

## Connecting Heritage and High-Tech: Digital Strategy for Sustainable Growth in Indonesian Batik SMEs

M. Elfan Kaukab<sup>1\*)</sup>, Ali Akbar Anggara<sup>2)</sup>, Muhamad Agung Dharmajaya<sup>3)</sup>

<sup>1)</sup>Faculty of Economics and Business, Universitas Sains Al-Qur'an, Wonosobo, Indonesia

<sup>2)</sup>Centre for Public Policy, Management and Business Studies, GRI Institute, Purwokerto, Indonesia

<sup>3)</sup> Faculty of Economics and Business, Universitas Mathla'ul Anwar, Pandeglang, Indonesia

<sup>1\*)</sup>[elfan@unsiq.ac.id](mailto:elfan@unsiq.ac.id)

<sup>2)</sup>[aliakbarang@garudarisetid.co.id](mailto:aliakbarang@garudarisetid.co.id)

<sup>3)</sup>[agungdharma@unmabanten.ac.id](mailto:agungdharma@unmabanten.ac.id)

\*Corresponding Author

### Abstract

The batik industry represents an important component of Indonesia's cultural heritage and regional economy. However, increasing digital disruption requires batik small and medium-sized enterprises (SMEs) to strengthen their ability to reach customers, develop products, and respond to changing market conditions. This study examines the effect of digital marketing capabilities on business performance by investigating the mediating roles of ambidextrous innovation and market capitalization agility. Survey data were collected from 223 batik SMEs in Central Java and analyzed using structural equation modelling (SEM). The findings show that digital marketing capabilities significantly enhance exploitative innovation and market capitalization agility. These capabilities function as important mechanisms through which digital marketing contributes to improved business performance. In contrast, digital marketing capabilities do not have a significant direct effect on business performance, indicating that digital adoption alone is insufficient to generate superior outcomes. Performance improvements depend on firms' ability to translate digital marketing capabilities into innovation activities and agile market responses. This study contributes to the strategic fit and dynamic capabilities perspectives by integrating digital marketing capabilities, ambidextrous innovation, and market agility within a unified framework. Practically, batik SMEs should align digital marketing initiatives with continuous product refinement, commercialization, and rapid adaptation to market changes. The findings provide insights for strengthening the competitiveness and sustainability of heritage-based SMEs in the digital era.

**Keywords:** digital marketing capabilities, ambidextrous innovation, market capitalization agility, business performance, small and medium enterprises

## 1. INTRODUCTION

The batik industry is a prominent expression of Indonesia's cultural heritage and an important pillar of the national economy, largely driven by small and medium-sized enterprises (SMEs) (Musallami & Balushi, 2024). Beyond preserving traditional craftsmanship, batik SMEs support community livelihoods, strengthen social resilience, and sustain cultural identity. For these firms, achieving strong business performance is essential because it determines their long-term sustainability and competitiveness in domestic and international markets (Kathuria & Lucianetti, 2024; Nwokeocha, 2024). Improved performance allows batik SMEs to enhance production efficiency, reduce operating costs, and raise product quality, while also enabling investments in innovation, marketing capability, and talent development that underpin sector renewal (Kathuria & Lucianetti, 2024; Musallami & Balushi, 2024; Nwokeocha, 2024).

Economically, batik contributes to Indonesia's gross domestic product, generates export earnings, and creates large-scale employment. Prior evidence indicates that batik accounts for about 1.5% of national GDP, positioning it as a meaningful component of the textile and creative industries (Anis et al., 2020). The sector is estimated to include around 47,755 batik SMEs and to support more than 200,000 jobs, highlighting its role as a major employment generator, particularly in rural and semi-urban areas (Rahmawati & Rahadi, 2020). Batik also shows export potential, with reported exports of 2,117 tons in 2021 valued at roughly USD 35.46 million (Widiastuti & Sulistianingsih, 2023). Central Java is among the country's key production hubs,

with active clusters in areas such as Pekalongan, Surakarta, Yogyakarta, and Banyumas batik SMEs have reached overseas markets such as Japan, the Netherlands, and Singapore, illustrating the global relevance of Central Java's creative economy and the feasibility of aligning cultural preservation with economic sustainability.

As market dynamics become increasingly digital, the sustainability of batik SMEs depends on their ability to adapt to the evolving digital economy. Recent work emphasizes that entrepreneurial leadership, social capital, and digital literacy can strengthen SME sustainability through improved performance, especially when supported by government programs and business associations (Suprayitno et al., 2025). The revitalization of batik, once viewed as vulnerable to decline, also demonstrates the sector's resilience when innovation and broader social change are mobilized effectively (Famiola, 2021). Within this context, digital transformation has become a central strategic route for enhancing SME competitiveness. Importantly, digital transformation is not limited to adopting technologies; it requires a shift in managerial mindset and operating logic, in which digital capabilities are integrated with entrepreneurial and social resources to expand markets, stimulate innovation, and reinforce long-term outcomes (Putra et al., 2024; Wijaya & Suasih, 2020).

Integrated digital strategies, including e-commerce, social media marketing, and data analytics, can help batik SMEs broaden market access, deepen customer engagement, and communicate distinctive artistic value to wider audiences (Erkan et al., 2021; Putra et al., 2024; W. Zhang, 2023). These tools can enhance brand visibility and loyalty while generating insights into consumer behavior that support faster, more informed decisions and continuous marketing optimization (Cao et al., 2019; Putra et al., 2024). When implemented strategically, digital transformation can position batik SMEs to sustain competitiveness and innovate in a digitally mediated marketplace.

Nevertheless, evidence on whether digital marketing capabilities consistently improve SME performance remains mixed. While some studies report positive effects (Hawaldar et al., 2022; Khalil & Belitski, 2020; Ritz et al., 2019), others find weak, limited, or inconclusive relationships (Alanazi, 2022; Qiao & Liu, 2024; Ranjan, 2024). This inconsistency suggests that performance outcomes may depend on specific mechanisms and boundary conditions, particularly in heritage-based sectors such as batik. To clarify how digital strategies produce business gains, this study incorporates two mediating mechanisms: ambidextrous innovation and market capitalization agility.

Ambidextrous innovation includes exploitative and exploratory innovation. Exploitative innovation focuses on refining, improving, and optimizing existing products and processes to increase efficiency and satisfy current customer needs. Exploratory innovation, in contrast, emphasizes experimentation, new ideas, and emerging technologies to identify novel opportunities and support longer-term growth (Jansen et al., 2005). A balanced approach allows batik SMEs to deliver short-term performance improvements while building future readiness. In addition, market capitalization agility refers to a firm's capacity to respond rapidly to changing market conditions and capture emerging opportunities, which is especially critical in dynamic and competitive environments (Kalaigianam et al., 2021). Together, these mediators provide a more nuanced explanation of how digital marketing capabilities can be converted into sustained performance improvements.

Accordingly, this study aims to address the literature gap on digital marketing capabilities and batik SME performance by explicitly modeling ambidextrous innovation and market capitalization agility as key transmission mechanisms. The study advances theory by integrating digital marketing, innovation logics, and agility within a single framework that enriches strategic fit and dynamic capabilities explanations in traditional industries. Practically, the findings are expected to guide batik SMEs in optimizing digital marketing efforts, balancing near-term exploitation with longer-term exploration, and strengthening agility to respond to market shifts. These actions are fundamental to improving competitiveness and ensuring the sustainability of batik SMEs in both local and global markets.

## **2. LITERATURE REVIEW**

Building on prior work, this review explains how digital marketing capabilities, ambidextrous innovation, and organizational agility jointly shape the performance of batik SMEs.

### ***SME business performance***

Business performance reflects how effectively a firm achieves its objectives, commonly captured through financial outcomes, operational efficiency, market outcomes, and customer-related indicators. Firms rely on both quantitative measures (e.g., revenue growth, margins) and qualitative measures (e.g., customer satisfaction, employee engagement) to evaluate progress and guide strategic decisions (Taraku & Taraku, 2024; Williams et al., 2019; Ven et al., 2023). For SMEs, performance is especially critical given resource constraints and competitive pressure. Performance measurement helps SMEs diagnose weaknesses, adjust to market change, and build competitive advantage (Manongsong, 2023; Rahman et al., 2022). It can also strengthen motivation and engagement by linking individual contributions to outcomes, while improving reputation and customer retention (Zheng et al., 2021). Strong performance enhances profitability and liquidity, enabling SMEs to reinvest, innovate, and expand market reach, which supports firm survival and local economic development (Orobia et al., 2020; Sampaio et al., 2019; Williams et al., 2019).

### ***Digital marketing capabilities***

Strategic Fit theory argues that superior performance emerges when strategies align with internal capabilities and external market conditions (Maulana et al., 2023). In batik SMEs, digital marketing capability can enable this alignment by improving visibility and market access through social media, e-commerce, and search optimization, particularly as competition from mass-produced textiles intensifies (Dhungana, 2024; Silva, 2019). When digital initiatives support business goals, SMEs can deepen customer engagement and strengthen sustainable growth. Empirical work generally links digital marketing practices to stronger SME outcomes through better visibility, engagement, acquisition, and retention, although the strength of effects varies across settings (Dhungana, 2024; Khin & Ho, 2019; Yasri, 2020). Accordingly:

*H1: Digital marketing capabilities positively affect batik SMEs' business performance.*

Digital marketing capability is also positioned as a catalyst for innovation because it improves market sensing, targeting, and experimentation with digital solutions (Erhan et al., 2024; Vuttichat & Patchara, 2023). Strong digital marketing systems provide insights into customers, competitors, and trends that stimulate exploration of new opportunities (Newman et al., 2016), while also supporting exploitation by enabling faster refinement of existing products and offers (L. Li et al., 2018). Thus:

*H2: Digital marketing capabilities positively affect exploratory innovation.*

*H3: Digital marketing capabilities positively affect exploitative innovation.*

In addition, digital marketing capability can enhance market capitalization agility by enabling real-time responses to demand changes, faster decision-making, and better opportunity recognition through data-driven actions (Berbatovci & Buja, 2024; Chinakidzwa & Phiri, 2020). Hence:

*H4: Digital marketing capability positively affects market capitalization agility.*

### ***Ambidextrous innovation***

Ambidextrous innovation refers to a firm's ability to pursue exploration and exploitation simultaneously (Paiola et al., 2024). Exploratory innovation emphasizes new knowledge, novel products, and new markets, whereas exploitative innovation focuses on improving and extending existing offerings to meet current needs (Guo et al., 2022; Joensuu-Salo & Viljamaa, 2024). This balance is expected to strengthen agility because it improves responsiveness and strategic adjustment in dynamic conditions (Kristal et al., 2010; Tsai & Wang, 2017). Therefore:

*H5: Exploratory innovation positively affects market capitalization agility.*

*H6: Exploitative innovation positively affects market capitalization agility.*

Ambidextrous innovation is also linked to business performance because it combines incremental improvement with renewal, enhancing competitiveness and resilience (Blindenbach-Driessen et al., 2014; McDermott & Prajogo, 2012; C. Wang et al., 2020). Exploratory innovation can improve performance by generating new offerings aligned with shifting demand (Y. I. Li et al., 2010; Chen & Yu, 2022). Exploitative innovation can strengthen performance by improving efficiency and leveraging existing resources, including in export contexts and under knowledge constraints (Lisboa et al., 2011; Torugsa & O'Donohue, 2019). Thus:

*H7: Exploratory innovation positively affects business performance.*

*H8: Exploitative innovation positively affects business performance.*

Because digital marketing capability often precedes innovation outcomes, ambidextrous innovation is expected to transmit part of digital marketing's impact on performance (Chen & Yu, 2022; Joensuu-Salo & Viljamaa, 2024; Y. Wang et al., 2021). Hence:

*H9: Exploratory innovation mediates the effect of digital marketing capabilities on business performance.*

*H10: Exploitative innovation mediates the effect of digital marketing capabilities on business performance.*

### Market capitalization agility

Market capitalization agility captures a firm's capacity to detect market shifts, adjust positioning, and act quickly on opportunities (Krotov et al., 2015). Agile firms tend to translate e-commerce and technology capabilities into stronger outcomes through faster strategic decisions and adaptive responses (L. Li et al., 2020; Xie et al., 2022). Prior studies also position agility as a performance enhancer in volatile environments (Al-Omoush et al., 2020). Therefore:

*H11: Market capitalization agility positively affects business performance.*

*H12: Market capitalization agility mediates the effect of digital marketing capabilities on business performance.*

### Serial mediation logic

Evidence suggests that agility improves performance and that digital marketing capability can stimulate ambidextrous innovation, which in turn supports agility (Appelbaum et al., 2017; Sergeeva & Tayebhsadat, 2016; Joensuu-Salo, 2021). This supports a serial mechanism in which digital marketing capability builds innovation capability, which then enables agility, ultimately improving outcomes. Accordingly:

*H13: Exploratory innovation and market capitalization agility serially mediate the effect of digital marketing capabilities on business performance.*

*H14: Exploitative innovation and market capitalization agility serially mediate the effect of digital marketing capabilities on business performance.*

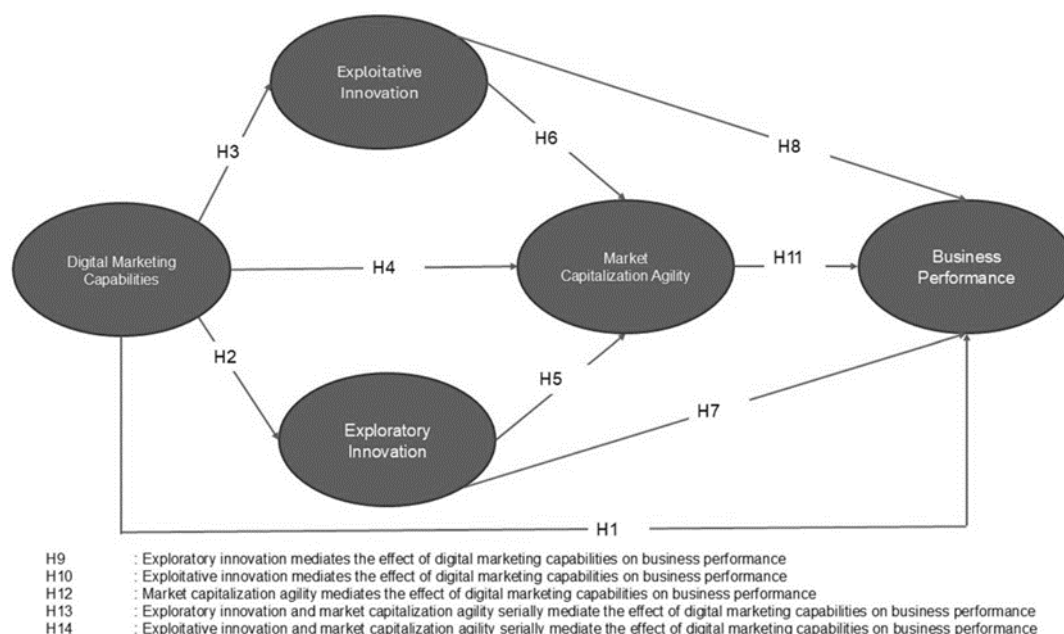


Figure 1. Research Model

### 3. RESEARCH METHOD

This study adopts a quantitative design using a structured survey, statistical testing, and covariance-based structural equation modeling (CB-SEM) to assess the proposed model and hypotheses (Sarstedt et al., 2016). This approach is widely used in business and management research to validate theoretical frameworks



and examine relationships among latent constructs (Hapsari et al., 2017; Hernández-Rojas et al., 2021; Hussein, 2018).

### ***Sampling procedure***

The study focuses on batik SMEs in Central Java, Indonesia, given batik's dual role as a culturally rooted craft and an economically significant industry. This context offers a relevant setting to examine how digital marketing capabilities relate to ambidextrous innovation, market capitalization agility, and business performance (Anis et al., 2020; Rahmawati & Rahadi, 2020). The target population comprised SMEs that both produce and sell batik through retail channels in Central Java. Because many SMEs operate informally and are not consistently registered, purposive sampling was applied. Eligible firms had operated for at least three consecutive years and were engaged in both batik production and sales. Of 250 questionnaires distributed, 233 usable responses were collected (93.2% response rate). The sample exceeded the minimum requirement based on the ten-times rule for 16 indicators ( $n \geq 160$ ) (Barclay et al., 1995). The unit of analysis was the firm, represented by the owner or the person responsible for operations. Data were gathered offline through trained surveyors via site visits between July and October 2024.

### ***Instrument development***

The questionnaire contained (1) respondent demographics and (2) measurement items for the study constructs. All indicators were adapted from prior studies and measured using a seven-point Likert scale (1 = strongly disagree; 7 = strongly agree). Business performance (5 items) was adapted from Maldonado-Guzmán et al. (2019); market capitalization agility (3 items) from Lu and Ramamurthy (2011); exploratory (2 items) and exploitative innovation (3 items) from Jansen et al. (2006); and digital marketing capabilities (3 items) from Chinakidzwa and Phiri (2020). Ethical clearance was obtained from the Research and Community Service Office, Faculty of Economics and Business, Universitas Brawijaya. Respondents received study information and provided documented verbal consent. No identifiable data were collected; responses were anonymized, stored securely with restricted access, retained for five years, and reported only in aggregate form.

### ***Data analysis***

CB-SEM was used because it is suitable for confirmatory testing of theory-driven models and allows estimation of complex structural relationships based on covariance structures (Afthanorhan et al., 2019; Sarstedt et al., 2016). Confirmatory factor analysis (CFA) was conducted prior to hypothesis testing. Model fit was evaluated using absolute (GFI, RMSEA), incremental (NFI, CFI), and parsimonious indices (normed chi-square, PGFI), applying common thresholds: GFI/NFI/CFI > 0.90, normed chi-square < 2.00, PGFI > 0.50, and RMSEA < 0.08 (Hair et al., 2018). Convergent validity was assessed via factor loadings (> 0.60) and AVE (> 0.50); discriminant validity via the Fornell–Larcker criterion; and reliability via composite reliability (> 0.70) (Sarstedt et al., 2022). Hypotheses were tested at the 5% significance level ( $t \geq 1.960$ ).

## **4. RESULT AND DISCUSSION**

### ***Respondent profiles***

This section reports the empirical results. It begins with respondents' demographic characteristics, then presents the CFA outcomes to confirm the measurement model's validity and reliability, and finally summarizes the structural model and hypothesis testing. As shown in Table 1, the sample is predominantly male (54%). Most respondents are high-school graduates (47%), the largest age group is 31–40 years (44%), and many have operated their businesses for 5–10 years (44%).

Table 1. Demographic profiles of respondents

| Variable          | Category      | n   | %    |
|-------------------|---------------|-----|------|
| Gender            | Male          | 122 | 54.8 |
|                   | Female        | 101 | 45.2 |
| Education         | High School   | 105 | 47.1 |
|                   | Diploma       | 13  | 5.8  |
|                   | Undergraduate | 84  | 37.6 |
|                   | Postgraduate  | 18  | 8.1  |
|                   | Doctoral      | 3   | 1.3  |
| Age               | 18–30         | 67  | 30.1 |
|                   | 31–40         | 98  | 43.9 |
|                   | 41–50         | 43  | 19.2 |
|                   | 51–60         | 11  | 4.9  |
|                   | >60           | 4   | 1.7  |
| Business Duration | < 5           | 23  | 10.3 |
|                   | 5–10          | 98  | 43.9 |
|                   | 10–15         | 66  | 29.6 |
|                   | 15–20         | 18  | 8.1  |
|                   | > 20          | 18  | 8.1  |

### Confirmatory factor analysis

A CFA was performed to verify the measurement model prior to hypothesis testing. The initial specification showed inadequate fit, so refinement was conducted by removing DMC4 and DMC5 and allowing correlated error terms between BP4 and BP5. The revised model demonstrated acceptable fit ( $\chi^2/df = 1.572$ ; GFI = 0.925; PGFI = 0.632; RMSEA = 0.051; NFI = 0.940; CFI = 0.977). Item loadings ranged from 0.640 to 0.930 and AVE values from 0.534 to 0.783, supporting convergent validity. Discriminant validity was confirmed using the Fornell–Larcker criterion, as the square root of AVE for each construct exceeded its inter-construct correlations. Composite reliability values (0.841–0.927) indicated strong internal consistency. Table 2 and Table 3 summarizes these measurement results.

Table 2. Measurement analysis

| Construct                            | Measurement items                                                                                           | Estimate (loading) | AVE   | CR    |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------|--------------------|-------|-------|
| Digital Marketing Capabilities (DMC) | My business is able to develop creative marketing strategies by utilizing digital media.                    | 0.870              | 0.696 | 0.872 |
|                                      | My business studies competitors' strategies through digital media to imitate or improve upon their actions. | 0.814              |       |       |
|                                      | My business actively identifies market trends using digital media.                                          | 0.818              |       |       |
| Market Capitalization Agility (MCA)  | My business views market changes as opportunities to gain profits quickly.                                  | 0.856              | 0.640 | 0.841 |
|                                      | My business always strives to find ways to innovate in order to serve the market better.                    | 0.823              |       |       |
|                                      | In facing market changes, my batik business can quickly implement appropriate decisions.                    | 0.716              |       |       |
| Business Performance (BP)            | Over the past year, the profitability of my batik business has continued to improve.                        | 0.904              | 0.722 | 0.927 |

| Construct                     | Measurement items                                                                        | Estimate (loading) | AVE   | CR    |
|-------------------------------|------------------------------------------------------------------------------------------|--------------------|-------|-------|
| Exploratory Innovation (EXy)  | Over the past year, the number of products sold has continued to increase.               | 0.871              | 0.783 | 0.878 |
|                               | Over the past year, sales results of my batik business have continuously increased.      | 0.887              |       |       |
|                               | Over the past year, the number of customers of my batik business has continuously grown. | 0.885              |       |       |
|                               | Over the past year, the sales area of my batik business has continued to expand.         | 0.682              |       |       |
|                               | My business actively approaches new consumers in new markets.                            | 0.930              |       |       |
| Exploitative Innovation (EXv) | My business often uses new distribution channels.                                        | 0.838              | 0.534 | 0.773 |
|                               | My business often experiments with new products and services.                            | 0.816              |       |       |
|                               | My batik business is always oriented toward reducing production costs.                   | 0.640              |       |       |
|                               | My batik business frequently improves existing products and services.                    | 0.727              |       |       |

Table 3. Fornell and Larcker Criterion

|            | DMC           | MCA         | BP           | EXy          | EXv          |
|------------|---------------|-------------|--------------|--------------|--------------|
| <b>DMC</b> | <b>0.8342</b> |             |              |              |              |
| <b>MCA</b> | 0.522         | <b>0.80</b> |              |              |              |
| <b>BP</b>  | 0.500         | 0.361       | <b>0.849</b> |              |              |
| <b>EXy</b> | 0.455         | 0.260       | 0.268        | <b>0.884</b> |              |
| <b>EXv</b> | 0.437         | 0.276       | 0.290        | 0.405        | <b>0.730</b> |

Abbreviations: DMC = Digital Marketing Capabilities; MCA = Market Capitalization Agility; BP = Business Performance; EXy = Exploratory Innovation; EXv = Exploitative Innovation.

### Hypothesis testing

The structural model met recommended fit standards ( $\chi^2/df = 1.572$ ; GFI = 0.925; PGFI = 0.632; RMSEA = 0.051; NFI = 0.940; CFI = 0.977), enabling hypothesis testing (Table 4). Of the fourteen hypotheses, seven were supported and seven were not supported. The results show that market capitalization agility and exploitative innovation have significant positive direct effects on business performance. Digital marketing capabilities positively influence market capitalization agility and also strengthen ambidextrous innovation, with significant effects on both exploitative and exploratory innovation. In addition, the mediation analysis indicates a serial indirect pathway in which digital marketing capabilities improve business performance through exploitative innovation followed by market capitalization agility.

Table 4. Results from hypothesis testing

| Hypothesis | Path      | Coefficient | t-statistic | p-value | Remarks       |
|------------|-----------|-------------|-------------|---------|---------------|
| H1         | DMC → BP  | 0.122       | 1.750       | 0.080   | Not Supported |
| H2         | DMC → EXy | 0.369       | 6.089       | 0.000   | Supported     |
| H3         | DMC → EXv | 0.262       | 5.481       | 0.000   | Supported     |
| H4         | DMC → MCA | 0.152       | 2.417       | 0.016   | Supported     |
| H5         | EXy → MCA | 0.119       | 1.817       | 0.069   | Not Supported |
| H6         | EXv → MCA | 0.535       | 4.921       | 0.000   | Supported     |
| H7         | EXy → BP  | 0.010       | 0.136       | 0.892   | Not Supported |

| Hypothesis | Path                             | Coefficient | t-statistic | p-value | Remarks       |
|------------|----------------------------------|-------------|-------------|---------|---------------|
| H8         | EX <sub>v</sub> → BP             | 0.263       | 2.045       | 0.041   | Supported     |
| H9         | DMC → EX <sub>y</sub> → BP       | 0.004       | NA          | 0.923   | Not Supported |
| H10        | DMC → EX <sub>v</sub> → BP       | 0.069       | NA          | 0.135   | Not Supported |
| H11        | MCA → BP                         | 0.599       | 5.592       | 0.000   | Supported     |
| H12        | DMC → MCA → BP                   | 0.091       | NA          | 0.098   | Not Supported |
| H13        | DMC → EX <sub>y</sub> → MCA → BP | 0.026       | NA          | 0.199   | Not Supported |
| H14        | DMC → EX <sub>v</sub> → MCA → BP | 0.084       | NA          | 0.001   | Supported     |

Several proposed links were not confirmed. Digital marketing capabilities did not significantly predict exploratory innovation, and exploratory innovation did not significantly affect either business performance or market capitalization agility. Some mediation paths involving ambidextrous innovation and market capitalization agility were also not supported.

Overall, the findings suggest that, in batik SMEs, performance improvements are driven mainly by exploitative innovation and market capitalization agility. Exploitative innovation appears to deliver more immediate returns because it focuses on refining existing products and improving operational processes, which is particularly relevant for resource-constrained SMEs (Ullah et al., 2023). Market capitalization agility also emerged as a key success factor, highlighting the importance of responding quickly to market shifts and converting opportunities into action.

The results further indicate that digital marketing capabilities function as strategic enablers rather than direct performance drivers. Stronger digital marketing capabilities enhance market capitalization agility and support innovation activities by improving access to customer insights, trend signals, and real-time feedback (Herhausen et al., 2020; Ritz et al., 2019; Yasri, 2020). Importantly, the study identifies a sequential mechanism: digital marketing capabilities strengthen exploitative innovation, which then enhances market capitalization agility, ultimately improving business performance. This pathway clarifies why the effect of digital capability on performance is often indirect and process-based rather than immediate.

At the same time, the non-significant role of exploratory innovation suggests that more radical innovation may require additional organizational conditions (e.g., risk tolerance, culture, collaboration) and may generate benefits over a longer horizon, making short-term performance effects harder to detect (Jansen et al., 2006; Rubera & Kirca, 2012; Deng et al., 2023). These results imply that future studies should examine boundary conditions and alternative mechanisms, potentially using longitudinal or qualitative designs.

Theoretically, this study extends Strategic Fit Theory by showing that digital marketing capabilities contribute to SME performance only when aligned with innovation processes and market responsiveness. It also refines innovation arguments in SMEs by demonstrating that exploitative innovation, not exploratory innovation, is the primary direct driver of performance in this context. In addition, introducing market capitalization agility as a central mechanism strengthens a process-oriented view of how digital capabilities translate into outcomes, particularly through the identified serial pathway from capability to innovation to agility.

Practically, the results suggest three priorities for batik SME managers. First, emphasize exploitative innovation by upgrading existing products and processes (e.g., improving best-selling motifs, production quality, service routines) to generate near-term gains. Second, invest in digital marketing competencies such as social media execution, analytics, CRM, and e-commerce to strengthen customer insight and responsiveness. Third, build routines that accelerate decision-making and experimentation based on real-time market signals. While exploratory innovation was not directly linked to performance, SMEs may still pursue it selectively, ideally supported by external ecosystems (government programs, associations, universities) to reduce risk and cost.



## **5. CONCLUSION**

This study examined whether digital marketing capabilities (DMC) improve the business performance of batik SMEs through innovation and market capitalization agility. The results show that DMC does not have a direct effect on performance. Instead, performance gains occur when DMC is translated into innovative action and agile market responses, indicating that digital transformation delivers value only when it strengthens exploration and adaptive responsiveness to market change. The findings align with Strategic Fit Theory, highlighting that capabilities create value when they are aligned with innovation and environmental demands. They also support the Dynamic Capabilities view, suggesting that SMEs that embed digital tools into innovation routines are better able to sense and seize opportunities in uncertain markets. From a practical standpoint, batik SME owners and policymakers should prioritize integrated digital strategies that build digital literacy, strengthen data-driven marketing, and support agile business models to sustain competitiveness.

Several limitations should be noted. The use of non-probability sampling and the focus on CEntral Java may limit generalizability to other regions and contexts. The industry-specific setting also constrains transferability to other sectors. Differences in firms' digital resources may shape outcomes, particularly for smaller enterprises with limited access to advanced tools. In addition, measuring ambidextrous innovation and market capitalization agility remains challenging due to limited standardization. Future research should broaden coverage to other regions and countries, apply more rigorous sampling, and use longitudinal designs to capture changes over time. Comparative studies across traditional industries could test external validity, while further work could examine emerging technologies (e.g., AI and machine learning), incorporate customer perspectives, and assess how policy interventions influence digital transformation outcomes.

Bagian ini berisi kesimpulan yang mengidikasikan secara jelas hasil-hasil yang diperoleh, kelebihan dan kekurangannya. Kesimpulan dapat berupa paragraf, dan juga bisa berbentuk poin-poin dengan menggunakan numbering. Pada bagian ini juga dapat ditambahkan mengenai kemungkinan pengembangan selanjutnya.

## **REFERENCES**

- Afthanorhan, A., Awang, Z., Rashid, N., Foziah, H., & Ghazali, P. L. (2019). Assessing the effects of service quality on customer satisfaction. *Management Science Letters*, 9, 13–24. <https://doi.org/10.5267/j.msl.2018.11.004>
- Alanazi, T. M. (2022). Marketing 5.0: An empirical investigation of its perceived effect on marketing performance. *Marketing and Management of Innovations*, 13(4), 55–64. <https://doi.org/10.21272/mmi.2022.4-06>
- Al-Omoush, K. S., Simón-Moya, V., & Sendra-García, J. (2020). The impact of social capital and collaborative knowledge creation on e-business proactiveness and organizational agility in responding to the COVID-19 crisis. *Journal of Innovation & Knowledge*, 5(4), 279–288. <https://doi.org/10.1016/j.jik.2020.10.002>
- Anis, M., Fanani, Z., Yanuwadi, B., & Sugiono, S. (2020). The performance improvement of batik craftsmen based on organizational culture, work motivation, and work satisfaction factors [Conference presentation]. <https://doi.org/10.4108/eai.23-10-2019.2293063>
- Appelbaum, S. H., Calla, R., Desautels, D., & Hasan, L. N. (2017). The challenges of organizational agility (Part 1). *Industrial and Commercial Training*, 49(1), 6–14. <https://doi.org/10.1108/ICT-05-2016-0027>
- Barclay, D., Thompson, R., & Higgins, C. (1995). The partial least squares (PLS) approach to causal modeling: Personal computer use as an illustration. *Technology Study*, 2(2), 285–309.
- Berbatovci, I., & Buja, S. (2024). Impact of digital marketing on the growth of SME manufacturing businesses in Kosovo. *Asian Economic and Financial Review*, 14(7), 527–544. <https://doi.org/10.55493/5002.v14i7.5131>
- Blindenbach-Driessen, F., & van den Ende, J. (2014). The locus of innovation: The effect of a separate innovation unit on exploration, exploitation, and ambidexterity in manufacturing and service firms. *Journal of Product Innovation Management*, 31(5), 1089–1105. <https://doi.org/10.1111/jpim.12146>

- Cao, G., Duan, Y., & Banna, A. E. (2019). A dynamic capability view of marketing analytics: Evidence from UK firms. *Industrial Marketing Management*, 76, 72–83. <https://doi.org/10.1016/j.indmarman.2018.08.002>
- Chen, S., & Yu, D. (2022). The impacts of ambidextrous innovation on organizational obsolescence in turbulent environments. *Kybernetes*, 51(3), 1009–1037. <https://doi.org/10.1108/K-08-2020-0514>
- Chinakidzwa, M., & Phiri, M. A. (2020). Impact of digital marketing capabilities on market performance of small to medium enterprise agro-processors in Harare, Zimbabwe. *Business: Theory and Practice*, 21(2), 746–757. <https://doi.org/10.3846/btp.2020.12149>
- Deng, X., Li, J., Huang, Y., & Wang, L. (2023). How is paradoxical leadership linked to exploratory innovation? *Journal of Organizational and End User Computing*, 35(1), 1–14. <https://doi.org/10.4018/JOEUC.326766>
- Dhungana, D. P. (2024). Impact of digital marketing on business performance of small and medium businesses in Birendranagar. *Surkhet*, 6(1), 198–209. <https://doi.org/10.3126/jnmr.v6i1.72097>
- Erhan, T. P., Doorn, S., Van Japutra, A., & Ekaputra, I. A. (2024). Digital marketing innovation and firm performance: The role of decision-making comprehensiveness in dynamic environments. *Asia Pacific Journal of Marketing and Logistics*, 36(2), 435–456. <https://doi.org/10.1108/APJML-01-2023-0097>
- Erkan, İ., Gökerik, M., & Açıkgöz, F. (2021). The impacts of Facebook ads on brand image, brand awareness, and brand equity. In *Research anthology on strategies for using social media as a service and tool in business* (pp. 647–667). IGI Global. <https://doi.org/10.4018/978-1-7998-9020-1.ch033>
- Famiola, M. (2021). The social constructivism of entrepreneurial process in SMEs revitalization: A case of batik industry in Indonesia. *Academy of Entrepreneurship Journal*, 27(4), 1–11.
- Gerstberger, W. (2021). Balance of cross-functional collaboration and stretch and its interaction with firms' innovation performance. *Journal of Innovation Management*, 9(3), 58–70. [https://doi.org/10.24840/2183-0606\\_009.003\\_0004](https://doi.org/10.24840/2183-0606_009.003_0004)
- Guo, J., Zhang, Y., & Cui-Zhen, C. (2022). Research on the driven path of ambidextrous innovation of science and technology enterprises: An exploration based on fuzzy set qualitative comparative analysis. *Mathematical Problems in Engineering*, 2022, 1–13. <https://doi.org/10.1155/2022/6173263>
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2018). *Multivariate data analysis* (8th ed.). Cengage Learning.
- Hapsari, R., Clemes, M., & Dean, D. (2017). The impact of service quality, customer engagement and selected marketing constructs on airline passenger loyalty. *International Journal of Quality and Service Sciences*, 9(1), 21–40. <https://doi.org/10.1108/IJQSS-07-2016-0048>
- Hawaladar, I. T., Ullal, M. S., Sarea, A., Mathukutti, R. T., & Joseph, N. R. (2022). The study on digital marketing influences on sales for B2B start-ups in South Asia. *Journal of Open Innovation: Technology, Market, and Complexity*, 8(1), 23. <https://doi.org/10.3390/joitmc8010023>
- Herhausen, D., Miočević, D., Morgan, R. E., & Kleijnen, M. (2020). The digital marketing capabilities gap. *Industrial Marketing Management*, 90, 276–290. <https://doi.org/10.1016/j.indmarman.2020.07.022>
- Hernández-Rojas, R. D., del Río, J. A. J., Fernández, A. I., & Vergara-Romero, A. (2021). The cultural and heritage tourist: SEM analysis: The case of The Citadel of the Catholic King. *Heritage Science*, 9(1), 1–19. <https://doi.org/10.1186/s40494-021-00525-0>
- Hussein, A. S. (2018). Effects of brand experience on brand loyalty in Indonesian casual dining restaurant: Roles of customer satisfaction and brand of origin. *Tourism and Hospitality Management*, 24(1), 119–132. <https://doi.org/10.20867/thm.24.1.4>
- Jansen, J. J. P., Van den Bosch, F. A. J., & Volberda, H. W. (2005). Exploratory innovation, exploitative innovation, and ambidexterity: The impact of environmental and organizational antecedents. *Schmalenbach Business Review*, 57(4), 351–363. <https://doi.org/10.1007/BF03396721>
- Jansen, J. J. P., Van den Bosch, F. A. J., & Volberda, H. W. (2006). Exploratory innovation, exploitative innovation, and performance: Effects of organizational antecedents and environmental moderators. *Management Science*, 52(11), 1661–1674. <https://doi.org/10.1287/mnsc.1060.0576>
- Joensuu-Salo, S. (2021). The role of digital orientation and market orientation in generating marketing capability in SMEs. In *Proceedings of the European Conference on Innovation and Entrepreneurship (ECIE)* (pp. 460–467). <https://doi.org/10.34190/ecie.21.012>

- Joensuu-Salo, S., & Viljamaa, A. (2024). The relationship between digital orientation, organizational ambidexterity, and growth strategies of rural SMEs in time of crisis. *The International Journal of Entrepreneurship and Innovation*, 25(2), 128–141. <https://doi.org/10.1177/14657503241245560>
- Kalaighnam, K., Tuli, K. R., Kushwaha, T., Lee, L., & Gal, D. (2021). Marketing agility: The concept, antecedents, and a research agenda. *Journal of Marketing*, 85(1), 35–58. <https://doi.org/10.1177/0022242920952760>
- Kathuria, R., & Lucianetti, L. (2024). Aligning performance metrics with business strategy. *Management Decision*, 62(5), 1539–1559. <https://doi.org/10.1108/MD-02-2023-0184>
- Khalil, S., & Belitski, M. (2020). Dynamic capabilities for firm performance under the information technology governance framework. *European Business Review*, 32(2), 129–157. <https://doi.org/10.1108/EBR-05-2018-0102>
- Khin, S., & Ho, T. C. F. (2019). Digital technology, digital capability and organizational performance. *International Journal of Innovation Science*, 11(2), 177–195. <https://doi.org/10.1108/IJIS-08-2018-0083>
- Kristal, M. M., Huang, X., & Roth, A. V. (2010). The effect of an ambidextrous supply chain strategy on combinative competitive capabilities and business performance. *Journal of Operations Management*, 28(5), 415–429. <https://doi.org/10.1016/j.jom.2009.12.002>
- Krotov, V., Junglas, I., & Steel, D. J. (2015). The mobile agility framework: An exploratory study of mobile technology enhancing organizational agility. *Journal of Theoretical and Applied Electronic Commerce Research*, 10(3), 1–17. <https://doi.org/10.4067/S0718-18762015000300002>
- Li, L., Lin, J., Turel, O., Liu, P., & Luo, X. (2020). The impact of e-commerce capabilities on agricultural firms' performance gains: The mediating role of organizational agility. *Industrial Management & Data Systems*, 120(7), 1265–1286. <https://doi.org/10.1108/IMDS-08-2019-0421>
- Li, L., Su, F., Zhang, W., & Mao, J.-Y. (2018). Digital transformation by SME entrepreneurs: A capability perspective. *Information Systems Journal*, 28(6), 1129–1157. <https://doi.org/10.1111/isj.12153>
- Li, Y. I., Zhou, N., & Si, Y. (2010). Exploratory innovation, exploitative innovation, and performance. *Nankai Business Review International*, 1(3), 297–316. <https://doi.org/10.1108/20408741011069223>
- Lisboa, A., Skarmeas, D., & Lages, C. (2011). Entrepreneurial orientation, exploitative and explorative capabilities, and performance outcomes in export markets: A resource-based approach. *Industrial Marketing Management*, 40(8), 1274–1284. <https://doi.org/10.1016/j.indmarman.2011.10.013>
- Lu, Y., & Ramamurthy, K. (2011). Understanding the link between information technology capability and organizational agility: An empirical examination. *MIS Quarterly*, 35(4), 931–954. <https://doi.org/10.2307/41409967>
- Maldonado-Guzmán, G., Garza-Reyes, J. A., Pinzón-Castro, S. Y., & Kumar, V. (2019). Innovation capabilities and performance: Are they truly linked in SMEs? *International Journal of Innovation Science*, 11(1), 48–62. <https://doi.org/10.1108/IJIS-12-2017-0139>
- Manongsong, J. L. (2023). Business processes, internal control systems and business performance: Basis for sustainable business operation framework. *International Journal of Research Studies in Management*, 11(13), 67–77. <https://doi.org/10.5861/ijrsm.2023.1164>
- Maulana, Y. M., Azmi, Z. R. M., & Arshah, R. A. (2023). Modeling of strategic alignment to modify TOGAF architecture development method based on business strategy model. *International Journal on Advanced Science, Engineering and Information Technology*, 13(1), 180–185. <https://doi.org/10.18517/ijaseit.13.1.16565>
- McDermott, C., & Prajogo, D. (2012). Service innovation and performance in SMEs. *International Journal of Operations & Production Management*, 32(2), 216–237. <https://doi.org/10.1108/01443571211208632>
- Musallami, N. H. S. A. L., & Balushi, I. S. A. L. (2024). Study on SME financing and their impact on the firms' financial performance in Oman. *International Journal of Academic Research in Business and Social Sciences*, 14(1), 491–508. <https://doi.org/10.6007/IJARBS/v14-i1/20467>
- Newman, A., Prajogo, D., & Atherton, A. (2016). The influence of market orientation on innovation strategies. *Journal of Service Theory and Practice*, 26(1), 72–90. <https://doi.org/10.1108/JSTP-02-2015-0044>
-

- Nwokeocha, I. (2024). Total quality management in media outfits and organizational performance. *International Journal of Economic, Finance and Business Statistics*, 2(1), 31–42. <https://doi.org/10.59890/ijefbs.v2i1.1383>
- Orobia, L., Tusiime, I., Mwesigwa, R., & Ssekiziyivu, B. (2020). Entrepreneurial framework conditions and business sustainability among the youth and women entrepreneurs. *Asia Pacific Journal of Innovation and Entrepreneurship*, 14(1), 60–75. <https://doi.org/10.1108/APJIE-07-2019-0059>
- Paiola, M., Grandinetti, R., & Schiavone, F. (2024). Business model innovation and ambidexterity in Industry 4.0. *Sinergie Italian Journal of Management*, 42(1), 71–94. <https://doi.org/10.7433/s123.2024.04>
- Putra, R., Nerisafitra, P., & Abidin, A. (2024). Implementation of SDG 9: Innovation in the Indonesian batik industry through business digitalisation. *Journal of Lifestyle and SDGs Review*, 5(2), e03433. <https://doi.org/10.47172/2965-730X.SDGsReview.v5.n02.pe03433>
- Qiao, R., & Liu, L. (2024). Why and when does digital business strategy help manufacturers generate value co-creation with different stakeholders? *Industrial Management & Data Systems*, 124(5), 2042–2065. <https://doi.org/10.1108/IMDS-12-2023-0963>
- Rahman, M. S., Hossain, M. A., & Fattah, F. A. M. A. (2022). Does marketing analytics capability boost firms' competitive marketing performance in data-rich business environment? *Journal of Enterprise Information Management*, 35(2), 455–480. <https://doi.org/10.1108/JEIM-05-2020-0185>
- Rahmawati, D., & Rahadi, R. A. (2020). An appropriate business strategy for small medium enterprises: A case study of Pikel Indonesia. *Malaysian Management Journal*, 23, 99–114. <https://doi.org/10.32890/mmj.23.2019.9687>
- Ranjan, P. (2024). Different countries, different institutions: How do brand-oriented SMEs leverage branding capabilities to boost export performance? *International Marketing Review*, 41(2), 562–589. <https://doi.org/10.1108/IMR-08-2023-0207>
- Rapaccini, M., Paiola, M., Cinquini, L., & Giannetti, R. (2023). Digital servitization journey in small- and medium-sized enterprises: The contribution of knowledge-intensive business firms. *Journal of Business & Industrial Marketing*, 38(6), 1362–1375. <https://doi.org/10.1108/JBIM-01-2022-0008>
- Ritz, W., Wolf, M., & McQuitty, S. (2019). Digital marketing adoption and success for small businesses. *Journal of Research in Interactive Marketing*, 13(2), 179–203. <https://doi.org/10.1108/JRIM-04-2018-0062>
- Rubera, G., & Kirca, A. H. (2012). Firm innovativeness and its performance outcomes: A meta-analytic review and theoretical integration. *Journal of Marketing*, 76(3), 130–147. <https://doi.org/10.1509/jm.10.0494>
- Sampaio, C., Mogollón, J. M. H., & Rodrigues, R. G. (2019). The relationship between market orientation, customer loyalty and business performance: A sample from the Western Europe hotel industry. *Tourism and Hospitality Research*, 20(2), 131–143. <https://doi.org/10.1177/1467358419829179>
- Sarstedt, M., Hair, J. F., Ringle, C. M., Thiele, K. O., & Gudergan, S. P. (2016). Estimation issues with PLS and CB-SEM: Where the bias lies! *Journal of Business Research*, 69(10), 3998–4010. <https://doi.org/10.1016/j.jbusres.2016.06.007>
- Sarstedt, M., Ringle, C. M., & Hair, J. F. (2022). Partial least squares structural equation modeling. In C. Homburg, M. Klarmann, & A. Vomberg (Eds.), *Handbook of market research* (pp. 587–632). Springer International Publishing. [https://doi.org/10.1007/978-3-319-57413-4\\_15](https://doi.org/10.1007/978-3-319-57413-4_15)
- Sergeeva, I., & Tayebhsadat, T. (2016). The impact of financial market on industry growth: Evidence from Russia and Iran. *Perm University Herald. Economy*, 4(31), 66–73. <https://doi.org/10.17072/1994-9960-2016-4-66-73>
- Silva, T. M. D. (2019). Building relationships through customer engagement in Facebook brand pages. *Marketing Intelligence & Planning*, 38(6), 713–729. <https://doi.org/10.1108/MIP-02-2019-0085>
- Suprayitno, Dwiatmadja, C., & Suharti, L. (2025). Factors affecting batik SME performance and sustainability: The role of government support and business associations. *Problems and Perspectives in Management*, 23(1), 249–262. [https://doi.org/10.21511/ppm.23\(1\).2025.19](https://doi.org/10.21511/ppm.23(1).2025.19)
- Taraku, E., & Taraku, A. (2024). Business performance in Albania. *Interdisciplinary Journal of Research and Development*, 11(3), 126. <https://doi.org/10.56345/ijrdv11n317>
-



- Torugsa, N., & O'Donohue, W. (2019). Managing knowledge-related barriers to technological innovation through exploitative and explorative organisational strategies. *International Journal of Innovation Management*, 23(4), 1950035. <https://doi.org/10.1142/S136391961950035X>
- Tsai, M. C., & Wang, C. (2017). Linking service innovation to firm performance. *Chinese Management Studies*, 11(4), 730–750. <https://doi.org/10.1108/CMS-03-2017-0045>
- Ullah, S., Majeed, A., & Popp, J. (2023). Determinants of bank's efficiency in an emerging economy: A data envelopment analysis approach. *PLOS ONE*, 18(3), e0281663. <https://doi.org/10.1371/journal.pone.0281663>
- Van der Ven, M., Machado, P. L., Athanasopoulou, A., Aysolmaz, B., & Türetken, O. (2023). Performance indicators for business models. *Journal of Business Models*, 11(1), 38–57. <https://doi.org/10.54337/jbm.v11i1.7177>
- Vuttichat, S., & Patchara, P. (2023). Causal relationship model of marketing innovation and competitiveness of small and medium enterprises (SMEs) with digital technologies in Thailand. *F1000Research*, 12, 1040. <https://doi.org/10.12688/f1000research.138941.1>
- Wang, C., Chin, T., & Lin, J.-H. (2020). Openness and firm innovation performance: The moderating effect of ambidextrous knowledge search strategy. *Journal of Knowledge Management*, 24(2), 301–323. <https://doi.org/10.1108/JKM-04-2019-0198>
- Wang, Y., Sun, H., Jia, T., & Chen, J. (2021). The impact of buyer–supplier interaction on ambidextrous innovation and business performance: The moderating role of competitive environment. *The International Journal of Logistics Management*, 32(2), 673–695. <https://doi.org/10.1108/IJLM-05-2019-0141>
- Widiastuti, A., & Sulistianingsih, D. (2023). The ability of environmental law to enforce violations committed by batik entrepreneurs [Conference presentation]. <https://doi.org/10.4108/eai.27-7-2022.2342458>
- Wijaya, P. Y., & Suasih, N. N. R. (2020). The effect of knowledge management on competitive advantage and business performance: A study of silver craft SMEs. *Entrepreneurial Business and Economics Review*, 8(4), 105–121. <https://doi.org/10.15678/EBER.2020.080406>
- Williams, R. I., Pieper, T. M., Kellermanns, F. W., & Astrachan, J. (2019). Applying an organizational effectiveness approach to measure family business performance. *Journal of Family Business Management*, 9(3), 349–374. <https://doi.org/10.1108/JFBM-01-2019-0002>
- Xiao-Yong, Z. (2024). How does a firm's digital business strategy affect its innovation performance? An investigation based on knowledge-based dynamic capability. *Journal of Knowledge Management*, 28(8), 2324–2356. <https://doi.org/10.1108/JKM-05-2023-0410>
- Xie, C., Xu, X., Gong, Y., & Xiong, J. (2022). Big data analytics capability and business alignment for organizational agility. *Journal of Global Information Management*, 30(1), 1–27. <https://doi.org/10.4018/JGIM.302915>
- Yasri, Y. (2020). Digital marketing and SMEs' performance in West Sumatera. *Economica*, 9(1), 95–106. <https://doi.org/10.22202/economica.2020.v9.i1.4413>
- Zhang, W. (2023). The method of analysing the role of influencer marketing on improving brand reputation in ecommerce sector in China. *Information Systems and Economics*, 4(9), 1–11. <https://doi.org/10.23977/infse.2023.040911>
- Zheng, M., Zada, I., Shahzad, S., Iqbal, J., Shafiq, M., Zeeshan, M., & Ali, A. (2021). Key performance indicators for the integration of the service-oriented architecture and Scrum process model for IoT. *Scientific Programming*, 2021, 1–11. <https://doi.org/10.1155/2021/>
-