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# Enhancing innovation performance through digital platform capability and big data analytics: Evidence from Indonesia's telecommunications industry

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A B S T R A C T

Digital transformation has encouraged companies to optimize their digital platform capabilities and big data analytics as strategic resources in creating innovation excellence. This study aims to examine the influence of *Digital Platform Capability* (DPC) and *Big Data Analytics Capability* (BDAC) on *Innovation Performance* (IP) in the telecommunications industry in Indonesia. Data was collected from 331 managerial respondents through a survey and analyzed using *Partial Least Squares Structural Equation Modeling* (PLS-SEM) with SmartPLS 4. The results show that both DPC ($\beta$ = 0.316; T = 5.282; P < 0.001) and BDAC ($\beta$ = 0.484; T = 8.033; P < 0.001) have a significant positive effect on IP. These findings emphasize the importance of companies' ability to manage digital platform integration and utilize big data analytics to strengthen innovation performance. Theoretically, this study expands on the *Resource-Based View* (RBV) and *Dynamic Capability View* (DCV) by emphasizing the role of DPC and BDAC as dynamic resources that support innovation. The practical implications suggest that telecommunications companies need to develop integrated digital strategies, strengthen their analytical infrastructure, and foster a data-driven culture to enhance their competitiveness.



## 1. Introduction

The development of digital technology has encouraged companies to adjust their business strategies to survive in a highly dynamic environment. Access to large amounts of data allows companies to integrate other resources such as labor, capital, and technology, thereby increasing flexibility in responding to market dynamics and creating innovative advantages (Xu et al., 2024). In the context of the digital economy, information technology is a key element in driving innovation (Viriyasitavat et al., 2019). Along with digitalization, organizations are also required to have the ability to improvise and adapt to ever-changing market needs, thereby improving innovation performance (Ahuja et al., 2016). Various digital technologies, such as electronic word-of-mouth (eWOM), Internet of Things (IoT), cloud computing, big data, artificial intelligence (AI), and robotics, have opened up new opportunities for companies to shape innovation performance more effectively (Mullangi et al., 2019). In the digital economy era, organizational innovation performance is largely supported by digital platforms (Alegre & Chiva, 2008; Kaushik, 2019). However, a study by Benitez et al. (2022) confirms that there are still limitations in understanding what Digital Platform Capability (DPC) means and how it contributes to innovation performance. Implementing technological structures such as digital platforms, AI, and IoT has become a key strategy for achieving business objectives (Gao & Sarwar, 2022; Sia et al., 2021; Yin & Yu, 2022). However, the complexity of digital technology and the dynamics of the business environment make corporate sustainability increasingly challenging (Du et al., 2023). As one of the most advanced forms of technology, digital platforms enable companies to acquire and manage knowledge resources on a large scale (L. Chen et al., 2022; Cenamor et al., 2019). Companies that adopt digital technology have proven to be more capable of creating business value (Lin & Lin, 2023). The capabilities of digital platforms also improve the quality of decision-making through efficient knowledge acquisition and expand the organization's capacity to scan business environment opportunities. This enables the alignment of business strategies with information systems, resulting in innovation performance

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(Sarwar et al., 2024). However, companies do not automatically feel the benefits of digital platforms due to the challenges of high business process variability and the significant risks associated with structural changes (Benitez et al., 2022). Therefore, digital platform capabilities (DPC) are seen as an important prerequisite for creating business value through online communication, collaboration, and efficient resource expansion (Liu et al., 2022; Du et al., 2023; Xiao et al., 2020; Jiang et al., 2023). In addition to DPC, Big Data Analytics Capability (BDAC) is one of the key capabilities supporting innovation. Big data has changed how businesses are run since the beginning of the 21st century (McAfee & Brynjolfsson, 2012). Data generated from various sources becomes valuable insights through proper analysis (Khalil et al., 2023). Big data refers to very large, complex, and diverse data sets that require advanced techniques for storage, management, analysis, and visualization (H. Chen et al., 2012). Creating value from big data involves socio-technical factors and multidimensional mechanisms (Grover et al., 2018; Krishnamoorthi & Mathew, 2018). By utilizing BDAC, organizations can identify hidden patterns, improve market predictions, and support strategic decision-making (Gupta et al., 2018; Suoniemi et al., 2020; Mikalef et al., 2020). BDAC enables organizations to act quickly to capture opportunities in volatile markets (Al-Darras & Tanova, 2022) and provides more accurate data to support innovation activities (Elia et al., 2022). However, several studies show that big data does not always create immediate value but requires integration with other resources (Ghasemaghaei, 2019; Mariani et al., 2023). Several large global companies, such as Amazon, Alibaba, Tencent, and Haier, have utilized big data and digital platforms to build digital business ecosystems that support collaborative innovation (Li et al., 2018; Purkayastha & Rao, 2014). Macroeconomically, the contribution of the global digital economy continues to increase significantly. Data from the China Academy of Information and Communication Research shows that in 2020, the digital economy of 47 countries reached USD 32.6 trillion, or 43.7% of the global GDP (Xu et al., 2024). However, empirical research on the role of BDAC and DPC in innovation performance is still limited in the Asia Pacific region, including Indonesia. In fact, Indonesia, with its massive number of mobile users and high level of digital adoption, is an ideal context for testing the contribution of digital capabilities to organizational innovation. Based on the above description, this study aims to analyze the influence of digital platform capability and big data analytics capability on innovation performance in Indonesia's telecommunications industry. This study enriches the literature by expanding the Resource-Based View (J. B. Barney, 1991) and Dynamic Capabilities View (Teece et al., 1997a) frameworks and providing practical implications for telecommunications company management in formulating more adaptive and innovation-oriented digital strategies.

## 2. Theoretical Framework

### *2.1 Resource-Based View (RBV) and Dynamic Capabilities View (DCV)*

The Resource-Based View (RBV) emphasizes the importance of accumulating tangible and intangible resources as determinants of competitive advantage (Barney, 1991). According to Barney (2001), organizations can achieve sustainable competitive advantage through ownership of resources that are valuable, rare, difficult to imitate, and non-substitutable (VRIN). From this perspective, innovation performance can be achieved if companies have unique capabilities that differentiate them from their competitors. (Erevelles et al., 2016).

However, RBV is considered static because it does not sufficiently consider dynamic changes in the market. (Kraaijenbrink et al., 2010). Gao and Sarwar (2022) also highlights that RBV places greater emphasis on the acquisition of heterogeneous resources but less on utilization and adaptation in a turbulent business environment. Therefore, this theory is expanded through the Dynamic Capabilities View (DCV) introduced by (Teece et al., 1997a) DCV explains how organizations must combine internal and external resources to improve their capabilities in dynamic markets. (Gupta et al., 2018).

Dynamic capabilities include routines, behaviors, and organizational patterns facilitating change and decision-making. (Baker et al., 2022). Thus, DC serves as an agent of change that helps companies assess the need for adjustments to resources and capabilities to remain competitive (Gnizy et al., 2014; Wilden et al., 2013).

### *2.2 Digital Platform Capability (DPC)*

Digital platforms are defined as technological applications that integrate various electronic business processes and data (Weill & Ross, 2009). The structure of digital platforms allows for modularity and flexible governance (Tiwana, 2014), thereby supporting the development of business models that are aligned with economic and environmental goals (Reuter, 2022). DPC is viewed as a two-dimensional concept, namely, platform integration and reconfiguration (Cenamor et al., 2019). This capability enables companies to access and utilize ICT-based resources and other organizational resources (Mikalef & Pateli, 2017). DPC also includes the organization's ability to use online platforms to connect with customers, partners, and users (Blaschke et al., 2018). Furthermore, DPC plays an important role in facilitating knowledge management (Sarwar et al., 2024) communication, collaboration, and efficient resource expansion (Jiang et al., 2023). Thus, the stronger a company's DPC is, the greater its ability to identify opportunities, absorb knowledge, and improve innovation performance (Helfat & Raubitschek, 2018; Ali et al., 2020; Bhatti et al., 2022).

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

Big data is characterized by volume, velocity, variety, veracity, value (Wamba et al., 2017), and additional dimensions such as variability and visualization (Alaskar, 2024). BDAC is an organization's ability to capture, integrate, and analyze big data to generate strategic insights (Mikalef et al., 2019). BDAC involves a combination of technological expertise, data science, and organizational management (Jeble et al., 2018). By utilizing BDAC, organizations can improve prediction accuracy, accelerate innovation, and support data-driven decision making (Gupta et al., 2018; Dubey et al., 2019). This capability also enables companies to detect hidden patterns in data, conduct market forecasting, and reduce risk in decision-making (Al-Darras & Tanova, 2022; Elia et al., 2022). Furthermore, BDAC is an important mechanism for shortening product development cycles, increasing market response speed, and ultimately strengthening competitiveness (Xu et al., 2024).

### *2.4 Innovation Performance (IP)*

Innovation is understood as the implementation of new ideas in the form of products, systems, processes, policies, or services that are relevant to the organization (Damanpour & Evan, 1984). According to the Oslo Manual (OECD & Eurostat, 2005), innovation is divided into four types: product, process, marketing, and organizational. Innovation performance (IP) is an important indicator of organizational success because it drives competitive advantage, market adaptation, operational efficiency, and long-term business sustainability (Cinar et al., 2020; Scuotto et al., 2022). IP can be measured objectively through the number of patents, new product launches, and sales growth (Alaskar, 2024).

### *2.5 Research Framework and Hypotheses Development*

BDAC Affects Innovation Performance

According to RBV, organizations can gain a competitive advantage if they have unique and difficult-to-imitate resources (Barney, 1991). BDAC is a strategic capability that enables organizations to generate insights from data to support innovation (Jeble et al., 2018; Alaskar, 2024). Previous studies have confirmed the positive relationship between BDAC and innovation performance (Ferraris et al., 2019; Muhammad et al., 2022; Binsaeed et al., 2023).

**$H_1$:** *BDAC positively influences Innovation Performance*.

DPC Affects Innovation Performance

Companies that have DPCs can integrate internal and external resources to increase innovation opportunities (Helfat & Raubitschek, 2018; Teece, 2018). Empirical studies show a positive relationship between DPC and innovation performance (Cenamor et al., 2019; Jun et al., 2022; Yin & Yu, 2022).

**$H_2$:** *DPC positively influences Innovation Performance*.

## 3. Methodology

### *3.1 Research Design*

This study uses a quantitative approach with a survey design to examine the relationship between *Digital Platform Capability* (DPC), *Big Data Analytics Capability* (BDAC), and *Innovation Performance* (IP). The research model was developed based on the *Resource-Based View (RBV)* and *Dynamic Capabilities View (DCV)*, which explain that digital resources can be an important factor in improving innovation performance.

### *3.2 Population and Sample*

This study's population consists of all employees working for telecommunications companies in Indonesia, including Telkomsel, Indosat Ooredoo Hutchison, XL Axiata, and Smartfren. The sampling technique used was purposive sampling, with the criterion that respondents must be at least at the supervisor or managerial level, as these positions are directly involved in data-based decision-making and implementing digital platforms.

611 questionnaires were distributed through an online platform (Google Form) and direct distribution. Of these, 331 questionnaires were returned and declared valid for analysis, resulting in a response rate of 55.8%. This number meets the requirements for *Partial Least Squares Structural Equation Modeling* (PLS-SEM) analysis, which requires at least 10 times the number of indicators in the model (Hair et al., 2020).

### *3.3 Data Collection Procedure*

Data collection was conducted from February to May. The research instrument was a questionnaire with a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). The questionnaire consisted of three main sections: (1) respondent demographic data, (2) questions for the DPC and BDAC variables, and (3) questions for the IP variable.

### *3.4 Measurement of Variables*

The instruments for measuring variables were adapted from previous studies that had been tested for validity and reliability: Digital Platform Capability (DPC): 8 items adapted from (Cenamor et al., 2019) and (Xiao et al., 2020), covering the dimensions of platform integration and platform reconfiguration. Big Data Analytics Capability (BDAC): 20 items adapted from (Al-Darras & Tanova, 2022), (Wamba & Akter, 2019), and (Mikalef et al., 2019), covering aspects of technology, data, and analytical expertise. Innovation Performance (IP): 5 items adapted from (Ritter & Gemünden, 2004; Damanpour & Evan, 1984), and the Oslo Manual (OECD & Eurostat, 2005), which measure the success of product, process, marketing, and organizational innovation. Before the main data collection, a pre-test was conducted on 30 respondents to ensure language clarity, item relevance, and initial instrument reliability.

*3.5 Data Analysis Technique*

The data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4 software. This technique was chosen because it is suitable for research models with complex latent variables and data that are not entirely normally distributed (Hair et al., 2020). The analysis was conducted in two stages:

1. Measurement Model (Outer Model):
   - Validity Convergent Test factor loadings > 0.7, AVE > 0.5).
   - Reliability Test (Cronbach's Alpha dan Composite Reliability > 0.7).
   - Discriminant validity test (Fornell-Larcker Criterion and HTMT < 0.85).
2. Structural Model (Inner Model):
   - Test the significance of path coefficients with bootstrapping of 5,000 samples.
   - The coefficient of determination ($R^2$) value measures the model's strength.
   - The effect size ($f^2$) value is used to see the relative contribution of independent variables.
   - Predictive relevance value ($Q^2$) to assess the model's predictive ability.

## 4. Results

*4.1 Measurement Model (Outer Model)*

The measurement model was evaluated to ensure construct validity and reliability.

Table 1 shows the loading factor, Average Variance Extracted (AVE), Composite Reliability (CR), and Cronbach's Alpha values for each construct.

**Table 1**
Reliability and Validity of Constructs

| Construct | Item | Loading Factor | AVE | CR | Cronbach's Alpha |
|---|---|---|---|---|---|
| Big Data Analytics Capability | X2.11 | 0.700 | 0.515 | 0.950 | 0.944 |
| | X2.12 | 0.757 | | | |
| | X2.13 | 0.744 | | | |
| | X2.14 | 0.709 | | | |
| | X2.15 | 0.714 | | | |
| | X2.16 | 0.676 | | | |
| | X2.17 | 0.706 | | | |
| | X2.18 | 0.710 | | | |
| | X2.2 | 0.679 | | | |
| | X2.20 | 0.680 | | | |
| | X2.3 | 0.728 | | | |
| | X2.4 | 0.753 | | | |
| | X2.5 | 0.784 | | | |
| | X2.6 | 0.717 | | | |
| | X2.7 | 0.763 | | | |
| | X2.8 | 0.747 | | | |
| | X2.9 | 0.704 | | | |
| Digital Platform Capability | X1.2 | 0.752 | 0.519 | 0.896 | 0.867 |
| | X1.3 | 0.740 | | | |
| | X1.4 | 0.776 | | | |
| | X1.5 | 0.776 | | | |
| | X1.6 | 0.684 | | | |
| | X1.7 | 0.673 | | | |
| | X1.8 | 0.711 | | | |
| Innovation Performance | Y1 | 0.637 | 0.568 | 0.867 | 0.808 |
| | Y2 | 0.798 | | | |
| | Y3 | 0.796 | | | |
| | Y4 | 0.749 | | | |
| | Y5 | 0.776 | | | |

These results indicate that all indicators meet the criteria for convergent validity (Hair et al., 2017). AVE values > 0.5 and CR and Cronbach's Alpha > 0.7 indicate valid and reliable constructs. These findings are in line with the recommendations of (Fornell, 1981), who assert that instruments can be considered valid if the AVE exceeds 0.50.

### *4.2 Discriminant Validity*

All HTMT values were  0.85, indicating that each construct had good discriminant validity (Henseler et al., 2015).

**Table 2**
HTMT Criterion

| | Big Data Analytics Capability | Digital Capability | Platform | Innovative Performance |
|---|---|---|---|---|
| Big Data Analytics Capability | | | | |
| Digital Platform Capability | 0.687 | | | |
| Innovative Performance | 0.780 | 0.729 | | |

The AVE square root value is higher than the inter-construct correlation, which also confirms discriminant validity (Fornell, 1981).

**Table 3**
Fornell–Larcker Criterion

| | Big Data Analytics Capability | Digital Capability | Platform | Innovative Performance |
|---|---|---|---|---|
| Big Data Analytics Capability | 0.718 | | | |
| Digital Platform Capability | 0.638 | 0.721 | | |
| Innovative Performance | 0.686 | 0.625 | | 0.754 |

### *4.3 Structural Model (Inner Model)*

Structural model testing was conducted by examining path coefficients, T-statistic values, and P-values from 5,000 bootstrapping samples (Hair et al., 2020).

**Table 4**
Hypothesis Testing

| Hypothesis | Path Relationship | Path (O) | Coefficient | T Statistics | P Value | Decision |
|---|---|---|---|---|---|---|
| H1 | Big Data Analytics Capability → Innovation Performance | 0.484 | | 8.033 | 0.000 | Supported |
| H2 | Digital Platform Capability → Innovation Performance | 0.316 | | 5.282 | 0.000 | Supported |

The results show that both paths are significant. BDAC has a significant positive effect on Innovation Performance ($\beta = 0.484$; p  0.001), supporting the findings of (Mikalef et al., 2019) and (Wamba et al., 2020) who state that BDAC enables companies to identify hidden patterns to improve innovation performance. Similarly, DPC has a significant positive effect on Innovation Performance ($\beta = 0.316$; $p < 0.001$), in line with the studies by Cenamor et al. (2019) and Jun et al. (2022), which emphasize the role of DPC in driving the innovation process through integrating digital resources.

### *4.4 Model Fit and Predictive Power*

- The value of $R^2$ Innovation Performance indicates that the combination of BDAC and DPC can explain moderate to substantial variations in innovation performance (J. F. Hair et al., 2021).
- The value of $f^2$ shows that BDAC has a greater contribution than DPC to IP, in line with the findings of (Ferraris et al., 2019), who found BDAC to be the primary driver of organizational performance.
- A value of $Q^2 > 0$ indicates that the model has predictive relevance (Bassiouni & Bassiouny, 2025).

### *4.5 Structural Model Path Diagram*

To clarify the relationship between latent variables in the research model, Figure 1 below presents the results of structural model estimation using SmartPLS. The diagram shows the paths of influence between Big Data Analytics Capability (BDAC), Digital Platform Capability (DPC), and Innovation Performance (IP), along with the path coefficient values and their significance levels.

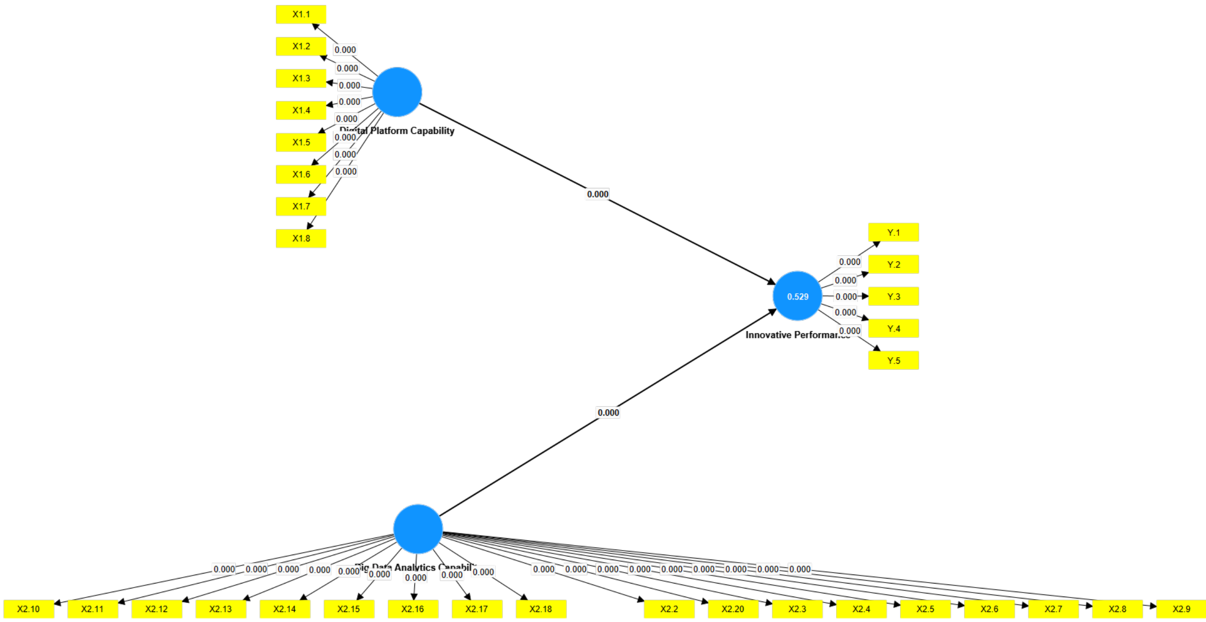


**Fig. 1.** Structural Model (PLS-SEM Output)

As shown in Fig. 1, the paths from BDAC → IP and DPC → IP are both significant with p-values of 0.001. This confirms that a company's digital capabilities play an important role in improving innovation performance..

## 5. Discussion

### *5.1 Big Data Analytics Capability and Innovation Performance*

The results of this study indicate that *Big Data Analytics Capability* (BDAC) has a significant positive influence on *Innovation Performance*. This finding reinforces previous literature emphasizing that BDAC is a strategic resource that enables organizations to identify hidden patterns, understand market trends, and integrate data insights into the innovation process (Mikalef et al., 2019; Wamba et al., 2020). With these capabilities, companies can shorten innovation cycles, improve market forecasting accuracy, and support data-driven decision-making.

Furthermore, these results are consistent with (Ferraris et al., 2019), who found that BDAC positively relates to knowledge management and organizational performance. This confirms that data is not only an information asset, but also a valuable resource within the *Resource-Based View* Framework (Barney, 1991), as it meets the *VRIN* (Valuable, Rare, Inimitable, Non-substitutable) criteria. However, (Ghasemaghaei, 2019) A study warns that big data does not automatically create value, but requires integration with human factors, technology, and organizational processes.

This research's contribution is to fill the empirical gap in the context of developing countries, particularly Indonesia, where the use of BDAC in the telecommunications industry is relatively new and rarely studied. Thus, these results broaden the understanding that BDAC is relevant in developed countries and important for companies in emerging markets facing high competitive dynamics.

### *5.2 Digital Platform Capability and Innovation Performance*

This study also found that Digital Platform Capability (DPC) significantly affects Innovation Performance. This finding is in line with studies by Cenamor et al. (2019) and Jun et al. (2022), which confirms that DPC supports the integration of internal and external resources and accelerates the flow of knowledge between organizations. Digital platforms provide infrastructure that enables companies to collaborate, share data, and access external resources at low marginal cost (Helfat & Raubitschek, 2018). These findings are also consistent with (Yin & Yu, 2022), who report that platform-based digital transformation strengthens innovation in the manufacturing sector. Thus, DPC can be viewed as a form of dynamic capability (Teece et al., 1997b), as it encourages organizations to adapt, integrate, and reconfigure resources in response to market changes. However, the literature also highlights challenges in utilizing digital platforms, such as business process complexity, integration risks, and high adjustment costs (Benitez et al., 2022). Therefore, even though DPC has been proven to increase innovation, companies must ensure organizational readiness regarding digital culture, human resource expertise, and governance structure to maximize its benefits.

### *5.3 Theoretical Implications*

This study makes several theoretical contributions:

1. Strengthening RBV in the digital context: Findings that BDAC and DPC significantly influence innovation expand RBV by emphasizing that digital resources can be high-value *strategic assets* (Barney, 1991).
2. Integration of RBV and DCV: BDAC represents valuable internal resources, while DPC represents the organization's ability to integrate external resources and adapt to environmental changes. This combination confirms that RBV and DCV complement each other (Teece et al., 1997c).
3. Contextual contribution: This study enriches the literature by presenting empirical evidence from the telecommunications industry in Indonesia, a context that has been relatively less explored than in developed countries.

### *5.4 Practical Implications*

For practitioners, these findings underscore the importance of investing in digital capabilities. Some practical implications include:

1. Investment in big data infrastructure: Telecommunications companies need to build analytical systems capable of processing real-time data, which can be used in new product development, service personalization, and customer experience improvement.
2. Strengthening digital platform capabilities: DPCs must be developed as technology and as mechanisms to encourage cross-functional and inter-organizational collaboration, accelerate decision-making, and improve the efficiency of innovation processes.
3. Developing digital human resource competencies: Companies must train employees in data literacy and analytical skills to fully utilize the adopted technology. This is in line with Mikalef and Pateli's view (2017) that technology is only useful if accompanied by adequate human expertise.
4. Building a culture of innovation: BDAC and DPC's success in improving innovation performance requires an organizational culture that is open to experimentation, adaptive to change, and oriented toward continuous learning.

## 6. Conclusion

This study aims to analyze the role of *Big Data Analytics Capability* (BDAC) and *Digital Platform Capability* (DPC) in improving *Innovation Performance* (IP) in the telecommunications industry in Indonesia. The testing results with PLS-SEM show that these two digital capabilities significantly positively affect innovation performance. These findings confirm that organizations that can process big data effectively will have a stronger foundation in identifying innovation opportunities, reducing uncertainty in decision-making, and accelerating the development of new products and services.

In addition, DPC has proven to play an important role in providing digital infrastructure that enables business process integration, cross-organizational collaboration, and knowledge exchange with external partners. Thus, BDAC and DPC are not just technological assets, but strategic resources that can shape sustainable competitiveness. This study reinforces the Resource-Based View (RBV) within the theoretical framework by showing that digital capabilities meet the criteria of valuable, rare, inimitable, and non-substitutable (VRIN). Furthermore, these results confirm the relevance of the *Dynamic Capabilities View* (DCV), in which DPC acts as an adaptive mechanism to respond to ever-changing market dynamics.

This study concludes that capability-based digital transformation—whether through big data analytics or digital platforms—is a key factor that can improve the innovation performance of telecommunications companies in Indonesia. This is relevant for academics and provides a strategic message for company management that innovation in the digital era cannot be separated from the ability to manage and utilize technology intelligently.

## 7. Limitations and Future Research

Although it makes a significant contribution, this study has several limitations that should be noted.

1. Limited research context: This study focuses only on the telecommunications industry in Indonesia. Market conditions and technology adoption rates in this sector may differ from those in other sectors, so the findings cannot be generalized.
2. Cross-sectional design: The data were collected at a single point in time, so the long-term causal relationship between BDAC, DPC, and IP cannot yet be comprehensively explained. The evolutionary nature of digital capabilities requires a longitudinal approach to understanding changes over time.
3. Limited variables: This study only highlights two key digital capabilities, whereas other factors, such as *digital leadership, organizational learning, IT infrastructure flexibility,* or *environmental turbulence,* also have the potential to influence innovation.
4. Self-reported data approach: The research instrument uses a questionnaire that respondents fill out independently. This has the potential to cause perception bias or standard method bias.

For future research, several suggested directions for development are:

- Conduct cross-industry or cross-country studies to compare how BDAC and DPC function in different business ecosystems.
- Using a longitudinal design to examine the long-term evolution of digital capabilities and their impact on sustainable innovation.
- Adding mediating variables, such as knowledge management or organizational agility, as well as moderating variables such as environmental dynamism, to enrich the theoretical model.
- Combining quantitative methods with qualitative approaches (such as in-depth interviews or case studies) to provide a more contextual understanding of best practices in BDAC and DPC management.

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