human resources related to digital innovation technology. This, of course, also affected the level of company performance. This finding shows that the third hypothesis (*H3*) is accepted.

6. CONCLUSION

Tests and data analysis that have been carried out have found that digital innovation technology has a positive and significant impact on the competitive advantage of MSMEs in construction and real estate services in Central Java. Meanwhile, the indirect test is done through a management business strategy as a mediation between digital innovation technology and the competitive advantage of SMEs' construction services and real estate in Central Java also shows a unidirectional relationship. These results show that several MSME actors in construction and real estate services in Central Java have used digital innovation technology as a suggestion to support their company's competitive advantage, although some MSME actors seem to be still reluctant to implement digital innovation technology in their companies. This is because the strategy of implementing digital innovation technology, will increase the costs that must be incurred by the company. In fact, when the implementation of digital innovation technology is successfully implemented and carried out optimally, it can certainly increase the firm value (Buallay, 2017) and performance of the MSMEs construction and real estate services.

Opportunities in the future, in fact, there is an increase in the current and future young generation who use digital innovation technology more often when looking for information (Ma et al., 2022; Malesev & Cherry, 2021; Regona et al., 2022), so this opportunity should be used by MSME construction and real estate services to immediately adopt digital innovation technology, so that its current and future readiness can be better. In addition, the role of the government is also very necessary to support the progress of MSMEs by making regulations that facilitate MSME digital transaction activities in the future (Bomani et al., 2022). This trend is expected to continue and will drive the prospect of the property business in the future so that contractors and real estate MSME actors who have an effective business strategy plan can take advantage of the property business opportunity for cooperation so that their business continuity is growing (Farida & Setiawan, 2022).

The limitation of this research, namely the acquisition of survey data, is quite long and difficult, because of many contractors and real estate SMEs who take a long time to respond to our questionnaire, because of their very busy schedules. This research has not technically explained the business strategies that need to be carried out by construction and real estate MSME actors so that this limitation can be covered by the existence of further research in the future that will examine strategic and innovative steps that need to be carried out by construction MSME actors. and real estate, so that their business will be sustainable in the future. Indeed, this research is not much different from other management business strategy themes (Cancino & Zurita, 2017; Haryati et al., 2021). We hope this finding can be used as initial information about the influence of digital innovation technology for the competitive advantage of SMEs in construction and real estate services in Central Java.

REFERENCES

1. Al Khasabah, M. A. I., Salleh, H. S., Mat, N. H. N., & Zulkiffli, S. N. A. (2022). Nexus between total quality management and competitive advantage in Jordanian banking sector: The mediating effect of quality performance [Special issue]. *Corporate Governance and Organizational Behavior Review, 6*(2), 193–205. https://doi.org/10.22495/cgobrv6i2sip3
2. Ali, B. J., & Anwar, G. (2021). Business strategy: The influence of Strategic Competitiveness on competitive advantage. *International Journal of Electrical, Electronics and Computers,* 6(2), 1–10. https://doi.org/10.22161/eec.62.1
3. Ali, S. E. A., Lai, F.-W., Dominic, P. D. D., Brown, N. J., Lowry, P. B. B., & Ali, R. F. (2021). Stock market reactions to favorable and unfavorable information security events: A systematic literature review. *Computers & Security, 110,* 102451. https://doi.org/10.1016/j.cose.2021.102451
4. Alqaraleh, M. H., Almari, M. O. S., Ali, B. J. A., & Oudat, M. S. (2022). The mediating role of organizational culture on the relationship between information technology and internal audit effectiveness. *Corporate Governance and Organizational Behavior Review, 6*(1), 8–18. https://doi.org/10.22495/cgobrv6i1p1
5. Anwar, M., Rehman, A. U., & Shah, S. Z. A. (2018). Networking and new venture's performance: Mediating role of competitive advantage. *International Journal of Emerging Markets, 13*(5), 998–1025. https://doi.org/10.1108/IJoEM-07-2017-0263
6. Bellamy, L. C., Amoo, N., Mervyn, K., & Hiddlestone-Mumford, J. (2019). The use of strategy tools and frameworks by SMEs in the strategy formation process. *International Journal of Organizational Analysis, 27*(2), 337–367. https://doi.org/10.1108/IJOA-02-2018-1363

7. Bomani, M., Derera, E., & Mashingaidze, M. (2022). Urbanisation and SME growth in a developing economy: Implications for policy. *Corporate Governance and Organizational Behavior Review, 6*(2), 123–133. https://doi.org/10.22495/cgobrv6i2p12
8. Borseková, K., Vaňová, A., & Petríková, K. (2015). From tourism space to a unique tourism place through a conceptual approach to building a competitive advantage. In A. Correia, J. Gnoth, M. Kozak, & A. Fyall (Eds.), *Marketing places and spaces* (Advances in Culture, Tourism and Hospitality Research, Vol. 10, pp. 155–172). Emerald Group Publishing Limited, Bingley. https://doi.org/10.1108/S1871-317320150000010012
9. Buallay, A. M. (2017). The relationship between intellectual capital and firm performance. *Corporate Governance and Organizational Behavior Review, 1*(1), 32–41. https://doi.org/10.22495/cgobr_v1_i1_p4
10. Cancino, C. A., & Zurita, G. N. (2017). A location-based service to support collaboration and strategic control in a real estate broker. In S. Ochoa, P. Singh, & J. Bravo (Eds.), *UCAml 2017: Ubiquitous computing and ambient intelligence* (Lecture Notes in Computer Science, Vol. 10586, pp. 181–193). Springer, Cham. https://doi.org/10.1007/978-3-319-67585-5_19
11. Cassetta, E., Monarca, U., Dileo, I., Di Berardino, C., & Pini, M. (2020). The relationship between digital technologies and internationalisation. Evidence from Italian SMEs. *Industry and Innovation, 27*(4), 311–339. https://doi.org/10.1080/13662716.2019.1696182
12. Correia, R. J., Dias, J. G., & Teixeira, M. S. (2020). Dynamic capabilities and competitive advantages as mediator variables between market orientation and business performance. *Journal of Strategy and Management, 14*(2), 187–206. https://doi.org/10.1108/JSMA-12-2019-0223
13. Di Maria, E., De Marchi, V., & Gereffi, G. (2019). Chapter 25: Local clusters and global value chains. In S. Ponte, G. Gereffi, & G. Raj-Reichert (Eds.), *Handbook on global value chains* (pp. 403–416). Edward Elgar Publishing. https://doi.org/10.4337/9781788113779.00034
14. Dupire, M., & M'Zali, B. (2018). CSR strategies in response to competitive pressures. *Journal of Business Ethics, 148*(3), 603–623. https://doi.org/10.1007/s10551-015-2981-x
15. Eggers, F., Hatak, I., Kraus, S., & Niemand, T. (2017). Technologies that support marketing and market development in SMEs — Evidence from social networks. *Journal of Small Business Management, 55*(2), 270–302. https://doi.org/10.1111/jsbm.12313
16. Elrehail, H. (2018). The relationship among leadership, innovation and knowledge sharing: A guidance for analysis. *Data in Brief, 19,* 128–133. https://doi.org/10.1016/j.dib.2018.04.138
17. Etter, M., Fieseler, C., & Whelan, G. (2019). Sharing economy, sharing responsibility? Corporate social responsibility in the digital age. *Journal of Business Ethics, 159*(4), 935–942. https://doi.org/10.1007/s10551-019-04212-w
18. Exposito, A., & Sanchis-Llopis, J. A. (2018). Innovation and business performance for Spanish SMEs: New evidence from a multi-dimensional approach. *International Small Business Journal: Researching Entrepreneurship, 36*(8), 911–931. https://doi.org/10.1177/0266242618782596
19. Farhikhteh, S., Kazemi, A., Shahin, A., & Shafiee, M. M. (2020). How competitiveness factors propel SMEs to achieve competitive advantage? *Competitiveness Review, 30*(3), 315–338. https://doi.org/10.1108/CR-12-2018-0090
20. Farida, I., & Setiawan, D. (2022). Business strategies and competitive advantage: The role of performance and innovation. *Journal of Open Innovation: Technology, Market, and Complexity, 8*(3), 163. https://doi.org/10.3390/joitmc8030163
21. Farida, I., Sunandar, & Aryanto. (2019). Faktor-faktor yang berpengaruh terhadap kinerja UMKM di Kota Tegal. *Jurnal Monex, 8*(2), 79–82. https://ejournal.poltektegal.ac.id/index.php/monex/article/view/1385/958
22. Foroudi, P., Gupta, S., Nazarian, A., & Duda, M. (2017). Digital technology and marketing management capability: Achieving growth in SMEs. *Qualitative Market Research, 20*(2), 230–246. https://doi.org/10.1108/QMR-01-2017-0014
23. Gregory, G., Karavdic, M., & Zou, S. (2007). The effects of e-commerce drivers on export marketing strategy. *Journal of International Marketing, 15*(2), 30–57. https://doi.org/10.1509/jimk.15.2.30
24. Halim, A. (2020). Pengaruh pertumbuhan usaha mikro, kecil dan menengah terhadap pertumbuhan ekonomi Kabupaten Mamuju. *Jurnal Ilmiah Ekonomi Pembangunan, 1*(2), 157–172. https://stiemmamuju.e-journal.id/GJIEP/article/view/39
25. Haryati, R., Yasri, Y., Aimon, H., & Darwin, M. (2021). Development of small, micro enterprises based (SMEs) on innovation and environmental sustainable development in West Sumatera. *Academy of Accounting and Financial Studies Journal, 25*(4), 1–13. https://www.abacademies.org/articles/Development-of-Small,-Micro-Enterprises-Based-(SMEs)-On-Innovation-and-Environmental-Sustainable-Development-in-West-Sumatera.pdf
26. Iqbal, M., & Suzianti, A. (2021). New product development process design for small and medium enterprises: A systematic literature review from the perspective of open innovation. *Journal of Open Innovation: Technology, Market, and Complexity, 7*(2), 153. https://doi.org/10.3390/joitmc7020153
27. Istianingsih, & Suraji, R. (2020). The impact of competitive strategy and intellectual capital on SMEs performance. *Jurnal Manajemen, 24*(3), 427–442. https://doi.org/10.24912/jm.v24i3.677
28. Jaya, I. M. L. M. (2019). The impact of financial inclusion on public financial services education through financial technology in Sleman Regency, Indonesia. *Esensi: Jurnal Bisnis Dan Manajemen, 9*(2), 155–174. https://doi.org/10.15408/ess.v9i2.13576
29. Jean, R.J., Sinkovics, R. R., & Cavusgil, S. (2010). Enhancing international customer — Supplier relationships through IT resources: A study of Taiwanese electronics suppliers. *Journal of International Business Studies, 41*(7), 1218–1239. https://doi.org/10.1057/jibs.2010.4
30. Jensen, C. A. (2021). The staged competition innovation theory. *Journal of Open Innovation: Technology, Market, and Complexity, 7*(3), 201. https://doi.org/10.3390/joitmc7030201
31. Khalil, A., Abdelli, M. E. A., & Mogaji, E. (2022). Do digital technologies influence the relationship between the COVID-19 crisis and SMEs' resilience in developing countries? *Journal of Open Innovation: Technology, Market, and Complexity, 8*(2), 100. https://doi.org/10.3390/joitmc8020100
32. Khan, S. A. R., Ponce, P., Tanveer, M., Aguirre-Padilla, N., Mahmood, H., & Shah, S. A. A. (2021). Technological innovation and circular economy practices: Business strategies to mitigate the effects of COVID-19. *Sustainability, 13*(15), 1–17. https://doi.org/10.3390/su13158479

33. Kolapo, F. T., Oke, M. O., & Olaniyan, T. O. (2018). A study of the nexus between economic development and deposit funded bank loans issued to private-public entities. *Corporate Governance and Organizational Behavior Review, 2*(1), 40–51. https://doi.org/10.22495/cgobr_v2_i1_p4
34. Lanzolla, G., & Markides, C. (2021). A business model view of strategy. *Journal of Management Studies, 58*(2), 540–553. https://doi.org/10.1111/joms.12580
35. Latifah, L., Setiawan, D., Aryani, Y. A., & Rahmawati, R. (2021). Business strategy — MSMEs' performance relationship: Innovation and accounting information system as mediators. *Journal of Small Business and Enterprise Development, 28*(1), 1–21. https://doi.org/10.1108/JSBED-04-2019-0116
36. Lebdaoui, H., & Chetioui, Y. (2020). CRM, service quality and organizational performance in the banking industry: A comparative study of conventional and Islamic banks. *International Journal of Bank Marketing, 38*(5), 1081–1106. https://doi.org/10.1108/IJBM-09-2019-0344
37. Lee, Y. Y., Falahat, M., & Porter, M. (2018). The impact of digitalization and resources on gaining competitive advantage in international markets: The mediating role of marketing, innovation and learning capabilities. *Technology Innovation Management Review, 9*(11), 26–39. https://doi.org/10.22215/timreview/1281
38. Leitner, K.-H., & Güldenberg, S. (2010). Generic strategies and firm performance in SMEs: A longitudinal study of Austrian SMEs. *Small Business Economics, 35,* 169–189. https://doi.org/10.1007/s11187-009-9239-x
39. Lestari, S. D., Leon, F. M., Widyastuti, S., & Brabo, N. A. (2020). Antecedents and consequences of innovation and business strategy on performance and competitive advantage of SMEs. *The Journal of Asian Finance, Economics and Business, 7*(6), 365–378. https://doi.org/10.13106/jafeb.2020.vol7.no6.365
40. Low, D. C. M., Roberts, H., & Whiting, R. H. (2015). Board gender diversity and firm performance: Empirical evidence from Hong Kong, South Korea, Malaysia and Singapore. *Pacific Basin Finance Journal, 35*(Part A), 381–401. https://doi.org/10.1016/j.pacfin.2015.02.008
41. Ma, L., Hong, Y., Chen, X., & Quan, X. (2022). Can green innovation and new urbanization be synergistic development? Empirical evidence from Yangtze River Delta city group in China. *Sustainability, 14*(10), 5765. https://doi.org/10.3390/su14105765
42. Malesev, S., & Cherry, M. (2021). Digital and social media marketing — Growing market share for construction SMEs. *Construction Economics and Building, 21*(1), 65–82. https://doi.org/10.5130/AJCEB.v21i1.7521
43. Nemati, A. R., Bhatti, A. M., Maqsal, M., Mansoor, I., & Naveed, F. (2010). Impact of resource based view and resource dependence theory on strategic decision making. *International Journal of Business and Management, 5*(12), 110–115. https://doi.org/10.5539/ijbm.v5n12p110
44. Neubert, M., & Zhu, P. (2018). The impact of digitalization on the speed of internationalization of Lean Global Startups. *Technology Innovation Management Review, 8*(5), 44–55. https://doi.org/10.22215/timreview/1158
45. Onufrey, K., & Bergek, A. (2021). Transformation in a mature industry: The role of business and innovation strategies. *Technovation, 105,* 102190. https://doi.org/10.1016/j.technovation.2020.102190
46. Pagani, M., & Pardo, C. (2017). The impact of digital technology on relationships in a business network. *Industrial Marketing Management, 67,* 185–192. https://doi.org/10.1016/j.indmarman.2017.08.009
47. Regona, M., Yigitcanlar, T., Xia, B., & Li, R. Y. M. (2022). Artificial intelligent technologies for the construction industry: How are they perceived and utilized in Australia? *Journal of Open Innovation: Technology, Market, and Complexity, 8*(1), 16. https://doi.org/10.3390/joitmc8010016
48. Reguera-Alvarado, N., de Fuentes, P., & Laffarga, J. (2017). Does board gender diversity influence financial performance? Evidence from Spain. *Journal of Business Ethics, 141*(2), 337–350. https://doi.org/10.1007/s10551-015-2735-9
49. Ruiz-Real, J. L., Uribe-Toril, J., Torres, J. A., & De Pablo, J. E. (2021). Artificial intelligence in business and economics research: Trends and future. *Journal of Business Economics and Management, 22*(1), 98–117. https://doi.org/10.3846/jbem.2020.13641
50. Rusdana, N. R., Choirani, S. J., & Friska, A. S. (2022). Digital marketing communication strategy for micro, small and medium enterprises (MSMEs) in business competition. *International Journal of Research and Applied Technology (INJURATECH), 2*(1), 163–168. https://doi.org/10.34010/injuratech.v2i1.6913
51. Rusly, F. H., Talib, Y. Y. A., Hussin, M. R. A., & Mutalib, H. A. (2021). Modelling the internal forces of SMEs digital adaptation strategy towards industry Revolution 4.0. *Polish Journal of Management Studies, 24*(1), 306–321. https://doi.org/10.17512/pjms.2021.24.1.18
52. Sasongko, D., Putri, I. R., Alfiani, V. N., Qiranti, S. D., Sinta, R., & Allafa, P. E. (2020). Digital marketing sebagai strategi pemasaran UMKM Makaroni Bajak Laut Kabupaten Temanggung. *Jurnal Ilmiah Pangabdhi, 6*(2), 92–96. https://doi.org/10.21107/pangabdhi.v6i2.7809
53. Soewarno, N., & Tjahjadi, B. (2020). Mediating effect of strategy on competitive pressure, stakeholder pressure and strategic performance management (SPM): Evidence from HEIs in Indonesia. *Benchmarking: An International Journal, 27*(6), 1743–1764. https://doi.org/10.1108/BIJ-06-2019-0292
54. Sugiyono. (2018). *Metode penelitian kuantitatif*. Bandung, Indonesia: Alfabeta.
55. Trinugroho, I., Pamungkas, P., Wiwoho, J., Damayanti, S. M., & Pramono, T. (2022). Adoption of digital technologies for micro and small business in Indonesia. *Finance Research Letters, 45*, 102156. https://doi.org/10.1016/j.frl.2021.102156
56. Vale, J., Barbosa, N., Bertuzi, R., Bandeira, A. M., & Vale, V. T. (2021). Intellectual capital change management in the construction industry — The case of an inter-organisational collaboration. *Journal of Open Innovation: Technology, Market, and Complexity, 7*(3), 199. https://doi.org/10.3390/joitmc7030199
57. Wijaya, T., Darmawati, A., & Kuncoro, A. M. (2020). E-lifestyle confirmatory of consumer Generation Z. *International Journal of Advanced Computer Science and Applications, 11*(10), 27–33. https://doi.org/10.14569/IJACSA.2020.0111004
58. Wong, K. T. K. (2017). A literature review on environmental, social and governance reporting and it's impact on financial performance. *Austin Journal of Business Administration and Management, 1*(4), 1–4. https://austinpublishinggroup.com/business-administration-and-management/fulltext/ajbam-v1-id1016.php
59. Yeung, S. M. C. (2021). Future learning mode under post-COVID-19: Innovations, transformations, engagement. *Corporate Governance and Organizational Behavior Review, 5*(1), 8–14. https://doi.org/10.22495/CGOBRV5I1P1