

The Role of Business Sustainability in Enhancing SME Competitiveness Through Working Capital and Digital Technology

Mirhamida Rahmah^{1*)}, Dinda Fatmah²⁾, Nurul Aslikhah³⁾, Htet Paing Soe⁴⁾, Yusriyah Rahmah⁵⁾, Zakiyah Zulfa Rahmah⁶⁾, Chamdan Purnama⁷⁾

^{1*,2)} Department of Management, Faculty of Economics, Al-Anwar School of Economics, Mojokerto, Jawa Timur. 61361, Indonesia

^{3,4)} Department of International Technology and Innovation Management, International Collage, Khon Kaen University, Khon Kaen, 40002, Thailand

⁵⁾ Faculty of Economics, University of Mayjen Sungkono, Mojokerto, Jawa Timur. 61321, Indonesia

E-mail: mirhamidar@gmail.com^{1*)}

ABSTRACT

This study aims to analyze the role of business sustainability as a mediating variable in the relationship between working capital and digital technology on the competitiveness of SMEs in Indonesia. The study is motivated by the growing awareness of the importance of sustainable business practices amidst dynamic market challenges and global environmental pressures. Using a quantitative approach and path analysis techniques based on Partial Least Squares Structural Equation Modeling (PLS-SEM), data were collected from 200 SMES actors in the Muslim product e-commerce SMEs through structured questionnaires. The findings indicate that business sustainability acts as a significant mediator, strengthening the indirect influence of working capital and digital technology on competitiveness. These results affirm that sustainability is not merely a social responsibility, but a strategic resource that enhances the competitive position of SMEs. The adoption of digital technology and efficient working capital management will yield stronger competitive advantages when directed toward sustainability goals. This research contributes to the SMEs literature and offers practical insights for business actors and policymakers in designing sustainable and competitive business strategies.

Keywords: Working Capital; Digital Technology; Business Sustainability; Business Competitiveness; Small and Medium-sized Enterprises.

INTRODUCTION

The COVID-19 pandemic created a global health crisis that demanded rapid responses from governments worldwide, particularly in implementing fiscal policies to prevent severe economic recession. The pandemic's impacts were felt across various aspects of life, including social, economic, and public health domains, with Small and Medium Enterprises (SMEs) among the most affected sectors. In Indonesia, SMEs play a vital role in the economy by creating jobs and supporting national income. However, the pandemic disrupted SMEs operations through supply chain interruptions and demand-supply shocks in global markets

(Kuckertz et al., 2020) and (Bartik et al., 2020). Unlike large corporations, SMEs face limitations in financial and managerial resources and depend on a limited number of customers and suppliers, making them more vulnerable to economic uncertainty (Miklian & Hoelscher, 2022) and (Bourletidis & Triantafyllopoulos, 2014).

Nevertheless, the pandemic also presented opportunities for entrepreneurs to innovate and adapt their business strategies to sustain or even improve performance. Optimizing working capital has become a crucial strategic step to manage liquidity and solvency, especially under uncertain economic conditions (Hamshari et al., 2022) and (Pavlicko et al., 2021). Effective working capital management can reduce liquidity risk and enhance business sustainability, while the adoption of digital technologies and Information and Communication Technology (ICT) can improve operational efficiency and the competitiveness of SMEs (Alma Çallı et al., 2022) and (Aruna, 2013). The use of technological infrastructure is increasingly relevant for Muslim product e-commerce SMEs in Indonesia to strengthen competitiveness and ensure business sustainability in an increasingly competitive digital era (Nuamah-Gyambrah et al., 2016) and (Purwanto et al., 2021).

Although the relationship between working capital management, digitalization, business sustainability, and competitiveness has been widely studied, previous findings show significant inconsistencies. (Tarighi et al., 2024) found that proper working capital management contributes positively to business sustainability. However, (Prudenzi et al., 2024) and (Raman et al., 2024) reported different results, where the influence was negative or insignificant, due to the limited resources and flexibility of SMEs. In the context of digital technology, (Bharadwaj et al., 2013) and (Lee & Park, 2022) showed that digitalization can promote sustainability and business competitiveness. Conversely, (Tabares et al., 2025) and (Ramdani et al., 2013) suggested that the impact of digitalization could be insignificant if the organization is not ready, while (Gao et al., 2023) highlighted the negative effects of process disruption and high implementation costs.

The influence of working capital on competitiveness also yields mixed results. (Baños-Caballero et al., 2014) found a positive relationship, but (Barak & Sharma, 2023) identified negative or insignificant impacts due to over-investment practices. Regarding business sustainability and competitiveness, (Dyllick & Hockerts, 2017) emphasized the importance of sustainability as a source of competitive advantage, but (Asif et al., 2024) argued that sustainability does not always yield positive impacts if not accompanied by appropriate communication strategies and business orientations. These inconsistencies highlight the need for further research that considers the context of Muslim product e-commerce SMEs in

Indonesia in the post-pandemic era.

The novelty of this research lies in its integrative approach to examining the influence of working capital management and digitalization on business sustainability and competitiveness of Muslim product e-commerce SMEs in Indonesia, as well as evaluating the role of technological infrastructure as a moderating variable. The focus on the Muslim product e-commerce SMES sector, which has received limited attention in both international and national literature, provides contextual value. This approach offers a new perspective on how technological readiness enhances the impact of internal SMES variables on business performance in the digital era.

This study aims to: Examine the effect of working capital on the business sustainability of Muslim product e-commerce SMEs in Indonesia. Analyze the role of digitalization in enhancing SMES competitiveness. Evaluate the role of technological infrastructure as a moderating variable between working capital and business sustainability.

This research is essential because SMEs are the backbone of the national economy and are highly vulnerable to crises. In the post-pandemic context, the ability to adapt to technology and efficiently manage working capital is key to survival and growth. This study offers practical contributions for SMES actors in formulating sustainability and competitiveness strategies based on digital transformation, as well as theoretical contributions in explaining the complex relationships among variables using a technological infrastructure moderation approach. The findings of this research can serve as a foundation for policy-making and the development of SMES support programs in Indonesia.

The Resource-Based View (RBV) posits that a firm's competitive advantage relies on its ability to manage and utilize internal resources that are valuable, rare, inimitable, and non-substitutable. These resources include physical assets, managerial skills, and organizational knowledge, which, when managed effectively, can serve as a foundation for long-term advantage (Rahmadhani et al., 2024). However, in a dynamic and uncertain business environment, firms also require the ability to adapt rapidly and flexibly. Hence, the Dynamic Capabilities Theory (DCT) complements RBV by emphasizing the importance of an organization's ability to sense opportunities and threats, seize opportunities, and reconfigure resources to adapt to external changes (Teece, 2017). Integrating RBV and DCT provides a more comprehensive understanding of how firms create and sustain competitive advantage in an ever-evolving landscape.

This study is based on the Resource-Based View (RBV), as proposed by (Davies et al., 2023), which posits that a firm's competitive advantage and sustainability are determined by

its ability to manage internal resources that are valuable, rare, inimitable, and non-substitutable. In the context of halal product e-commerce SMEs, working capital is considered a critical internal resource. Effective working capital management ensures that SMEs have the liquidity and financial flexibility to maintain operations, meet short-term obligations, and cope with external uncertainties such as economic disruptions caused by the COVID-19 pandemic. As a strategic resource, working capital management (WCM) influences business sustainability by ensuring that SMEs can operate without liquidity constraints, thereby contributing to financial, operational, and social sustainability.

Several studies support the link between effective WCM and business sustainability. For example, (Habib & Dalwai, 2024) argue that sound working capital management significantly contributes to the financial resilience of SMEs, particularly during the post-pandemic recovery. (Edy Sutrisno, 2021) highlights the importance of efficient cash, receivables, and inventory management in supporting long-term business stability. Furthermore, (Triono et al., 2024) show that e-commerce SMEs implementing structured working capital strategies not only sustain operations but also begin investing in social and environmental sustainability practices. These findings align with the RBV perspective, emphasizing that proper management of internal resources such as working capital enhances overall business sustainability.

Based on the above theory and empirical evidence, the following hypothesis is proposed: H1: Effective working capital management positively impacts business sustainability in Muslim product e-commerce SMEs post-COVID-19.

This study also draws upon the Dynamic Capabilities Theory (Teece, 2017), which highlights the importance of an organization's ability to integrate, build, and reconfigure internal and external competences to respond to environmental changes. Digitalization is a core component of dynamic capabilities as it enables SMEs to adapt quickly to changes in market demand and operational challenges. The post-COVID-19 era illustrates the critical role of digital technology in enhancing business sustainability by improving operational efficiency, expanding market access, and streamlining decision-making through data-driven insights. Digital technologies such as cloud computing, artificial intelligence, and e-commerce platforms allow SMEs to operate more efficiently, reduce operational waste, and promote sustainability across economic, social, and environmental dimensions (Epstein & Buhovac, 2014).

Further empirical research supports the positive impact of digital technology on business sustainability. (Abbas et al., 2024) found that digital technology adoption helps SMEs

improve operational efficiency, which is essential for business continuity during crises. Similarly, (Andriyani et al., 2023) emphasize that digitalization strengthens market access and customer relationships, both of which are vital components of business sustainability in the e-commerce sector. However, (Peretz-Andersson et al., 2024) caution that the benefits of digital technology can only be realized if SMEs are prepared for adoption, and failure to align technology adoption with the right strategy may lead to inefficiencies and increased costs.

Based on the above theory and empirical evidence, the following hypothesis is proposed: H2: The use of digital technology positively influences business sustainability in Muslim product e-commerce SMEs post-COVID-19.

The grand theory underlying this study is RBV, where effective working capital management (WCM) enhances organizational capabilities crucial for achieving sustainable competitive advantage. Efficient WCM improves liquidity, reduces bankruptcy risk, and ensures the availability of funds for strategic investments. This operational flexibility is essential for SMEs to respond to market dynamics with agility and speed. (Osei et al., 2023) found that SMEs with effective WCM are better able to meet market demand, improve cost efficiency, and sustain competitive advantage. Additionally, (Hasanah et al., 2020) emphasize that SMEs with optimal cash conversion cycles tend to be more responsive to market changes and have higher profitability, all of which contribute to better business competitiveness.

Conversely, inefficient working capital management can lead to overinvestment in current assets, reducing overall firm efficiency and harming competitiveness (Barak & Sharma, 2023). Therefore, optimizing working capital is essential for enhancing financial stability and competitive positioning.

Based on the above theory and empirical evidence, the following hypothesis is proposed: H3: Effective working capital management positively affects business competitiveness in Muslim product e-commerce SMEs post-COVID-19.

This study also refers to the Dynamic Capabilities Theory, which shows that digital technology not only improves operational efficiency but also drives innovation and market responsiveness, both key to achieving competitive advantage. The ability to personalize services, optimize supply chain management, and make real-time decisions through digital platforms directly affects the capacity of e-commerce SMEs to differentiate themselves in the market. (Wahyuningtyas et al., 2023) observed that SMEs adopting digitalization experienced significant improvements in marketing effectiveness and customer loyalty. (Pusung et al., 2023) further noted that digital technology enables SMEs to respond more quickly and accurately to market trends, enhancing product differentiation and competitive positioning.

However (Kosasih et al., 2024) warn that adopting technology without the right strategy and adequate training may lead to disruption and productivity loss.

Based on the above theory and empirical evidence, the following hypothesis is proposed: H4: The use of digital technology positively impacts business competitiveness in Muslim product e-commerce SMEs post-COVID-19.

As explained in RBV, business sustainability itself can be a source of sustainable competitive advantage. A focus on sustainable practices enhances brand reputation, customer loyalty, and long-term profitability all of which contribute to competitive advantage. (Jiao et al., 2023) found that companies focused on sustainability gain greater consumer trust, which indirectly drives competitive advantage. (Hidayat et al., 2021) emphasize that business sustainability in e-commerce promotes resource efficiency, which strengthens operational competitiveness. However, excessive focus on sustainability without proper strategic integration may reduce core efficiency (Dyllick & Hockerts, 2017).

Based on the above theory and empirical evidence, the following hypothesis is proposed: H5: Business sustainability positively impacts business competitiveness in Muslim product e-commerce SMEs post-COVID-19.

By integrating RBV and DCT, working capital serves as a tangible resource to ensure liquidity and operational flexibility. However, to transform short-term financial strength into long-term competitive advantage, working capital must be mobilized through sustainable business practices. (Habib & Dalwai, 2024) show that efficient WCM improves operational continuity, while (Hasanah et al., 2020) found that strong working capital supports investments in sustainability, which in turn contributes to competitive advantage.

Based on the above theory and empirical evidence, the following hypothesis is proposed: H6: Working capital positively influences business competitiveness in Muslim product e-commerce SMEs, with business sustainability as a mediating variable.

Digital technology, as part of dynamic capabilities, can drive innovation and efficiency, but its impact on competitiveness is strengthened when aligned with sustainability goals. (Dabbous et al., 2023) emphasize that digitalization helps SMEs create sustainable business models, enhancing customer loyalty and market positioning. (Ridwansyah & Anggraeni³, 2023) argue that digital platforms increase customer engagement and operational efficiency, contributing to competitiveness through integrated sustainability. (Lee & Park, 2022) also observed that targeted digitalization enhances value chain innovation, providing new resources for SMEs' competitive advantage. These hypotheses present a comprehensive framework in which working capital management and digital technology are key to improving sustainability

and competitiveness for halal product e-commerce SMEs in the post-COVID-19 era.

Based on the above theory and empirical evidence, the following hypothesis is proposed: H7: The use of digital technology positively affects business competitiveness in Muslim product e-commerce SMEs, with business sustainability as a mediating variable.

Below is the conceptual framework for the research (Figure 1).

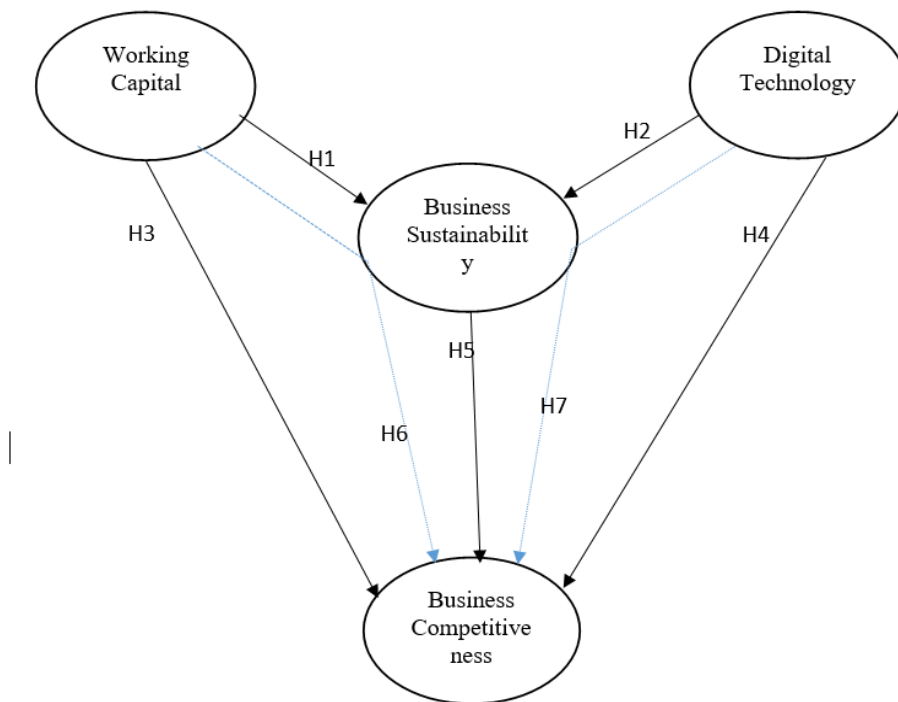


Figure 1. Conceptual Framework

RESEARCH METHOD

This study employs the Partial Least Squares Structural Equation Modeling (PLS-SEM) approach, which is appropriate for predictive and exploratory research that examines complex causal relationships among multiple latent variables, including mediation and moderation effects. PLS-SEM is particularly suitable in this context because it (1) does not require normally distributed data, (2) performs well with relatively small to medium sample sizes, and (3) can simultaneously handle reflective and formative constructs, making it ideal for studies in social sciences and SME contexts where data variability is common (Sarstedt et al., 2021) and (Hair Jr et al., 2017).

A judgment sampling technique was adopted to ensure that the data were collected from respondents who possessed relevant knowledge and managerial experience. The variables examined—working capital, digital technology, business sustainability, and competitiveness—require insights from individuals who are directly involved in strategic and operational

decision-making within Muslim product e-commerce SMEs. Therefore, only managers or owners with a minimum of two years of experience were selected, as they are considered capable of providing valid, reliable, and contextually rich information.

The sample size of 200 respondents was determined based on the PLS-SEM sample adequacy rule, where (Ferdinand, 2014) recommends a minimum of 10 respondents for each indicator used in the model. With 20 indicators, a minimum of 200 respondents ensures sufficient statistical power, stable parameter estimation, and robust model fit. To improve representativeness, the respondents were proportionally distributed across five major residencies in East Java, namely Surabaya, Bojonegoro, Madiun, Kediri, and Besuki, with 40 respondents from each region. These regions were intentionally chosen due to their high concentration of Muslim product e-commerce SMEs and their diverse economic conditions, technological infrastructure, and levels of digital adoption, enabling meaningful comparison and increasing external validity. Thus, the use of judgment sampling and regional distribution was purposive and strategic to minimize sampling bias and maximize the generalizability of findings within the regional SME context.

Data analysis was conducted using SmartPLS in two systematic stages. In the first stage (measurement model evaluation), the reliability and validity of constructs were assessed through convergent validity ($AVE > 0.5$), discriminant validity (Fornell-Larcker Criterion and HTMT), and internal consistency reliability using Composite Reliability (CR) and Cronbach's Alpha, both exceeding the recommended threshold of 0.70 (Ghozali & Ratmono, 2017). In the second stage (structural model evaluation), the hypothesized relationships between constructs were tested using the bootstrapping technique (5,000 resamples) to examine the significance of path coefficients. A T-value greater than 1.96 and p-value < 0.05 were used as criteria for statistical significance. In addition, R^2 , f^2 effect size, and Q^2 predictive relevance were examined to evaluate the explanatory power and predictive capability of the model, ensuring a comprehensive and rigorous analysis.

RESULT AND DISCUSSION

Measurement Model Testing

Table 1. Measurement Model Testing Convergent Validity, Composite Reliability and Cronbach's Alpha

CONSTRUCT	λ	CRONBACH'S α	RHO_A	CR	AVE
Business Competitiveness		0.907	0.911	0.931	0.730
BC1: Market Share	0.858				
BC2: Customer Satisfaction and Loyalty	0.774				
BC3: Cost Efficiency	0.890				

BC4: Brand Recognition	0.877				
BC5: Innovation Rate	0.869				
Business Sustainability		0.944	0.947	0.957	0.818
BS1: Environmental Responsibility	0.918				
BS2: Economic Viability	0.916				
BS3: Social Responsibility	0.919				
BS4: Resource Efficiency	0.859				
BS5: Sustainable Product Innovation	0.910				
Digital Technology		0.903	0.906	0.928	0.720
DT1: Digital Adoption Rate	0.835				
DT2: Data Analytics Usage	0.810				
DT3: Customer Engagement	0.854				
DT4: Cybersecurity Measures	0.853				
DT5: Process Automation Level	0.888				
Working Capital		0.911	0.921	0.934	0.739
WC1: Cash Conversion Cycle	0.892				
WC2: Inventory Turnover	0.874				
WC3: Accounts Receivable Turnover	0.898				
WC4: Quick Ratio	0.787				
WC5: Current Ratio	0.842				

Source: The data were processed by the author (2025)

The results from Table 1 confirm the reliability and validity of the measurement model across all constructs Business Competitiveness, Business Sustainability, Digital Technology, and Working Capital. Each construct shows high factor loadings (λ), with values above 0.7, supporting convergent validity. Composite Reliability (CR) scores for all constructs exceed 0.9, which demonstrates strong internal consistency. Additionally, Cronbach's Alpha values are all above 0.9, indicating robust reliability. The Average Variance Extracted (AVE) values are also high, exceeding the threshold of 0.5, meaning that a significant proportion of variance is captured by each construct. These findings indicate that the measurement model is both reliable and valid, making it suitable for further analysis:

Table 2. Discriminant Validity

VARIABLE	BUSINESS COMPETITIVENE SS	BUSINESS SUSTAINABILIT Y	DIGITAL TECHNOLO G	WORKING CAPITAL
Fornell-Larcker Criterion				
Business Competitiveness	0.854			
Business Sustainability	0.482	0.905		
Digital Technolog	0.498	0.631	0.848	
Working Capital	0.268	0.506	0.456	0.860
Heterotrait-Monotrait Ratio (HTMT)				
Business Competitiveness				
Business Sustainability	0.519			
Digital	0.546	0.679		

Technolog			
Working Capital	0.290	0.540	0.494

Source: The data were processed by the author (2025)

The discriminant validity results in Table 2 confirm that the constructs Business Competitiveness, Business Sustainability, Digital Technology, and Working Capital are distinct from each other. According to the Fornell-Larcker Criterion, the square root of the Average Variance Extracted (AVE) for each construct exceeds its correlations with other constructs, indicating that each construct shares more variance with its own indicators than with those of other constructs. Additionally, the Heterotrait-Monotrait Ratio (HTMT) values are all below the threshold of 0.85, with the highest HTMT ratio at 0.679 (between Business Sustainability and Digital Technology), reinforcing that the constructs are uniquely defined. These findings validate the distinctiveness of each construct, ensuring they are appropriate for use in further analyses.

Hypothesis Testing

Table 3. Hypothesis Testing

PATH COEFFICIENTS	ORIGINAL SAMPLE (O)	SAMPLE MEAN (M)	STANDARD DEVIATION (STDEV)	T STATISTICS (O/STDEV)	P VALUES	DECISION
Direct Effects						
Working Capital -> Business Sustainability	0.275	0.277	0.061	4.494	0.000	H1, Significant
Digital Technolog -> Business Sustainability	0.505	0.506	0.061	8.336	0.000	H2, Significant
Working Capital -> Business Competitiveness	-0.029	-0.029	0.076	0.383	0.702	H3, Not Significant
Digital Technolog -> Business Competitiveness	0.329	0.330	0.092	3.585	0.000	H4, Significant
Business Sustainability -> Business Competitiveness	0.290	0.291	0.091	3.187	0.001	H5, Significant
Indirect Effects						
Working Capital -> Business Sustainability	0.080	0.079	0.029	2.772	0.006	H6, Significant
Business Competitiveness -> Digital Technolog	0.146	0.147	0.051	2.874	0.004	H7, Significant

Source: The data were processed by the author (2025)

The hypothesis testing results in Table 3 confirm statistically significant relationships among key variables, underscoring the influence of Business Sustainability and Digital Technology on Business Competitiveness. Specifically, Working Capital positively impacts Business Sustainability, as evidenced by a coefficient of 0.275, a t-value of 4.494, and a p-value of 0.000 (H1), indicating a strong association. Digital Technology also has a substantial positive effect on Business Sustainability, with a coefficient of 0.505, a t-value of 8.336, and a p-value of 0.000 (H2). However, Working Capital does not directly affect Business Competitiveness, shown by its coefficient of -0.029, t-value of 0.383, and p-value of 0.702, marking it as non-significant (H3). In contrast, Digital Technology demonstrates a significant positive impact on Business Competitiveness, with a coefficient of 0.329, t-value of 3.585, and p-value of 0.000 (H4).

Furthermore, Business Sustainability has a direct positive effect on Business Competitiveness, with a coefficient of 0.290, t-value of 3.187, and p-value of 0.001 (H5), highlighting its role in strengthening competitive outcomes. Indirectly, Working Capital influences Business Competitiveness through Business Sustainability, with an effect of 0.080, a t-value of 2.772, and a p-value of 0.006 (H6), while Digital Technology similarly impacts Business Competitiveness via Business Sustainability, shown by an indirect effect of 0.146, a t-value of 2.874, and a p-value of 0.004 (H7).

These findings suggest that Business Sustainability acts as a critical mediator, enabling Working Capital and Digital Technology to indirectly enhance Business Competitiveness. From the perspective of the Resource-Based View (RBV), sustainability transforms working capital and digital technology originally tangible and intangible resources into valuable, rare, inimitable, and non-substitutable (VRIN) capabilities that strengthen long-term competitive advantage. This means that resources alone are not sufficient; they must be strategically managed through sustainability practices to generate superior value. Meanwhile, according to Dynamic Capabilities Theory (DCT), sustainability reflects the firm's ability to sense environmental and market changes, seize opportunities, and reconfigure internal resources and technologies to adapt to external pressures. By embedding sustainability into their operations, firms dynamically integrate financial and digital resources to respond more effectively to changing conditions. Thus, the results underscore that a focus on sustainability not only amplifies the positive impacts of digital and financial resources but also operationalizes RBV and DCT by converting internal resources into adaptive capabilities that drive superior and sustainable competitive advantages.

Direct Effects

Effect of Working Capital Management on Business Sustainability

This study finds that working capital management has a positive and significant effect on the business sustainability. This indicates that efficient management of working capital such as inventory control, accounts receivable, and accounts payable provides sufficient liquidity for firms to survive and grow sustainably. This finding is supported by (Habib & Dalwai, 2024), who argue that efficient working capital management promotes sustainability, and (Edy Sutrisno, 2021), who emphasizes its positive impact on firm value. (Wibowo et al., 2023) highlight the importance of liquidity for sustainability, while (Bernard et al., 2007) suggest that adequate liquidity enables investments in sustainable initiatives. Good working capital practices provide flexibility to invest in sustainability-driven efforts such as digitalization or waste reduction.

From an RBV perspective, working capital is an internal financial resource that becomes valuable when managed efficiently, ensuring liquidity and operational continuity that support long-term sustainability. From a DCT perspective, effective working capital management reflects the firm's ability to reconfigure financial resources to respond to environmental changes (e.g., crises, market fluctuations), enabling adaptive and sustainable operations.

In practice, Indonesian e-commerce SMEs that manage inventory well and accelerate receivable cycles are more resilient and better positioned for growth. While some studies, such as (Parra-López et al., 2024), warn of the risk of focusing too heavily on efficiency at the expense of innovation, in the SME context, working capital management serves as a fundamental pillar of sustainability. Practical implication: Training in working capital management and financial support from the government and financial institutions can enhance SMEs sustainability.

Effect of Digital Technology on Business Sustainability

The study shows that digital technology adoption has a positive and significant impact on the business sustainability of Muslim product e-commerce SMEs, with a path coefficient of 0.505, t-value of 8.336, and p-value of 0.000. The higher the level of digitalization, the greater the SMEs' ability to sustain and grow in the post-pandemic landscape. Technologies such as cloud-based systems, digital marketing, and data analytics improve not only operational efficiency but also energy efficiency and waste reduction. This aligns with (Rehman Khan et al., 2022) and (Tajpour et al., 2023), who state that smart technologies enhance SMEs efficiency and sustainability. In the food industry, (Ahmad et al., 2020) found that digitalization

helps maintain supply chain sustainability. According to (Bharadwaj et al., 2013), digital capabilities are critical to resource efficiency and sustainable value creation.

Digital technologies enable real-time information management, reduce transaction costs, and improve supply chain transparency. They also support carbon tracking, speed up service delivery, and foster consumer engagement in sustainability programs. According to RBV, digital technology is an intangible resource that enhances efficiency, knowledge processing, and innovation making sustainability practices more effective and difficult for competitors to imitate. Under DCT, digital technology strengthens a firm's dynamic capabilities to sense, seize, and transform, allowing SMEs to adapt business models, optimize processes, and pursue sustainable growth in changing environments.

National data from BPS and the (Fachrysa Halik et al., 2020) indicates that 74% of SMEs that adopted digital platforms experienced efficiency and resilience improvements. However, (Bughin & Zeebroeck, 2021) warn of the potential for digitalization to increase e-waste, which can be addressed through the use of green information technology. Practical implication: SMEs should be encouraged to invest in sustainable digital transformation, with support from the government and strategic partners through training and incentives.

Effect of Working Capital on Business Competitiveness

The study reveals that working capital does not have a significant impact on the competitiveness. This indicates that having sufficient working capital does not directly enhance a business's competitive position. While financial efficiency and liquidity are crucial for operations, they do not guarantee uniqueness or added value compared to competitors. This result is consistent with (Osei et al., 2023) and (Rufaidah et al., 2023), who argue that competitiveness depends more on factors like innovation, managerial competence, and customer relations. (Garg & Kumar, 2024) also emphasize that competitive advantage stems from intangible assets like reputation and market knowledge rather than financial capital. From an RBV standpoint, working capital alone does not meet the VRIN criteria (valuable, rare, inimitable, non-substitutable), so it cannot directly generate sustainable competitive advantage. From a DCT perspective, competitiveness requires resource reconfiguration and innovation, not just resource availability. Thus, working capital without strategic deployment does not enhance competitiveness.

In practice, many SMEs that receive funding from cooperatives, fintech platforms, or government grants do not automatically improve competitiveness. Data from (Fachrysa Halik et al., 2020) shows that 64% of SMEs with access to capital did not significantly expand markets or enhance product quality. Some studies, such as (Mang'ana et al., 2024), point to an

indirect link between working capital efficiency and profitability, especially in large firms or manufacturing sectors. Thus, SMEs must combine capital access with strategies like digitalization, product innovation, and market capability development to build competitiveness. Policy implication: Government support should include not only funding but also business training and strategic mentoring.

Effect of Digital Technology on Business Competitiveness

This study finds that digital technology has a positive and significant impact on business competitiveness. This suggests that higher levels of adoption and integration of digital technology in Muslim product e-commerce SMEs operations correlate with greater market competitiveness. Digitalization acts as a strategic enabler, driving efficiency, innovation, and adaptive responses to market dynamics. This is consistent with (Wahyuningtyas et al., 2023), who show that digital orientation enhances SMEs competitiveness, especially with policy support. (Pusung et al., 2023) state that digital marketing improves market presence and product advantages, while (Triono et al., 2024) highlight the role of digital capabilities such as ERP, marketplaces, and analytics in building strategic advantage. In Dynamic Capabilities Theory, technological adaptability is key to maintaining advantage in fast-changing markets (Schneider & Spieth, 2014). Based on RBV, digital technology is an intangible, hard-to-imitate resource that improves customer engagement, innovation, and efficiency directly supporting competitive advantage.

From the DCT lens, digital technology enables firms to adapt quickly, innovate continuously, and respond to market dynamics, which are essential for sustaining competitiveness. Digital technology offers access to automation, customer analytics, and cost-saving strategies. Data-driven decision-making and business agility are essential to sustained competitiveness. Technology also facilitates product differentiation and market expansion.

According to (Fachrysa Halik et al., 2020), over 19 million SMEs have gone digital, yet only a fraction improved competitiveness due to differences in digital capabilities. A Google and (Chwiłkowska-Kubala et al., 2023) report notes that digitally advanced SMEs achieved up to 30% higher revenue growth than traditional SMEs. Practical implication: SMEs should embed digitalization in core business strategy. Government and support partners must offer training and guidance to optimize digital technology use. Theoretically, this affirms digital capabilities as key to the Dynamic Capabilities framework.

Effect of Business Sustainability on Business Competitiveness

This study reveals that Business Sustainability has a significant positive effect on Competitiveness, with a path coefficient of 0.290, t-value of 3.187, and p-value of 0.001.

Higher implementation of sustainability practices increases the likelihood of SMEs achieving sustainable competitive advantage. Sustainability not only reflects social and environmental responsibility but also serves as a business strategy that creates market value and differentiation. This is consistent with (Jiao et al., 2023), who argue that sustainability initiatives enhance innovation and brand reputation. (Hidayat et al., 2021) emphasize that integrating sustainability into business strategy yields differentiation, while (Ospina-Patiño et al., 2023) highlight sustainability's role in improving efficiency and strategic positioning. Sustainability creates strategic fit between company values and the expectations of environmentally and socially conscious consumers.

In RBV, sustainability practices (e.g., eco-efficiency, social responsibility, long-term value creation) become strategic resources and capabilities that are rare and difficult to replicate, thus driving competitive advantage. In DCT, sustainability demonstrates a firm's ability to continuously adapt to environmental and social pressures, enhancing reputation, differentiation, and long-term competitiveness. According to a (Hameed et al., 2021) report, 73% of global consumers are willing to pay more for products from companies committed to sustainability. In Indonesia, practices like eco-friendly materials, halal certification, and green labeling enhance consumer trust, especially in food and Muslim fashion SMEs. Practical implication: SMEs should integrate sustainability into core business models, beyond CSR. Government and support institutions should offer training, incentives, and mentoring to turn sustainability into a strategic asset, not an added cost.

Indirect Effects

Business Sustainability as a Mediating Variable between Working Capital and Business Competitiveness

The study finds that Working Capital has an indirect effect on Business Competitiveness through Business Sustainability. This means that while working capital alone may not directly enhance competitiveness, its strategic use for sustainable practices significantly contributes to competitive advantage. In other words, working capital becomes a strategic resource when allocated toward sustainability initiatives such as efficient production, waste reduction, or green logistics systems. This aligns with (Habib & Dalwai, 2024), who note that working and intellectual capital support sustainability, thereby strengthening competitiveness. (Wibowo et al., 2023) emphasize that well-managed liquidity increases long-term resilience and sustainability. (Mensah, 2015) suggests that sustainability bridges internal efficiency and external market advantages. RBV explains that working capital becomes strategically valuable only when transformed into sustainability initiatives, turning a common

resource into a unique capability. DCT further clarifies that firms must reconfigure financial resources toward adaptive and sustainable practices, which then lead to competitive advantage. Thus, sustainability acts as the dynamic mechanism that converts working capital into competitiveness.

In the Indonesian SMEs context, limited working capital is a common constraint. However, SMEs that strategically invest it in sustainability initiatives such as digital processes or eco-friendly packaging prove to be more competitive. (Fachrysa Halik et al., 2020) report shows that sustainability-adopting SMEs experienced an 18% increase in competitiveness. Practical implication: Strategic management literacy must be strengthened so SMEs can leverage working capital as a means to support sustainability and long-term competitive advantage.

Indirect Effect of Digital Technology on Competitiveness through Business Sustainability

The study demonstrates that Digital Technology also has an indirect effect on Business Competitiveness via Business Sustainability. This indicates that digital adoption not only contributes directly but also enhances competitiveness through the strengthening of sustainability practices. Firms that use digital tools for sustainability such as energy efficiency, waste reduction, and process optimization have greater potential for long-term competitive advantage. This is supported by (Mensah, 2015), who stresses the importance of sustainable efficiency in enhancing competitiveness. (Oliveira Saraiva et al., 2024) show that digitalization strengthens operational sustainability, positively influencing competitive positioning. (Wang et al., 2024) argue that digital technologies build sustainability competencies necessary for navigating an increasingly eco-conscious digital economy.

From the RBV perspective, digital technology becomes more strategically valuable when used to support sustainability (e.g., green processes, efficiency, transparency), creating a rare and inimitable capability. From a DCT viewpoint, integrating technology with sustainability reflects higher-order dynamic capabilities sensing opportunities, seizing innovations, and transforming operations which ultimately strengthen competitiveness. Hence, sustainability is the pathway through which digital capabilities translate into competitive advantage.

In Indonesia, many SMEs are adopting digital systems such as cloud-based POS or e-inventory to reduce waste. (Richards, 2023) report notes that such SMEs improved productivity by up to 25%. However, (Öngel et al., 2024) caution that digital tools can lead to greenwashing if not genuinely sustainability-focused. Practical implication: These results affirm the importance of integrating digitalization and sustainability as a core strategy for building

resilient SMEs competitiveness.

CONCLUSION AND SUGGESTIONS

This study emphasizes that business sustainability plays a pivotal role as a mediating variable in the relationship between working capital and digital technology on the competitiveness of SMEs. Although working capital and digital technology may not directly enhance competitiveness, they become strategic assets when allocated or utilized to support sustainable practices. This highlights that sustainability is not merely a social responsibility, but a strategic asset capable of creating long-term value and strengthening market position.

From a theoretical perspective, the findings support the Resource-Based View (RBV) and Dynamic Capabilities Theory, which explain how internal resources and capabilities must be managed strategically and adaptively to respond to external pressures, such as sustainability and digitalization demands. Practically, this research suggests that SMEs should view sustainability as an integral part of core business strategy rather than an additional or peripheral activity.

Future researchers are encouraged to explore other factors that may strengthen the link between technology, sustainability, and competitiveness, such as leadership, organizational culture, or the role of external institutions. Additionally, longitudinal studies and qualitative approaches could be employed to better understand the dynamics of sustainability transformation over longer periods and within specific industry contexts. For local governments, the findings highlight the need to design policies and programs that link financial support, digitalization initiatives, and sustainability incentives, rather than treating them as separate agendas. Governments can provide training on working capital management, digital capability development, and sustainable business models, while also offering tax incentives, subsidies, or certification programs (e.g., halal, green, or digital certification) to encourage SMEs to adopt sustainable practices. In addition, collaboration platforms between SMEs, technology providers, and financial institutions can be facilitated by local governments to ensure that digital and financial resources are effectively transformed into competitive advantage through sustainability.

Business practitioners are advised to view sustainability and digitalization not merely as regulatory requirements or trends, but as long-term strategic investments. Allocating working capital to initiatives that support environmental goals and digital operational efficiency will yield positive impacts not only on corporate image but also on customer loyalty and overall cost efficiency.

REFERENCE

- Abbas, J., Balsalobre-Lorente, D., Amjid, M. A., Al-Sulaiti, K., Al-Sulaiti, I., & Aldereai, O. (2024). Financial innovation and digitalization promote business growth: The interplay of green technology innovation, product market competition and firm performance. *Innovation and Green Development*, 3(1), 100111. <https://doi.org/10.1016/j.igd.2023.100111>
- Ahmad, W. S. H. M. W., Radzi, N. A. M., Samidi, F. S., Ismail, A., Abdullah, F., Jamaludin, M. Z., & Zakaria, M. (2020). 5G technology: Towards dynamic spectrum sharing using cognitive radio networks. *IEEE Access*, 8, 14460–14488.
- Alma Çallı, B., Özşahin, M., Coşkun, E., & Rıfat Arık, A. (2022). Do Generative Leadership and Digital Literacy of Executive Management Help Flourishing Micro and Small Business Digital Maturity? *International Journal of Organizational Leadership*, 11(3), 307–332. <https://doi.org/10.33844/ijol.2022.60332>
- Andriyani, N., Maulana, H. K., Salam, A. N., Utami, F. M., Kinasih, A. N., Ardiansyah, S., & Iskandar, I. (2023). How does the PEN Program Affect the Sustainability of MSMEs: A Case Study in Bantul. *Ekulibrium : Jurnal Ilmiah Bidang Ilmu Ekonomi*, 18(1), 110–119. <https://doi.org/10.24269/ekulibrium.v18i1.2023.pp110-119>
- Aruna, H. A. M. (2013). Technology Innovation for SME Growth : A Perception for the Emerging Economies. 4(3), 156–163.
- Asif, M., Yang, L., & Hashim, M. (2024). The Role of Digital Transformation, Corporate Culture, and Leadership in Enhancing Corporate Sustainable Performance in the Manufacturing Sector of China. *Sustainability (Switzerland)*, 16(7). <https://doi.org/10.3390/su16072651>
- Baños-Caballero, S., García-Teruel, P. J., & Martínez-Solano, P. (2014). Working capital management, corporate performance, and financial constraints. *Journal of Business Research*, 67(3), 332–338. <https://doi.org/10.1016/j.jbusres.2013.01.016>
- Barak, M., & Sharma, R. K. (2023). Investigating the Impact of Intellectual Capital on the Sustainable Financial Performance of Private Sector Banks in India. *Sustainability (Switzerland)*, 15(2). <https://doi.org/10.3390/su15021451>
- Bartik, A., Cullen, Z., Bertrand, M., Glaeser, E. L., Luca, M., & Stanton, C. (2020). How Are Small Businesses Adjusting to COVID-19? Early Evidence From a Survey. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3570896>
- Bernard, A. B., Bradford Jensen, J., Redding, S. J., & Schott, P. K. (2007). Firms in international trade. *Journal of Economic Perspectives*, 21(3), 105–130. <https://doi.org/10.1257/jep.21.3.105>
- Bharadwaj, A., El Sawy, O. A., Pavlou, P. A., & Venkatraman, N. (2013). Digital business strategy: Toward a next generation of insights. *MIS Quarterly: Management Information Systems*, 37(2), 471–482. <https://doi.org/10.25300/MISQ/2013/37:2.3>
- Bourletidis, K., & Triantafyllopoulos, Y. (2014). SMEs Survival in Time of Crisis: Strategies, Tactics and Commercial Success Stories. *Procedia - Social and Behavioral Sciences*, 148, 639–644. <https://doi.org/10.1016/j.sbspro.2014.07.092>
- Bughin, J., & Zeebroeck, N. Van. (2021). The Entrepreneurial Returns to Incumbents' Digital

- Transformation. https://dipot.ulb.ac.be/dspace/bitstream/2013/327345/3/WP2021-048-BUGHIN_VANZEEBROECK-the.pdf
- Chwiłkowska-Kubala, A., Cyfert, S., Malewska, K., Mierzejewska, K., & Szumowski, W. (2023). The impact of resources on digital transformation in energy sector companies. The role of readiness for digital transformation. *Technology in Society*, 74(June). <https://doi.org/10.1016/j.techsoc.2023.102315>
- Dabbous, A., Barakat, K. A., & Kraus, S. (2023). The impact of digitalization on entrepreneurial activity and sustainable competitiveness: A panel data analysis. *Technology in Society*, 73(March), 102224. <https://doi.org/10.1016/j.techsoc.2023.102224>
- Davies, P., Bustinza, O. F., Parry, G., & Jovanovic, M. (2023). Unpacking the relationship between digital capabilities, services capabilities, and firm financial performance: A moderated mediation model. *Industrial Marketing Management*, 115(September), 1–10. <https://doi.org/10.1016/j.indmarman.2023.09.005>
- Dyllick, T., & Hockerts, K. (2017). Beyond the business case for corporate sustainability. Corporate Environmental Responsibility, 213–224. <https://doi.org/10.4324/9781315259277-7>
- Edy Sutrisno. (2021). Strategi Pemulihan Ekonomi Pasca Pandemi Melalui Sektor Umkm dan Pariwisata. *Jurnal Lemhannas RI*, 9(1), 167–185. <https://doi.org/10.55960/jlri.v9i1.385>
- Epstein, M. J., & Buhovac, A. R. (2014). Best Practices in Managing and Measuring Corporate Social, Environmental, and Economic Impacts. In *Making Sustainability Work Best Practices in Managing and Measuring Corporate Social, Environmental, and Economic Impacts*.
- Fachrysa Halik, R. A., Rifin, A., & Jahroh, S. (2020). Pengaruh Kemtraan Terhadap Kinerja Usaha Mikro Dan Kecil Tahu Di Indonesia. *Jurnal Agribisnis Indonesia*, 8(2), 164–174. <https://doi.org/10.29244/jai.2020.8.2.164-174>
- Ferdinand, A. (2014). Metode penelitian manajemen: Pedoman penelitian untuk penulisan skripsi tesis dan desrtasi ilmu manajemen.
- Gao, J. L., Chen, Y., & Zhang, X. Q. (2023). Digital Technology Driving Exploratory Innovation in the Enterprise: A Mediated Model with Moderation. *Systems*, 11(3). <https://doi.org/10.3390/systems11030118>
- Garg, M., & Kumar, P. (2024). Harnessing digital technologies for triple bottom line sustainability in the banking industry: a bibliometric review. *Future Business Journal*, 10(1). <https://doi.org/10.1186/s43093-024-00336-2>
- Ghozali, I., & Ratmono, D. (2017). Analisis multivariat dan ekonometrika: teori, konsep, dan aplikasi dengan eview 10.
- Habib, A. M., & Dalwai, T. (2024). Does the Efficiency of a Firm's Intellectual Capital and Working Capital Management Affect Its Performance? *Journal of the Knowledge Economy*, 15(1), 3202–3238. <https://doi.org/10.1007/s13132-023-01138-7>
- Hair Jr, J., Hult, F., & Sarstedt, M. (2017). A primer on partial least squares structural equation modeling (PLS-SEM)(ed.) *Sage Publications*, Thousand Oaks.
- Hameed, A., Ahmed, M. Z., Hussain, T., Aziz, I., Ahmad, N., Gul, B., & Nielsen, B. L. (2021). Effects of salinity stress on chloroplast structure and function. *Cells*, 10(8), 2023.

- Hamshari, Y. M., Alqam, M. A., & Ali, H. Y. (2022). The impact of the corona epidemic on working capital management for jordanian companies listed on the amman stock exchange. *Cogent Economics and Finance*, 10(1). <https://doi.org/10.1080/23322039.2022.2157541>
- Hasanah, P. N., Prasetyo, A., & others. (2020). EFISIENSI PENGGUNAAN FAKTOR-FAKTOR PRODUKSI PADA USAHATANI CABAI MERAH KERITING (*Capsicum annuum* L.)(Studi Kasus di Kelompok Tani Prawoto Sari, Desa Munding, Kecamatan Bergas, Kabupaten Semarang). *Jurnal Ilmiah Agrineca*, 20(2), 77–87.
- Hidayat, S. E., Izharivan, Y., & Sari, C. A. (2021). Islamic Finance and Sustainable Economy: A New Model of Islamic Financial Ecosystem. In M. K. Hassan, M. Saraç, & A. Khan (Eds.), *Islamic Finance and Sustainable Development: A Sustainable Economic Framework for Muslim and Non-Muslim Countries* (pp. 265–284). *Springer International Publishing*. https://doi.org/10.1007/978-3-030-76016-8_11
- Jiao, X., Zhang, P., He, L., & Li, Z. (2023). Business sustainability for competitive advantage: identifying the role of green intellectual capital, environmental management accounting and energy efficiency. *Economic Research-Ekonomska Istrazivanja*, 36(2). <https://doi.org/10.1080/1331677X.2022.2125035>
- Kosasih, O., Hidayat, K., Hutahayan, B., & Sunarti. (2024). Developing sustainable business-to-business (B2B) strategies in service innovation for enhancing customer loyalty in the petrochemical industry: a systematic review. *Cogent Business and Management*, 11(1). <https://doi.org/10.1080/23311975.2024.2422564>
- Kuckertz, A., Brändle, L., Gaudig, A., Hinderer, S., Morales Reyes, C. A., Prochotta, A., Steinbrink, K. M., & Berger, E. S. C. (2020). Startups in times of crisis – A rapid response to the COVID-19 pandemic. *Journal of Business Venturing Insights*, 13(April). <https://doi.org/10.1016/j.jbvi.2020.e00169>
- Lee, B., & Park, S. K. (2022). A Study on the Competitiveness for the Diffusion of Smart Technology of Construction Industry in the Era of 4th Industrial Revolution. *Sustainability (Switzerland)*, 14(14). <https://doi.org/10.3390/su14148348>
- Mang'ana, K. M., Hokororo, S. J., & Ndyetabula, D. W. (2024). An Investigation of the Extent of Implementation of the Financial Management Practices of Agri-SMEs in developing countries: Evidence from Tanzania. *Sustainable Technology and Entrepreneurship*, 3(1), 100049. <https://doi.org/10.1016/j.stae.2023.100049>
- Mensah, J. K. (2015). A “coalesced framework” of talent management and employee performance: For further research and practice. *International Journal of Productivity and Performance Management*, 64(4), 544–566. <https://doi.org/10.1108/IJPPM-07-2014-0100>
- Miklian, J., & Hoelscher, K. (2022). SMEs and exogenous shocks: A conceptual literature review and forward research agenda. *International Small Business Journal: Researching Entrepreneurship*, 40(2), 178–204. <https://doi.org/10.1177/02662426211050796>
- Nuamah-Gyambrah, K., OffeiOtu, M., & Agyeiwaa, F. (2016). Role of Information and Communication Technology (ICT) in the Survival of Small and Medium Scale Enterprises (SME's) in Ghana: Evidence from selected Small and Medium Scale Enterprises in New Juaben Municipality, Koforidua. *International Journal of Managing Public Sector Information and Communication Technologies*, 7(1), 1–14.

<https://doi.org/10.5121/ijmpict.2016.7101>

- Oliveira Saraiva, G., Ferreira, J. J., & Alves, M. C. (2024). Turnaround, Decline, and Strategic Posture of SME: Empirical Evidence. *In Journal of the Knowledge Economy* (Issue 0123456789). <https://doi.org/10.1007/s13132-024-01734-1>
- Öngel, V., Günsel, A., Gençer Çelik, G., Altındağ, E., & Tatlı, H. S. (2024). Digital Leadership's Influence on Individual Creativity and Employee Performance: A View through the Generational Lens. *Behavioral Sciences*, 14(1). <https://doi.org/10.3390/bs14010003>
- Osei, A., Osei Agyemang, A., Amoah, J., & Sulemana, I. (2023). Empirical study on the impact of working capital management on going concern of manufacturing firms in Ghana. *Cogent Business and Management*, 10(2). <https://doi.org/10.1080/23311975.2023.2218177>
- Ospina-Patiño, C., González-Ruiz, J. D., & Marín-Rodríguez, N. J. (2023). Sustainable Practices and Financial Performance in Latin America: An Analysis of Environmental Scores. *In Revista CEA* (Vol. 9, Issue 21). <https://doi.org/10.22430/24223182.2792>
- Parra-López, C., Ben Abdallah, S., Garcia-Garcia, G., Hassoun, A., Sánchez-Zamora, P., Trollman, H., Jagtap, S., & Carmona-Torres, C. (2024). Integrating digital technologies in agriculture for climate change adaptation and mitigation: State of the art and future perspectives. *Computers and Electronics in Agriculture*, 226(109412), 1–66. <https://doi.org/10.1016/j.compag.2024.109412>
- Pavlicko, M., Durica, M., & Mazanec, J. (2021). Ensemble model of the financial distress prediction in visegrad group countries. *Mathematics*, 9(16). <https://doi.org/10.3390/math9161886>
- Peretz-Andersson, E., Tabares, S., Mikalef, P., & Parida, V. (2024). Artificial intelligence implementation in manufacturing SMEs: A resource orchestration approach. *International Journal of Information Management*, 77(March), 102781. <https://doi.org/10.1016/j.ijinfomgt.2024.102781>
- Prudenzi, A., Gill, K., MacArthur, M., Hastings, O., Moukhtarian, T., Jadhakhan, F., Patel, K., Kershaw, C., Norton-Brown, E., Johnston, N., Daly, G., Russell, S., Thomson, L., Munir, F., Blake, H., Meyer, C., & Marwaha, S. (2024). Supporting employers and their employees with mental health conditions to remain engaged and productive at work (MENTOR): A feasibility randomised controlled trial. *Journal of Contextual Behavioral Science*, 31(December 2023), 100720. <https://doi.org/10.1016/j.jcbs.2023.100720>
- Purwanto, A., Purba, J. T., Bernarto, I., & Sijabat, R. (2021). Effect of Management Innovation, Transformational Leadership, and Knowledge Sharing on Market Performance of Indonesian Consumer Goods Company. *Jurnal Aplikasi Manajemen*, 19(2), 424–434. <https://doi.org/10.21776/ub.jam.2021.019.02.18>
- Pusung, C. S., Narsa, N. P. D. R. H., & Wardhaningrum, O. A. (2023). Innovation, Competitive Strategy and Msme Performance: a Survey Study on Culinary Smes in Indonesia During the Covid-19 Pandemic. *Business: Theory and Practice*, 24(1), 160–172. <https://doi.org/10.3846/btp.2023.16676>
- Rahmadhani, S., Faisal, F., Joseph, C., & Januarti, I. (2024). Corporate social responsibility

- and corporate investments: does research and development intensity matter? *Cogent Business and Management*, 11(1). <https://doi.org/10.1080/23311975.2024.2375618>
- Raman, R., Pattnaik, D., Achuthan, K., Hughes, L., Al-Busaidi, A. S., Dwivedi, Y. K., Ramesh, M. V., & Nedungadi, P. (2024). Mapping research in the Journal of Innovation & Knowledge to sustainable development goals. *Journal of Innovation and Knowledge*, 9(3), 100538. <https://doi.org/10.1016/j.jik.2024.100538>
- Ramdani, B., Chevers, D., & Williams, D. A. (2013). SMEs' adoption of enterprise applications: A technology-organisation-environment model. *Journal of Small Business and Enterprise Development*, 20(4), 735–753. <https://doi.org/10.1108/JSBED-12-2011-0035>
- Rehman Khan, S. A., Ahmad, Z., Sheikh, A. A., & Yu, Z. (2022). Digital transformation, smart technologies, and eco-innovation are paving the way toward sustainable supply chain performance. *Science Progress*, 105(4). <https://doi.org/10.1177/00368504221145648>
- Richards, S. (2023). McKinsey & Company: People and Organizational Performance Strategic Analysis.
- Ridwansyah, Y. S., & Anggraeni, 3, 2; Erike. (2023). JIMEA | Jurnal Ilmiah MEA (Manajemen , Ekonomi , dan Akuntansi). *Jurnal Ilmiah MEA (Manajemen, Ekonomi, Dan Akuntansi)*, 5(3), 494–512.
- Rufaidah, F., Karyani, T., Wulandari, E., & Setiawan, I. (2023). A Review of the Implementation of Financial Technology (Fintech) in the Indonesian Agricultural Sector: Issues, Access, and Challenges. *International Journal of Financial Studies*, 11(3). <https://doi.org/10.3390/ijfs11030108>
- Sarstedt, M., Ringle, C. M., & Hair, J. F. (2021). Partial least squares structural equation modeling. *In Handbook of market research* (pp. 587–632). Springer.
- Schneider, S., & Spieth, P. (2014). Business model innovation and strategic flexibility: Insights from an experimental research design. *International Journal of Innovation Management*, 18(6), 1–21. <https://doi.org/10.1142/S136391961440009X>
- Tabares, S., Dionisio, M., & Parida, V. (2025). Leveraging corporate social innovation by hybrid organizations: A strategic perspective from B Corps in Latin America. *Journal of Business Research*, 186(November 2022), 114945. <https://doi.org/10.1016/j.jbusres.2024.114945>
- Tajpour, M., Hosseini, E., & Mohiuddin, M. (2023). Effects of innovative climate, knowledge sharing, and communication on sustainability of digital start-ups: Does social media matter? *Journal of Open Innovation: Technology, Market, and Complexity*, 9(2), 100053. <https://doi.org/10.1016/j.joitmc.2023.100053>
- Tarighi, H., Zimon, G., Sheikh, M. J., & Sayrani, M. (2024). The Impact of Firm Risk and the COVID-19 Crisis on Working Capital Management Strategies: Evidence from a Market Affected by Economic Uncertainty. *Risks*, 12(4). <https://doi.org/10.3390/risks12040072>
- Teece, D. J. (2017). Dynamic capabilities and (digital) platform lifecycles. In *Entrepreneurship, innovation, and platforms* (Vol. 37, pp. 211–225). Emerald Publishing Limited.
- Triono, S. P. H., Rahayu, A., Wibowo, L. A., & Alamsyah, A. (2024). The Impact of Entrepreneurial Strategy on the Firm Performance of Indonesian Technology Startups.

- Jurnal Manajemen Indonesia*, 24(1), 84. <https://doi.org/10.25124/jmi.v24i1.7303>
- Wahyuningtyas, R., Disastra, G., & Rismayani, R. (2023). Toward cooperative competitiveness for community development in Economic Society 5.0. *Journal of Enterprising Communities*, 17(3), 594–620. <https://doi.org/10.1108/JEC-10-2021-0149>
- Wang, W., Huang, Z., Fu, Z., Jia, L., Li, Q., & Song, J. (2024). Impact of digital technology adoption on technological innovation in grain production. *Journal of Innovation and Knowledge*, 9(3), 100520. <https://doi.org/10.1016/j.jik.2024.100520>
- Wibowo, R. S., Alamsyah, A. R., & Rachmawati, I. K. (2023). The Effect of Fundamental Factors and Systematic Risk on the Return of LQ45 Shares Listed on the Indonesia Stock Exchange. *Quantitative Economics and Management Studies*, 4(2), 195–210. <https://doi.org/10.35877/454ri.qems1467>.