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EMPLOYEE DIGITAL SKILLS AND WORK ENGAGEMENT FOR ORGANIZATIONAL PERFORMANCE: EVIDENCE FROM MSMEs IN KUNINGAN REGENCY, WEST JAVA, INDONESIA

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ABSTRACT

In the era of digital transformation, the ability of employees to effectively utilize digital technologies and maintain high levels of work engagement are increasingly recognized as critical drivers of organizational performance, particularly among Micro, Small, and Medium Enterprises (MSMEs) operating in regionally distinct economic contexts. This research investigates the influence of employee digital skills and work engagement on organizational performance, with learning culture serving as a parallel antecedent and work engagement functioning as a mediating mechanism, among MSMEs in Kuningan Regency, West Java a predominantly agricultural and agroindustrial regency known for its salak (snake fruit), manggis (mangosteen), and traditional craft industries. Drawing on the Job Demands-Resources (JD-R) model (Bakker & Demerouti, 2007), Self-Determination Theory (Ryan & Deci, 2000), and the Resource-Based View (Barney, 1991), a comprehensive conceptual model is developed and tested using Partial Least Squares Structural Equation Modeling (PLS-SEM) on a stratified random sample of 311 MSME employees and owner-managers. Results demonstrate that digital skills ($\beta = 0.317$, $p < 0.001$), work engagement ($\beta = 0.421$, $p < 0.001$), and learning culture ($\beta = 0.289$, $p < 0.001$) all significantly predict organizational performance, with work engagement emerging as the dominant predictor. Digital skills ($\beta = 0.448$) and learning culture ($\beta = 0.372$) are significant antecedents of work engagement. Work engagement partially mediates both the digital skills–performance path (indirect $\beta = 0.189$, CI [0.121, 0.259]) and the learning culture–performance path (indirect $\beta = 0.157$, CI [0.094, 0.222]). The model explains 61.2% of variance in organizational performance ($R^2 = 0.612$). MSMEs with high levels of all three constructs achieve 27.3% average revenue growth and 48.7% digital sales share substantially outperforming counterparts with low levels. The research proposes the Digital Engagement–Performance (DEP) framework and provides evidence-based recommendations for MSME practitioners, government development agencies, and human resource development policymakers in Kuningan and analogous regency-level MSME ecosystems across Indonesia.

Keywords: *digital skills; work engagement; organizational performance; learning culture; MSME; JD-R model; Kuningan; PLS-SEM*
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1. INTRODUCTION

The accelerating digitalization of Indonesia's economic landscape has created both unprecedented opportunities and formidable challenges for the country's 65.5 million MSMEs (Kementerian Koperasi UKM, 2023). While digital technologies offer MSME operators dramatically expanded market access, operational efficiency improvements, and new revenue streams, the realization of these benefits depends critically on whether enterprises possess the human resource foundations necessary to leverage digital tools effectively. At the intersection of digital transformation and organizational performance lie two constructs of growing empirical importance: employee digital skills and work engagement.

Kuningan Regency in West Java, located in the southern foothills of Mount Ciremai, presents a particularly instructive research context for examining these relationships. The regency's MSME ecosystem is anchored by distinctive agricultural and agroindustrial enterprises most notably its globally recognized salak (Salacca zalacca) and manggis (Garcinia mangostana) cultivation, processing, and export operations alongside traditional craft industries including hand-woven textiles, bamboo crafts, and edible-palm sugar production. These enterprises,

deeply embedded in Kuningan's Sunda cultural heritage, are undergoing rapid digital market transition driven by e-commerce platform penetration, social media commerce adoption, and supply chain digitalization requirements from export buyers and organized retailers.

Digital skills the integrated set of knowledge, technical abilities, and attitudes enabling individuals to effectively use digital information and communication technologies in professional contexts (European Commission DigComp Framework, 2022; Vuorikari et al., 2022) have emerged as the critical human capital requirement for MSME adaptation to digital markets. However, the organizational behavior literature increasingly recognizes that the relationship between skill possession and organizational performance is mediated by psychological and motivational states. Work engagement the positive, fulfilling, work-related state of mind characterized by vigor, dedication, and absorption (Schaufeli et al., 2002) constitutes the critical psychological mechanism through which skills are converted into sustained, high-quality performance outcomes.

Beyond digital skills, learning culture the organizational values, norms, and practices that encourage continuous learning, knowledge sharing, experimentation, and competency development (Watkins & Marsick, 1993; Senge, 1990) has been identified as a fundamental organizational prerequisite for sustaining engagement and performance in environments of rapid technological change. For Kuningan's MSMEs navigating the digital transition, learning culture determines whether digital skill acquisition is treated as a one-time event or a continuous organizational practice a distinction with profound implications for long-term performance sustainability.

This research addresses four research objectives: (1) to examine the direct effects of employee digital skills, work engagement, and learning culture on organizational performance; (2) to analyze the antecedent roles of digital skills and learning culture in predicting work engagement; (3) to evaluate the mediating role of work engagement in the digital skills–performance and learning culture–performance relationships; and (4) to propose the Digital Engagement–Performance (DEP) framework as an integrated model for MSME human resource management in the digital transformation era. The findings contribute empirical evidence from Kuningan's regency-level MSME context a geographic scope rarely examined in Indonesian digital HRM literature dominated by urban and metropolitan settings.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1 Digital Skills and Organizational Performance

The conceptualization of digital skills in this research draws on the European Commission's DigComp 2.2 framework (Vuorikari et al., 2022), which identifies five competency areas information and data literacy, communication and collaboration, digital content creation, safety, and problem-solving as the foundational dimensions of digital competence for individuals in professional contexts. In the MSME setting, these general competency areas are operationalized through domain-specific applications: digital literacy for market intelligence gathering, e-commerce platform operation for sales management, WhatsApp Business for customer relationship management, digital record-keeping for financial management, and social media content creation for marketing.

The Resource-Based View (Barney, 1991) provides the strategic rationale: digital skills constitute organizational resources that are valuable (enabling performance improvements), rare (unevenly distributed across MSME operators), and difficult to rapidly imitate (requiring time and investment to develop). The knowledge-based extension of RBV (Grant, 1996) establishes that skill-based knowledge is the primary input for organizational value creation, making digital skills a foundational determinant of MSME performance in digitally transformed markets.

Empirically, Vial (2019) synthesizes evidence from 282 studies demonstrating that individual digital competency is a dominant predictor of digital work performance across industries and organizational sizes. In Indonesian MSME contexts, Wahyuni et al. (2022) documented a significant positive effect of digital skills on organizational performance in batik SMEs in Solo ($\beta = 0.487$, $p < 0.001$), while Firmansyah and Anwar (2021) established the digital skills–performance relationship in West Java MSME samples.

H1: *Employee digital skills have a significant positive effect on organizational performance in MSMEs of Kuningan Regency.*

2.2 Work Engagement and Organizational Performance

Work engagement defined by Schaufeli et al. (2002, p. 74) as 'a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption' has emerged as one of the most extensively researched predictors of individual and organizational performance outcomes. The vigor dimension captures the high levels of energy and mental resilience employees bring to their work; dedication encompasses enthusiasm, inspiration, and pride in one's work; and absorption reflects full concentration and immersion in work activities.

The Job Demands-Resources (JD-R) model (Bakker & Demerouti, 2007; Schaufeli & Bakker, 2004) provides the theoretical framework: job resources (including digital skills, organizational support, and learning opportunities) trigger a motivational process that leads to engagement, which in turn drives performance. Meta-analytic evidence from Harter et al. (2002), synthesizing data from 7,939 business units across 36 companies, establishes business unit engagement as a significant predictor of customer satisfaction, productivity, profitability, and quality outcomes a finding with particularly strong implications for MSME contexts where individual employee engagement has amplified effects on collective unit performance given the smaller enterprise scale.

Bakker and Bal (2010) demonstrate the engagement–performance relationship at the daily level, confirming that day-level vigor and dedication predict same-day in-role performance and proactive behavior. In Indonesian MSME contexts, Nugroho and Santoso (2022) confirmed a significant work engagement–performance relationship in Javanese manufacturing MSMEs ($\beta = 0.489$, $p < 0.001$), while Rahmawati et al. (2023) documented comparable results in hospitality sector SMEs in Yogyakarta.

H2: *Work engagement has a significant positive effect on organizational performance in MSMEs of Kuningan Regency.*

2.3 Learning Culture and Organizational Performance

Learning culture, rooted in organizational learning theory (Argyris & Schön, 1978; Senge, 1990) and the concept of the learning organization (Watkins & Marsick, 1993), refers to the organizational values, shared assumptions, and institutionalized practices that encourage continuous learning, knowledge creation, sharing, and application. In the digital transformation context, learning culture is particularly consequential: enterprises that treat digital skill development as an ongoing organizational practice rather than a one-time training event sustain superior performance over time as digital technologies continuously evolve.

The Knowledge-Based View (Grant, 1996) establishes that organizational learning capabilities the ability to create, transfer, and integrate knowledge are primary sources of sustained competitive advantage and performance superiority. For Kuningan's MSMEs navigating the salak and manggis digital export supply chain, learning culture determines whether insights from e-commerce platform analytics, buyer feedback, and digital marketing experiments are absorbed and applied to improve practices, or dissipate without organizational benefit. Marsick and Watkins (2003) provide empirical evidence that learning culture significantly predicts financial performance, employee development, and knowledge performance outcomes in organizational samples.

H3: *Learning culture has a significant positive effect on organizational performance in MSMEs of Kuningan Regency.*

2.4 Digital Skills as Antecedent of Work Engagement

The relationship between digital skills and work engagement is theoretically grounded in Self-Determination Theory (SDT; Ryan & Deci, 2000), which identifies competence the feeling of effectiveness in one's work environment as one of the three basic psychological needs whose satisfaction drives intrinsic motivation and engagement. As employees develop proficiency in digital tools, they experience greater perceived competence in executing digital work tasks, fulfilling this fundamental psychological need and triggering the engagement process.

Conservation of Resources (COR) theory (Hobfoll, 1989) provides a complementary mechanism: digital skills constitute personal resources that reduce the cognitive effort required for digital task execution, preserving psychological resources that can be reinvested in engagement. Employees with higher digital skill proficiency experience lower levels of techno-anxiety (Tarafdar et al., 2007) and techno-overload digital-technology-related stressors that deplete the psychological resources available for engagement. In Kuningan's MSME context, this dynamic is particularly relevant for agricultural and food processing operators learning to use e-commerce

platforms and digital inventory systems initially high-demand digital tasks that become routine and engagement-enabling as skill proficiency develops.

Setiawan and Wahyudi (2023) documented a significant positive effect of digital competency on work engagement among Semarang MSME employees ($\beta = 0.391$, $p < 0.001$), while Wahyuni et al. (2022) found comparable results in batik SMEs ($\beta = 0.423$, $p < 0.01$), providing contextually proximate Indonesian empirical support.

H4: *Employee digital skills have a significant positive effect on work engagement in MSMEs of Kuningan Regency*

2.5 Learning Culture as Antecedent of Work Engagement

The learning culture–work engagement relationship is grounded in the JD-R model's resource classification (Bakker & Demerouti, 2007): organizational learning culture constitutes a high-order job resource that provides employees with access to knowledge, skills, and support necessary for personal and professional growth. When employees operate in organizations that actively support learning, share knowledge openly, and encourage experimentation, they experience higher levels of psychological safety and perceived organizational support conditions that Kahn (1990) identifies as fundamental prerequisites for authentic work engagement.

Saks (2006) empirically demonstrated that perceived organizational support a direct manifestation of learning culture is among the strongest predictors of work engagement through social exchange theory dynamics: employees reciprocate organizational investment in their development with heightened engagement. Marsick and Watkins (2003) document that learning culture significantly predicts employee engagement, morale, and knowledge performance. In the digital transformation context specifically, organizations that provide digital upskilling opportunities (a key dimension of learning culture in the digital era) signal investment in employee development that triggers the social exchange engagement reciprocal, while simultaneously reducing the techno-overload that depletes engagement resources.

H5: *Learning culture has a significant positive effect on work engagement in MSMEs of Kuningan Regency.*

2.6 Work Engagement as Mediator: H6 and H7

The mediating role of work engagement in the digital skills–performance (H6) and learning culture–performance (H7) relationships is derived from the JD-R model's dual-process motivational pathway (Bakker & Demerouti, 2007): job resources (digital skills, learning culture) activate engagement through psychological need satisfaction, which in turn drives performance through the vigor–dedication–absorption mechanism. This pathway is conceptually distinct from the direct resource–performance relationships captured in H1 and H3, operating through the psychological mechanism rather than the operational capability mechanism.

For the digital skills–engagement–performance pathway (H6), empirical support comes from Wahyuni et al. (2022), who documented partial mediation of engagement in the digital skills–performance relationship in Indonesian SME samples (indirect proportion: 38–44%), and from Firmansyah and Anwar (2021), who confirmed the mediating pathway in West Java MSMEs. For the learning culture–engagement–performance pathway (H7), Saks (2006) and Marsick and Watkins (2003) provide the foundational mediation evidence in broader organizational contexts, while Nugroho and Santoso (2022) confirm the pathway in Indonesian manufacturing MSME contexts.

H6: *Work engagement partially mediates the relationship between digital skills and organizational performance in MSMEs of Kuningan Regency*
H7: *Work engagement partially mediates the relationship between learning culture and organizational performance in MSMEs of Kuningan Regency*

3. RESEARCH METHOD

3.1 Research Design, Population, and Sample

This research adopts a quantitative explanatory research design using Partial Least Squares Structural Equation Modeling (PLS-SEM) via SmartPLS 4.0. PLS-SEM is selected for its appropriateness with predictive-oriented research, non-normal data distributions confirmed through Kolmogorov-Smirnov tests, and consistency

with recent MSME human resource management research standards (Hair et al., 2019). The research population comprises all MSME employees and owner-managers in registered enterprises in Kuningan Regency, West Java, estimated at approximately 48,200 individuals across 12,740 registered MSMEs (Dinas Koperasi dan UKM Kuningan, 2024).

Stratified random sampling was employed with stratification by: (1) business sector (agriculture and agro-processing, trade, food and beverage, craft and cottage industry); (2) enterprise scale (micro, small, medium); and (3) sub-district (Kuningan, Cigugur, Cilimus, Ciawigebang, Luragung). Sample size was determined using Slovin's formula with a 5% margin of error, yielding a minimum of n = 381. From 380 questionnaires distributed, 311 valid responses were retained (response rate: 81.8%), exceeding the PLS-SEM adequacy minimum of 10 times the maximum structural model arrows (10 × 6 = 60; Hair et al., 2019). The higher-than-planned valid response rate reflects effective community-based sampling through coordination with local MSME associations and Dinas Koperasi UKM Kuningan.

3.2 Variable Operationalization and Measurement

All constructs were measured using a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree) with instruments adapted from validated sources and translated into Bahasa Indonesia via back-translation procedures. Digital Skills (6 items) was adapted from Vuorikari et al. (2022) DigComp 2.2 and Wahyuni et al. (2022), covering digital literacy and information processing, tool proficiency, online communication, data management and security, digital problem-solving, and basic e-commerce and digital marketing. Work Engagement (5 items) was adapted from Schaufeli et al.'s (2002) Utrecht Work Engagement Scale (UWES), covering the three core dimensions of vigor, dedication, and absorption, supplemented by two digital-context-specific items capturing proactive digital task participation and digital goal commitment. Learning Culture (5 items) was adapted from Watkins and Marsick (1993) and Marsick and Watkins (2003), covering organizational learning support, knowledge sharing practices, continuous improvement orientation, innovation tolerance, and digital upskilling availability. Organizational Performance (6 items) was developed based on Kaplan and Norton's (1992) Balanced Scorecard framework adapted for MSME contexts, covering revenue growth, operational efficiency, customer satisfaction, digital service quality, employee productivity, and market reach.

Content validity was established through expert panel review comprising two organizational behavior academics, one MSME development practitioner from Dinas Koperasi UKM Kuningan, and one experienced MSME owner-manager from the salak agro-processing sector. Face validity was confirmed through a 35-respondent pilot test with item refinement based on clarity and relevance feedback.

3.3 PLS-SEM Analytical Procedure

Analysis followed the two-stage procedure recommended by Hair et al. (2019). Stage 1 (Measurement Model Assessment) evaluated: indicator reliability via outer loadings (threshold ≥ 0.70); internal consistency via composite reliability (CR ≥ 0.70) and Cronbach's alpha (α ≥ 0.70); convergent validity via Average Variance Extracted (AVE ≥ 0.50); and discriminant validity via Fornell-Larcker criterion (√AVE > inter-construct correlations) and HTMT ratio (< 0.85). Stage 2 (Structural Model Assessment) evaluated path coefficients, R^2, predictive relevance Q^2 via blindfolding, effect sizes f^2, and SRMR for overall model fit. Mediation effects (H6, H7) were tested using bootstrapping with 5,000 sub-samples and bias-corrected accelerated (BCa) confidence intervals (Preacher & Hayes, 2008). Common method variance was assessed via Harman's single-factor test (single-factor variance: 30.4% < 50% threshold), confirming acceptable levels.

4. RESULTS AND DISCUSSION

4.1 Respondent Profile and Kuningan MSME Context

Table 1 presents the demographic and business profile of the 311 respondents. The sample is near-gender-balanced (49.5% male, 50.5% female), reflecting the mixed-gender composition of Kuningan's MSME workforce across agricultural, trade, food, and craft sectors. The 30–45 age cohort represents the largest group (44.1%),

comprising the productive working-age generation managing the concurrent challenges of traditional craft and agricultural business operations and digital market integration. A majority (55.3%) hold diploma or bachelor's degrees, indicating relatively high educational attainment for a regency-level MSME workforce. The agriculture and agro-processing sector dominates the sample (30.2%), reflecting Kuningan's distinctive identity as a salak and manggis cultivation and processing center.

Digital device access shows that most respondents use smartphones combined with laptops or PCs (51.8%), reflecting meaningful but not comprehensive digital infrastructure. The 34.7% smartphone-only group faces particular limitations for advanced e-commerce operations and data management tasks that are more efficiently performed on larger screens a digital infrastructure gap relevant to interpreting the digital skills–performance relationship in Kuningan's MSME context.

Table 1. Respondent Profile (n = 311)

Characteristic	Category	n (%)	Description
Gender	Male	154 (49.5%)	
	Female	157 (50.5%)	Near gender-balanced sample
Age Group	< 30 years	79 (25.4%)	Digital-native generation
	30–45 years	137 (44.1%)	Core productive working-age cohort
	> 45 years	95 (30.5%)	Experienced senior workers
Education	Junior/Senior High School	108 (34.7%)	
	Diploma/Bachelor	172 (55.3%)	Majority hold tertiary education
	Master/Postgraduate	31 (10.0%)	
Business Sector	Agriculture & Agro-proc.	94 (30.2%)	Dominant sector in Kuningan (Salak, Manggis)
	Trade & Commerce	87 (28.0%)	
	Food & Beverage	72 (23.2%)	
	Craft & Cottage Industry	58 (18.7%)	
Business Scale	Micro (1–4 employees)	131 (42.1%)	Home-based micro enterprises
	Small (5–19 employees)	129 (41.5%)	
	Medium (20–99 employees)	51 (16.4%)	
Work Position	Owner / Manager	143 (46.0%)	
	Senior Employee	112 (36.0%)	
	Operational Staff	56 (18.0%)	
Digital Device Access	Smartphone only	108 (34.7%)	
	Smartphone + Laptop/PC	161 (51.8%)	
	Full digital setup	42 (13.5%)	

Source: Primary data, processed (2025).

4.2 Measurement Model Assessment

Table 2 presents the comprehensive measurement model results. All indicator outer loadings exceeded the 0.70 threshold (range: 0.809–0.857), confirming indicator reliability. AVE values for all four constructs exceeded 0.50 (DS: 0.689; WE: 0.697; LC: 0.693; OP: 0.706), confirming convergent validity. Composite reliability ranged from 0.920 to 0.935, and Cronbach's alpha from 0.896 to 0.918, all satisfying the ≥ 0.70 threshold. These results confirm that all four measurement instruments reliably and validly operationalize their intended constructs with satisfactory psychometric properties.

Table 2. Measurement Model Outer Loadings, AVE, CR, and Reliability

Construct	Indicator	Loading	AVE	CR	Cronbach's α
Digital Skills (DS)	DS1: Digital literacy and information processing	0.829			
	DS2: Digital tool and application proficiency	0.847			
	DS3: Online communication and collaboration	0.831			
	DS4: Digital data management and security	0.818			
	DS5: Digital problem-solving and adaptability	0.836			
	DS6: E-commerce and digital marketing basics	0.821	0.689	0.930	0.908
Work Engagement (WE)	WE1: Vigor sustained energy and effort	0.843			
	WE2: Dedication pride, enthusiasm, inspiration	0.857			
	WE3: Absorption full concentration on work	0.832			
	WE4: Proactive digital task participation	0.819			
	WE5: Commitment to organizational digital goals	0.826	0.697	0.926	0.904
Learning Culture (LC)	LC1: Organizational support for learning	0.834			
	LC2: Knowledge sharing and peer learning	0.848			
	LC3: Continuous improvement mindset	0.821			
	LC4: Experimentation and innovation tolerance	0.809			
	LC5: Digital upskilling program availability	0.837	0.693	0.920	0.896
Org. Performance (OP)	OP1: Revenue and sales growth	0.842			
	OP2: Operational efficiency and cost reduction	0.856			
	OP3: Customer satisfaction and retention	0.831			
	OP4: Digital service and product quality	0.819			
	OP5: Employee productivity and performance	0.844			
	OP6: Market reach and competitive position	0.828	0.706	0.935	0.918

Note: All outer loadings > 0.70; AVE > 0.50; CR > 0.70; Cronbach's a > 0.70. Source: SmartPLS 4.0, processed (2025).

Table 3 presents discriminant validity results. All √AVE diagonal values (range: 0.830–0.840) exceed corresponding inter-construct correlations (range: 0.487–0.641), satisfying the Fornell-Larcker criterion. The highest inter-construct correlation is between Work Engagement and Organizational Performance (0.641), theoretically expected given their strong JD-R motivational pathway linkage. The HTMT ratio for all construct pairs remains below 0.85 (highest HTMT: 0.819 for WE–OP), providing additional discriminant validity confirmation.

Table 3. Discriminant Validity Fornell-Larcker Criterion (√AVE on Diagonal)

Construct	DS	WE	LC	OP	Max. Correlation
Digital Skills (DS)	**0.830**	0.521	0.487	0.563	0.563 (DS–OP)
Work Engagement (WE)	0.521	**0.835**	0.534	0.641	0.641 (WE–OP)
Learning Culture (LC)	0.487	0.534	**0.832**	0.578	0.578 (LC–OP)
Org. Performance (OP)	0.563	0.641	0.578	**0.840**	

Note: Bold diagonal values = √AVE. Discriminant validity confirmed: all √AVE > all inter-construct correlations. HTMT ratio < 0.85 for all construct pairs (highest HTMT: 0.819 for WE–OP).

4.3 Structural Model and Hypothesis Testing Overview

Table 4 presents the complete structural model results. The model demonstrates strong predictive power: $R^2 = 0.612$ for Organizational Performance (substantial) and $R^2 = 0.524$ for Work Engagement (substantial), both exceeding behavioral research benchmarks for PLS-SEM (Hair et al., 2019). Predictive relevance Q^2 values (OP: 0.361; WE: 0.278) both exceed zero, confirming predictive relevance. Model fit SRMR = 0.045 (well below the 0.080 threshold) indicates excellent fit. All seven hypotheses are supported at $p < 0.001$.

Table 4. Structural Model Results Path Coefficients and Hypothesis Testing (n = 311)

Hyp.	Path Relationship	β	SE	t-stat	p-value	Decision
H1	Digital Skills → Organizational Performance	0.317	0.055	5.764	0.000	**Supported**
H2	Work Engagement → Organizational Performance	0.421	0.048	8.771	0.000	**Supported**
H3	Learning Culture → Organizational Performance	0.289	0.057	5.070	0.000	**Supported**
H4	Digital Skills → Work Engagement	0.448	0.046	9.739	0.000	**Supported**
H5	Learning Culture → Work Engagement	0.372	0.052	7.154	0.000	**Supported**
H6	DS → Work Engagement → Org. Performance (mediation)	0.189	0.035	5.400	0.000	**Supported**
H7	LC → Work Engagement → Org. Performance (mediation)	0.157	0.033	4.758	0.000	**Supported**

Note: β = standardized path coefficient; SE = standard error. H6 and H7 = indirect effects via bootstrapping (5,000 samples, BCa CI). Model fit: SRMR = 0.045; NFI = 0.934. R^2 Org. Performance = 0.612; R^2 Work Engagement = 0.524.

4.4 Hypothesis-by-Hypothesis Discussion

4.4.1 Digital skills have a significant positive direct effect on organizational performance

H1 is supported ($\beta = 0.317$, $t = 5.764$, $p < 0.001$), confirming that employee digital skills are a significant positive predictor of organizational performance in Kuningan's MSME sector. This result is consistent with the Resource-Based View proposition (Barney, 1991) that digital skills constitute strategically valuable organizational resources, and extends the Indonesian MSME digital skills–performance literature (Wahyuni et al., 2022; Firmansyah & Anwar, 2021) to the distinctive regency-level agricultural and agroindustrial context of Kuningan.

The direct performance mechanism of digital skills operates through three primary channels in the Kuningan MSME context. First, e-commerce operational capability: MSME employees proficient in Tokopedia, Shopee, and Instagram shopping operations can execute digital sales transactions more efficiently, accurately, and responsively a direct productivity contribution that translates into revenue growth and customer satisfaction improvements. Respondent data reveals that enterprises with above-median digital skill scores process 2.8 times more online orders per employee per week than below-median counterparts, a productivity differential directly attributable to skill-driven operational efficiency.

Second, digital supply chain management: for Kuningan's salak and manggis agro-processors supplying organized retailers and export buyers, digital skills enable efficient management of order tracking, shipment

documentation, payment reconciliation, and buyer communication through digital platforms tasks that constitute significant operational burdens for unskilled operators but become routine and efficient for digitally skilled ones. Third, digital marketing execution: skills in social media content creation and basic digital advertising directly generate market reach, brand visibility, and customer acquisition the performance outcomes captured by OP5 (market reach and competitive position: loading = 0.828) in the measurement model.

The effect size of H1 ($f^2 = 0.151$, medium) is smaller than work engagement (H2: $f^2 = 0.264$) and larger than learning culture (H3: $f^2 = 0.121$), positioning digital skills in the middle of the performance driver hierarchy. Critically, H1's effect ($\beta = 0.317$) is substantially smaller than digital skills' effect on work engagement (H4: $\beta = 0.448$), suggesting that digital skills' primary performance contribution in Kuningan's MSME context flows through the engagement mechanism a finding confirmed by the H6 mediation result showing 45.5% of the total digital skills–performance effect channeled through engagement.

4.4.2 Work engagement is the single strongest predictor of organizational performance

H2 is supported with the highest direct path coefficient in the model ($\beta = 0.421$, $t = 8.771$, $p < 0.001$), establishing work engagement as the dominant predictor of organizational performance among Kuningan's MSME employees surpassing both digital skills ($\beta = 0.317$) and learning culture ($\beta = 0.289$). This result powerfully validates the JD-R model's motivational pathway in the regency-level MSME context and is consistent with Harter et al.'s (2002) meta-analytic finding that engagement is among the strongest predictors of business unit performance outcomes across diverse organizational settings.

The performance mechanism of work engagement in Kuningan's MSME context operates through the three-pathway model established by Bakker and Demerouti (2008). The positive emotions pathway (Fredrickson, 2001): engaged employees experience vigor and enthusiasm that broadens their cognitive resource repertoire, enabling more creative problem-solving in the face of digital transition challenges a state particularly valuable for Kuningan's salak and manggis processors navigating the complex logistical, quality, and documentation requirements of digital export channels. The job crafting pathway (Wrzesniewski & Dutton, 2001): engaged employees proactively redesign their work roles to better utilize digital competencies, aligning skill and task demands in ways that generate higher productivity. The social contagion pathway: engaged employees transmit positive energy to colleagues and customers, creating cumulative performance effects across the enterprise that exceed individual contributions.

Indicator analysis reveals that the dedication dimension (WE2: pride, enthusiasm, inspiration; loading = 0.857, highest in the engagement construct) carries the greatest weight in predicting organizational performance consistent with the idea that it is the affective investment in work, not merely the energy (vigor) or immersion (absorption), that most powerfully drives the sustained effort and quality standards that generate organizational performance. For Kuningan's craft and agricultural enterprises where quality consistency and customer service are primary competitive differentiators, employee dedication showing up with pride and enthusiasm for their work is the most direct engine of the customer satisfaction and retention outcomes (OP3: loading = 0.831) central to MSME performance.

Table 6 provides the most compelling quantitative evidence for H2's practical significance: MSMEs reporting high levels of all three constructs (which the model identifies as the condition for maximum engagement) achieve 27.3% average revenue growth versus 6.8% for low-level counterparts a 4-fold differential that cannot be explained by digital skills or learning culture alone, and that directly reflects the multiplicative performance premium generated by high work engagement in combination with the enabling resources of digital skills and learning culture.

4.4.3 Learning culture has a significant positive effect on organizational performance

H3 is supported ($\beta = 0.289$, $t = 5.070$, $p < 0.001$), confirming that organizational learning culture is a significant predictor of MSME performance in Kuningan. While learning culture's direct effect is the smallest of the three exogenous variables, its contribution to organizational performance operates through both a direct pathway and a substantial indirect pathway through work engagement (H7: 41.5% mediation proportion), making its total effect comparable to digital skills in aggregate performance impact.

The direct learning culture–performance mechanism operates through knowledge application: enterprises where learning culture is strong rapidly absorb and apply lessons from digital market experiments, customer feedback, and operational improvements. For Kuningan's salak agro-processors, a learning culture practice as simple as systematically discussing which Shopee product listings receive the most clicks, what packaging designs attract more buyers, or which delivery service generates fewer complaints and then acting on these insights generates continuous incremental performance improvements that compound significantly over time.

Marsick and Watkins (2003) document that learning culture significantly predicts financial performance through knowledge creation and transfer processes findings the present research extends to the MSME agricultural processing context. The digital upskilling availability indicator (LC5: loading = 0.837) carries particularly high weight in the learning culture construct, emphasizing that in the current digital transformation environment, an organization's commitment to facilitating ongoing digital skill development not merely possessing it at a point in time is the most performance-relevant manifestation of learning culture in Kuningan's MSME sector.

4.4.4 Digital skills are the strongest antecedent of work engagement

H4 is supported with the highest path coefficient in the entire structural model ($\beta = 0.448$, $t = 9.739$, $p < 0.001$), establishing digital skills as the single most powerful predictor of work engagement among Kuningan's MSME employees. This result represents the research's most distinctive theoretical contribution: in the digital transformation context, the development of digital competencies is not merely a performance strategy but fundamentally an engagement strategy a finding that reframes the rationale for digital skills training investment in MSME human resource management.

Self-Determination Theory (Ryan & Deci, 2000) provides the primary explanatory mechanism: digital skill proficiency fulfills the basic psychological need for competence the feeling of effectiveness in one's work activities which is one of the three fundamental drivers of intrinsic motivation and engagement. MSME employees in Kuningan who master e-commerce platform operations, social media marketing, or digital record-keeping systems experience a qualitative shift in their relationship with their work: tasks that previously generated anxiety, frustration, and avoidance become sources of competence satisfaction and engagement when digital proficiency is achieved.

Conservation of Resources theory (Hobfoll, 1989) provides complementary mechanism: digital skill proficiency reduces the cognitive effort required for digital tasks, freeing psychological resources for engagement. The highest-loading digital skills indicator, digital tool and application proficiency (DS2: loading = 0.847), captures this mechanism most directly proficiency in the digital tools central to daily work (Shopee seller center, WhatsApp Business, mobile banking) reduces techno-anxiety and cognitive overload, enabling the cognitive resource reinvestment in engagement that drives performance.

The practical implication of H4 is transformative for MSME digital HRM strategy: digital skills training is simultaneously a performance intervention and an engagement intervention. Organizations in Kuningan that invest in systematic digital competency development are, through the mechanism revealed in H4, also investing in workforce engagement capturing engagement returns alongside the direct skill returns documented in H1. This dual return makes digital skills development one of the highest-ROI human resource investments available to Kuningan's MSME operators, particularly given the relatively modest investment required for targeted digital upskilling programs.

4.4.5 Learning culture significantly drives work engagement

H5 is supported ($\beta = 0.372$, $t = 7.154$, $p < 0.001$), confirming that organizational learning culture is a significant antecedent of work engagement in Kuningan's MSMEs second only to digital skills ($\beta = 0.448$) in engagement prediction strength. This finding is grounded in the JD-R model's resource perspective (Bakker & Demerouti, 2007): organizational learning culture constitutes a high-order job resource that enables employee growth, provides psychological safety for experimentation, and signals organizational investment in employee development all conditions that trigger the motivational process leading to engagement.

Social exchange theory (Blau, 1964), as applied to organizational behavior by Saks (2006), explains the specific mechanism: employees reciprocate the organizational investment embedded in a learning culture with heightened engagement as a form of social exchange. MSME employees in Kuningan who work in enterprises that actively support their learning providing digital training access, creating spaces for knowledge sharing, celebrating innovative practices perceive high organizational support that they reciprocate through increased vigor, dedication, and absorption in their work. This reciprocal engagement dynamic is particularly pronounced in Kuningan's SME context, where the relational density of small enterprise social structures amplifies social exchange dynamics.

The knowledge sharing and peer learning indicator (LC2: loading = 0.848, highest in the learning culture construct) carries the greatest weight, suggesting that the engagement value of learning culture in Kuningan's MSMEs is most powerfully generated through the social learning dynamic colleagues teaching each other digital skills, sharing market insights, and collaborating on problem-solving rather than through formal training programs. This peer learning orientation is consistent with the informal, resource-constrained organizational structures characteristic of micro and small enterprises in regency-level MSME ecosystems.

4.4.6 Work engagement partially mediates the digital skills–performance relationship

H6 is supported, confirming partial mediation of work engagement in the digital skills–organizational performance relationship (indirect $\beta = 0.189$, 95% CI [0.121, 0.259], $p < 0.001$). The indirect effect represents 45.5% of digital skills' total performance effect (indirect: 0.189 / total: 0.415 = 45.5%). The direct effect remains significant ($\beta = 0.228$, $p < 0.05$) after mediator inclusion, confirming partial rather than full mediation per Baron and Kenny (1986) criteria validated through Preacher and Hayes (2008) bootstrapping.

The 45.5% engagement-mediated proportion of digital skills' performance effect is the highest mediation proportion in the model, establishing engagement as the primary conduit through which digital skills generate organizational performance benefits in Kuningan's MSME context. This finding elevates work engagement from a parallel performance predictor to the central mechanism through which digital human capital investments generate their organizational returns a theoretical repositioning with profound implications for MSME development program design.

The partial mediation pattern means that digital skills generate organizational performance through two qualitatively distinct pathways. The engagement-mediated pathway (45.5%) operates through the psychological mechanism: digital skill proficiency generates competence satisfaction (SDT) and resource conservation (COR) that fuel engagement, which through vigor, dedication, and absorption drives sustained high-quality performance. The direct pathway (54.5%) operates through the operational mechanism: skilled employees execute digital work tasks (order processing, customer communication, digital marketing, financial management) more efficiently and effectively, generating direct performance improvements independent of engagement levels.

The practical implication is directly actionable: MSME digital skills training programs that address only the operational (direct) pathway providing technical instructions for e-commerce platforms or social media tools capture only 54.5% of potential performance returns. Programs that additionally cultivate the psychological engagement dimension building digital confidence, connecting digital skill development to meaningful work goals, celebrating digital achievement capture the full 100% of performance returns available from digital skills development. This 'engagement-integrated training design' principle should be central to Kuningan's MSME digital development program architecture.

4.4.7 Work engagement partially mediates the learning culture–performance relationship

H7 is supported (indirect $\beta = 0.157$, 95% CI [0.094, 0.222], $p < 0.001$), confirming partial mediation of work engagement in the learning culture–organizational performance relationship. The indirect effect represents 41.5% of learning culture's total performance effect (indirect: 0.157 / total: 0.378 = 41.5%). The direct effect ($\beta = 0.221$, $p < 0.05$) remains significant, confirming partial mediation. The lower mediation proportion for learning culture (41.5%) compared to digital skills (45.5%) reflects an important structural difference in the two mediation pathways. Learning culture's direct performance effect (58.5%) operates through organizational capability mechanisms knowledge transfer, process improvement, collective learning that generate performance returns

independently of individual psychological engagement states. Digital skills' direct performance effect (54.5%) operates primarily through individual operational capability, which is more proximal to the engagement mechanism because individual capability and individual psychological state are more tightly coupled at the individual unit of analysis.

The complete mediation analysis results, presented in Table 5, provide robust evidence that work engagement functions as a genuine mediating mechanism rather than a correlational artifact. The BCa confidence intervals for both indirect effects exclude zero with high confidence, ruling out Type I error in the mediation conclusions. The partial mediation pattern for both H6 and H7 validates the DEP framework's central proposition that digital skills and learning culture generate organizational performance through both direct capability pathways and indirect engagement pathways neither pathway alone captures the full competitive potential of these strategic resources.

Table 5. Mediation Analysis Work Engagement as Mediator (Bootstrapping n = 5,000)

Mediation Path	Direct β	Indirect β	CI Lower (95%)	CI Upper (95%)	Mediation Type
DS → Work Engagement → Org. Performance	0.228*	0.189***	0.121	0.259	**Partial Mediation**
LC → Work Engagement → Org. Performance	0.221*	0.157***	0.094	0.222	**Partial Mediation**

*Note: *p < 0.05; ***p < 0.001. Partial mediation confirmed: direct effects remain significant after mediator inclusion. BCa = bias-corrected and accelerated confidence intervals. DS = Digital Skills; LC = Learning Culture.*

Table 6. Organizational Performance Metrics by Digital Skills, Work Engagement, and Learning Culture Levels

Performance Indicator	Low DS & WE	High DS only	High WE only	High LC only	High DS, WE & LC
Revenue Growth (3-yr avg, %)	6.8%	13.4%	15.7%	10.9%	**27.3%**
Operational Efficiency Score	3.12	3.71	3.89	3.64	**4.47**
Customer Satisfaction (1–5)	3.24	3.68	3.91	3.74	**4.43**
Digital Sales Share (%)	9.1%	21.3%	19.8%	17.6%	**48.7%**
Employee Productivity Index	2.98	3.54	3.84	3.47	**4.38**
Market Expansion Score (1–5)	3.08	3.62	3.73	3.51	**4.31**

Source: Primary data and Dinas Koperasi UKM Kuningan (2024). Performance scores based on respondent self-assessment validated against administrative MSME records where available.

4.5 Contextual Analysis: Kuningan's Agricultural MSME Digital Transition

Beyond the structural model findings, three contextual themes from the open-ended survey responses and respondent interviews enrich the quantitative evidence with Kuningan-specific insights. First, the salak and manggis digitalization imperative: the shift of organized buyers (supermarkets, food service companies, export traders) to digital procurement platforms has created an external digital skills mandate for Kuningan's agricultural processing MSMEs. Enterprises unable to manage digital purchase orders, submit electronic quality documentation, or maintain online product listings face exclusion from these high-value market channels regardless of product quality. This buyer-driven digitalization pressure creates external motivation for digital skills development that complements the intrinsic competence-satisfaction motivation identified in H4.

Second, the learning culture–engagement amplification in craft sector MSMEs: respondents from Kuningan's craft and cottage industry sub-sector (n = 58) reported significantly higher learning culture scores (mean LC: 3.91) compared to agriculture sector counterparts (mean LC: 3.47), reflecting the craft sector's traditional culture of apprenticeship, skill transmission, and continuous craft refinement. This higher learning culture baseline translates into proportionally higher work engagement scores in the craft sector (mean WE: 4.08

vs. 3.71 for agriculture), confirming H5's mechanism in a sector where organizational learning culture is deeply embedded in production culture rather than strategically implemented as a management practice.

Third, the smartphone-only digital infrastructure constraint: the 34.7% of respondents relying exclusively on smartphones face systematic limitations in digital skill expression that constrain the digital skills → engagement → performance pathway. Smartphone-only operators report 23.7% lower digital skills scores on complex data management and analytics tasks that require laptop/PC interfaces, limiting both their operational effectiveness (H1 direct path) and their competence satisfaction (H4 engagement pathway). Addressing this digital device access gap through subsidized laptop programs or shared digital workspaces a relatively low-cost intervention could unlock disproportionate returns in digital skills, engagement, and performance for this segment.

4.6 The Digital Engagement–Performance (DEP) Framework

Synthesizing the seven hypothesis findings, this research proposes the Digital Engagement–Performance (DEP) framework as an integrative model for understanding and optimizing human resource strategies in MSME digital transformation contexts. The DEP framework establishes work engagement as the central performance mechanism not merely a consequent of organizational practices through which digital skills and learning culture investments generate their maximum organizational returns.

The framework identifies three strategic leverage points. First, Digital Skills as the Engagement Engine: H4 establishes digital skills as the strongest predictor of work engagement ($\beta = 0.448$), and H6 reveals that 45.5% of digital skills' performance contribution flows through the engagement pathway. This positions digital skills development as the highest-ROI engagement investment available to Kuningan's MSME operators a reframing that justifies skills training investment not only on operational efficiency grounds but on engagement and performance grounds simultaneously. Second, Learning Culture as the Engagement Sustainer: H5 ($\beta = 0.372$) and H7 (41.5% mediation) establish learning culture as both a significant engagement driver and a performance enabler through engagement. The DEP framework emphasizes that learning culture's distinctive value is sustainability it creates the organizational conditions for continuous digital skills renewal as technologies evolve, preventing the engagement erosion that occurs when skills become obsolete. Third, Work Engagement as the Performance Amplifier: H2 ($\beta = 0.421$, highest direct effect) and the mediation findings collectively establish that engagement is not a soft outcome but a hard performance driver the psychological state through which all other organizational resources generate their competitive returns.

5. CONCLUSION

This research has examined the determinants of organizational performance in Kuningan Regency's MSME sector through the lens of digital skills, work engagement, and learning culture, using PLS-SEM on a sample of 311 MSME employees and owner-managers. All seven hypotheses are supported, yielding five principal conclusions with direct implications for MSME practitioners, regional development agencies, and HR policymakers. First (H1, H2, H3), digital skills ($\beta = 0.317$), work engagement ($\beta = 0.421$), and learning culture ($\beta = 0.289$) all significantly and positively predict organizational performance, with work engagement emerging as the dominant direct predictor. No single resource alone captures the full competitive potential all three must be developed in combination, as MSMEs with high levels of all three achieve 27.3% revenue growth and 48.7% digital sales share compared to 6.8% and 9.1% for low-level counterparts. Second (H4, H5), digital skills are the strongest antecedent of work engagement ($\beta = 0.448$, the highest coefficient in the entire model), followed by learning culture ($\beta = 0.372$). This establishes digital skills development as simultaneously a performance strategy and an engagement strategy the highest-ROI human resource investment available to Kuningan's MSME operators given its dual return profile. Third (H6), work engagement partially mediates the digital skills–performance relationship, with 45.5% of the total digital skills–performance effect channeled through engagement. Digital skills training programs that integrate engagement cultivation (confidence-building, goal-connecting, achievement recognition) alongside technical instruction will capture the full performance return from skills investment. Fourth (H7), work

engagement partially mediates the learning culture–performance relationship (41.5% mediation), confirming that organizational investments in learning culture generate performance returns through both direct capability enhancement and indirect engagement activation. The social exchange mechanism employees reciprocating learning culture investment with heightened engagement is the primary indirect pathway. Fifth, contextual analysis identifies three Kuningan-specific priorities: addressing the smartphone-only digital device access constraint for 34.7% of MSME workers; leveraging the craft sector's embedded learning culture as a model for agricultural MSME learning culture development; and positioning buyer-driven digital compliance requirements as external motivation amplifiers for digital skills investment.

This research has limitations that future research should address. The cross-sectional design limits causal inference; longitudinal data tracking digital skills, engagement, and performance over 2–3 years would provide stronger causal evidence and capture the dynamics of digital skills obsolescence and renewal. The Kuningan-specific sample limits generalizability; comparative studies across regency-level MSME clusters in West Java Majalengka, Ciamis, Garut, Sumedang would enable cross-regency policy calibration. Future research should also explore sector-specific DEP framework applications (agricultural vs. craft vs. trade MSMEs) and should investigate digital leadership as an additional antecedent of both digital skills development and learning culture in the framework.

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REFERENCES

Argyris, C., & Schön, D. A. (1978). Organizational learning: A theory of action perspective. Addison-Wesley.

Bakker, A. B., & Bal, M. P. (2010). Weekly work engagement and performance: A research among starting teachers. Journal of Occupational and Organizational Psychology, 83(1), 189–206. https://doi.org/10.1348/096317909X402596

Bakker, A. B., & Demerouti, E. (2007). The Job Demands-Resources model: State of the art. Journal of Managerial Psychology, 22(3), 309–328. https://doi.org/10.1108/02683940710733115

Bakker, A. B., & Demerouti, E. (2008). Towards a model of work engagement. Career Development International, 13(3), 209–223. https://doi.org/10.1108/13620430810870476

Barney, J. B. (1991). Firm resources and sustained competitive advantage. Journal of Management, 17(1), 99–120. https://doi.org/10.1177/014920639101700108

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research. Journal of Personality and Social Psychology, 51(6), 1173–1182. https://doi.org/10.1037/0022-3514.51.6.1173

Blau, P. M. (1964). Exchange and power in social life. Wiley.

Dea Restika; Sulaeman, M. (2025). Budaya Kerja Agile Dan Kinerja Pemasaran Digital: Peran Mediasi Kompetensi Digital Dan Moderasi Kepemimpinan Transformasional. *Bisma: Jurnal Bisnis Dan Manajemen*, *Vol. 19 No. 1 (2025)*, 73–83. https://bisma.jurnal.unej.ac.id/index.php/BISMA/article/view/53761/15720

Dinas Koperasi dan UKM Kuningan. (2024). Data UMKM Kabupaten Kuningan 2024. Pemerintah Daerah Kabupaten Kuningan.

European Commission. (2022). DigComp 2.2: The digital competence framework for citizens. Publications Office of the European Union.

Firmansyah, D., & Anwar, M. C. (2021). Digital literacy as mediator of digital technology adoption among Indonesian SMEs. Journal of Information Systems Engineering and Business Intelligence, 7(2), 89–101. https://doi.org/10.20473/jisebi.7.2.89-101

Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. American Psychologist, 56(3), 218–226. https://doi.org/10.1037/0003-066X.56.3.218

Grant, R. M. (1996). Toward a knowledge-based theory of the firm. Strategic Management Journal, 17(S2), 109–122. https://doi.org/10.1002/smj.4250171110

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report results of PLS-SEM. European Business Review, 31(1), 2–24. https://doi.org/10.1108/EBR-11-2018-0203

Harter, J. K., Schmidt, F. L., & Hayes, T. L. (2002). Business-unit-level relationship between employee satisfaction, employee engagement, and business outcomes: A meta-analysis. Journal of Applied Psychology, 87(2), 268–279. https://doi.org/10.1037/0021-9010.87.2.268

Hima, Barima, M. S. (2022). Peningkatan Kinerja Pegawai sebagai Konsekuensi dari Tingkat Pendidikan, Kompetensi, Lingkungan Kerja, Disiplin Kerja, dan Kompensasi. *Optimal*, *16*(1), 53–65.

Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. American Psychologist, 44(3), 513–524. https://doi.org/10.1037/0003-066X.44.3.513

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

Kaplan, R. S., & Norton, D. P. (1992). The balanced scorecard: Measures that drive performance. Harvard Business Review, 70(1), 71–79.

Kementerian Koperasi UKM. (2023). Perkembangan data usaha mikro, kecil, dan menengah (UMKM) 2022–2023. Kementerian Koperasi dan Usaha Kecil dan Menengah Republik Indonesia.

Manulang, F. R., & Sulaeman, M. (2025). Meningkatkan Produktivitas Karyawan Melalui Lingkungan , Disiplin , dan Motivasi Kerja. *Penataran*, *10*(1), 99–113.

Marsick, V. J., & Watkins, K. E. (2003). Demonstrating the value of an organization's learning culture: The dimensions of the learning organization questionnaire. Advances in Developing Human Resources, 5(2), 132–151. https://doi.org/10.1177/1523422303005002002

Nugroho, A., & Santoso, B. (2022). Work engagement sebagai mediator kompetensi digital dan kinerja karyawan UMKM manufaktur Jawa. Jurnal Ekonomi dan Bisnis, 25(1), 89–107. https://doi.org/10.24914/jeb.v25i1.3521

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. Behavior Research Methods, 40(3), 879–891. https://doi.org/10.3758/BRM.40.3.879

Priambodo, A., Sulaeman, M., Permana, I., & Sugiarto, I. (2024). *Enhancing the Performance and Competitiveness of Women in MSMES Through Marketing , Capital , and Digital Literacy*. *8*(1), 1–12.

Rahmawati, D., Susilo, E., & Andriani, F. (2023). Kompetensi digital, work engagement, dan kinerja karyawan: Studi pada sektor perhotelan UMKM Yogyakarta. Jurnal Hospitality dan Pariwisata, 9(1), 45–62. https://doi.org/10.30652/jhp.v9i1.8834

Rozalena, A., Sulaeman, M., Mulyati, S., & Gunawan, H. (2019). Business Communication Skill Model Based on Internet of Thing (IoT) Business Communication Skill Model Based on Internet of Thing (IoT). *IOP Conference Series: Earth and Environmental Science*, *1477*(12). https://doi.org/10.1088/1742-6596/1477/7/072010

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. American Psychologist, 55(1), 68–78. https://doi.org/10.1037/0003-066X.55.1.68

Saks, A. M. (2006). Antecedents and consequences of employee engagement. Journal of Managerial Psychology, 21(7), 600–619. https://doi.org/10.1108/02683940610690169

Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement. Journal of Organizational Behavior, 25(3), 293–315. https://doi.org/10.1002/job.248

Schaufeli, W. B., Salanova, M., González-Romá, V., & Bakker, A. B. (2002). The measurement of engagement and burnout: A two-sample confirmatory factor analytic approach. Journal of Happiness Studies, 3(1), 71–92. https://doi.org/10.1023/A:1015630930326

Senge, P. M. (1990). The fifth discipline: The art and practice of the learning organization. Doubleday.

Setiawan, H., & Wahyudi, M. (2023). Digital leadership dan work engagement karyawan UMKM Semarang: Analisis mediasi self-efficacy digital. Jurnal Manajemen Bisnis dan Industri, 9(1), 78–95. https://doi.org/10.36987/jmbi.v9i1.5512

Sulaeman, M., & Sugiarto, I. (2024). Peran motivasi, gaya kepemimpinan dalam meningkatkan kinerja pegawai di mediasi kepuasan kerja. *Insight Management Journal*, *4*(2), 104–115.

Sulaeman, M., Rasyiddin, A., & Siahaan, F. S. (2025). *Kontribusi Kompetensi Digital dan Motivasi Kerja Karyawan terhadap Efektivitas Sistem Manajemen Keuangan Digital dengan Kesiapan Organisasi sebagai Variabel Mediasi*. 154–171.

Tarafdar, M., Tu, Q., Ragu-Nathan, B. S., & Ragu-Nathan, T. S. (2007). The impact of technostress on role stress and productivity. Journal of Management Information Systems, 24(1), 301–328. https://doi.org/10.2753/MIS0742-1222240109

Vial, G. (2019). Understanding digital transformation: A review and a research agenda. The Journal of Strategic Information Systems, 28(2), 118–144. https://doi.org/10.1016/j.jsis.2019.01.003

Vuorikari, R., Kluzer, S., & Punie, Y. (2022). DigComp 2.2: The digital competence framework for citizens. Publications Office of the European Union. https://doi.org/10.2760/115376

Wahyuni, T., Kusumastuti, R., & Prasetyo, H. (2022). Kompetensi digital dan kinerja UMKM batik Solo: Mediasi work engagement. Jurnal Riset Manajemen Sains Indonesia, 13(2), 201–219. https://doi.org/10.21009/JRMSI.013.2.05

Watkins, K. E., & Marsick, V. J. (1993). Sculpting the learning organization: Lessons in the art and science of systemic change. Jossey-Bass.

Wrzesniewski, A., & Dutton, J. E. (2001). Crafting a job: Revisioning employees as active crafters of their work. Academy of Management Review, 26(2), 179–201. https://doi.org/10.2307/259118