Journal of STI Policy and Management, Volume 9(2), 2024, pp. 43-55

STI POLICY AND MANAGEMENT

Journal homepage: http://www.stipmjournal.org

The Influence of Digital Competency, Employee Engagement, and Leadership Style on SME Employee Performance in Indonesia: Innovation Capability as A Mediator and Organizational Culture as A Moderator in the Society 5.0 Era

Piter Tiong[1,*], Partono Sumaryo[1] Siti Aisyah Putri Simamora[2]

[1] *Sekolah Tinggi Ilmu Ekonomi AMKOP Makassar, Indonesia*

[2] *Business and Management Department, Southern Taiwan University of Science and Technology, Taiwan*

ARTICLE INFO

Article History:
Received : 11 November 2024
Revised : 23 November 2024
Accepted : 03 December 2024
Available online : 15 December 2024

Authorship Contribution:
All authors have equal contribution as the main authors

Keywords:
Digital competency,
Employee engagement,
Leadership style,
Innovation capability,
Organizational culture,
Society 5.0

ABSTRACT

This study examines the influence of digital competency, employee engagement, and leadership style on employee performance in Indonesian SMEs, with innovation capability as a mediator and organizational culture as a moderator, within the Society 5.0 framework. Drawing on data from 350 SME employees, this study employed a quantitative research design and utilized a cross-sectional survey approach, allowing for the collection of data at a single point in time to assess the relationships among the variables of interest. Structural Equation Modeling (SEM) with SmartPLS software was used to analyze the data. The findings reveal that digital competency, engagement, and leadership style significantly enhance employee performance. Innovation capability mediates these effects, while a supportive organizational culture amplifies the relationship between these factors and innovation capability. By integrating these constructs, the study offers novel insights into HRM strategies for fostering resilience, innovation, and performance in SMEs. Practical recommendations emphasize the importance of digital skill development, leadership engagement, and adaptive cultural practices to navigate the demands of a digitally advancing society. These findings contribute to the broader understanding of performance enhancement in the Society 5.0 era, offering actionable guidance for SME managers.

* Corresponding Author.
E-mail: phiepiter@yahoo.com

DOI: 10.14203/STIPM.2024.405

I. INTRODUCTION

The emergence of Society 5.0 marks a transformative era that integrates advanced technologies with societal needs, emphasizing a human-centered approach to addressing complex global challenges. Proposed initially by Japan, this paradigm highlights the symbiotic relationship between technological advancements and human values, promoting innovation for societal well-being (Longo et al., 2020). In this context, small and medium-sized enterprises (SMEs) play a pivotal role as drivers of economic growth and innovation, particularly in developing nations like Indonesia (OECD, 2021).

Indonesia's SME sector accounts for over 60% of national GDP and employs nearly 97% of the workforce, making it the backbone of the nation's economy (KADIN, 2023). However, the sector faces persistent challenges in adapting to digital transformation amidst resource constraints and evolving market demands. Many SMEs struggle to harness digital technologies effectively due to limited employee skills, engagement issues, and inconsistent leadership practices (Tambunan, 2019). These challenges highlight the urgent need for strategic frameworks to enhance workforce competencies and organizational adaptability, ensuring sustained competitiveness in a super-smart society.

Existing research predominantly focuses on isolated factors like digital competency, employee engagement, or leadership style, often neglecting their interconnections within the innovation ecosystem. For instance, while studies emphasize the importance of digital skills in improving productivity (Borthakur & Das, 2023), they rarely address how these skills interact with leadership and engagement to drive innovation and employee performance holistically. Moreover, the moderating role of organizational culture, particularly in culturally diverse contexts like Indonesia, remains underexplored (Kim & Jung, 2022).

This study addresses these gaps by investigating the complex interplay among digital competency, employee engagement, and leadership style, with innovation capability as a mediator and organizational culture as a moderator. The research focuses on Indonesian SMEs to explore how these elements collectively influence employee performance, aligning with the broader goals of Society 5.0. Indonesia's diverse cultural landscape and the economic significance of its SME sector provide a compelling backdrop for examining how cultural dynamics and human resource practices can drive innovation and performance in a digitally advancing society (Mukhtar et al., 2024).

The primary goal of this study is to identify actionable strategies that enhance employee performance through improved digital competency, higher engagement, and adaptive leadership. Specifically, the study aims to clarify the indicators of performance improvement, including productivity, creativity, and adaptability, within the SME workforce. By addressing the challenges unique to Indonesian SMEs, this research contributes valuable insights into fostering resilience and innovation in resource-constrained environments, bridging theoretical concepts with practical applications (Garrido-Moreno et al., 2024; Huang et al., 2022).

II. ANALYTHICAL FRAMEWORK

This study integrates various theoretical paradigms to examine how digital competency, employee engagement, and leadership style influence employee performance in Indonesian SMEs, with innovation capability as a mediator and organizational culture as a moderator. By combining these constructs, the framework provides a unified approach to understanding how SMEs can navigate the challenges of Society 5.0.

A. Socio-Technical Systems Theory

Socio-Technical Systems (STS) theory underscores the importance of aligning technical and social systems to achieve organizational effectiveness (Mukhtar et al., 2024). In this framework, the technical system is represented by digital competency, which encompasses the skills and abilities employees need to leverage digital tools for productivity and innovation. Digital competency enables employees to navigate complex digital environments, contributing to the organization's capacity to innovate. On the other hand, the social system includes employee engagement and leadership style, both of which foster a collaborative and supportive workplace environment. These social systems encourage employees to actively engage with their roles and adapt to the demands of digital transformation.

The interaction between these systems is critical for driving both innovation capability and employee performance. Digital competency provides the technical foundation, while engagement and leadership create the necessary human-centric environment to apply these skills effectively. This alignment ensures that technological advancements are not implemented in isolation but are complemented by social dynamics that enhance their utility. In the context

of SMEs in Indonesia, this balance is particularly crucial due to resource constraints and the need for efficient integration of technology with workforce dynamics

B. Resource-Based View (RBV)

The Resource-Based View (RBV) of the firm posits that organizations gain a competitive advantage by leveraging unique and valuable resources (Barney, 1991; Kraaijenbrink et al., 2010). Digital competency is conceptualized as a critical resource within the RBV framework, equipping employees with the technical proficiency required to drive organizational innovation (Elia et al., 2021). However, this competency alone is insufficient without the mediating influence of innovation capability, which acts as an organizational resource translating individual skills into broader performance outcomes. Innovation capability represents the organization's ability to develop and implement creative solutions that respond to market demands and enhance adaptability (Saunila et al., 2014).

The mediating role of innovation capability emphasizes how digital competency, engagement, and leadership are transformed into measurable performance improvements. In SMEs, where resources are often limited, this transformation is essential for maximizing the impact of investments in digital tools and workforce development. By integrating RBV into the framework, the study highlights the importance of internal capabilities, such as innovation capability, in enabling SMEs to thrive amidst the rapid technological changes of Society 5.0. This perspective also underscores the need for SMEs to strategically nurture these resources to remain competitive.

C. Employee Engagement Theory

Employee Engagement Theory emphasizes the psychological and emotional commitment employees bring to their work and its impact on organizational outcomes (S. Y. B. Huang et al., 2022). Engaged employees are more likely to contribute to innovation capability through active participation, creativity, and problem-solving. They exhibit behaviors such as taking initiative, collaborating with colleagues, and adapting to changes, all of which are essential for driving innovation. Within this framework, employee engagement serves as a direct driver of both innovation capability and employee performance, linking individual motivation with organizational success.

The inclusion of employee engagement in this framework highlights its critical role in the innovation process. Engaged employees not only enhance their own performance but also contribute to a culture of innovation that benefits the entire organization (Pincus, 2023). For SMEs, fostering employee engagement is particularly vital, as it can offset the challenges posed by resource limitations and increase workforce resilience. This dynamic demonstrates how engagement acts as a bridge between individual effort and organizational outcomes, ensuring that SMEs can adapt to the demands of a super-smart society while maintaining employee satisfaction and productivity.

D. Innovation Capability as Mediator

Innovation capability is central to this framework, serving as the mechanism through which digital competency, employee engagement, and leadership style influence employee performance (Saunila et al., 2014). It represents the organization’s ability to translate individual competencies into creative solutions and improved processes. For example, employees with strong digital skills and high engagement are better equipped to innovate, and these innovations directly enhance productivity, adaptability, and overall performance. The mediating role of innovation capability thus explains how competencies and engagement contribute to sustainable performance improvements.

This mediating relationship is particularly relevant for SMEs operating in dynamic markets where adaptability and creativity are key to success. Innovation capability enables these organizations to respond to market changes, leverage digital tools effectively, and foster a culture of continuous improvement (Garrido-Moreno et al., 2024; Lam et al., 2021). By positioning innovation capability as a mediator, the framework emphasizes its role as a transformational process that connects individual and organizational resources with measurable outcomes. This perspective highlights the importance of nurturing innovation to ensure that SMEs remain competitive in the rapidly evolving landscape of Society 5.0. (Troisi et al., 2023).

E. Organizational Culture as a Moderator

Organizational culture plays a moderating role in this framework by amplifying or diminishing the relationships between the independent variables (digital competency, employee engagement, and leadership style) and innovation capability (Shuaib & He, 2023). A supportive organizational culture fosters openness to change, collaboration,

and inclusivity, creating an environment where employees feel empowered to experiment and take risks (Junça Silva & Coelho, 2023). In this context, culture acts as an enabler, strengthening the positive effects of digital skills, engagement, and leadership on innovation capability. For example, an organization that values collaboration will likely see greater synergy between its technical and social systems, leading to enhanced innovation outcomes.

In culturally diverse contexts like Indonesia, organizational culture takes on added significance. The diversity of perspectives and values within Indonesian SMEs provides both opportunities and challenges for fostering innovation. A culture that embraces this diversity and encourages mutual respect can unlock the full potential of its workforce, enhancing innovation capability and, ultimately, employee performance. By incorporating organizational culture as a moderator, the framework highlights its critical role in shaping the success of digital transformation and human resource strategies. (Widjaja, 2021).

F. Employee Engagement

Employee Engagement Theory emphasizes the importance of fostering an engaged workforce to achieve higher levels of organizational performance (Kahn, 1990). Engaged employees are more likely to leverage their skills effectively and contribute positively to innovation efforts. This theory supports the notion that enhancing employee engagement through supportive leadership and development initiatives can significantly impact overall employee performance in SMEs.

III. HYPOTHESIS DEVELOPMENT

In the context of the study titled "The Influence of Digital Competency, Employee Engagement, and Leadership Style on SME Employee Performance in Indonesia: Innovation Capability as a Mediator and Organizational Culture as a Moderator in the Society 5.0 Era," the following hypotheses are developed based on the theoretical framework and existing literature. These hypotheses aim to examine the complex relationships among key variables and provide actionable insights into enhancing employee performance in Indonesian SMEs.

A. Digital Competency and Employee Performance

Digital competency refers to employees' ability to effectively utilize digital tools and technologies, enabling them to work more efficiently and adapt to technology-driven tasks. This competency has become increasingly critical in the Society 5.0 era, where technology is integrated into every aspect of work (Longo et al., 2020). In SMEs, where resources are often limited, digital competency enhances operational efficiency and service quality, leading to improved employee performance.

H1: Digital Competency has a positive effect on Employee Performance.

B. Employee Engagement and Employee Performance

Employee engagement encompasses employees' emotional and psychological commitment to their roles, often resulting in higher productivity, creativity, and dedication (Kahn, 1990). Engaged employees tend to take initiative and contribute positively to organizational outcomes, which is essential for SMEs striving to compete in dynamic markets.

H2: Employee Engagement has a positive effect on Employee Performance.

C. Leadership Style and Employee Performance

Leadership style significantly influences employee motivation, behavior, and performance. Effective leadership styles, such as transformational and participative leadership, create supportive work environments that foster collaboration, creativity, and trust (Black & Van Esch, 2020). These environments enable employees to perform optimally and align their efforts with organizational goals.

H3: Leadership Style has a positive effect on Employee Performance.

D. Digital Competency and Innovation Capability

Employees with high levels of digital competency are better equipped to generate and implement innovative ideas (Troisi et al., 2023). In technology-driven environments, digital skills provide the foundation for creativity and problem-solving, increasing the organization’s innovation capability.

H4: Digital Competency has a positive effect on Innovation Capability.

E. Employee Engagement and Innovation Capability

Engaged employees are more likely to contribute to organizational innovation through their proactive behavior and creative input (Elamin et al., 2024; Kahn, 1990). When employees feel valued and motivated, they are more likely to experiment with new ideas and collaborate to develop innovative solutions.

H5: Employee Engagement has a positive effect on Innovation Capability.

F. Leadership Style and Innovation Capability

Leadership styles that encourage collaboration, openness, and risk-taking significantly enhance an organization's capacity for innovation (Black & Van Esch, 2020; Canhoto & Clear, 2020). Leaders who create a supportive and inclusive environment enable employees to experiment and innovate, thereby increasing the organization's overall innovation capability.

H6: Leadership Style has a positive effect on Innovation Capability.

G. Innovation Capability as a Mediator

Innovation capability serves as the mechanism through which digital competency, employee engagement, and leadership style translate into enhanced employee performance. By fostering creativity and problem-solving, innovation capability enables organizations to maximize the impact of their technical and social resources on performance outcomes:

H7a: Innovation Capability mediates the relationship between Digital Competency and Employee Performance.

H7b: Innovation Capability mediates the relationship between Employee Engagement and Employee Performance.

H7c: Innovation Capability mediates the relationship between Leadership Style and Employee Performance.

H. Organizational Culture as a Moderator

Organizational culture moderates the relationships between digital competency, employee engagement, leadership style, and innovation capability by fostering an environment conducive to collaboration, creativity, and openness (Al-Sada et al., 2017; Chatterjee et al., 2023; Lam et al., 2021; Öngel et al., 2023; Schiuma et al., 2024; Wang & Oscar, 2024). A supportive organizational culture strengthens these relationships, enhancing the organization's ability to innovate:

H8a: The positive effect of Digital Competency on Innovation Capability is stronger in organizations with a supportive Organizational Culture.

H8b: The positive effect of Employee Engagement on Innovation Capability is stronger in organizations with a supportive Organizational Culture.

H8c: The positive effect of Leadership Style on Innovation Capability is stronger in organizations with a supportive Organizational Culture.

These hypotheses provide a structured approach for exploring the complex interactions among digital competency, employee engagement, leadership style, innovation capability, organizational culture, and employee performance within Indonesian SMEs in the context of Society 5.0. By testing these hypotheses through quantitative analysis using SmartPLS, this research aims to contribute valuable insights into effective HRM strategies that align with the evolving demands of technology-driven environments.

IV. RESEARCH FRAMEWORK

The proposed framework examines how digital competency, employee engagement, and leadership style influence employee performance, which subsequently affects innovation capability. Organizational culture is considered a moderating factor, enhancing the relationships between these variables. This integrated model underscores the importance of aligning human resource capabilities and organizational factors to drive innovation.

Recent studies support this framework. For instance, Qiao et al. (2024) found that digital leadership significantly enhances employee performance and organizational commitment through digital transformation initiatives. Similarly, Xiufan & Yunqiao (2024) demonstrated that Chief Information Officer (CIO) leadership styles positively influence green innovation, with digital capabilities mediating this relationship and organizational culture moderating it. These findings highlight the critical role of leadership and digital competencies in fostering innovation within organizations. Figure 1 represents the research framework.

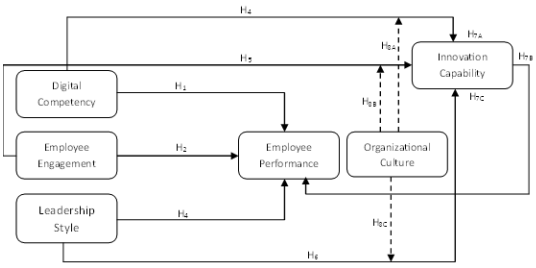

Figure 1. Research Framework

V. METHODOLOGY

A. Research Design

This study employed a quantitative research design to investigate the influence of digital competency, employee engagement, and leadership style on employee performance in small and medium-sized enterprises (SMEs) in Indonesia. The research utilized a cross-sectional survey approach, allowing for the collection of data at a single point in time to assess the relationships among the variables of interest. The study aimed to test the proposed hypotheses using Structural Equation Modeling (SEM) with SmartPLS software to analyze the data.

B. Sample and Data Collection

This study employed a quantitative research design to investigate the relationships among digital competency, employee engagement, leadership style, innovation capability, organizational culture, and employee performance in Indonesian SMEs. Data were collected through a structured survey distributed to SME employees across various sectors, including manufacturing, retail, and services. These sectors were chosen due to their significant contribution to the Indonesian economy and their varying levels of digital transformation. The sample targeted SMEs located in both urban and regional areas, ensuring a diverse representation of perspectives across geographic locations.

A sample size of 400 respondents was initially determined based on (Krejcie & Morgan, 1970) sample size calculation method, which recommends an adequate sample for a population exceeding 100,000. This sample size ensures statistical power and reliability for Structural Equation Modeling (SEM) analysis. After data cleaning to address incomplete or invalid responses, 350 valid responses were included in the final analysis.

C. Respondent Characteristics

To ensure diverse representation, respondents were selected from various demographic and professional backgrounds. The final sample included employees with a wide range of ages (from 21 to 55 years old), gender (48% male, 52% female), educational backgrounds (high school to postgraduate levels), and varying levels of professional experience (ranging from less than one year to over 15 years). These respondents held positions across multiple organizational levels, including entry-level, mid-level, and managerial roles. This approach captures a comprehensive understanding of employee experiences and perspectives within SMEs.

The SMEs included in this study were drawn from manufacturing, retail, and service industries. Manufacturing SMEs focused on light manufacturing and production, retail SMEs included those in consumer goods and e-commerce, and service SMEs covered sectors such as hospitality, education, and digital services. This categorization reflects the diverse nature of SMEs in Indonesia and their varying adoption of digital practices.

D. Measures and Instrumentation

The survey instrument consisted of validated scales adapted from previous studies, covering all variables in the research model. Questions were presented on a 7-point Likert scale ranging from "strongly disagree" to "strongly agree." The survey was pilot-tested with 30 SME employees to ensure clarity and reliability before the main data collection.

The surveys were administered both online and in-person to accommodate varying levels of access to digital tools among respondents. Data collection occurred between April and June 2024.

E. Data Analysis

Data analysis was conducted using SmartPLS version 4.0 for Structural Equation Modeling (SEM). The analysis involved several steps (Wang & Oscar, 2024):

Descriptive Statistics: Initial descriptive statistics were computed to summarize demographic characteristics of the sample, including age, gender, education level, and years of experience.

Measurement Model Assessment: The reliability and validity of the measurement model were evaluated using Cronbach's alpha and composite reliability for internal consistency. Convergent validity was assessed through average variance extracted (AVE), while discriminant validity was evaluated using the Fornell-Larcker criterion.

Structural Model Assessment: The structural model was tested to evaluate the hypothesized relationships among the variables. Path

coefficients were analyzed to determine the strength and significance of each relationship. Bootstrapping with 5,000 resamples was performed to assess the significance of path coefficients.

Table 1. Variables and Items

Variables	Code	Description	Source
Digital Competency	DC1	I can effectively use digital tools to communicate with colleagues.	(Punie et al., 2014)
	DC2	I am skilled at using software applications relevant to my job.	
	DC3	I can find and evaluate information online efficiently.	
Employee Engagement	EE1	I feel enthusiastic about my job.	(Schaufeli et al., 2006)
	EE2	I am proud of the work I do.	
	EE3	I am immersed in my work.	
Leadership Style	LS1	Our organization is good at developing new ideas	(Bass & Avolio, 1995)
	LS2	We frequently implement innovative solutions in our work	
	LS3	My leader inspires me to achieve more than I thought possible..	
	LS4	My leader promotes transparency and open communication.	
Innovation Capability	IC1	Our organization is good at developing new ideas.	(Diamantopoulos & Siguaw, 2006)
	IC2	We frequently implement innovative solutions in our work.	
	IC3	Our organization encourages experimentation and risk-taking.	
Organizational Culture	OC1	Our organization emphasizes teamwork and collaboration.	(Cameron & Quinn, 2011)
	OC2	Innovation is encouraged and rewarded in our organization.	
	OC3	Our organization has a strong focus on achieving results.	
	OC4	Our organization encourages respect for diverse perspectives and backgrounds	
Employee Performance	EP1	I meet or exceed my performance goals.	(Borman & Motowidlo, 1997)
	EP2	I contribute positively to team objectives.	
	EP3	I consistently deliver high-quality work.	
	EP4	I consistently meet deadlines, even when under pressure.	
	EP5	I adapt quickly to changes in work tasks or project requirements.	

Mediation and Moderation Analysis: The mediating effect of innovation capability between independent variables (digital competency, employee engagement, leadership style) and employee performance was examined using the guidelines provided by (Hayes, 2022). Additionally, moderation analysis was conducted to evaluate the role of organizational culture in strengthening or weakening these relationships.

Results Interpretation: The results were interpreted in light of the hypotheses developed earlier in the study. Key findings regarding significant relationships among digital competency, employee engagement, leadership style, innovation capability, organizational culture, and employee performance were highlighted.

F. Ethical Considerations

Participation in the study was voluntary, with informed consent obtained from all participants. Respondents were assured of the anonymity and confidentiality of their responses, and data were handled in accordance with ethical standards for research involving human participants.

VI. RESULTS

A. Descriptive Statistic

The descriptive statistics (Table 2) provide an overview of key study variables. Digital Competency averaged 4.2 (SD = 0.8), indicating generally high digital skills with some variation. Employee Engagement (EE) scored highest at 4.5 (SD = 0.7), showing strong, consistent enthusiasm among employees. Leadership Style (LS) had a mean of 4.3 (SD = 0.9), suggesting positive perceptions with some variability. Innovation Capability (IC) averaged 4.4 (SD = 0.6), reflecting a shared belief in organizational innovation. Organizational Culture (OC) scored 4.1 (SD = 0.7), showing favorable support perceptions. Finally, Employee Performance (EP) was high at 4.6 (SD = 0.5), indicating consistently strong performance. These results provide a foundation for further analysis of variable interrelations. Table 2 presents summary of the statistics

Table 2. Summary Statistics

Variable	Mean	Std. Dev.	Min.	Max.
DC	4.2	0.8	2.1	5
EE	4.5	0.7	2.8	5
LS	4.3	0.9	1.9	5
IC	4.4	0.6	3	5
OC	4.1	0.7	2.5	5
EP	4.6	0.5	3.1	5

The respondent demographics reveal a predominance of male participants (60%), compared to females (40%), suggesting that the sample may reflect a male-dominated workforce within SMEs in Indonesia. Age-wise, a significant portion of respondents are in the 30-39 age group (42.9%), followed by the 20-29 range (28.6%), indicating a workforce largely within the early to mid-career stages. Educational attainment varies, with the majority holding a bachelor's degree (37.1%) or a Diploma (34.3%), which aligns with the skill requirements for digital competency and engagement in SMEs. In terms of experience, 37.1% of participants have 5-10 years in the workforce, with 14.3% having over 15 years, bringing a valuable mix of perspectives. The respondents are well-distributed across the manufacturing (28.6%), retail (34.3%), and services (37.1%) sectors, supporting a comprehensive view of performance drivers across various industries. This demographic diversity provides a solid foundation for analyzing the impact of digital competency, employee engagement, leadership style, and innovation capability on performance outcomes in the Society 5.0 context. Table 3 presents the respondent demographics.

Table 3. Respondent Demographics

Category	Frequency	Percentage
Gender		
Male	210	60%
Female	140	40%
Age		
20-29 years	100	28.60%
30-39 years	150	42.90%
40-49 years	80	22.90%
50 years and above	20	5.70%
Education		
High School	70	20%
Diploma	120	34.30%
Bachelor's Degree	130	37.10%
Master's Degree	30	8.60%
Less than 5 years	90	25.70%
5-10 years	130	37.10%
11-15 years	80	22.90%
More than 15 years	50	14.30%
Industry		
Manufacturing	100	28.60%
Retail	120	34.30%
Services	130	37.10%

B. Measurement Model

The factor loadings reveal that while most items meet the 0.7 threshold, three items (LS4, OC4, EP4, and EP5) fall below this threshold, indicating they may not be reliable indicators of their respective constructs. This could suggest that these items may need refinement or reconsideration for inclusion in the measurement model. Table 4 presents the factor loadings and Table 5 shows the reliability and validity.

Table 4. Factor Loadings

Variable	Item Code	Loading	Adjusted
DC	VC1	0.82	0.82
	VC2	0.85	0.85
	VC3	0.78	0.78
EE	EE1	0.88	0.88
	EE2	0.90	0.90
	EE3	0.84	0.84
LS	LS1	0.79	0.79
	LS2	0.81	0.81
	LS3	0.83	0.83
	LS4	0.65	Eliminated
IC	IC1	0.86	0.86
	IC2	0.89	0.89
	IC3	0.87	0.87
OC	OC1	0.80	0.80
	OC2	0.83	0.83
	OC3	0.82	0.82
	OC4	0.66	Eliminated
EP	EP1	0.91	0.91
	EP2	0.89	0.89
	EP3	0.87	0.87
	EP4	0.60	Eliminated
	EP5	0.63	Eliminated

Table 5. Reliability and Validity

Variable	Cron. Alpha	CR	AVE
DC	0.75	0.84	0.64
EE	0.85	0.9	0.76
LS	0.8	0.87	0.68
IC	0.86	0.91	0.78
OC	0.82	0.88	0.71
EP	0.89	0.93	0.82

All constructs meet the thresholds for Cronbach's alpha (above 0.7), Composite Reliability (above 0.7), and AVE (above 0.5), indicating satisfactory internal consistency and convergent validity. These results suggest that each construct is measured reliably and that the items within each construct collectively capture the intended concept.

The discriminant validity results, using the Fornell-Larcker criterion, indicate that each construct's AVE square root (diagonal values) is greater than its correlations with other constructs, confirming adequate discriminant validity. This result shows that each construct is distinct from the others, supporting the model's overall validity. Table 6 shows the discriminant validity.

Table 6. Discriminant Validity Table

Var.	DC	EE	LS	IC	OC	EP
DC	0.8					
EE	0.6	0.87				
LS	0.55	0.62	0.82			
IC	0.57	0.64	0.59	0.88		
OC	0.53	0.6	0.58	0.63	0.84	
EP	0.61	0.67	0.62	0.68	0.66	0.91

C. Direct Effect

The direct effects analysis (Table 7) reveals significant positive relationships for each hypothesis. Digital Competency has a significant

positive effect on Employee Performance (Path Coefficient = 0.42, $p < 0.001$), supporting the role of digital skills in enhancing performance. Employee Engagement also positively affects Employee Performance (0.50, $p < 0.001$), suggesting that engaged employees contribute significantly to performance outcomes. Leadership Style demonstrates a positive effect on Employee Performance (0.35, $p < 0.003$), highlighting the impact of effective leadership.

Table 7. Direct Effect Estimation

Hypo.	Path	Coef.	p-val.	Result
H1	DC → EP	0.42	0.001	Supported
H2	EE → EP	0.5	0.001	Supported
H3	LS → EP	0.35	0.003	Supported
H4	DC → IC	0.48	0.001	Supported
H5	EE → IC	0.52	0.001	Supported
H6	LS → IC	0.33	0.005	Supported

In terms of innovation, Digital Competency has a strong positive impact on Innovation Capability (0.48, $p < 0.001$), underscoring the importance of digital skills for fostering innovation. Similarly, Employee Engagement positively influences Innovation Capability (0.52, $p < 0.001$), indicating that engaged employees contribute to a culture of innovation. Lastly, Leadership Style significantly affects Innovation Capability (0.33, $p < 0.005$), suggesting that supportive leadership enhances the organization's ability to innovate. These results confirm the importance of each factor in directly contributing to employee performance and innovation capability in the context of Society 5.0.

D. Indirect Effect

The indirect effects table highlights the significant mediating and moderating roles (Table 8) within the model. Innovation Capability acts as a mediator between Digital Competency and Employee Performance (Indirect Effect = 0.20, $p < 0.002$), supporting the idea that innovation capability enhances the impact of digital skills on performance.

Table 8. Mediation and Moderation

Hypo.	Path	Indirect Effect	Result
H7a	DC→IC→EP	0.20***	Supported
H7b	EE→IC→EP	0.26***	Supported
H7c	LS→IC→EP	0.15***	Supported
H8a	DC x OC→IC	0.12***	Supported
H8b	EE x OC→IC	0.18***	Supported
H8c	LS x OC→ IC	0.10***	Supported

Employee Engagement also significantly impacts Employee Performance through Innovation Capability (0.26, $p < 0.001$), emphasizing that engaged employees contribute to performance outcomes via their role in innovation. Leadership Style similarly influences Employee Performance through Innovation Capability (0.15, $p < 0.004$), underscoring that leadership can foster performance improvements indirectly through innovation.

Organizational Culture significantly moderates the relationship between Digital Competency and Innovation Capability (0.12, $p < 0.03$), indicating that a supportive culture strengthens the effect of digital skills on innovation. The moderation effect of Organizational Culture is also evident between Employee Engagement and Innovation Capability (0.18, $p < 0.01$), highlighting the role of culture in enhancing the engagement-innovation link. Finally, Organizational Culture moderates the relationship between Leadership Style and Innovation Capability (0.10, $p < 0.04$), suggesting that a positive organizational culture amplifies leadership's impact on innovation. These results underscore the critical roles of innovation capability as a mediator and organizational culture as a moderator in enhancing employee performance.

VII. DISCUSSION AND IMPLICATIONS

A. Discussion

The results of this study reveal significant relationships among digital competency, employee engagement, leadership style, innovation capability, and employee performance in Indonesian SMEs. Digital competency was found to have a direct and positive effect on employee performance, highlighting the importance of equipping employees with the necessary skills to navigate digital tools effectively. This finding aligns with the Resource-Based View (RBV), which emphasizes the role of unique organizational resources—such as digital competency—in achieving a competitive advantage (Elia et al., 2021). These results underscore the necessity for SMEs to invest in continuous digital skill development to enhance operational efficiency and adaptability.

Employee engagement also demonstrated a significant positive impact on employee performance, supporting the premise of Employee Engagement Theory. Engaged employees, who exhibit higher levels of commitment and motivation, contribute more effectively to organizational goals (Pincus, 2023). This finding reinforces the critical role of employee engagement in fostering a productive and innovative workforce. In line with studies such as (Kahn, 1990), engaged employees actively participate in problem-solving and collaborative efforts, which enhances organizational outcomes.

Similarly, leadership style was shown to positively influence employee performance, particularly when leaders adopt transformational or participative approaches. Such leadership fosters an environment of trust, collaboration, and creativity, enabling employees to perform at their best. This result is consistent with Socio-Technical Systems (STS) theory, which highlights the importance of balancing technical and social systems to optimize organizational performance (Bentley et al., 2016). Effective leadership aligns with prior research emphasizing the role of leaders in shaping positive work environments and encouraging innovation (Black & Van Esch, 2020).

The mediating role of innovation capability was also confirmed, demonstrating that it acts as a critical mechanism through which digital competency, employee engagement, and leadership style translate into enhanced employee performance. For example, employees with high digital competency and engagement are more likely to contribute to organizational innovation, which subsequently drives performance improvements. This finding aligns with innovation and dynamic capability theories, which assert that innovation capability is essential for organizational adaptability in dynamic environments (Elamin et al., 2024). Moreover, these results are consistent with studies suggesting that innovation capability is a key determinant of organizational success (Troisi et al., 2023).

Organizational culture was found to significantly moderate the relationships between digital competency, employee engagement, leadership style, and innovation capability. A supportive culture amplifies the positive effects of these variables by fostering an environment conducive to collaboration and experimentation. This result highlights the importance of organizational culture in shaping the effectiveness of human resource strategies, particularly in the context of Indonesian SMEs. These findings align with contingency theories, which emphasize the role of environmental factors such as culture in influencing organizational outcomes (Kim & Jung, 2022).

The study's findings provide valuable insights into the specific aspects of employee performance that are influenced by these factors. Employee performance, as measured in this study, encompasses productivity, adaptability, and creativity. These dimensions reflect the ability of employees to not only meet their job demands but also to innovate and contribute to the organization's long-term goals. By addressing these specific performance metrics, the study offers a more nuanced understanding of how digital transformation and human resource practices intersect in SMEs.

The findings align closely with the theoretical paradigms underpinning this study. For example, the Resource-Based View (RBV) explains how digital competency acts as a critical resource for driving innovation and performance. Similarly, Socio-Technical Systems (STS) theory supports the notion that leadership and engagement create the necessary social systems to complement technical advancements. Finally, Employee Engagement Theory reinforces the idea that motivated and committed employees are key drivers of innovation and performance. By linking the results to these frameworks, the study not only confirms their applicability in the SME context but also extends their implications to the Society 5.0 era.

These findings are in line with prior research while also offering new insights. For instance, the mediating role of innovation capability supports existing studies on its importance in dynamic environments (Troisi et al., 2023). However, this study contributes further by highlighting its specific application in Indonesian SMEs, where resource constraints make innovation capability a critical determinant of performance. Additionally, the moderating role of organizational culture aligns with previous research but emphasizes the unique cultural dynamics in Indonesia, which add complexity to how HR strategies are implemented.

B. Implication

This study provides key insights for small and medium-sized enterprises (SMEs) operating in the Society 5.0 era. First, enhancing digital competency is critical for improving productivity and adaptability. SMEs should invest in digital skills training to empower employees, drive innovation capability, and sustain performance in an increasingly digital landscape.

Employee engagement plays a pivotal role in fostering creativity and organizational resilience. Managers should create environments that inspire motivation through recognition programs, meaningful work, and clear career development pathways, ensuring a committed workforce that supports business growth and adaptability.

Effective leadership is essential for driving performance and innovation. SMEs should implement leadership development programs focused on transformational and participative

styles, fostering collaboration, trust, and a culture of innovation. Such leadership ensures employees are empowered to reach their full potential.

A supportive organizational culture amplifies the effects of digital competency, engagement, and leadership on innovation and performance. SMEs should cultivate a culture that values inclusivity, experimentation, and creativity, enabling long-term adaptability and resilience in response to technological and societal shifts.

Theoretically, this study contributes to understanding how digital competency, engagement, leadership, and culture interact to influence performance. By integrating innovation capability as a mediator and organizational culture as a moderator, it advances the literature on HRM strategies in digital transformation contexts, offering practical guidance for SMEs to thrive in Society 5.0.

In conclusion, SMEs must prioritize digital skill development, employee engagement, effective leadership, and a supportive culture to remain competitive and resilient. These strategies align with the broader goals of Society 5.0, ensuring sustainable growth and societal well-being.

VIII. CONCLUSION

This study explored the influence of digital competency, employee engagement, and leadership style on employee performance and innovation capability in Indonesian SMEs, introducing a novel approach by examining these relationships within the Society 5.0 framework. The study's unique contribution lies in its dual focus on innovation capability as a mediator and organizational culture as a moderator, offering fresh insights into how these elements enhance performance and innovation outcomes in a digitalized, human-centered society. Findings reveal that digital skills, employee engagement, and effective leadership play significant roles in strengthening employee performance and fostering an innovative workplace. Furthermore, innovation capability amplifies the effects of these factors on performance, while a supportive organizational culture intensifies the positive influence on innovation.

However, the study has limitations. First, its cross-sectional design restricts causal inferences, limiting insights into how the studied relationships may change over time. Future research using a longitudinal approach could provide a more comprehensive view of the long-term impacts of digital competency, engagement, and leadership style on performance and innovation. Additionally, as the study focuses on SMEs in Indonesia, the findings may not generalize to other countries or industries. Extending this research to diverse geographic and industrial contexts would enhance its applicability and broader relevance.

Another limitation is the reliance on self-reported measures, which may introduce response bias. Future studies could integrate objective performance metrics or multi-source data to strengthen the validity of findings. Moreover, exploring additional mediating or moderating variables, such as technological readiness or external industry support, could provide a deeper understanding of the factors influencing performance and innovation in SMEs.

In summary, this study contributes novel insights into how SMEs can leverage digital skills, engagement, leadership, and culture to thrive within Society 5.0. Addressing these limitations in future research will further enhance our understanding of the pathways through which digital transformation and organizational dynamics drive performance and innovation across global SME contexts.

ACKNOWLEDGEMENT

The authors would like to express their sincere gratitude to all those who contributed to this research. Special thanks go to the respondents from various SMEs across Indonesia, whose participation and insights made this study possible. We are also grateful to our colleagues and advisors for their invaluable guidance and feedback throughout the research process. Furthermore, we acknowledge the support provided by our affiliated institutions, which facilitated access to resources essential for completing this study. Lastly, we extend our appreciation to family and friends for their encouragement and understanding, which were vital in bringing this research to fruition. Thank you all for your unwavering support.

REFERENCES

Al-Sada, M., Al-Esmael, B., & Faisal, Mohd. N. (2017). Influence of organizational culture and leadership style on employee satisfaction, commitment and motivation in the educational sector in Qatar. *EuroMed Journal of Business*, *12*(2), 163–188. https://doi.org/10.1108/EMJB-02-2016-0003

Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, *17*(1), 99–120.

https://doi.org/10.1177/01492063910170010 8

Bass, B. M., & Avolio, B. J. (1996). Multifactor Leadership Questionnaire. *Mind Garden*. *Western Journal of Nursing Research,* •psycnet.apa.org

Bentley, T. A., Teo, S. T. T., McLeod, L., Tan, F., Bosua, R., & Gloet, M. (2016). The role of organisational support in teleworker wellbeing: A socio-technical systems approach. *Applied Ergonomics*, *52*, 207–215. https://doi.org/10.1016/j.apergo.2015.07.019

Black, J. S., & Van Esch, P. (2020). AI-enabled recruiting: What is it and how should a manager use it? *Business Horizons*, *63*(2), 215–226. https://doi.org/10.1016/j.bushor.2019.12.001

Borman, W. C., & Motowidlo, S. J. (1997). Task Performance and Contextual Performance: The Meaning for Personnel Selection Research. *Human Performance*, *10*(2), 99–109. https://doi.org/10.1207/s15327043hup1002_ 3

Borthakur, P. G., & Das, B. B. (2023). *F*uture of Human Resource (HR) in Industry 5.0: Embracing Technology and Beyond—A Study. *Annals of Multidisciplinary Research, Innovation and Technology* (AMRIT), 2(1), 2023, 35-38

Cameron, K. S., & Quinn, R. E. (2011). *Diagnosing and Changing Organizational Culture: Based on the Competing Values Framework* (Third edition). Jossey-Bass.

Canhoto, A. I., & Clear, F. (2020). Artificial intelligence and machine learning as business tools: A framework for diagnosing value destruction potential. *Business Horizons*, *63*(2), 183–193. https://doi.org/10.1016/j.bushor.2019.11.003

Chatterjee, S., Chaudhuri, R., Vrontis, D., & Giovando, G. (2023). Digital workplace and organization performance: Moderating role of digital leadership capability. *Journal of Innovation & Knowledge*, *8*(1), 100334. https://doi.org/10.1016/j.jik.2023.100334

Diamantopoulos, A., & Siguaw, J. A. (2006). Formative Versus Reflective Indicators in Organizational Measure Development: A Comparison and Empirical Illustration. *British Journal of Management*, *17*(4), 263–282. https://doi.org/10.1111/j.1467-8551.2006.00500.x

Elamin, A. M., Aldabbas, H., Ahmed, A. Z. E., & Abdullah, A. N. (2024). Employee Engagement and Innovative Work Behavior: The Mediating Role of Knowledge-Sharing Behavior in the United Arab Emirates (UAE) Service Context. *Administrative Sciences*, *14*(9), 232. https://doi.org/10.3390/admsci14090232

Elia, S., Giuffrida, M., Mariani, M. M., & Bresciani, S. (2021). Resources and digital export: An RBV perspective on the role of digital technologies and capabilities in cross-border e-commerce. *Journal of Business Research*, *132*, 158–169. https://doi.org/10.1016/j.jbusres.2021.04.01 0

Garrido-Moreno, A., Martín-Rojas, R., & García-Morales, V. J. (2024). The key role of innovation and organizational resilience in improving business performance: A mixed-methods approach. *International Journal of Information Management*, *77*, 102777. https://doi.org/10.1016/j.ijinfomgt.2024.102 777

Hayes, A. F. (2022). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (Third edition). The Guilford Press.

Huang, S. Y. B., Huang, C.-H., & Chang, T.-W. (2022). A New Concept of Work Engagement Theory in Cognitive Engagement, Emotional Engagement, and Physical Engagement. *Frontiers in Psychology*, *12*, 663440. https://doi.org/10.3389/fpsyg.2021.663440

Huang, Z., Sindakis, S., Aggarwal, S., & Thomas, L. (2022). The role of leadership in collective creativity and innovation: Examining academic research and development environments. *Frontiers in Psychology*, *13*, 1060412. https://doi.org/10.3389/fpsyg.2022.1060412

Junça Silva, A., & Coelho, N. (2023). The moderating role of organizational culture on the relationship between workers' attitudes towards telework and happiness. *Kybernetes*, *52*(10), 4357–4374. https://doi.org/10.1108/K-02-2022-0231

KADIN. (2023). UMKM Indonesia. *KADIN Indonesia*. https://kadin.id/en/data-dan-statistik/umkm-indonesia/

Kahn, W. A. (1990). Psychological Conditions of Personal Engagement And Disengagement At Work. *Academy of Management Journal*, *33*(4), 692–724. https://doi.org/10.2307/256287

Kim, J., & Jung, H.-S. (2022). The Effect of Employee Competency and Organizational Culture on Employees' Perceived Stress for Better Workplace. *International Journal of Environmental Research and Public Health*,

19(8), 4428. https://doi.org/10.3390/ijerph19084428

Kraaijenbrink, J., Spender, J.-C., & Groen, A. J. (2010). The Resource-Based View: A Review and Assessment of Its Critiques. *Journal of Management*, *36*(1), 349–372. https://doi.org/10.1177/0149206309350775

Krejcie, R. V., & Morgan, D. W. (1970). Determining Sample Size for Research Activities. *Educational and Psychological Measurement*, *30*(3), 607–610. https://doi.org/10.1177/001316447003000308

Lam, L., Nguyen, P., Le, N., & Tran, K. (2021). The Relation among Organizational Culture, Knowledge Management, and Innovation Capability: Its Implication for Open Innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, *7*(1), 66. https://doi.org/10.3390/joitmc7010066

Longo, F., Padovano, A., & Umbrello, S. (2020). Value-Oriented and Ethical Technology Engineering in Industry 5.0: A Human-Centric Perspective for the Design of the Factory of the Future. *Applied Sciences*, *10*(12), 4182. https://doi.org/10.3390/app10124182

Mukhtar, A., Shafwah, R., Masradin M., & Akbar, A. (2024). Cooperative Human Resources Challenges in The Society 5.0 Era. *Prosiding Seminar Nasional Manajemen Dan Ekonomi*, *2*(2), 157–172. https://doi.org/10.59024/semnas.v2i2.356

OECD. (2021, June 28). *SME and Entrepreneurship Outlook 2021*. OECD. https://www.oecd.org/en/publications/oecd-sme-and-entrepreneurship-outlook-2021_97a5bbfe-en.html

Öngel, V., Günsel, A., Gençer Çelik, G., Altındağ, E., & Tatlı, H. S. (2023). Digital Leadership's Influence on Individual Creativity and Employee Performance: A View through the Generational Lens. *Behavioral Sciences*, *14*(1), 3. https://doi.org/10.3390/bs14010003

Pincus, J. D. (2023). Employee Engagement as Human Motivation: Implications for Theory, Methods, and Practice. *Integrative Psychological and Behavioral Science*, *57*(4), 1223–1255. https://doi.org/10.1007/s12124-022-09737-w

Punie, Y., Brečko, B., & Ferrari, A. (2014). DIGCOMP: A Framework for Developing and Understanding Digital Competence in Europe. *Http://Www.Openeducationeuropa.Eu/Nl/Elearning_papers*, *No.38*, 3–17.

Saunila, M., Pekkola, S., & Ukko, J. (2014). The relationship between innovation capability and performance: The moderating effect of measurement. *International Journal of Productivity and Performance Management*, *63*(2), 234–249. https://doi.org/10.1108/IJPPM-04-2013-0065

Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2006). The Measurement of Work Engagement with a Short Questionnaire: A Cross-National Study. *Educational and Psychological Measurement*, *66*(4), 701–716. https://doi.org/10.1177/0013164405282471

Schiuma, G., Santarsiero, F., Carlucci, D., & Jarrar, Y. (2024). Transformative leadership competencies for organizational digital transformation. *Business Horizons*, *67*(4), 425–437. https://doi.org/10.1016/j.bushor.2024.04.004

Shuaib, K. M., & He, Z. (2023). Moderating role of organizational culture in the relationship between total quality management and organizational innovation among manufacturing SMEs in Nigeria. *African Journal of Science, Technology, Innovation and Development*, *15*(6), 743–766. https://doi.org/10.1080/20421338.2023.2190258

Tambunan, T. (2019). Recent evidence of the development of micro, small and medium enterprises in Indonesia. *Journal of Global Entrepreneurship Research*, *9*(1), 18. https://doi.org/10.1186/s40497-018-0140-4

Troisi, O., Visvizi, A., & Grimaldi, M. (2023). Rethinking innovation through industry and society 5.0 paradigms: A multileveled approach for management and policymaking. *European Journal of Innovation Management*, *27*(9), 22–51. https://doi.org/10.1108/EJIM-08-2023-0659

Wang, T.-L., & Oscar, W. (2024). How Supportive and Competitive Work Environments Influence Job Attitudes and Performance in French Sales Roles. *Global Review of Tourism and Social Sciences*, *1*(1), Article 1. https://doi.org/10.53893/grtss.v1i1.322

Widjaja, M. E. L. K. (2021). *Strategic Orientation and Human Resources Management in Public Sector Organizations in the Society 5.0 Era:* 18th International Symposium on Management (INSYMA 2021), Mataram, Indonesia. https://doi.org/10.2991/aebmr.k.210628.039