The effect of digital leadership on innovative work behavior: The mediating role of cultural moral and work engagement

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ARTICLE INFORMATION	ABSTRACT
	Digital leadership is considered as the appropriate leadership to face the current rapid and dynamic environmental changes. This study is focused on investigating how moral culture and employee engagement, as well as digital leadership impact innovative work behavior. The sample of this study was 205 respondents from construction Company X. The analysis was using path analysis technique conducted using the SEM-PLS method. The analysis's findings show that digital leadership influences organizational culture in a beneficial way. Innovative work behavior is influenced by work engagement, organization culture, and work engagement influences innovative work behavior. However, digital leadership does not directly have a significant effect on innovative work behavior. For construction company management, increasing innovative work behavior can be done by increasing the implementation of digital leadership so that company employees can form a good organizational culture and strong work engagement.

1. Introduction

Tight competition and technological advances have created more challenges for organizations. For this reason, an effort is needed to face these challenges (Al-Ajlouni, 2020). Among them is implementing innovation. The implementation of this innovation is important because it allows businesses to adapt to rapidly changing economic conditions and achieve excellence. Therefore, innovation is no longer an option for organizations so it must be implemented (Ramos-González et al., 2022).

Innovation also develops in construction companies. According to Musarat et al. (2024), in order to stay competitive and maximize efficiency, the construction sector needs to follow technological innovation and swiftly use it in operations (Leontie et al., 2022). Effective innovation in the construction sector requires the strategic allocation of resources to facilitate the quick adoption and adoption of new technologies (Guo & Fang, 2022). This is due to the fact that traditional methods of operation are no longer viable for construction firms (Musarat

et al., 2022). Rather, construction firms need to make investments in technologies that can save expenses, create protocols, and enhance project results overall (Alawag et al., 2023).

The application of innovation in human resource management is referred to as innovative work behavior (IWB). IWB is the external expression of employees' inner creativity; it is a method used to develop creative products and processes by which employees generate and implement new ideas to improve performance or solve work-related problems (Kwon & Kim, 2020). Thus, IWB includes all behaviors that begin at the individual level to generate, introduce, and implement new ideas for organizational improvement (Thneibat & Sweis, 2023).

Construction Company X is one of the State-Owned Enterprises (SOE) that also realizes the importance of transforming its business towards a better condition through digitalization. As a result, in order to manage change, policy creation, technology use, control, and supervision, an organization undergoing digital transformation needs digital leadership. Through the implementation of a suitable corporate culture and the enhancement of employee work engagement, the presence of this digital leader can promote the acceleration of transformation inside the business. Company X as a SOE construction company implements the core value of trustworthy, competent, harmonious, loyal, adaptive, and collaborative as an organizational culture. The SOE trustworthy, competent, harmonious, loyal, adaptive, and collaborative is a behavioral guide for every SOE human resource to be implemented in daily behavior and form a work culture in SOE. Digital leadership in Construction Company X is expected to be able to provide direction for organizational change and provide motivation for subordinates to continue to strive to have a high level of engagement so that they are able to innovate in working well.

Various studies have been conducted to explore factors that are considered to influence IWB (Erhan et al., 2022; Ebrahim et al., 2023; Huu, 2023). Among them is leadership. It is stated that leadership is considered to be able to answer challenges in development (Gardner et al., 2021). They are in charge of choosing and keeping the best team, promoting the vision both internally and externally, and carrying out organizational operations (such as influencing changes in organizational structure) (Wu et al., 2021; Luedi, 2022).

Thus, leadership is one of the factors that can determine how the organization runs (McCauley & Palus, 2020). Of the many leaderships that are currently being widely discussed is digital leadership. Organizations must use technology to connect socially and digitally in order to benefit from the digital era for all parties involved in a dynamic business environment (Erhan et al., 2022). Employees can be prepared for something new every day at work thanks to digital leadership, which can also help firms become more adaptable to changes in the world's multi-cultural networks (Litvinenko, 2020). Five dimensions (visionary leadership, learning culture in the digital age, excellence in professional practice, systemic improvement, and digital citizenship) are used by Karakose et al. (2021) to list the components of digital leadership. Furthermore, this study will examine the role of digital leadership on IWB through moral culture and work engagement. This study examines a different mechanism from the models that have been proposed so far between the role of digital leadership on other IWB.

2. Literatur Review and Hypothesis Development
2.1. Literatur Review
2.1.1. Contingency Theory

The 1970s saw the emergence of the concept of contingency theory in management accounting. According to this view, a leader's ability to lead depends on how well they comprehend the circumstances. The contingency theory mindset is

predicated on the idea that every organization is unique and deals with various issues. As a result, this method holds that every organization must confront its own leadership style and that various circumstances require various leadership actions (Abedin et al., 2020). Leadership is a situation, namely a state or situation that requires different demands and applications for time and place. In other words, this theory tries to link leadership style with its contingency factors, namely various situations. In different situations, the leadership style that will be applied will also be different (Abedin, 2022).

2.1.2. Innovative Work Behavior

IWB can also be defined as all of a person's actions that lead to the creation, processing, and implementation of new ideas related to how to do something. These new ideas include new product ideas, new technologies, new procedures, and new work processes that can increase work effectiveness and efficiency to support organizational success (Nicolescu & Rîpa, 2024). Kwon and Kim (2020) also stated that IWB is deliberate. This statement explains that the introduction and implementation of new ideas carried out in the organization are carried out in an organized and regulated manner. IWB is also interpreted as the behavior of organizational members who introduce the ideas they create to the organization where they work. IWB can increase the work involvement of organizational members and can reduce conflict within the organization. Thus, the effectiveness of the organization also increases (Javed et al., 2019). Innovative ideas from organizational members can be used to create new products or services from an organization (Hock-Doepgen et al., 2025).

2.1.3. Digital Leadership

According to Tigre et al. (2023), digital leaders in education are those who can set goals, motivate others, start long-lasting change based on knowledge, and cultivate connections to foresee change that is essential to the school's success in the future. The successful use of tactics to leverage an organization's digital data to accomplish its objectives is known as digital leadership. Accordingly, both institutional and individual levels can use digital leadership (Erhan et al., 2022). Stated differently, digital leadership is the broad application of technology to enhance the lives, well-being, and circumstances of people (Antonopoulou et al., 2020). Digital leader should be open to continuous learning by seeking solutions globally and should continuously encourage their collaborators and followers to learn (Shin et al., 2023). In another case, it is also mentioned that digital leaders are the most appropriate people to lead integration efforts because they have an enthusiastic and integrative nature, and their staff are the front line in the transformation. In addition, digital leaders have good business and digital skills (Gao & Gao, 2024).

2.1.4. Organization Culture

Organizational culture is considered as organizational capital and core competency that can support the fit between organizational values and employees (Azeem et al., 2021). Another statement states that organizational culture is the hidden values, beliefs, and assumptions held by members of the organization (Paais & Pattiruhu, 2020). In other words, organizational culture also shapes individual behavior in an organization (Lam et al., 2021). Organizational culture, according to Denison et al. (2014), is a system of values and beliefs that proliferate inside an organization and guide its members' behavior. A pattern of beliefs, values, and acquired coping mechanisms that have evolved over an organization's history and are reflected in its

material and behavioral structures is known as organizational culture (Khan et al., 2020). According to Shahzad et al. (2022), an organization's culture can be a significant tool for gaining a competitive edge if it aligns with its strategy.

2.1.5. Work Engagement

The idea of employee engagement was first introduced by Kahn in 1990. He proposed that engaged employees are physically, cognitively, and emotionally involved in their work roles and feel available (having the psychological and physical resources needed for the job), psychologically safe (feelings of trust and security at work), and meaningful (reward for investing in role performance). High degrees of passion, dedication, and absorption in their work are characteristics of engaged employees, who find their identity in their work (Monje-Amor et al., 2020). Work engagement should be owned by employees. This is because work engagement can improve employee performance. Employees who have engaged will be more proud, enthusiastic, and passionate about doing their jobs (Wood et al., 2020). On the other hand, low work engagement also hurts employee conditions. Low work engagement can result in employee behavior that is less concerned with work, less concentrated on work, less enthusiastic, and employees use their work time to do other activities outside of work. Other studies state that low work engagement can also cause turnover intention in employees (Karatepe et al., 2020).

2.2. Hypothesis Development
2.2.1. Positive Effect of Digital Leadership on Innovative Work Behavior

The leadership style and behavior of a leader will certainly affect the situation and conditions and motivation of his employees to work. Therefore, a person's leadership style can influence employees to take action in accordance with organizational goals such as IWB (Morgan & Papadonikolaki, 2021). Digital leaders will encourage team members to utilize digital devices and technologies to behave innovatively at work. In addition, digital leaders will always appreciate the contributions of their team members, by giving recognition to every effort made so that it will strengthen employees' IWB (Benitez et al., 2022; Sagbas et al., 2023). The results of Abbas et al. (2024) showed that digital leadership has a positive effect on IWB.

H$_1$: Digital Leadership Has a Positive Effect on Innovative Work Behavior

2.2.2. Positive Effect of Digital Leadership on Organizational Culture

Organizational culture is considered a source of sustainable competitive advantage, a key factor in organizational effectiveness, and critical to the success of projects involving organizational change. Martínez-Caro et al. (2020) The mechanism of how digital leadership influences organizational culture is based on a leader's ability to persuade others. This ability can support the development of a culture to face change and lead to the achievement of sustainable goals (Mangla, 2021). Several studies linking the influence of digital leadership to organizational culture include (Grover et al., 2022; Leso et al., 2023).

H$_2$: Digital Leadership Has a Positive Effect on Organiational Culture

2.2.3. Positive Effect of Digital Leadership on Work Engagement

A framework regarding the effect of effective leadership on employee work engagement is established by van Tuin et al. (2021). It is clarified that leaders offer direction, consolation, and acknowledgment for their efforts. Increasing optimism,

responsibility, meaningfulness, and inventive behavior seems to be the most effective way for digital leaders to engage their followers (Monje-Amor et al., 2020). When the leader's assessment of the follower's traits seems less positive than the follower's assessment of themselves, engagement declines (Klasmeier & Rowold, 2022). There is research that links work engagement to digital leadership (Agustina et al., 2020; Busse & Weidner, 2020).

H₃: Digital Leadership Has a Positive Effect on Work Engagement

2.2.4. Positive Effect of Organizational Culture on Innovative Work Behavior

There are two ways that organizational culture might affect innovative mindsets. Individuals learn how to act and behave toward one another through the socializing process. Furthermore, fundamental "values, beliefs, and assumptions" might impact organizational structure, policy systems, processes, and managerial orientations (Aboramadan et al., 2019). As a result, culture can foster creativity in workers. The reason for this is that it pushes them to embrace innovation as a corporate concept. Cultural characteristics such as initiative and creativity, an entrepreneurial mindset, independence and autonomy, risk-taking, teamwork, marketing orientation, and adaptability are thought to be ways to promote innovation (Afsar et al., 2021). Research IWB to organizational culture (Al-Swidi et al., 2021; Utomo et al., 2023).

H₄: Organizational Culture Has a Positive Effect on Innovative Work Behavior

2.2.5. Positive Effect of Work Engagement on Innovative Work Behavior

IWB are intimately linked to employee engagement in the organization. IWB is defined as conduct aimed at bringing about change, utilizing new information, coming up with fresh concepts, and refining work procedures in order to enhance individual and organizational performance (Kmieciak, 2021). Employees who have a strong bond with the work environment will live their work so that it creates a comfortable feeling in working. This can create passion in increasing innovative behavior in working, so that employees and companies mutually benefit from the performance of employees who live their work (Bhutto et al., 2021; Jia et al., 2022). Previous studies that analys the influence of work engagement on IWB (Kwon & Kim, 2020).

H₅: Work Engagement Has a Positive Effect on Innovative Work Behavior

2.2.6. The Mediating Role of Work Engagement on The Effect of Digital Leadership on Innovative Work Behavior

Leaders educate employees so that they understand the organizational culture which is useful for improving the sustainability of the company. Organizational culture can shape employee behavior, thereby influencing employee IWB (Hanelt et al., 2021). This collective alignment and motivation contribute to the formation of a cohesive organizational culture. Organizational culture plays a vital role in facilitating IWB (Abbas et al., 2024).

H₆: Work Engagement Mediates the Effect of Digital Leadership on Innovative Work Behavior

2.2.7. The Mediating Role of Organizational Culture on The Effect of Digital Leadership on Innovative Work Behavior

Karafakioglu and Findikli (2024) stated that work engagement is a form of perseverance, innovation, the desire to advance the organization, and always provide the best performance for the organization. Digital leadership, if implemented well, will

form high work engagement among subordinates. An engaged worker will be energized, fully committed to their task, capable of handling challenges, and exhibiting creative work habits. According to research by Sasmoko et al. (2019), employees who work under digital leaders are more likely to develop creative business concepts. Employee engagement at work is positively impacted by digital leaders (Agustina et al., 2020).

H7: Organizational Culture Mediates the Effect of Digital Leadership on Innovative Work Behavior

2.3. Research Framework

Wang et al. (2022) state digital leadership successfullness depends on how leaders' decisions influence the views of their subordinates. An essential contextual cue that emphasizes the value of engaging in digital innovation and transformation for the organization's and its members' benefit is digital leadership. The duty of choosing, preparing, training, and influencing one or more followers makes a leader crucial to an organization (Anwar & Saraih, 2024). Thus, the most recent developments in digital technology and the appearance of a common thread in the digital sphere have caused a shift in traditional company strategies and procedures (Karakose et al., 2022). Leaders that can spearhead digital change and employ creative tactics to capitalize on digital technologies are known as digital leaders. With strong digital leadership, organizations can face the challenges and opportunities that arise with digital transformation. This allows them to adapt to market changes, build stronger relationships with customers, improve operational efficiency, and create sustainable innovation (Torres et al., 2024). Figure 1 demonstrates the research framework of this study.
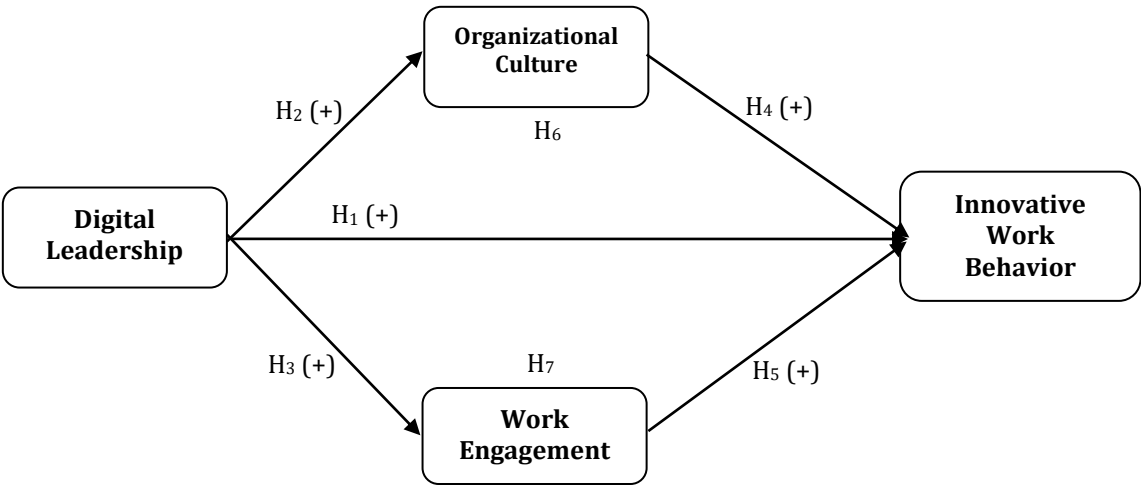
Figure 1. Research Framework

3. Research Method

3.1. Population and Sampling Method

The current research is explanatory research that aims to identify causes, determine causality, and predict changes in social phenomena related to other variables. This explains the relationship between variables and tests whether existing theories or hypotheses can be accepted or not (Toyon, 2021). The population of this study was all employees of Construction Company X which is approximately 2.269 employees. The indicators used in this study were 41, so the minimum sample size required was 205

respondents randomly selected. This method was chosen because many employees of Construction Company X are in the field and are often difficult to reach as research participants.

3.2. Data Collecting Method

This research used a questionnaire to obtain data from the respondents. The research instruments used were adopted from various other studies, for the digital leadership (DL) instrument consisting of five questions adopted form Erhan et al. (2022). The organziation culture (OC) instrument was developed from Robbins and Judge (2018) and consists of 12 questions. The work engagement (WE) instrument consists of 15 questions adopted from Meynaar et al. (2021). The innovative work behavior (IWB) instrument consists of nine questions adopted from Erhan et al. (2022).

3.3. Data Anaylisis Method

The analysis method used is structural equation modeling–partial least square (SEM-PLS) with Smart PLS. SEM PLS test is a multivariate analysis technique used to test the relationship between variables (Hair et al., 2021). According to Hair & Alamer (2022) The validity of the construct representing the variable should have an outer loading value > 0.7. However, an outer loading value above 0.6 can still be accepted as a benchmark. The reliability test in this study uses the Cronbach's alpha coefficient and the composite reliability value. The criteria used are the Cronbach's alpha value must be > 0.6 and the composite reliability value must be > 0.7 (Hair & Alamer, 2022). Hypothesis testing is carried out by looking at the p value of the path coefficient in SEM-PLS. If the p-value is > 0.05, then the proposed research hypothesis is not supported. Conversely, the p-value < 0.05, then the proposed research hypothesis is supported (Hair & Alamer, 2022).

4. Results and Discussion
4.1. Characteristics of Respondents

Based on characteristics respondent, it can be seen that most of the research respondents have gender Man as many as 195 respondents, aged 36-45 years as many as 111 respondents, have a bachelor's education as many as 166 respondents, have marital status married as many as respondents, have tenure 5-10 years as many as 78 respondents, have income per month more than 5 million as many as 201 respondents.

4.2. Validity Test

The results of processing using SmartPLS can be seen in Figure 2. The indicators OC 3, OC 8, WE 1, and WE 8 which had loading factors < 0.7, they had to be removed from the model.
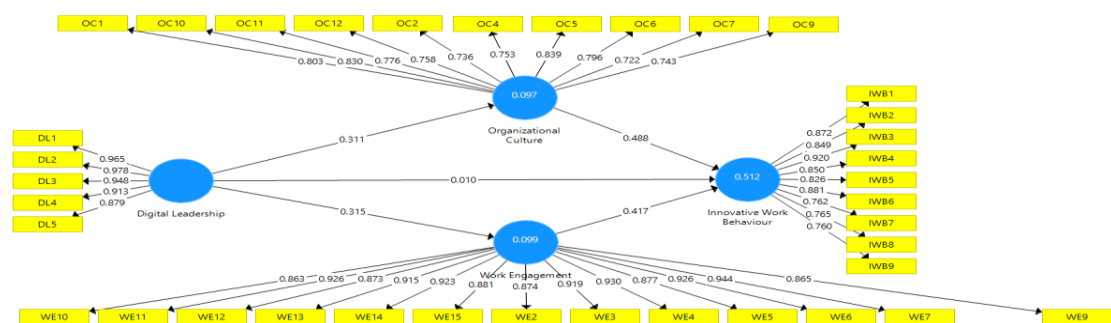

Figure 2. Measurement Model

Convergent validity testing measures the correlation between constructs and their latent variables by examining the loading factor value. If the loading factor value is greater than 0.7, then the study is considered valid. Table 1 shows that there are several indicators that were removed because they proved invalid, namely (OC 3, OC 8, WE 1, WE 8). After being removed, the valid indicators are then processed again.

Table 1. Validity Test Result

Indicator	Digital Leadership (DL)	Innovative Work Behavior (IWB)	Organizational Culture (OC)	Work Engagement (WE)
DL 1	0.965			
DL 2	0.979			
DL 3	0.948			
DL 4	0.912			
DL 5	0.879			
IWB 1		0.871		
IWB 2		0.850		
IWB 3		0.919		
IWB 4		0.850		
IWB 5		0.825		
IWB 6		0.880		
IWB 7		0.764		
IWB 8		0.765		
IWB 9		0.761		
OC 1			0.786	
OC 2			0.737	
OC 4			0.767	
OC 5			0.826	
OC 6			0.781	
OC 7			0.719	
OC 9			0.755	
OC 10			0.818	
OC 11			0.779	
OC 12			0.761	
WE 2				0.884
WE 3				0.913
WE 4				0.920
WE 5				0.874
WE 6				0.926
WE 7				0.934
WE 9				0.865
WE 10				0.855
WE 11				0.916
WE 12				0.869
WE 13				0.914
WE 14				0.912
WE 15				0.875

Source: Primary Data Processed (2025)

4.3. Reliability Test

Table 2 shows the reliability results for all variables in this study. The results indicated that digital leadership Cronbach's alpha of 0.965. Organizational culture and work engagement was the mediating variable with Cronbach's alpha 0.933 and 0.975, and IWB has Cronbach's alpha 0.994. Apart from being based on Cronbach's alpha, the reliability test is measured based on the composite reliability value, where each variable shows more than 0.7.

Table 2. Reliability Test Results

Variable	Cronbach's Alpha	Composite Reliability
Digital Leadership	0.965	0.973
Innovative Work Behavior	0.994	0.953
Organizational Culture	0.933	0.940
Work Engagement	0.975	0.978

Source: Primary Data Processed (2025)

4.4. Hypothesis Test

Table 3 presents the hypothesis test results using Smart PLS. Digital leadership positively but no significant effect on IWB (the first hypothesis rejected). Digital leadership effect positively affected organizational culture (the second hypothesis accepted). Digital leadership positively affected work engagement (the third hypothesis accepted). Organizational culture positively affected IWB (the fourth hypothesis accepted). Work engagement positively affected IWB (the fifth hypothesis accepted). Organizational culture and work engagement were shown to mediate the relationship between digital leadership and IWB (the sixth and seventh hypothesis accepted).

Table 3. Hypothesis Test Result

Hypothesis	Original Sample	Sample Mean	Standard Deviation	T Statistics	P Value
Digital Leadership → Innovative Work Behavior	0.010	0.009	0.055	0.185	0.853
Digital Leadership → Organizational Culture	0.311	0.310	0.063	4.958	0.000
Digital Leadership → Work Engagement	0.315	0.318	0.094	3.363	0.001
Organizational Culture → Innovative Work Behavior	0.488	0.492	0.049	9.977	0.000
Work Engagement → Innovative Work Behavior	0.417	0.414	0.046	8.988	0.000
Digital Leadership → Organizational Culture → Innovative Work Behavior	0.153	0.154	0.036	4.300	0.000
Digital Leadership → Work Engagement → Innovative Work Behavior	0.132	0.136	0.039	3.400	0.000

Source: Primary Data Processed (2025)

4.5. Discussion
4.4.1. The Effect of Perceived Limited Quantity Scarcity on Arousal

Limited quantity scarcity does not have a positive effect on arousal. These findings align with the research of Martaleni et al. (2022), who found that scarcity does not positively affect impulse buying. Thus, scarcity strongly influences consumer arousal. These findings contradict those of Lamis et al. (2022), who found that limited quantity scarcity affects impulse buying. Serravalle et al. (2023) also stated that the perception of limited items can create psychological pressure on consumers. These findings contradict the theory proposed by Solomon (2020), which states that arousal is a psychological and physiological state when something is triggered and creates a stimuli reaction. However, this research shows that a limited quantity does not positively affect arousal because people might think that the limited product does not trigger their emotions.

4.4.2. The Effect of Limited Time Scarcity on Arousal

The limited time scarcity effect positively affects arousal. These findings align with the research of Martaleni et al. (2022), who found that scarcity does not positively affect impulse buying. According to Ogden et al. (2019), scarcity strongly influences consumer arousal, but they do not purchase goods. Limited time can also stimulate emotions. These findings also align with those of Lamis et al. (2022), who found that limited time scarcity affects impulse buying. Scarcity makes people feel fear of missing out on the limited time given to them. These findings align with the theory proposed by Solomon (2020), which states that arousal is a psychological and physiological state when something triggers and creates a stimuli reaction. This study shows that limited time can trigger and stimulate consumers. This research shows that limited time scarcity positively affects arousal because time pressure triggers emotions and creates stimuli reactions.

4.4.3. The Effect of Limited Quantity Scarcity on Impulse Buying

Limited quantity scarcity does not have a positive effect on impulse buying. This result aligns with the findings of Fathia (2023), who found that limited quantity does not positively affect impulse buying. These findings contradict the research of Sun et al. (2023), who found that a limited quantity can positively affect impulse buying because it fosters a sense of urgency and exclusivity of someone's emotions. These findings contradict the theory proposed by Abdelsalam et al. (2020), which states that impulse buying is an unplanned purchase that occurs when someone faces several stimuli. Dahmiri et al. (2023) stated that limited product offers can drives consumers sensitivity that lead them to make impulsive purchases. Guo et al. (2017) also stated that limited product messages can amplify impulsive buying behavior. However, this study shows that a limited quantity is not enough to stimulate impulsive purchases. However, this study shows that a limited product does not positively affect impulse buying because consumers do not feel several stimuli that move their emotions to impulsively buy that product.

4.4.4. The Effect of Limited Time Scarcity on Impulse Buying

Limited time scarcity does not have a positive effect on impulse buying. These findings contradict the research of Sun et al. (2023), who found that limited time can positively affect impulse buying. However, the difference between our study and theirs is that they are more focused on live streaming. However, this finding contradicts the

research of Cengiz and Şenel (2024), who found that scarcity does not positively affect impulse buying because it focuses on the fashion context. These findings contradict the theory proposed by Abdelsalam et al. (2020), which states that impulse buying is an unplanned purchase that occurs when someone faces several stimuli. Guo et al. (2017) stated that scarcity based on time can drive impulsive buying behaviors. Dahmiri et al. (2023) also stated that the sight of time-sensitive offers can drive impulsive buying behavior because consumers fear missing out on limited deals (Dahmiri et al., 2023). However, this study shows that a limited time is not enough to stimulate impulsive purchases. This research shows that limited products do not positively affect impulse buying because they do not feel several stimuli that move their emotions to impulsively buy that product.

4.4.5. The Effect of Arousal on Impulse Buying

Arousal effects are positive on impulse buying. These findings align with those of Martaleni et al. (2022), who found that arousal has a positive effect on impulse buying. Consumers find flash sales activities and strategies pleasurable and intriguing but also experience fear and anxiety about them. These emotions can lead to impulsive shopping. These findings also align with the research of Sun et al. (2023), which found that arousal can affect impulse buying. When consumers feel excited about flash sales, they can impulsively make purchases. Feng et al. (2024) state that the excitement and stimulation generated by certain marketing tactics can create a state of arousal, fostering impulsive purchasing decisions. Guo et al (2017) also stated that a sense of urgency of someone can fuel impulsive purchases. These findings align with Solomon (2020) stated that impulse buying can be defined as purchasing something that is out of plan and is usually driven by emotion, wants, or essential needs without any good decision making. This study shows that definitive arousal can drive consumers to impulsively purchase things. This study shows that arousal has a positive effect on impulse buying, and that e-commerce must create more interesting events of flash sales that can touch customer emotions so that they can impulsively make a purchase.

4.4.6. The Effect of Limited Quantity Scarcity on Impulse Buying Mediated by Job Arousal

Arousal does not mediate the effect of limited quantity scarcity on impulse buying. This result partially aligns with the findings of Fathia (2023), who found that arousal partially mediates the effect of limited quantity scarcity on impulse buying. This result contradicts the findings of Wu et al. (2021), who found that arousal mediates the effect of limited quantity scarcity on impulse buying. Therefore, Feng et al. (2024) stated that the perception of limited supply or availability can induce a sense of urgency in consumers, resulting in impulsive purchasing decisions to avoid potential losses (Feng et al., 2024). Serravalle et al. (2017) also stated that product scarcity can create psychological pressure on consumers (Serravalle et al., 2023). These findings contradict Solomon (2020) stated that impulse buying can be defined as purchasing something that is out of plan and is usually driven by emotions, wants, or essential needs without any good decision-making. However, this study shows that limited items do not encourage consumers to buy things immediately. As we discussed in the previous results from the first to the fifth hypothesis, we can conclude that e-commerce must create more interesting (not only provide a limited product), but e-commerce can pick a viral product that is desired by many people so that the flash sales event can arouse consumer emotion to create impulse buying.

4.4.7. The Effect of Limited Time Scarcity on Impulse Buying Mediated by Job Arousal

Arousal mediates the effect of limited time scarcity on impulse buying. This result partially aligns with the findings of Fathia (2023), who found that arousal partially mediates the effect of limited time scarcity on impulse buying. The same result was obtained by Wu et al. (2021), who found that arousal partially mediates the effect of limited time scarcity on impulse buying. Previous research has investigated e-commerce, even though both take different places. Ogden et al. (2019) stated that limited time can stimuli someone emotions to creates a reaction on something. Guo et al. (2017) also stated that the impact of scarcity messages on impulsive buying is maximied when they create a sense of urgency (limited time), thus stimulating arousal. These findings partially align with the theory proposed by Solomon (2020), who stated that impulse buying can be defined as purchasing something that is out of plan and is usually driven by emotion, wants, or essential needs without any good decision-making. This study shows that arousal can push consumers to impulse buy, supported by limited time scarcity. This study shows that limited items do not encourage consumers to buy things immediately.

As discussed in the previous results from the first to the fifth hypothesis results, we can conclude that e-commerce must create more interesting (not only provide a limited time) but e-commerce can pick a viral product that is desired by many people so that the flash sales event can arouse consumer emotion to create impulse buying. We can conclude that limited quantity scarcity does not directly affect impulse buying, and arousal does not mediate the effect of limited quantity scarcity on impulse buying. However, arousal partially mediates the effect of limited time scarcity on impulse buying because limited time scarcity does not directly affect impulse buying. Quantity does not affect well because of changes in consumer behavior. Changes in customer behavior include being more brand-conscious and preferring to choose a brand as their value. Therefore, many customied products fit the values and needs of each customer. Regarding the limited time scarcity, e-commerce has successfully used that strategy to push their sales, and e-commerce has to be more focused on the limited time strategy to move more customers to make impulse purchases and create more sales.

5. Conclusion

The conclusion that can be drawn from the results of this study is that digital leadership has a positive effect on organizational culture and work engagement. Meanwhile, organizational culture and work engagement function to have a significant effect on IWB. This is because organizational culture and work engagement function as significant mediators between digital leadership and IWB. However, digital leadership does not directly have a significant effect on IWB. The limitation of this research is that it does not specifically differentiate respondents based on the level of position of the respondents which may give different answers to the questionnaire. This research was only conducted at Company X which is a state-owned company so that it is possible that different results will be obtained if conducted at a private company. For construction company management, increasing IWB can be done by increasing the implementation of digital leadership so that company employees can form a good organizational culture and strong work engagement. For further research, other variables that influence IWB, such as Job autonomy or compensation, can be added. Further research is also expected to develop research in companies with different characteristics.

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