DANADYAKSA
POST MODERN ECONOMY JOURNAL

Vol. 4 No. 1, (2026), 1770–1784 e-ISSN: 3025-8545

# THE INFLUENCE OF SUSTAINABLE OMNICHANNEL OPERATIONS ON MSMES' SUSTAINABLE PERFORMANCE: THE MEDIATING ROLE OF BIG DATA ANALYTICS CAPABILITY AND DYNAMIC CAPABILITIES

**Muhammad Yofie Pratama**[1]
**Universitas Islam Indonesia, Yogyakarta, Indonesia**
22311487@students.uii.ac.id

**Siti Nursyamsiah**[2]
**Universitas Islam Indonesia, Yogyakarta, Indonesia**
siti.nursyamsiah@uii.ac.id

**Abstract**

This study examines the effect of Sustainable Omnichannel Operations (SOO) on Sustainable Performance (SP) among Micro, Small, and Medium Enterprises (MSMEs) in Indonesia through the mediating roles of Big Data Analytics Capability (BDAC) and Dynamic Capabilities (DC). A quantitative approach was employed using Structural Equation Modeling–Partial Least Squares (SEM-PLS) with data collected from 331 MSME owners and managers implementing integrated online and offline sales channels. The findings reveal that SOO positively and significantly affects BDAC, DC, and Sustainable Performance. In addition, BDAC positively influences both DC and Sustainable Performance and successfully mediates the relationships between SOO–DC and SOO–SP. However, Dynamic Capabilities were found to have no significant effect on Sustainable Performance and failed to mediate the relationships involving Sustainable Performance. These findings indicate that MSMEs' sustainable performance is more strongly influenced by data-driven analytical capability than by organizational adaptability alone. This study contributes to the sustainable digital transformation literature by providing empirical evidence on the integrated relationships among SOO, BDAC, DC, and Sustainable Performance within the MSME context.

**Keywords**: Sustainable Omnichannel Operations, Big Data Analytics Capability, Dynamic Capabilities, Sustainable Performance, MSMEs

DANADYAKSA
POST MODERN ECONOMY JOURNAL

Vol. 4 No. 1, (2026), 1770–1784 e-ISSN: 3025-8545

## INTRODUCTION

Digital transformation has significantly changed how firms manage operational activities and interact with customers. The rapid growth of e-commerce, mobile applications, social media, and digital payment systems has encouraged companies to integrate online and offline channels into a more coordinated operational system. This phenomenon is commonly referred to as omnichannel operations, where customers can seamlessly move across channels while obtaining consistent and integrated service experiences (Febriani et al., 2025).

In Indonesia, Micro, Small, and Medium Enterprises (MSMEs) play an important role in supporting national economic growth. Along with the rapid growth of digital commerce, MSMEs are increasingly required to integrate digital channels into their operational systems to maintain competitiveness and business sustainability. However, despite the growing adoption of digital platforms among MSMEs, the integration of online and offline channels and the utilization of operational data for strategic decision-making remain relatively limited (Badan Pusat Statistik, 2025; INDEF, 2024).

The implementation of omnichannel operations is not only aimed at improving market reach but also at supporting long-term business sustainability. Consequently, the concept of Sustainable Omnichannel Operations (SOO) has emerged as an operational strategy integrating channel coordination with sustainability-oriented business practices. Zhao et al. (2025) explained that sustainable operational integration can improve organizational competitiveness through better resource efficiency and sustainability practices. To support sustainable omnichannel implementation, organizations require adequate analytical and adaptive capabilities. Big Data Analytics Capability (BDAC) enables firms to process and utilize operational data to support strategic decision-making and improve operational effectiveness (Munir et al., 2025). Meanwhile, Dynamic Capabilities (DC) reflect a firm's ability to sense opportunities, seize opportunities, and reconfigure organizational resources in response to environmental changes (Febriani et al., 2025).

Although previous studies have examined omnichannel operations, big data analytics capability, dynamic capabilities, and sustainable performance, several important gaps remain unresolved. First, prior studies mostly investigate these relationships separately and primarily focus on large firms or developed-country contexts. Limited studies have examined how Sustainable Omnichannel Operations (SOO) can improve Sustainable Performance (SP) through the integration of Big Data Analytics Capability (BDAC) and Dynamic Capabilities (DC) within MSMEs. Second, previous findings regarding the role of Dynamic Capabilities in improving sustainable performance remain inconsistent. While some studies found that Dynamic Capabilities positively affect organizational sustainability, other studies suggest that adaptive capability alone may not be sufficient to improve sustainable outcomes, particularly among resource-constrained MSMEs. This inconsistency indicates the need to further examine the interaction between BDAC, DC, and Sustainable Performance.

Therefore, this study aims to analyze the effect of Sustainable Omnichannel Operations on Sustainable Performance through the mediating roles of Big Data Analytics Capability and Dynamic Capabilities among Indonesian MSMEs. This study contributes to the literature by developing an integrative model that simultaneously examines SOO, BDAC, DC, and Sustainable Performance within the MSME context. In addition, this study extends Dynamic

DANADYAKSA
POST MODERN ECONOMY JOURNAL
Vol. 4 No. 1, (2026), 1770–1784 e-ISSN: 3025-8545

Capabilities Theory by explaining how operational integration and data analytics capability can be transformed into sustainable organizational performance in emerging economy MSMEs.

## REVIEW OF LITERATURE

### *Dynamic Capabilities* (DC)

Dynamic Capability (DC) reflects a company's ability to identify opportunities and threats, capitalize on opportunities, and transform or reallocate resources to remain relevant and competitive. In the context of MSMEs, DC plays a crucial role in the process of adapting to market changes, particularly when firms face digital disruption and uncertainty regarding customer demand. DC enables MSMEs to redesign business processes, update operational models, and develop technology-based innovations. DC is highly relevant to this study as it explains how SOO strategies and data analytics capabilities (BDAC) can be converted into improvements in Sustainable Performance. According to Teece (2018), an organisation's ability to utilise data and digital technology in the processes of sensing and seizing is a core component of DC in the digital economy era. Consequently, this theory serves as a conceptual framework for understanding the causal relationship between BDAC, DC, and the sustainable performance of MSMEs.

### *Sustainable Omnichannel Operations* (SOO)

Sustainable Omnichannel Operations (SOO) refers to the integration of omnichannel operations with principles of environmental, social and economic sustainability. According to Zhao et al. (2025), SOO emphasises the importance of environmentally friendly supply chain management, energy efficiency and ethical social practices across all operational channels. Research by Khan et al. (2024) indicates that effective integration across channels through coordinated promotions, transactions, and customer service can enhance customer satisfaction and loyalty. Meanwhile, research by Khan et al. (2024) found that integrating operational data with Big Data Analytics systems can reduce waste, improve logistics efficiency, and support the implementation of a circular economy.

In the context of MSMEs, the SOO strategy serves as a means to expand market reach, improve operational efficiency, and strengthen the image of a sustainable business. When combined with BDAC and DC capabilities, this strategy has the potential to create a competitive advantage that is difficult to replicate and drive improvements in Sustainable Performance.

### *Big Data Analytics Capability* (BDAC)

Big Data Analytics Capability (BDAC) refers to an organisation's ability to manage, analyse and utilise large and complex datasets to support strategic decision-making. According to Gupta and George (2016), BDAC comprises several key dimensions, namely technology capability (infrastructure and analytical tools), human capability (human resource expertise and competencies), and organisational capability (a data-driven culture and information governance).

Research by Cadden et al. (2023) reinforces this view by demonstrating that BDAC is a strategic asset capable of enhancing efficiency, innovation, and organisational performance through rapid and accurate cross-channel data processing.

### *Sustainable Performance* (SP)

Sustainable Performance emphasizes that sustainability should be integrated into core operational decisions rather than treated as an additional activity. Based on the triple bottom line concept, organizational performance should be measured not only from economic performance,

DANADYAKSA
POST MODERN ECONOMY JOURNAL
Vol. 4 No. 1, (2026), 1770–1784 e-ISSN: 3025-8545

but also from social and environmental performance (Kleindorfer et al., 2005). In this study, *Sustainable Performance* represents the implementation of sustainable operations within digital and omnichannel systems aimed at improving operational efficiency, customer experience, and environmental responsibility. In supporting these objectives, Big Data Analytics Capability and Dynamic Capabilities play important roles in helping organizations manage operational trade-offs, adapt to environmental changes, and improve long-term sustainable performance across economic, social, and environmental dimensions (Seuring & Müller, 2008).

**Sustainable Omnichannel Operations and Big Data Analytics Capability**

Sustainable Omnichannel Operations (SOO) refers to the integration of online and offline operational channels while emphasizing sustainability-oriented practices such as operational efficiency, resource optimization, and customer experience consistency. The implementation of SOO generates extensive operational and customer-related data across multiple channels, requiring organizations to develop Big Data Analytics Capability (BDAC) to effectively manage and utilize such information (Khan et al., 2024). According to Gupta and George (2016), BDAC enables organizations to improve data-driven decision-making and operational effectiveness. Previous studies also found that omnichannel integration increases the need for analytical capability to maintain operational coordination and service consistency (Huong et al., 2024). Therefore, SOO is expected to strengthen MSMEs' Big Data Analytics Capability.

**H1:** Sustainable Omnichannel Operations positively affect Big Data Analytics Capability.

**Sustainable Omnichannel Operations and Dynamic Capabilities**

The implementation of Sustainable Omnichannel Operations not only reflects operational integration but also organizational adaptability in responding to market and technological changes. According to Dynamic Capabilities Theory, organizations must possess sensing, seizing, and transforming capabilities to remain competitive in dynamic environments (Teece, 2007). Through omnichannel integration, MSMEs gain broader access to customer and market information, enabling them to respond more adaptively to environmental changes. Zhao et al. (2025) also emphasized that omnichannel strategies improve organizational flexibility and adaptive capability. Therefore, SOO is expected to positively influence Dynamic Capabilities.

**H2:** Sustainable Omnichannel Operations positively affect Dynamic Capabilities in MSMEs.

**Big Data Analytics Capability and Dynamic Capabilities**

Big Data Analytics Capability enables organizations to process and transform operational data into valuable strategic insights. These analytical capabilities support organizations in identifying opportunities, improving decision-making, and adapting business processes more effectively. Gupta and George (2016) explained that BDAC strengthens organizational responsiveness and innovation capability, while Cadden et al. (2023) found that organizations with strong analytics capability tend to possess stronger Dynamic Capabilities in uncertain business environments. Therefore, BDAC is expected to positively influence Dynamic Capabilities.

**H3:** Big Data Analytics Capability positively affects Dynamic Capabilities.

**Big Data Analytics Capability and Sustainable Performance**

Big Data Analytics Capability plays an important role in improving operational efficiency, reducing waste, and supporting data-driven decision-making, which contribute to Sustainable Performance. In MSMEs, the ability to utilize operational and customer data can improve resource allocation, customer satisfaction, and long-term business sustainability. Previous studies found that

DANADYAKSA
POST MODERN ECONOMY JOURNAL
Vol. 4 No. 1, (2026), 1770–1784 e-ISSN: 3025-8545

organizations adopting data-driven approaches tend to achieve better economic, social, and environmental performance (Park, 2023). Therefore, BDAC is expected to positively influence Sustainable Performance.

**H4:** Big Data Analytics Capability positively affects Sustainable Performance**.**

**Dynamic Capabilities and Sustainable Performance**

Dynamic Capabilities reflect an organization's ability to adapt, integrate, and reconfigure resources in response to environmental changes. In the MSME context, these capabilities are important for maintaining competitiveness and sustainability in uncertain business environments. Previous studies reported that organizations with stronger Dynamic Capabilities are more capable of integrating sustainability practices into operational activities and improving long-term performance (Zhao et al., 2025). Therefore, Dynamic Capabilities are expected to positively influence Sustainable Performance.

**H5:** Dynamic Capabilities positively affect Sustainable Performance.

**Sustainable Omnichannel Operations and Sustainable Performance**

In the context of SMEs, the implementation of SOO can help companies respond to customer needs more quickly and accurately, thereby supporting the achievement of better performance. Research by Khan et al. (2024) shows that the integration of operational processes supported by an omnichannel system can improve sustainable firm performance through the optimization of resource utilization, increased operational efficiency, and the strengthening of organizational capabilities in managing business activities sustainably. Therefore, the improved implementation of Sustainable Omnichannel Operations is expected to enhance the sustainable performance of SMEs.

**H8:** Sustainable Omnichannel Operations positively affect Sustainable Performance.

**The Mediating Role of Big Data Analytics Capability**

Big Data Analytics Capability (BDAC) plays an important role in transforming Sustainable Omnichannel Operations (SOO) into organizational capabilities and sustainable business outcomes. The implementation of SOO generates high cross-channel data complexity, requiring organizations to possess analytical capabilities to effectively manage, integrate, and utilize operational and customer-related data (Gupta & George, 2016). BDAC enables organizations to transform data generated from omnichannel activities into valuable business insights that support operational efficiency, customer understanding, and strategic decision-making. Gupta and George (2016) further explain that BDAC reflects an organization's ability to integrate technological, human, and organizational resources to generate strategic value from data utilization.

In addition, BDAC also strengthens organizations' adaptive and strategic capabilities. BDAC acts as a mechanism that supports organizational sensing, seizing, and transforming processes by providing relevant and data-driven insights for decision-making. Cadden et al. (2023) found that data analytics capability strengthens the development of Dynamic Capabilities, particularly in complex and dynamic business environments. Furthermore, research by Khan et al. (2024) indicates that the utilization of big data analytics contributes significantly to sustainable performance through improved operational processes and organizational information management. Therefore, BDAC is expected to mediate the relationship between Sustainable Omnichannel Operations and both Dynamic Capabilities and Sustainable Performance.

DANADYAKSA
POST MODERN ECONOMY JOURNAL
Vol. 4 No. 1, (2026), 1770–1784 e-ISSN: 3025-8545

**H6:** Big Data Analytics Capability mediates the effect of Sustainable Omnichannel Operations on Dynamic Capabilities.
**H9:** Big Data Analytics Capability mediates the influence of Sustainable Omnichannel Operations on Sustainable Performance.

**The Mediating Role of Dynamic Capabilities**

Dynamic Capabilities (DC) play an important role in transforming both operational integration and analytical capability into sustainable organizational outcomes. According to Teece (2018), Dynamic Capabilities enable organizations to sense opportunities, seize market potential, and transform organizational resources in response to environmental changes. In the context of MSMEs, organizations not only require the ability to collect and analyze data through Big Data Analytics Capability (BDAC), but also the capability to convert analytical insights into adaptive strategic actions that support Sustainable Performance. BDAC generates data-based information and recommendations, whereas Dynamic Capabilities determine the extent to which such information is implemented through process innovation, strategic changes, and resource reconfiguration (Teece, 2018). Zhao et al. (2025) emphasized that Dynamic Capabilities strengthen the relationship between data-based capabilities and long-term organizational performance because they function as an execution mechanism connecting organizational knowledge with strategic action.

Similarly, the implementation of Sustainable Omnichannel Operations (SOO) enables organizations to integrate online and offline operational channels, allowing broader access to customer and operational information. According to Teece et al. (1997), Dynamic Capabilities enable companies to integrate, build, and reconfigure resources to effectively respond to changes in the business environment. Through omnichannel integration, organizations can strengthen their sensing, seizing, and transforming capabilities, which improve organizational flexibility and responsiveness. Stronger Dynamic Capabilities are expected to help MSMEs utilize omnichannel integration and analytical insights more effectively to improve operational efficiency, customer satisfaction, and long-term business sustainability. Therefore, Dynamic Capabilities are expected to mediate the relationships between BDAC and Sustainable Performance as well as between SOO and Sustainable Performance.

**H7:** Dynamic Capabilities mediate the effect of Big Data Analytics Capability on Sustainable Performance.
**H10:** Dynamic Capabilities mediate the effect of Sustainable Omnichannel Operations on Sustainable Performance.

**The Sequential Mediation of Big Data Analytics Capability and Dynamic Capabilities**

Gupta and George (2016) explain that Big Data Analytics Capability is a strategic capability that enables organizations to gain insights from data to support the decision-making process. The insights generated through BDAC can further strengthen an organization's Dynamic Capabilities. Mikalef et al. (2020) found that BDAC contributes to enhancing Dynamic Capabilities, which ultimately leads to improved organizational performance. In line with Dynamic Capabilities Theory, an organization's ability to process data and convert it into strategic actions allows companies to be more adaptive to changes in the business environment. Therefore, Sustainable Omnichannel Operations are expected to improve Sustainable Performance through a sequential chain mediation mechanism involving Big Data Analytics Capability and Dynamic Capabilities.

DANADYAKSA
POST MODERN ECONOMY JOURNAL
Vol. 4 No. 1, (2026), 1770–1784 e-ISSN: 3025-8545

**H11:** Big Data Analytics Capability and Dynamic Capabilities sequentially mediate the effect of Sustainable Omnichannel Operations on the Sustainable Performance.

**Research Model**

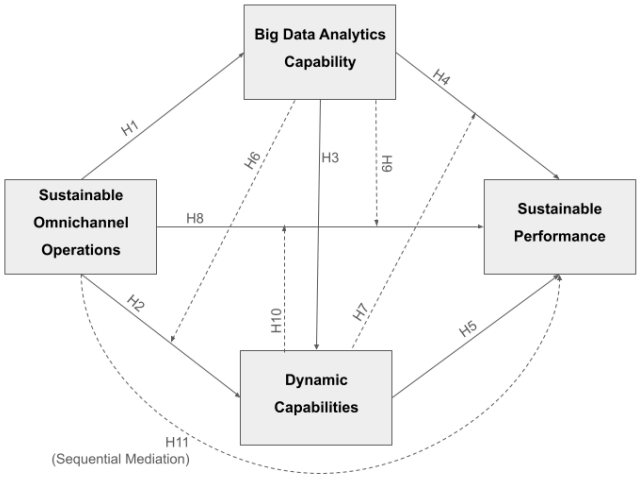


**Figure 1.**
**Research Model**

## RESEARCH METHOD

### Population and Sampling

The population in this study consists of Micro, Small, and Medium Enterprises (MSMEs) in Indonesia that have implemented or are currently adopting an omnichannel model by integrating online channels (e.g., marketplaces, social media, and websites) with offline channels (physical stores/direct sales). The sample was determined using a non-probability purposive sampling technique because not all MSMEs possess the omnichannel characteristics and digital readiness relevant to the research model. Respondents were selected based on three criteria: MSMEs operating in Indonesia, using at least two integrated sales channels, and having experience in managing online and offline transactions. The minimum sample size was determined based on the 10-times rule in SEM-PLS analysis and the recommendation of Hair et al. (2017), which suggests an adequate sample size for models involving multiple structural paths and mediation analysis. Considering the complexity of the mediation model, this study targeted a minimum sample of 150 respondents to ensure robust testing through the bootstrapping procedure in SmartPLS. A total of 331 valid respondents were successfully collected, exceeding the recommended minimum requirement for SEM-PLS analysis of complex structural models (Hair et al., 2017). Profile and demographics are presented in Table 1.

**Table 1.**
**Profile Summary**

| Demographic information | Frequency | % |
|---|---|---|
| *Position* | | |
| Owner | 133 | 40,1 |
| Manager | 24 | 7,3 |

DANADYAKSA
POST MODERN ECONOMY JOURNAL

**Vol. 4 No. 1, (2026), 1770–1784** **e-ISSN: 3025-8545**

| Demographic information | Frequency | % |
|---|---|---|
| Owner & Manager | 174 | 52,6 |
| *Business Age* | | |
| < 1 year | 23 | 6,9 |
| 1-3 years | 122 | 36,9 |
| 4-6 years | 120 | 36,3 |
| > 6 years | 66 | 19,9 |
| *Industry* | | |
| Culinary | 195 | 58,9 |
| Fashion | 50 | 15,1 |
| Retail | 30 | 9,1 |
| Services | 31 | 9,4 |
| Crafts | 15 | 4,5 |
| Others | 10 | 3 |
| *Number of Employees* | | |
| < 5 employees | 208 | 62,8 |
| 5 -10 employees | 96 | 29 |
| 11 - 20 employees | 18 | 5,4 |
| > 20 employees | 10 | 3 |
| *Monthly turnover* | | |
| < Rp 10.000.000 | 137 | 41,4 |
| Rp 10.000.000 - Rp 50.000.000 | 127 | 38,4 |
| Rp 50.000.000 - Rp 100.000.000 | 48 | 14,5 |
| > Rp 100.000.000 | 19 | 5,7 |
| *Sales channels used* | | |
| Offline Shop | 301 | 90,7 |
| Marketplace (Shopee, Tokopedia, dll) | 205 | 61,7 |
| Social Media (Instagram, Whatsapp, Tiktok, dll) | 235 | 70,8 |
| Own website/application | 53 | 16 |
| *Note: Respondents were allowed to select more than one sales channel.* | | |
| *Duration of digital channel usage* | | |
| < 1 year | 34 | 10,3 |
| 1 - 3 years | 164 | 49,5 |
| 4 - 6 years | 106 | 32 |
| > 6 years | 27 | 8,2 |
| *Level of digital technology beneficial* | | |
| Very Low | 2 | 0,6 |
| Low | 8 | 2,4 |
| Moderate | 85 | 25,7 |
| High | 131 | 39,6 |
| Very High | 105 | 31,7 |

Source: Processed primary data (2026)

DANADYAKSA
POST MODERN ECONOMY JOURNAL
Vol. 4 No. 1, (2026), 1770–1784 e-ISSN: 3025-8545

### Data Collection Instrument

This study employs a quantitative approach of an explanatory nature. This approach was chosen because the study aims to examine the causal relationship between Sustainable Omnichannel Operations (SOO), Big Data Analytics Capability (BDAC), Dynamic Capabilities (DC), and the Sustainable Performance (SP) of MSMEs through a chain mediation model.

Data were collected using a structured questionnaire with a Likert scale distributed to MSMEs operators in Indonesia who met the study criteria. A total of 331 respondents were successfully recruited for this study. To test the direct and indirect relationships between variables, this study employed the Structural Equation Modelling – Partial Least Squares (SEM-PLS) method using the SmartPLS software. Indicators related to Sustainable Omnichannel Operations were adopted from studies conducted by Khan et al., (2024) and Zhao et al., (2025). Indicators related to Big Data Analytics Capability were adopted from research conducted by Gupta and George (2016). Indicators related to Dynamic Capabilities were adopted from research conducted by Teece (2018) and Munir et al. (2025). Lastly, indicators related to Sustainable Performance were adopted from research conducted by Zhao et al., (2025).

## RESULTS AND DISCUSSION

### Measurement Model Evaluation

In this study, the evaluation of the measurement model was conducted through tests of convergent validity, indicator outer loadings, and Average Variance Extracted (AVE). These tests are essential to ensure that the research instrument is capable of measuring the intended construct accurately and consistently. According to Hair (2006) as cited in (Mustakini, 2011; Alifah, Tentama and Situmorang, 2019; Husnawati, Tentama and Situmorang, 2019), the rule of thumb used to test convergent validity is a factor loading value > 0.5, which is considered practically significant, and an average variance extracted (AVE) > 0.5. According to Lam (2012), as long as the composite reliability (CR) value is above the minimum acceptable limit, namely 0.6, then an average variance extracted (AVE) value below 0.5 is still considered acceptable.

Discriminant validity was assessed using the Fornell-Larcker criterion. The findings demonstrated that discriminant validity was achieved, as the square root of the AVE for each construct exceeded its correlations with other constructs. This suggests that the indicators loaded more strongly on their own constructs than on other constructs. Therefore, the discriminant validity requirements based on the Fornell-Larcker criterion were satisfied, as presented in Table 3.

**Table 2.**
**Construct Outer Model**

| Construction | Items | Outer Loadings | AVE | Cronbach's Alpha | CR |
|---|---|---|---|---|---|
| BDAC | BDAC1 | 0.776 | 0.579 | 0.909 | 0.925 |
| | BDAC2 | 0.800 | | | |
| | BDAC3 | 0.780 | | | |
| | BDAC4 | 0.715 | | | |
| | BDAC5 | 0.799 | | | |
| | BDAC6 | 0.718 | | | |
| | BDAC7 | 0.717 | | | |

DANADYAKSA
POST MODERN ECONOMY JOURNAL
Vol. 4 No. 1, (2026), 1770–1784 e-ISSN: 3025-8545

| Construction | Items | Outer Loadings | AVE | Cronbach's Alpha | CR |
|---|---|---|---|---|---|
| | BDAC8 | 0.773 | | | |
| | BDAC9 | 0.764 | | | |
| DC | DC4 | 0.865 | 0.750 | 0.767 | 0.857 |
| | DC7 | 0.867 | | | |
| SOO | SOO1 | 0.812 | 0.634 | 0.808 | 0.874 |
| | SOO3 | 0.780 | | | |
| | SOO5 | 0.796 | | | |
| | SOO6 | 0.799 | | | |
| SP | SP3 | 0.739 | 0.615 | 0.785 | 0.827 |
| | SP5 | 0.766 | | | |
| | SP6 | 0.844 | | | |

Source: Processed primary data (2026)

**Table 3.**
**Fornell-Larcker Criterion**

| | BDAC | DC | SOO | SP |
|---|---|---|---|---|
| BDAC | 0.853 | | | |
| DC | 0.768 | 0.866 | | |
| SOO | 0.761 | 0.713 | 0.797 | |
| SP | 0.737 | 0.612 | 0.758 | 0.784 |

Source: Processed primary data (2026)

**Structural Model Evaluation**

The p-values for hypothesis testing, which show the results of direct and indirect hypothesis tests, are shown in Tables 4 and 5.

**Table 4.**
**Path Estimates**

| Hypothesis | Path | Original Sample | T Statistics (\|O/STDEV\|) | P-values | Results |
|---|---|---|---|---|---|
| H1 | SOO -> BDAC | 0.853 | 27.901 | 0.000 | Supported |
| H2 | SOO -> DC | 0.312 | 3.628 | 0.000 | Supported |
| H3 | BDAC -> DC | 0.470 | 5.535 | 0.000 | Supported |
| H4 | BDAC -> SP | 0.432 | 4.229 | 0.000 | Supported |
| H5 | DC -> SP | 0.031 | 0.497 | 0.620 | Not Supported |
| H8 | SOO -> SP | 0.368 | 3.878 | 0.000 | Supported |

Source: Processed primary data (2026)

In the testing of the first hypothesis (H1), the research findings indicate that Sustainable Omnichannel Operations have a positive and significant effect on Big Data Analytics Capability. This indicates that the better the implementation of sustainable cross-channel operational integration, the greater the data analytics capability possessed by MSMEs. The findings of this study also support the findings of (Khan et al., 2024), which show that the integration of cross-channel

DANADYAKSA
POST MODERN ECONOMY JOURNAL
Vol. 4 No. 1, (2026), 1770–1784 e-ISSN: 3025-8545

operating systems encourages organisations to develop more systematic data management capabilities in order to improve service efficiency and the quality of the customer experience.

In the second hypothesis test (H2), the test results show that Sustainable Omnichannel Operations have a positive and significant effect on Dynamic Capabilities. This finding indicates that the implementation of sustainable omnichannel operations is capable of enhancing MSMEs' ability to respond adaptively to changes in the business environment. This result aligns with Dynamic Capabilities Theory proposed by Teece (2018), emphasizing adaptive integration of technology and resources as a key factor for competitiveness. The findings are also supported by Khan et al. (2024) and Zhao et al. (2025), who highlighted the role of integrated channels in improving operational flexibility and adaptive transformation.

In the third hypothesis test (H3), the results show that Big Data Analytics Capability has a positive and significant effect on Dynamic Capabilities. These results indicate that the better the data analytics capabilities possessed by MSMEs, the stronger their dynamic capabilities in coping with changes in the business environment. This finding supports Gupta and George (2016), who identified BDAC as a strategic organizational resource that improves decision-making and responsiveness to environmental changes. Similarly, Munir et al. (2025) emphasized that data analytics strengthens organizations' sensing and seizing capabilities in uncertain technological environments.

In the testing of the fourth hypothesis (H4), the research results indicate that Big Data Analytics Capability has a positive and significant effect on Sustainable Performance. This suggests that the effective use of data analytics can support the sustainable improvement of MSME business performance. Gupta and George (2016) and Zhao et al. (2025) also confirmed that analytics capabilities contribute directly to improved organizational and operational performance.

In the fifth hypothesis test (H5), the findings reveal that Dynamic Capabilities have no significant effect on Sustainable Performance, indicating that the proposed hypothesis is not supported. This result differs from Zhao et al., (2025), who reported a positive relationship between organizational capabilities and sustainable performance Although MSMEs possess the ability to respond to environmental changes, these capabilities may still be focused on maintaining daily operations and competitiveness rather than creating long-term sustainable outcomes. Therefore, Dynamic Capabilities alone may not be sufficient to directly improve Sustainable Performance without strong managerial commitment, sustainability integration, and adequate organizational support.

The results indicate that Sustainable Omnichannel Operations (SOO) have a positive and significant effect on MSMEs' Sustainable Performance (SP). This finding suggests that the integration of marketing, sales, and service channels through sustainable omnichannel operations enables MSMEs to improve operational efficiency, enhance coordination across business functions, and respond more effectively to customer needs. By integrating online and offline channels, MSMEs can achieve better visibility of business activities, faster information flow, and more efficient resource utilization, which ultimately contribute to improved economic, social, and environmental performance. This result supports Khan et al. (2024), who found that omnichannel-supported operational integration enhances sustainable firm performance through operational optimization and stronger organizational capabilities in managing business activities sustainably.

DANADYAKSA
POST MODERN ECONOMY JOURNAL

Vol. 4 No. 1, (2026), 1770–1784 e-ISSN: 3025-8545

**Table 5.**
**Mediation/Indirect Estimate**

| Hypothesis | Path | Original Sample | T Statistics (\|O/STDEV\|) | P-values | Results |
|---|---|---|---|---|---|
| H6 | SOO -> BDAC -> DC | 0.401 | 6.816 | 0.000 | Supported |
| H7 | BDAC -> DC -> SP | 0.015 | 0.488 | 0.626 | Not Supported |
| H9 | SOO -> BDAC -> SP | 0.368 | 4.050 | 0.000 | Supported |
| H10 | SOO -> DC -> SP | 0.010 | 0.474 | 0.636 | Not Supported |
| H11 | SOO -> BDAC -> DC -> SP | 0.013 | 0.026 | 0.627 | Not Supported |

Source: Processed primary data (2026)

In the testing of the sixth hypothesis (H6), the results show that Big Data Analytics Capability mediates the effect of Sustainable Omnichannel Operations on Dynamic Capabilities. This finding indicates that increased implementation of Sustainable Omnichannel Operations can strengthen the Dynamic Capabilities of MSMEs through the enhancement of Big Data Analytics Capability as the mediating variable. This finding suggests that sustainable omnichannel strategies improve dynamic capabilities not only directly but also through enhanced data analytics capability. The result is consistent with IPT and Gupta and George (2016), who emphasized that analytics capability bridges digital technology utilization and organizational adaptability.

The testing of the seventh hypothesis (H7), the results indicate that Dynamic Capabilities do not mediate the relationship between Big Data Analytics Capability and Sustainable Performance; therefore, the proposed hypothesis is not supported. This finding differs from the study by Zhao et al., (2025), which found a significant mediating effect of organizational capabilities on sustainable performance. In this study, MSMEs may not yet be able to effectively transform big data analytics capabilities into adaptive organizational capabilities that support sustainable performance. As a result, the mediating role of Dynamic Capabilities becomes insignificant in explaining the relationship between Big Data Analytics Capability and Sustainable Performance.

The results of the ninth hypothesis test indicate that Big Data Analytics Capability (BDAC) significantly mediates the effect of Sustainable Omnichannel Operations (SOO) on MSMEs' Sustainable Performance (SP). This finding suggests that the implementation of sustainable omnichannel operations can enhance sustainable performance when MSMEs are able to effectively utilize big data analytics capabilities. Through BDAC, data generated from integrated online and offline channels can be transformed into valuable insights that support operational efficiency, better customer understanding, and more effective strategic decision-making. This result supports Gupta and George (2016), who emphasized that BDAC enables organizations to integrate technological, human, and organizational resources to create business value, and is also consistent with Khan et al. (2024), who found that big data analytics contributes positively to sustainable performance through improved operational processes and information management.

The results indicate that Dynamic Capabilities (DC) do not mediate the effect of Sustainable Omnichannel Operations (SOO) on MSMEs' Sustainable Performance (SP). This finding suggests that the implementation of sustainable omnichannel operations has not been able to strengthen MSMEs' sensing, seizing, and transforming capabilities in a way that significantly improves sustainable performance. Although Teece et al. (2018) argued that dynamic capabilities enable

Vol. 4 No. 1, (2026), 1770–1784 e-ISSN: 3025-8545

organizations to adapt and reconfigure resources in response to environmental changes, many MSMEs may still face limitations in organizational flexibility, strategic responsiveness, and resource integration. As a result, the information and opportunities generated through omnichannel operations have not been fully transformed into sustainable business advantages. This finding indicates that the role of dynamic capabilities in MSMEs may not yet be sufficiently developed to function as an effective mediating mechanism between SOO and sustainable performance.

The results indicate that Big Data Analytics Capability (BDAC) and Dynamic Capabilities (DC) do not sequentially mediate the relationship between Sustainable Omnichannel Operations (SOO) and Sustainable Performance (SP). In many MSMEs, limited technological infrastructure, insufficient analytical expertise, and low organizational flexibility hinder the effective integration of BDAC and DC in improving sustainable performance. As a result, the sequential mediation mechanism has not operated optimally. This finding contrasts with Gupta and George (2016) and Mikalef et al. (2020), who highlighted the strategic role of BDAC in enhancing dynamic capabilities and organizational performance. The inconsistency may stem from differences in digital maturity, resource availability, and managerial capabilities between large firms and MSMEs.

## CONCLUSION

This study examines the role of Sustainable Omnichannel Operations (SOO) in improving MSMEs' Sustainable Performance (SP) through the mediating roles of Big Data Analytics Capability (BDAC) and Dynamic Capabilities (DC). The findings reveal that SOO positively affects BDAC, DC, and Sustainable Performance. In addition, BDAC significantly influences both Dynamic Capabilities and Sustainable Performance, while also successfully mediating the relationships between SOO–DC and SOO–SP. However, Dynamic Capabilities were found to have no significant effect on Sustainable Performance and failed to mediate the relationships involving Sustainable Performance.

These study indicate that MSMEs' sustainable performance is more strongly influenced by their ability to utilize and manage data analytics than by organizational adaptability alone. Although MSMEs increasingly adopt omnichannel operations, many firms may still lack sufficient organizational maturity, managerial readiness, and strategic flexibility to transform adaptive capabilities into sustainable outcomes. Therefore, data-driven operational capability becomes a more critical factor in supporting sustainable business performance among MSMEs.

This study has several limitations, including the use of a cross-sectional approach, perception-based data, and limited industry classification among respondents. Future studies are recommended to apply longitudinal approaches, include additional variables such as innovation capability or digital transformation capability, and adopt industry-specific or mixed-method approaches to provide more comprehensive findings.

## REFERENCES

Alifah, R.N., Tentama, F. dan Situmorang, N.Z. (2019) "Pengujian outer model pada konstrak resiliensi," *Jurnal Psikologi Terapan dan Pendidikan*, 1(1), hal. 1–8. Tersedia pada: https://www.academia.edu/download/80607736/7342.pdf.

**Vol. 4 No. 1, (2026), 1770–1784** **e-ISSN: 3025-8545**

Badan Pusat Statistik, R. (2025). *Statistik E-Commerce 2023*. https://www.bps.go.id/id/publication/2025/01/30/d52af11843aee401403ecfa6/statistik-e-commerce-2023.htm

Febriani, A., Sopha, B. M., & Arif Wibisono, M. (2025). Dynamic capabilities for omnichannel transformation in MSMEs: A comparative case study of fashion and furniture sectors. *Journal of Open Innovation: Technology, Market, and Complexity*, *11*(1), 100498. https://doi.org/10.1016/j.joitmc.2025.100498

Gupta, M., & George, J. F. (2016). Toward the development of a big data analytics capability. *Information & Management*, *53*(8), 1049–1064. https://doi.org/10.1016/j.im.2016.07.004

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2022). *A primer on partial least squares structural equation modeling (PLS-SEM)* (Third edition). SAGE Publications, Incorporated.

Huong, P. T., Hoang, D. V., Minh, T. T. K., & Hien, N. T. (2024). Digital capabilities and SMEs' performance under technological uncertainty: Empirical evidence from an emerging market. *International Journal of Innovation and Learning*, *36*(4), 404–424. https://doi.org/10.1504/IJIL.2024.142036

Husnawati, Tentama, F. dan Situmorang, N.Z. (2019) "Pengujian validitas dan reliabilitas konstruk hope," *Jurnal Psikologi Terapan dan Pendidikan*, 1(2), hal. 128–135. Tersedia pada: https://www.academia.edu/download/65386485/7354.pdf.

Isbahi, M. B., Zuana, M. M. M. ., & Mariana, E. R. . (2022). The Technology Strategy in Website Communication Media in Improving Business Activities. *Majapahit Journal of Islamic Finance and Management*, *1*(2), 126–138. https://doi.org/10.31538/mjifm.v1i2.17

Joshi, A., Kale, S., Chandel, S., & Pal, D. (2015). Likert Scale: Explored and Explained. *British Journal of Applied Science & Technology*, *7*(4), 396–403. https://doi.org/10.9734/BJAST/2015/14975

Khalid, B. (2024). Evaluating customer perspectives on omnichannel shopping satisfaction in the fashion retail sector. *Heliyon*, *10*(16), e36027. https://doi.org/10.1016/j.heliyon.2024.e36027

Khan, S. A. R., Tahir, M. S., & Sheikh, A. A. (2024). Sustainable performance in SMEs using big data analytics for closed-loop supply chains and reverse omnichannel. *Heliyon*, *10*(16), e36237. https://doi.org/10.1016/j.heliyon.2024.e36237

Kleindorfer, P. R., Singhal, K., & VanWassenhove, L. N. (2005). Sustainable Operations Management. *Production and Operations Management*, *14*(4), 482–492. https://doi.org/10.1111/j.1937-5956.2005.tb00235.x

Lam, L.W. (2012) "Impact of competitiveness on salespeople's commitment and performance," *Journal of Business Research*, 65(9), hal. 1328–1334. Tersedia pada: https://doi.org/10.1016/j.jbusres.2011.10.026.

Maidiana, M. (2021). Penelitian Survey. *ALACRITY : Journal of Education*, 20–29. https://doi.org/10.52121/alacrity.v1i2.23

March, J. G. (1991). Exploration and Exploitation in Organizational Learning. *Organization Science*, *2*(1), 71–87. https://doi.org/10.1287/orsc.2.1.71

Mustakini, J.H. (2011) *Konsep dan Aplikasi Structural Equation Modeling Berbasis Varian dalam Penelitian Bisnis*. Yogyakarta: UPP STIM YKPN

O'Reilly, C. A., & Tushman, M. L. (2013). Organizational Ambidexterity: Past, Present, and Future. *Academy of Management Perspectives*, *27*(4), 324–338. https://doi.org/10.5465/amp.2013.0025

**Vol. 4 No. 1, (2026), 1770–1784** **e-ISSN: 3025-8545**

Park, S.-B. (2023). Bringing strategy back in: Corporate sustainability and firm performance. *Journal of Cleaner Production*, *388*, 136012. https://doi.org/10.1016/j.jclepro.2023.136012

Putu Gede Subhaktiyasa. (2024). PLS-SEM for Multivariate Analysis: A Practical Guide to Educational Research using SmartPLS. *EduLine: Journal of Education and Learning Innovation*, *4*(3), 353–365. https://doi.org/10.35877/454RI.eduline2861

Roger, B., & Sekaran, U. (2020). *Research Methods for Business*.

Seuring, S., & Müller, M. (2008). From a literature review to a conceptual framework for sustainable supply chain management. *Journal of Cleaner Production*, *16*(15), 1699–1710. https://doi.org/10.1016/j.jclepro.2008.04.020

Teece, D. J. (2018). Business models and dynamic capabilities. *Long Range Planning*, *51*(1), 40–49. https://doi.org/10.1016/j.lrp.2017.06.007

Tran, K. M., Dinh, H., Pham, H., & Nguyen, H. (2024). Digital capabilities and SMEs performance under technological uncertainty: Empirical evidence from an emerging market. *International Journal of Innovation and Learning*, *1*(1), 10061360. https://doi.org/10.1504/IJIL.2024.10061360

Tushman, M. L., & Nadler, D. A. (1978). Information Processing as an Integrating Concept in Organizational Design. *The Academy of Management Review*, *3*(3), 613. https://doi.org/10.2307/257550

Yarsasi, S., Tahyudin, I., & Hariguna, T. (2025). Analisis Validitas dan Reliabilitas Kuesioner dengan Metode Partial Least Squares Structural Equation Modeling pada Aplikasi SMARTPLS. *Jurnal Pendidikan dan Teknologi Indonesia*, *5*(7), 1905–1913. https://doi.org/10.52436/1.jpti.885

Zhao, Q., Wang, W., & Tao, Y. (2025). Supply chain sustainability and its impact on firm market competitiveness: A perspective based on ESG practices. *International Review of Economics & Finance*, *101*, 104236. https://doi.org/10.1016/j.iref.2025.104236