EFFECT OF AMBIDEXTROUS LEADERSHIP ON FIRM PERFORMANCE: MEDIATING ROLE OF DIGITAL BUSINESS MODEL INNOVATION

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ABSTRACT

This paper aims primarily at examining the effect of ambidextrous leadership on the firm performance as well as measuring the mediating role of digital business model innovation of telecommunication companies in Indonesia. For this major purpose, dimensions of both quantitative and qualitative research were applied with particular reference to survey followed by in-depth interviews. This research was carried out using quantitative and qualitative methods with a sequential explanatory design to collect and analyze data, integrate findings, and draw conclusions. The sample in this study amounted to 180 (0.72%) complete questionnaires which were processed in quantitative testing, and in qualitative research this study used 12 sources used in qualitative research. More specifically, an online survey was conducted with active participation of 12 Directors and Senior Leaders of Telecommunication Network Companies in Indonesia. In addition to the survey, twelve face-to-face interviews were conducted to clarify the results of quantitative data. The quantitative data were further analyzed with Partial Least Square (PLS) analysis, while the interviews were transcribed, coded, and visualized using NVivo software package. Major results indicate that ambidextrous leadership has significant positive and significant effect on telecommunication companies' performance in Indonesia, both directly and indirectly through digital business model innovation. The study suggests the utilization of extraordinary plans in identifying external and internal situations during and after the corona virus pandemic (COVID-19).

Keywords: Ambidextrous Leadership, Digital Business Model Innovation, Firm Performance.

INTRODUCTION

Digital business model innovation has developed over the last couple of decades into an important area of inquiry in the literature of strategic management and firm performance. In telecom industry, the digital technology drives the fusion of industrial production. Telecom digital services enables the across industry to provide convergences service through virtualization and digitalization of the physical and the virtual worlds to serve customer (Ibarra et al., 2018). Those convergences bring the new ecosystem to enable the transformation of business model in providing a smart connected solution (Porter & Heppelmann, 2014). The connected solution brings a new paradigm on conceptual model based on digital business model innovation. The new concept of digital business model innovation change in the way to do business through transformation business, employee behavior and organization. The transformation is enable the management to rethink the existing digital business model innovation since the business model innovation is related with value creation, it bring extensive consequences and opportunities (Amit & Zott, 2010; Zott & Amit, 2017).

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The leadership style that best promotes exploration and exploitation and, consequently, innovation is ambidextrous leadership. Ambidextrous leaders employ opening leader behaviors to encourage employees to proactively seek novel ideas and solutions and then shift to closing leader behaviors to encourage workers to implement these ideas and solutions. Therefore, in a company, ambidextrous leadership has the capacity to promote proactiveness, innovativeness, and risk-taking by employees. The interaction between opening and closing behaviors predicts innovative performance in employees. Therefore, greater interaction between the two behaviors means higher levels of innovativeness. Ambidextrous leadership influences employees' innovative performance and creativity (Abd El Majid & Cohen, 2015).

Telecommunication companies experienced a significant increase in data service traffic with the implementation of the Working from Home (WFH) policy due to the Covid-19 pandemic. This led to an increase in profitability, focusing on ways to eliminate short-term data traffic. The performance of Telco companies in Indonesia shows a decrease in the legacy revenue of telecommunication with an increase in data revenue. However, there is also a decline in the performance on a consolidated basis in telecommunication industries. The growth of data services is not proportional to the decline in legacy and decoupled revenues to Load Traffic Data.

Since 2019 and still progressing in 2020, the problems of the three telecommunication operators have experienced a decline in company performance, it can be seen that TELKOM has decreased revenue from 135.567 Trillion (2019) to 135.450 Trillion (2020). From the Mirae Sekuritas data source, 2020, from 2013-2019, it can be seen that the Net Profit Margin has decreased relatively, the same thing happened to EXCEL and ISAT, with revenue declining from 2019 to 2020 and the relative Net Profit Margin also decreasing from 2013-2019. This is a challenge for the company or organization of Telecommunication Operators to improve the Company's performance efforts (Geissdoerfer et al., 2018).

The innovation of new digital telecommunication products and services cannot boost the decline in Revenue Legacy; therefore, to increase Data Revenue, a new Digital Business Model Innovation is needed in collaboration with the present industry players.

The business phenomenon in the telecommunication industries in Indonesia is challenging to implement in listed companies because the research on Business Model Innovation is still relatively new in management science (Baden-Fuller & Morgan, 2010). Therefore, further studies still need to be conducted regarding to its implementation (Saebi et al., 2017). It is also necessary to explore innovation in telecommunication companies due to the associated limited research (Sudiyatno & Puspitasari, 2010).

In addition, there is still a research gap regarding ambidexterity as in the research of Tamayo et al. (2017) describing a significant relationship between ambidexterity as a basis and enabler for manufacturing performance improvement, building a sand cone model and the dimensions of quality, delivery, cost, and flexibility. This relationship is more emphasized when the company works in a dynamic environment. Soto-Acosta et al. (2018) showed that information technology ability, knowledge management ability and environmental dynamism were positively related to innovation ambidexterity. In addition, environmental dynamics were found to amplify the positive effect of innovation ambidexterity on firm performance. Verified the positive influence of ambidextrous leadership on entrepreneurial orientation, which is positively moderated by organizational social capital. The results also explain the predictive role of entrepreneurial orientation for organizational operational performance. Junni et al. (2015) explain the role of HR and organizational factors in ambidexterity. This contributes to a more comprehensive understanding of ambidexterity from an HR and organizational perspective.

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Previous research has focused only on moderators for the relationship between ambidexterity and performance such as environmental and resource dynamism. In addition, existing studies have gaps, inadequate consensus on whether the relationship between ambidextrous leadership and firm performance is direct or indirect and how successful firms are in leveraging ambidextrous leader behavior to automatically impact firm performance Bledow et al. (2011). Companies must innovate digital business models to capture opportunities and thereby create increased company performance (Penrose & Penrose 2009).

This study fills the above knowledge gaps in the following ways. First, we investigate the effect of ambidextrous leadership on firm performance and on digital business model innovation. Also effect of ambidextrous leadership on firm performance through digital business model innovation. Next, we explore whether the relationship between digital business model innovation on firm performance (Tamayo-Torres et al., 2017).

This study contributes to the existing literature by first making a theoretical contribution in formulating a new model depicting how ambidextrous leadership, digital business model innovation enhances firm performance in certain business environment during covid-19 in telco industry. It also makes an empirical contribution by validating ambidextrous leadership of firm to adapt to uncertain business environment. This provides implication for how firms with limited resources can achieve superior organizational performance in the telco sector, which is characterized by rapid change and various knowledge bases.

The purpose of this research is to examine the effect of ambidextrous leadership and digital business model innovation on firm performance in telecommunication companies in Indonesia. This research was carried out using the qualitative and quantitative approaches. Our use of both primary (survey) data and respondent interviews provides us with a richer understanding of the interplay among ambidextrous leadership, digital business model innovation and firm performance. The results are expected to provide managerial implications for the management of the targeted companies to improve their performance through the implementation of variables.

LITERATURE REVIEW

Ambidextrous Leadership (AL)

A corporate is said that ambidextrous leadership popularized by academics is a special characteristic used by leaders to carry out exploration and exploitation activities. According to Zacher & Rosing (2015); exploration includes exploring, taking risks, experimenting, and innovation in organizations, while exploitation is related to improvement, efficiency, implementation, and execution of a target. Ambidextrous Leaders need to achieve optimal balance in exploiting and exploring all activities within the company to successfully achieve set targets Zacher & Rosing (2015).

Leadership is the key to achieving an innovative environment within the organization (Alghamdi, 2018). Several studies on correlation models have shown the inconsistent and complex correlation between innovation and leadership (Rosing et al., 2011). However, the research carried out by Below et al. (2011) described a new model of leadership for more effective innovation by covering a broad range of behaviors and approaches. Rosing et al. (2011) stated that leaders need to increase exploration and exploitation behavior to achieve performance innovation (Zhang & Liu, 2010).

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Research carried out by Kassotaki (2019a) on Ambidextrous High Technology Company indicated that there are 2 types of Ambidextrous, namely Ambidextrous Entrepreneurship, where the Leader focuses on Exploration Behavior Ambidextrous Manager, which focuses more on exploitation. Based on the survey results of 98 SMEs in the United Kingdom, opening and closing leadership behaviors have an accurate and significant influence on employee innovation (Oluwafemi et al., 2020).

The dimensions used to measure ambidextrous leadership in this study are opening behavior that drives Exploration, closing behavior that drives Exploitation. It also comprises Opening Leadership with indicators used in various ways to

1. Achieve goals in different ways,
2. Conduct experiments,
3. Motivate other teams,
4. Think and act independently.

Digital Business Model Innovation (DBMI)

Digital Business Model Innovation (DBMI) comprises product, process, and managerial innovations. It needs to corporate with the Product Model Business Innovation to provide a unique and special product or service that is attractive and different from other companies. According to Liao et al. (2017), product innovation includes radical, incremental, and system innovations. Meanwhile, process innovation is produced by companies that are into manufacturing compared to the current process. Managerial innovation is an action associated with the process of organizing a planning method. This is part of the application of innovation management science related to the goals of a business. Stated that employees work hard when motivated by their company.

Digital Business Model Innovation is a company looking for new ideas and ways of doing things (Garcia, 2002). These companies are creative in their mode of operation and strive to be the best in the manufacture of new products and services over the last 5 years (Kreutzer et al., 2018).

Digital Business Model Innovation is the addition of new activity content, structure related to different activities (Amit & Zott, 2010). It is also related to the proposition of new value related to product value and capture innovation related to new customers (Clauss, 2017). The dimensions used in this research, creating value creation new business model, which focuses on the perceived need for new model, novel and partner activities, and the creation of new revenue from a new business model, value proposition innovation, which focuses on offering new services, client, markets, and sales channels for the delivery of products or services, and value capture innovation, focusing on recently earning models and new cost structures in accordance with the company's strategy (Ranto, 2016).

Hypothesis

Previous research employees related to ambidextrous leadership behaviors and innovation performance, traditional direction styles, such as transformational, transactional, instrumental leadership, and leader-member exchange, were assessed personally to identify the impact on innovation performance. Instrumental leadership includes opening and closing leader behaviors that positively and significantly affect innovation performance (Gerlach et al., 2020).

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Research carried out by Oluwafemi et al. (2020) from 98 SME high technology SME's in the UK found that establishment and closing leadership behaviors reflect employee explorative and exploitative innovation attitudes, with control variables. Based on research from 33 team leaders of Architects and interior design companies and 90 employees, it was stated that Ambidextrous Leadership behaviors accurately affect team innovation performance (Zacher & Rosing, 2015).

Previous research showed a positive influence between ambidextrous leadership on CEOs, which explores and exploits employees to achieve company performance. Various analyzes of ambidextrous leadership were also carried out, which were considered capable of predicting TMT members' behavior in achieving performance. TMT behavioral integration relationships include collaborative behavior, information exchange, and joint decision-making (Luo et al., 2018).

Tsai & Wang's (2017) research on Ambidextrous Innovation and market orientation capabilities using 170 service-oriented firms in Taiwan showed an accurate and significant effect on service innovation and firm performance. Research carried out by Ho & Lu (2015) using 220 companies found that simultaneous marketing exploitation and exploration had an accurate and significant impact on Firms' Market Performance. Furthermore, the collaboration of suppliers had a positive impact on Marketing Exploration and also decreased the influence of marketing exploitation on Market Performance (Nason & Wiklund, 2018).

Based on this description, it can be assumed that ambidextrous leadership has an accurate and significant effect on firm performance in the telecommunication companies in Indonesia. According to Zott & Amit (2008), Digital Business Model Innovation has an accurate and significant relationship on Product Marketing strategy that supports the achievement of Firm Performance, calculated from the measurement of market capitalization. In the context of firm performance, we expect ambidextrous leadership to have a stronger influence on firm performance current situation, especially in Indonesia. Based on the above idea, we formulated the hypothesis as following:

H_1: *Ambidextrous leadership has a positive and significant effect on digital business model innovation in the telecommunication companies in Indonesia.*

Sources from other studies found that separate innovation units increase exploration, exploitation, and ambidexterity in production and service companies. The research carried out by Blindenbach-Driessen & Van den Ende (2014) stated that production and service corporations' benefit from the separation of innovation units, with a more significant impact on manufacturing companies. Based on the above idea, we formulated the hypothesis as following:

H_2: *Ambidextrous leadership has a positive and significant effect on firm performance in the telecommunication companies in Indonesia.*

Digital transformation provides a competitive advantage for telecommunication companies that significantly impact the Innovation Business and Digital Business Innovation on Firm Performance (Ferreira et al., 2019). Research obtained from other sources indicates that Apple initially focused on hardware and software innovation. However, after the iPod and iTunes innovations, which led to a new Business Model with an increase in revenue, profit and stock price changes, Digital Business Model Innovation had an accurate and significant impact on the Company's Business Performance (Amit & Zott, 2010). Studies on marketing and

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organizational innovation have an accurate and significant effect on firms with high-tech technology. This study proves a synergy effect between innovation and Firm Performance depending on the level of innovation and industry category (Lee et al., 2019).

Therefore, in accordance with this idea, it was assumed that Digital Business Model Innovation has an accurate and significant effect on Firm Achievement in the telecommunication companies in Indonesia. This means that the firm performance in increases with the rise in innovation (Röder et al., 2014). Value proposition innovation helps firms to extend their product and service portfolios and address new market needs, which have been instrumental to firm performance. Value capture innovation helps firms to realize new revenue streams, in addition to existing revenues, or to substitute the less profitable ones, thus enhancing the prospect of future returns. Value capture innovation can also strengthen business performance through improved cost structure, resulting in the reduction of inefficiencies. The above discussion leads us to the following hypotheses:

H_3: *Digital business model innovation has a positive and significant effect on firm Performance in the telecommunication companies in Indonesia.*

Previous research showed a positive influence between ambidextrous leadership on CEOs, which explores and exploits employees to achieve company performance. Various analyzes of ambidextrous leadership were also carried out, which were considered capable of predicting TMT members' behavior in achieving performance. TMT behavioral integration relationships include collaborative behavior, information exchange, and joint decision-making (Luo et al., 2018). Tsai and Wang's (2017) research on Ambidextrous Innovation and market orientation capabilities using 170 service-oriented firms in Taiwan showed an accurate and significant effect on service innovation and firm performance. Furthermore, since environmental turbulence increases the demand for more information processing, strategically agile firms operating in such environments will be more effective in leveraging their leadership capability to capitalize on changing market trends. Consequently, it is reasonable to expect that the degree of environmental turbulence further strengthens the relationship between firm-level strategic agility and BMI adoption by creating a sense of urgency and a challenge for firms to further utilize their strategic agility to effectively adapt to their environments through innovative business models. The above discussion leads us to the following hypothesis:

H_4: *Ambidextrous leadership has a positive and significant effect on firm performance in the telecommunication companies in Indonesia through digital business model innovation.*

METHODS

Approach

This research was carried out using quantitative and qualitative methods with a sequential explanatory design to collect and analyze data, integrate findings, and draw conclusions. The sequence of analysis starts with quantitative and then collects the qualitative data to expand the available information. Qualitative methods play a significant role in proving, deepening, and extending the quantitative data obtained in the early stages. This research was conducted in telecommunication companies in Indonesia using a cross-sectional data type.

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Data were quantitatively collected online and offline. Microsoft Forms were used for online surveys, which were then disseminated using social media. Questionnaires were distributed to the Directors and Senior Leaders of Telecommunication Network Companies in Indonesia. Qualitative data collection was carried out by conducting in-depth interviews with several sources such as the Board of Directors and Senior Leaders of managing companies throughout Indonesia. In the offline survey, the authors directly contacted the surveyors with the Indonesian Internet Service Providers Association (APJII) and the Directors and Senior Leaders of managing companies throughout Indonesia. Questionnaires were distributed to measure the variables contained in this study.

This study uses a questionnaire distributed online and offline. From the 250 questionnaires entered, after going through the selection process 180 (0,72%) complete questionnaires were obtained and there were 70 (0,28%) incomplete questionnaires, from the complete questionnaires they were processed in quantitative research with SmartPls. While for offline questionnaires based on the results of the documentation study, there are 446 Internet Service Providers (ISPs) and network access points (NAPs), 65 network companies, and 31 tower providers. Therefore, out of a total (542) companies in Indonesia, only 100 companies were used to conduct this research and 12 sources were used in qualitative research.

The analysis used to examine the hypothesis in this study is the PLS Method, an analytical model developed from the Structural Equation Modeling (SEM). The structural equation model reflects on the relationship between latent variables and measurement components. Furthermore, the process of confirming quantitative results was carried out by systematically arranging field notes obtained from interviews, observations, and other materials. Data collection and analysis (interpretation) were carried out simultaneously to sharpen observation and deepen issues relevant to the subject matter studied.

Data Collection

The individual in-depth interviews were conducted from digital telco company player who had started business in telecommunication industry. Twelve interviewers as Key Informant (KI) were conducted from the owners and CEO of ISPs, VPs of Telco Manage Service and SGM of Telco incumbent. Table 1 presents twelve interviewers were conducted during July–September 2021 with sample telco players. Individual interviews were conducted at private zoom and ensure privacy and confidentiality.

Table 1
CHARACTERISTIC OF KEY INFORMANT

Code	Age	Years in Business	Level	Type Firm	Size Firm
KI-1	47	30 years	VP	Telco Cellular	National
KI-2	46	20 years	CEO	ISP	Regional
KI-3	50	30 years	VP	ISP	Regional
KI-4	47	30 years	VP	Telco Manage Service	National
KI-5	47	33 years	SGM	Telco Incumbent	National
KI-6	48	34 years	VP	Telco Manage Service	National
KI-7	47	30 years	CEO	Telco Supplier	Regional
KI-8	48	33 years	VP	Telco digital	National

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				payment	
KI-9	48	30 years	COO	Telco Supplier	National
KI-10	51	35 years	COO	Telco supplier	National
KI-11	47	32 years	VP	Telco Manage service	National
KI-12	48	30 years	GM	ISP	Regional

The interviews started with a brief introduction of the researcher and briefing on the purposes of this study. Interview guide comprises introduction, open-ended question and closing.

Table 2
THEME, MAIN CATEGORIES, SUBCATEGORIES AND CODES

Theme	Main Categories	Categories	Codes
Firm performance during covid-19	Situation business decline & their manifestation	Circumstances business decline	· Customer affordability decline
		Survival in business	· Innovation new product
			· Cost efficiency
	Action & reaction corporate		· Decline Sales & profit
		Situational response	· Built digitalization (leadership digital)
	Future plans		· Collaboration with partners
			· Low-cost team (exploitation)
		Capability to innovate	

Table 2 presents theme, main categories, and sub-categories illustrating firm performance during Covid-19. Situation business decline and their manifestation is critical situation for BOD and senior leader to manage their company to continue business operation. It is also important for them to consider action, reaction and future plans. Seven codes have been defined based on the transcript of interviewers using verbatims from participants by indicating codes such as KI-1, KI2 for key informants 1,2 respectively.

As the summary of interviews with telecommunication practitioners stated that BOD and senior leaders is expected to be adaptive with extraordinary plans to respond to external and internal situations such as the Covid-19 pandemic. It is shown in Figure 1, based on the result of N*Vivo*, the extraordinary plans shall consist of innovation new product in order to increase sales and revenue toward firm performance increase.

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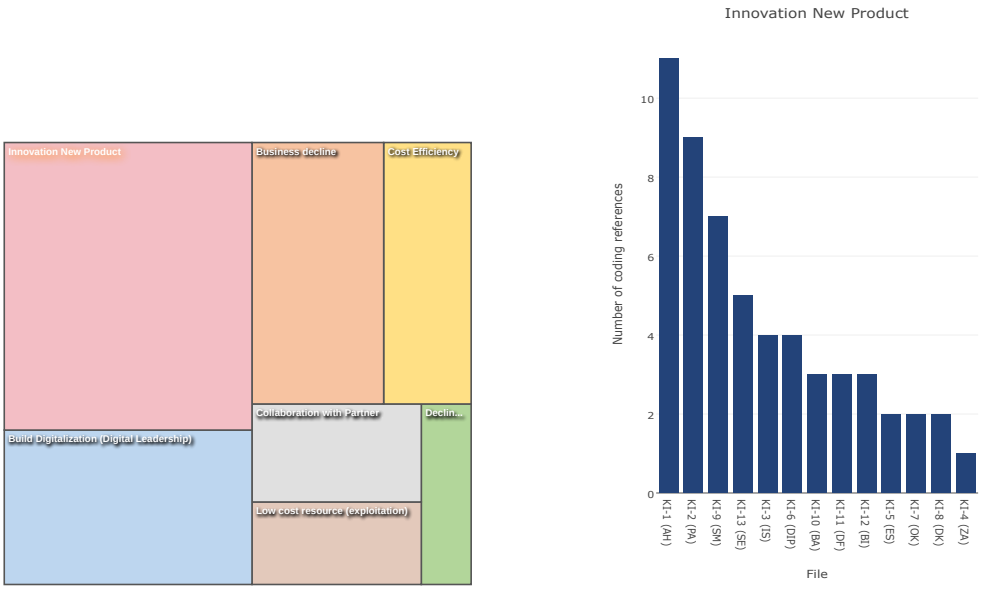

FIGURE 1
HIERARCHY CHART & INNOVATION PRODUCT - CODING REFERENCE (NVIVO)

Results (Partial Least Square analysis)

Table 3 presents the descriptive statistics of the continuous variables, and the correlation analysis results. All the correlation coefficients were observed to be positively significant.

Table 3
EVALUATION OF CONVERGENT VALIDITY

Dimension	Indicator	Loading Factor (l)	t value	Average Variance Extracted (AVE)	Composite Reliability
Opening behavior drives exploration		0.932	151.815	0.53	0.887
	· Leader allows various efforts to complete work	0.736	26.908		
	· Support to try new ideas	0.669	18.961		
	· Dare to take risks	0.722	25.261		
	· Allows to think and act independently	0.725	24.445		
	· Give space to express opinions	0.683	20.892		
	· Tolerating mistakes	0.726	25.506		
	· Encourages learning from mistakes	0.825	55.435		
Closing behavior drives exploration		0.91	80.356	0.577	0.864
	· Encourage and control the achievement of regular goals	0.699	22.084		
	· Making regulations so that field implementation runs smoothly	0.652	21.187		
	· Take corrective steps in every problem	0.709	30.758		
	· Encourage compliance with applicable regulations	0.685	25.11		
	· Pay more attention to ensure the task is	0.677	19.985		

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	completed completely				
	· Implement sanctions if you violate the rules	0.692	25.597		
	· Ensure a plan is implemented according to plan	0.716	25.481		
Innovation Value		0.889	56.551	0.507	0.803
	· New needs that can be met with new digital business model innovations	0.666	14.952		
	· There are related parties who carry out digital innovation activities	0.787	32.898		
	· The added value provided with the new digital business model	0.616	14.855		
	· Generated revenue model with new digital business model towards target	0.765	31.957		
Value proposition		0.891	95.974	0.743	0.896
	· New digital service offerings in business model innovation	0.795	39.669		
	· New customers and markets with digital business model innovation	0.906	87.47		
	· New channel of digital business model to customers	0.881	71.481		
Value Capture		0.822	38.637	0.808	0.894
	· New digital product revenue model	0.898	80.895		
	· New digital business model financing structure	0.9	78.401		
Profit, ROE, dan ROA		0.786	31.014	0.783	0.916
	· Increased Profit relative to competitors	0.879	71.605		
	· Annual ROE increase and from the previous year relative to competitors	0.88	64.849		
	· Annual ROA increase and from the previous year relative to competitors	0.896	75.79		
Sales		0.813	58.975	1	1
	· Increased Sales relative to competitors	1			
Stock Growth		0.863	101.55	0.825	0.904
	· Annual Share Growth relative to competitors	0.909	104.066		
	· Growth in the number of annual share transactions relative to competitors	0.908	104.681		

Evaluation of Outer Model

The outer model identifies the relationship among variables and indicators. This provides an understanding of the relationship of each indicator to the latent variable. Figure 2 shows that the values of the loading factor are all above 0.5, using the Smart PLS3.0 application. The outer model, which covers the convergent validity (loading factor), composite reliability, and Cronbach's alpha, is also tested.

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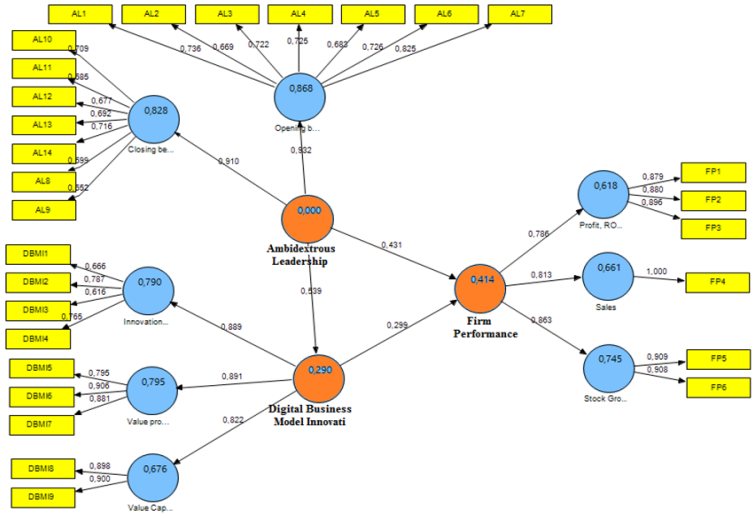

FIGURE 2
THE PATH COEFFICIENT

Convergent Validity

The model is tested to determine the convergent validity of the reflective model by looking at the loading factor value. Each observed variable is deemed valid, assuming the value of the loading factor is above 0.5. Table 1 shows the loading factor values of the observed variables.

Based on Figure 1 and Table 1, it can be explained that all the loading factor values of the observed variables are above 0.5 (valid) and adequate to use in the model. According to the ruling, when the AVE value is greater than 0.5, it means that the model has sufficient convergent validity and can be tested further. All models have high reliability assuming the composite reliability value of each latent variable is above 0.7.

Table 4
FORNELL-LARCKER CRITERION

	Ambidextrous Leadership	Digital Business Model Innovation	Firm Performance
Ambidextrous Leadership	0.877		
Digital Business Model Innovation	0.876	0.816	
Firm Performance	0.944	0.955	0.834

Discriminant validity was evaluated using the Fornell-Larcker criteria (Fornell & Larcker, 1981) presented in Table-4. Discriminant validity is measured by the square root value of each AVE shown in the diagonal cell and is required to be greater than the correlation coefficient (a value other than that in the diagonal cell). Table 4 shows that this requirement was also met and thus the discriminant validity proved adequate for the factors evaluated in this study.

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Evaluation of Inner Model (Structural Model)

Inner model testing is carried out using the R-square, predictive relevance (Q-square value), and the Goodness of Fit (GoF). According to Chin (1998), R-Square values of 0.67, 0.33, and 0.19 are strong, moderate, and weak. The GOF is used to validate between measurement and structural models are 0-0.25 (small), 0.25-0.36 (moderate) and >0.36 (large). Prediction Relevance (Q-Square) is a test used to determine the capabilities of predictions with blindfolding procedures assuming the values are 0.35 (large), 0.15 (medium), and 0.02 (small).

The following table explains the co-efficiency determination on the Constructs endogen. The model is fit when the value of R-square, GOF, and Q-Square is in the strong, large, and large categories, respectively. Table 5 shows the evaluation of R-Square Value and GOF.

Table 5
EVALUATION OF R-SQUARE VALUE AND GOF

Variable	R-Square	Communality	Q-square	Goodness of Fit (GoF) Index
Ambidextrous Leadership		0.426		0.417
Digital Business Model Innovation	0.29	0.495	0.143	
Firm Performance	0.414	0.557	0.179	

Hypothesis Testing

The hypothesis testing results shown in Table 6 indicates the following:

- Ambidextrous leadership positively and significantly affect Digital Business Model Innovation with the value of t-statistics > t table (1.98) and R^2 29%.
- Ambidextrous Leadership positively and significantly affect Firm Performance (R^2=0.186) and indirectly through Digital Business Model Innovation (R^2=0.161) with values of t-statistics > t-table (1.98).

Table 6
HYPOTHESIS TESTING

Structural Model	Path Coefficients (γij)	SE (g)	t-Statistics	R^2	Conclusion
Ambidextrous leadership→Digital Business Model Innovation	0.539	0.041	13.119	0.29	significant
Ambidextrous Leadership→Firm Performance	0.431	0.052	8.303	0.186	significant
Digital Business Model Innovation→Firm Performance	0.299	0.059	5.049	0.09	significant
Ambidextrous Leadership→Digital Business Model Innovation→ Firm Performance	0.161	0.034	4.733	0.161	significant

The hypothesis testing results produce a model, as shown in Figure 3.

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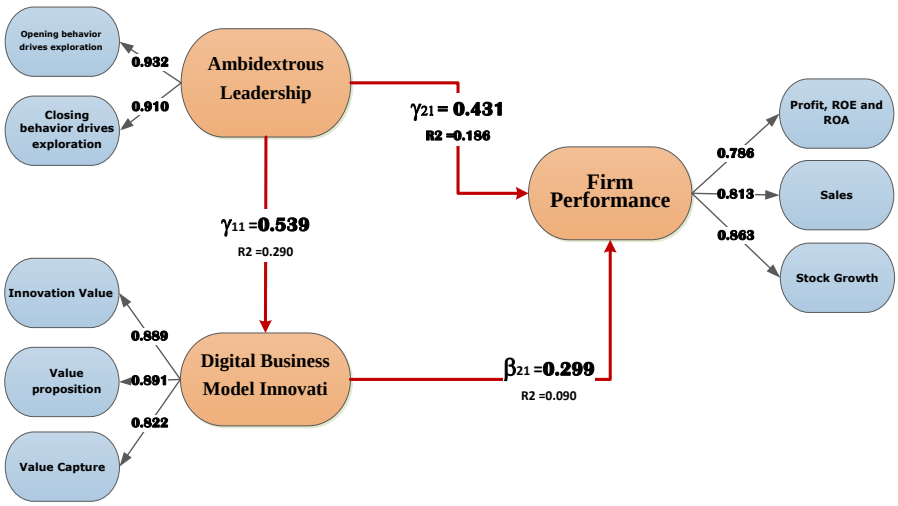

FIGURE 3
FINDING MODEL

DISCUSSION

The study was conducted to examine the effect of ambidextrous leadership and digital business model innovation on firm performance in telecommunication companies in Indonesia. The result is expected to significantly contribute to providing managerial implications for the management of companies in telecommunication companies.

Four hypotheses have been tested to meet the objectives, as shown in the results sub-chapter. The findings indicate that ambidextrous leadership has a positive and significant effect and performance on digital business model innovation in telecommunication companies in Indonesia. Ambidextrous leadership positively and significantly impacts firm performance both directly and indirectly through digital business model innovation. This is supported by the results of in-depth interviews with the BOD. The respondents stated that a leader is expected to have 2 abilities, namely being able to manage the current business and innovation that continues to grow. Therefore, they need to possess these 2 combinations to overcome and keep the existing business going. In addition, leaders need to be able to innovate and provide direction, maintain team balance, align people, pump energy and motivate team members.

The variable that has the greatest influence on firm performance is ambidextrous leadership with R^2=0.186. The magnitude of this influence is greater than the indirect effect through digital business model innovation (R^2=0.161) and greater than the influence of digital business model innovation on firm performance (R^2=0.090).

Based on these findings, the increase in firm performance in telecommunication companies in Indonesia is dominantly influenced by ambidextrous leadership, which comprises opening and closing behaviors that drive exploration and exploitation, respectively. Studies have shown that the Opening Behavior that Drives exploration has a higher contribution in building ambidextrous leadership. It also encourages experimentation and motivates employees to take independent actions.

Theoretical implication, the finding of this study provide evidence that ambidextrous leadership has direct effect to firm performance, as Alghamdi (2018) stated that leadership is the key to achieve an innovative environment within any organization. The success of Ambidextrous

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Leaders has to able to achieve optimal balance in exploiting and exploring all activities within the company (Rosing et al., 2011).

The hypothesis testing results related to the effect of ambidextrous leadership on digital business model innovation are in line with the preliminary study carried out by Gerlach et al. (2020), which stated that instrumental leadership includes opening and closing leader behaviors. Ambidextrous leadership behaviors have an accurate effect on team innovation performance (Zacher & Rosing, 2015) and the establishment and closing of behaviors that reflect on employee explorative and exploitative innovation attitude (Oluwafemi et al., 2020). In addition, transactional leadership has an impact on the development of innovation (Kassotaki, 2019b).

This is also supported by the research carried out by Kassotaki (2019a), which stated that ambidextrous innovation and market orientation capabilities had an accurate and significant effect on service innovation and firm performance. Marketing exploitation and exploration had an accurate and significant impact on firms' market performance simultaneously. Although the collaboration of suppliers has a positive impact on marketing exploration, it also decreases the influence of marketing exploitation (Ho & Lu, 2015).

Meanwhile, the digital business model innovation variable is built on 3 dimensions, namely value innovation, value proposition, and value capture. Of the 3 dimensions, the value proposition obtained the highest contribution (0.891), followed by innovation (0.889) and capture (0.822). This shows that the development of value proposition provides the highest contribution in efforts to develop digital business model innovation (Sidik, 2012).

New proposition value is related to product capture innovation for new customers (Clauss, 2017). Furthermore, value Proposition Innovation focuses on offering new services, clients, and markets and new sales channels to deliver products or services. According to Garcia (2002), Digital Business Model Innovation is a company looking for new ideas and ways of doing things. It is creative in its operating methods and has been the number one in marketing new products and services over the last five years (Kreutzer et al., 2018).

The role of digital business model innovation on firm performance is in line with the results of a previous study carried out by Zott & Amit (2008) which stated that it has an accurate and significant relationship and influence on Product Marketing strategy from the measurement of market capitalization. Digital Transformation has an accurate and significant impact on the Innovation Business and Firm Performance (Ferreira et al., 2019). Amit & Zott (2010) also stated that Digital Business Model Innovation had an accurate and significant impact on the Company's Business Performance. Besides, (Lee et al., 2019) prove that a synergy effect between innovation and firm performance is dependent on the level of innovation and industry category.

Based on these preliminary studies, the research is expected to provide managerial implications for the management of telecommunication companies in Indonesia to improve the application of ambidextrous leadership to enhance firm performance.

The interviews results with telecommunication practitioners stated that BOD is expected to be very adaptive with extraordinary plans in determining external and internal situations such as the pandemic. The development of ambidextrous leadership needs Opening Behavior that Encourages exploration in different ways, encourages experimentation, motivates others, and allows independent thinking & action.

In addition, the development of digital business model innovation also makes a significant and positive contribution in improving firm performance, implemented with priority

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on the value proposition aspect, which is supported by the development of innovation. Similarly, innovation without leadership is chaos because leaders need to be agile.

LIMITATION

This is a cross-sectional research carried out on a one-shot time horizon with data collected through questionnaires and interviewing the managers of telecommunication companies in Indonesia in 2021. Therefore, this topic could be reexamined in the future to assess the result at a different time horizon and in a changing digital business environment.

CONCLUSION

In conclusion, this study examined the effect of ambidextrous leadership and digital business model innovation on the performance of telecommunication companies in Indonesia. The findings show that ambidextrous leadership positively and significantly affects digital business model innovation in telecommunication companies. Meanwhile, digital business model innovation has a positive and significant impact on firm performance. Ambidextrous leadership positively and significantly impacts firm performance both directly and indirectly through digital business model innovation.

This study shows that ambidextrous leadership plays an important role in improving digital business model innovation and especially in enhancing firm performance. It is expected to provide managerial implications for the management of telecommunication companies in Indonesia to improve the application of ambidextrous leadership to improve firm performance. This is having implication for practitioner in developing ambidextrous leadership as the input for opening leadership behavior in term of increasing business model innovation for product, sales, marketing and customer relation through omni channel such as digital community and social media. Strengthening capability for closing leadership behavior in term of monitoring short term target firm performance. Furthermore, in terms of improving digital business model innovation, practitioners need to focus on value Proposition Innovation in order to offer new services, clients, and markets and new sales channels to deliver products or services.

Besides, the results of interviews with telecommunication practitioners stated that BOD is expected to be adaptive with extraordinary plans to respond to external and internal situations such as the covid-19 pandemic. The results are expected to be a reference for further research related to ambidextrous leadership and digital business model innovation in Indonesia.

In the future, it is hoped that other studies will be carried out in developing ambidextrous leadership and digital business model innovation in industries that have different characteristics.

REFERENCES

Abd El Majid, E., & Cohen, A. (2015). The role of values and leadership style in developing OCB among Arab teachers in Israel. *Leadership & Organization Development Journal*.

Alghamdi, F. (2018). Ambidextrous leadership, ambidextrous employee, and the interaction between ambidextrous leadership and employee innovative performance. *Journal of Innovation and Entrepreneurship*, *7*(1), 1-14.

Amit, R., & Zott, C. (2010). Business model innovation: Creating value in times of change.

Baden-Fuller, C., & Morgan (2010). *Business Models as Models". Long range Planning*, *43*(2/3), 156-171.

Bledow, R., Frese, M., & Mueller, V. (2011). Ambidextrous leadership for innovation: The influence of culture. In *Advances in Global Leadership*. Emerald Group Publishing Limited.

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*

Citation Information: Bawono, M. (2022). Effect of ambidextrous leadership on firm performance: mediating role of digital business model innovation. *Academy of Entrepreneurship Journal, 28*(3), 1-17.

Innovation Management, *31*(5), 1089-1105.
Chin, W.W. (1998). The partial least squares approach to structural equation modeling. *Modern Methods for Business Research*, *295*(2), 295-336.
Clauss, T. (2017). Measuring business model innovation: conceptualization, scale development, and proof of performance. *R&d Management*, *47*(3), 385-403.
Ferreira, J.J., Fernandes, C.I., & Ferreira, F.A. (2019). To be or not to be digital, that is the question: Firm innovation and performance. *Journal of Business Research*, *101*, 583-590.
Garcia, R., & Calantone, R. (2002). A critical look at technological innovation typology and innovativeness terminology: a literature review. *Journal of Product Innovation Management: An international publication of the Product Development & Management Association*, *19*(2), 110-132.
Geissdoerfer, M., Vladimirova, D., & Evans, S. (2018). Sustainable business model innovation: A review. *Journal of Cleaner Production*, *198*, 401-416.
Gerlach, F., Hundeling, M., & Rosing, K. (2020). Ambidextrous leadership and innovation performance: a longitudinal study. *Leadership & Organization Development Journal*.
Ho, H.D., & Lu, R. (2015). Performance implications of marketing exploitation and exploration: Moderating role of supplier collaboration. *Journal of Business Research*, *68*(5), 1026-1034.
Ibarra, D., Ganzarain, J., & Igartua, J. I. (2018). Business model innovation through Industry 4.0: A review. *Procedia Manufacturing*, *22*, 4-10.
Junni, P., Sarala, R.M., Tarba, S.Y., Liu, Y., & Cooper, C. (2015). The role of human resource and organizational factors in ambidexterity–A state-of-art review. *Human Resource Management*, *54*(S1), s1-s28.
Kassotaki, O. (2019a). Ambidextrous leadership in high technology organizations. *Organizational Dynamics*, *48*(2), 37-43.
Kassotaki, O. (2019b). Explaining ambidextrous leadership in the aerospace and defense organizations. *European Management Journal*, *37*(5), 552-563.
Kreutzer, R.T., Neugebauer, T., & Pattloch, A. (2018). Eight Areas of Action to Build a Digital Business Leadership. In *Digital Business Leadership* (pp. 43-196). Springer, Berlin, Heidelberg.
Lee, R., Lee, J.H., & Garrett, T.C. (2019). Synergy effects of innovation on firm performance. *Journal of Business Research*, *99*, 507-515.
Liao, S.H., Hu, D.C., & Ding, L.W. (2017). Assessing the influence of supply chain collaboration value innovation, supply chain capability and competitive advantage in Taiwan's networking communication industry. *International Journal of Production Economics*, *191*, 143-153.
Luo, B., Zheng, S., Ji, H., & Liang, L. (2018). Ambidextrous leadership and TMT-member ambidextrous behavior: the role of TMT behavioral integration and TMT risk propensity. *The InTernaTIonal Journal of Human Resource Management*, *29*(2), 338-359.
Nason, R.S., & Wiklund, J. (2018). An assessment of resource-based theorizing on firm growth and suggestions for the future. *Journal of Management*, *44*(1), 32-60.
Oluwafemi, T.B., Mitchelmore, S., & Nikolopoulos, K. (2020). Leading innovation: Empirical evidence for ambidextrous leadership from UK high-tech SMEs. *Journal of Business Research*, *119*, 195-208.
Penrose, E., & Penrose, E.T. (2009). *The Theory of the Growth of the Firm*. Oxford university press.
Porter, M.E., & Heppelmann, J.E. (2014). How smart, connected products are transforming competition. *Harvard Business Review*, *92*(11), 64-88.
Ranto, D.W.P. (2016). The influence of entrepreneurial orientation on the performance of SMEs in the culinary field in Yogyakarta. *Journal of Business, Management, and Accounting*, *3*(2).
Röder, N., Schermann, M., & Krcmar, H. (2014). IT enabled agility in organizational ambidexterity.
Rosing, K., Frese, M., & Bausch, A. (2011). Explaining the heterogeneity of the leadership-innovation relationship: ambidextrous leadership. The *Leadership Quarterly*, *22*(5), 956–974.
Saebi, T., Lien, L., & Foss, N.J. (2017). What drives business model adaptation? The impact of opportunities, threats and strategic orientation. *Long range Planning*, *50*(5), 567-581.
Sidik, I.G. (2012). Conceptual framework of factors affecting SME development: Mediating factors on the relationship of entrepreneur traits and SME performance. *Procedia Economics and Finance*, *4*, 373-383.
Soto-Acosta, P., Popa, S., & Martinez-Conesa, I. (2018). Information technology, knowledge management and environmental dynamism as drivers of innovation ambidexterity: a study in SMEs. *Journal of Knowledge Management*.
Sudiyatno, B., & Puspitasari, E. (2010). Tobin's q and altman z-score as indicators of company performance measurement. *Accounting Study*, *2*(1), 247233.

Citation Information: Bawono, M. (2022). Effect of ambidextrous leadership on firm performance: mediating role of digital business model innovation. *Academy of Entrepreneurship Journal, 28*(3), 1-17.

Tamayo-Torres, J., Roehrich, J.K., & Lewis, M.A. (2017). Ambidexterity, performance and environmental dynamism. *International Journal of Operations & Production Management*.

Tsai, M.C., & Wang, C. (2017). Linking service innovation to firm performance. *Chinese Management Studies*, *11*(4), 730–750.

Zacher, H., & Rosing, K. (2015). Ambidextrous leadership and team innovation. *Leadership & Organization Development Journal*, *36*(1), 54–68.

Zhang, Y., & Liu, D. (2010). Notice of Retraction: Public R&D Subsidies, Firm Innovation and Firm Performance-Empirical Evidence from Listed Companies in China's SME Board. In *2010 International Conference on E-Business and E-Government* (pp. 1206-1209). IEEE.

Zott, C., & Amit, R. (2008). The fit between product market strategy and business model: Implications for firm performance. *Strategic Management Journal*, *29*(1), 1-26.

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