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The Influence of Digital Adoption, Absorptive Capacity and Risk Management Implementation on Organizational Resilience: An Empirical Study in the Indonesian Banking Industry

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ABSTRACT

The challenges of the banking industry in Indonesia are to ensure that the industry remains resilient and able to anticipate the downside risks arising, including strengthening governance, risk management, and prudential principles. This study will determine the effect of digital adoption, absorptive capacity, and risk management practice on organizational resilience. The method in this study is a survey research method. A questionnaire was given to senior executives in the banking sector of Indonesia, including C-suites, senior vice president, and vice president levels. The results show that digital adoption and absorptive capacity play a role in the growth of organizational resilience and risk management practice. However, much research has yet to be done on Indonesia's banking sector. The empirical data from this study will contribute to our understanding of how risk management is related to enterprise resilience. These findings make it possible for management in the financial sector and policymakers to design strategies and a framework for policymaking that will foster organizational resilience and assist the banking sector in successfully navigating risky and disruptive business conditions. This study's contribution will provide empirical data that broadens the environment for using the organizational resilience concept and theory of dynamic capacity in various organization types, like the banking industry, that operate in developing nations.

Keywords: Risk Management Practice, Organizational Resilience, Digital Adoption, Absorptive Capacity, Banking Industry

INTRODUCTION

The macroeconomic situation, changes in consumer preferences and behavior, competitive competition in the market, rapid developments, and changes disrupt business continuity. Technological change, natural and man-made disasters, the effects of climate change, geopolitical instability (such as wars in Russia and Ukraine), and health crises such as the COVID-19 pandemic are some of the situations that can threaten the future of an organization (Lisdiono et al., 2022). In such situations, some companies build resilience profiles to create predictability, modify and also gain new competitiveness in the face of crisis due to internal factors. and externally caused (Maharsi et al., 2023; Morales et al., 2019). One of the ways to minimize the crisis, increase the resilience of the business and have a measurement method is to use an enterprise risk management framework. Various studies indicate that risk management plays an important role in determining the resilience of a business

(Hudakova & Lahuta, 2020).

Ernst and Young worked with Institute of International Finance (IIF) released their latest global bank risk survey (1994), highlighted top 3 necessary changes to manage risks associated with digital asset strategies i.e: 1) risk management-related changes, 2) technology-related changes, and 3) enhance employee training.

According to Winasis et al. (2020), digital transformation in Indonesian Banking industry is now in progress. The need for transformation is essential and has become a top priority for companies in order to be more agile in the rapidly changing and evolving market. Changes that occur are fundamental, disruptive and very dynamic. Work procedures and conditions that have been running conventionally for decades must be radically changed to ensure the company can adapt in the competitive landscape. Company must implement an integrated digital transformation strategy to enhance the company' performance and therefore increase the possibility of a sustainable long term business for the company.

One of the external factors that are very crucial for the banking industry is the rapid technological change triggered by the development of internet technology and digital disruption which then affects the competitive landscape in the banking industry. The acceleration of digital transformation adoption, the existence of open banking, instant payments, and other sophisticated applications create enormous value for companies that can move fast (agile) and will weaken the position of slow companies (PwC, 2023). The threat of digital disruption has been felt by banks for the past 5 years and this has become a serious problem because it is related to the existence of banks as incumbent players. Banking performance in Indonesia during 2016 – Q2 2023 (Asare-Kyire et al., 2023) tended to experience pressure, where banking Return on Assets (ROA) moved fluctuated and experienced a decline throughout most of 2019. Meanwhile, the Net Interest Margin (NIM) has tended to be eroded since 2016 from 5.70 percent to 4.80 percent as of June 2023. On the side of a comparison of operating expenses compared to income (operational efficiency ratio), from 2016 to 2023 the numbers tended to be stagnant. The movement of profitability, which consists of a revenue component interest, operating income other than interest, and non-operating income where from 2016 to 2023 interest income has been stagnant while the other two components of income have fluctuated over the past 7 years.

In order to ensure to enhance employee training will bring significant results in risk management practice and also building stronger organizational resilience, then it is fundamental to set up learning capability through knowledge adoption which will determined how the organization employee can absorb this knowledge and implement it into practice. Cohen and Levinthal (1990) has introduce the concept theory of absorptive capacity which is the capacity of the organization to add new knowledge to the pre-existing ones. Absorptive Capacity is referred to as the dynamic capability that firms develop in order to attain competitive advantage through innovation and learning (Jansen et al., 2005; Narasimhan et al., 2006; Tsai, 2001; Zahra & George, 2002).

Therefore, considering these 3 necessary areas to be improved, this study aims to examine the impact of Digital Adoption and Absorptive Capacity as a dynamic competency on the resilience of the organization to deal with all uncertainties and challenges. In addition, this study examines the role of risk management practices in mediating the relationship between Digital Adoption and Absorptive Capacity and Organizational Resilience. This question will be tested using 5 (five) hypotheses: Does Digital Adoption influence Organizational Resilience? Does Digital Adoption Influence Risk Management Implementation? Does absorptive capacity influence risk management implementation? Does absorptive capacity influence organizational resilience? Does risk management implementation affect the organizational resilience of the bank? The main contribution of this study is to show that dynamic competencies, especially digital adoption, absorptive capacity, and risk management practices, contribute to building business resilience in the Indonesian banking sector. The results of this study will strengthen the banking industry, helping senior executives of banks to choose the right strategy to sustain and maintain the viability of their businesses, and the government, as a financial service authority, develop policies that encourage the growth and resilience of the banking industry. As the banking sector plays an important role, especially in developing countries, such as other ASEAN countries can leverage the results of this study to increase resilience in a dynamic, uncertain environment..

LITERATURE REVIEW

Dynamic Capabilities and Organizational Resilience

According to the dynamic capabilities approach, companies adjust according to their business environment, but they also attempt to shape the environment (Lisdiono et al., 2022; Salsabila & Muttaqin, 2023). Dynamic capabilities include an explicit role of management/leader, which enables structural transformation to begin internally, which would be a cause of firm heterogeneity (D. J. Teece et al., 1997; D. J. Teece, 2018). CEOs have a critical role in building dynamic capabilities (Ambrosini et al., 2009; D. Teece et al., 2016). Their role is critical as their actions and decisions determine how and where the dynamic capabilities will be used. Nonetheless, the role of leadership capabilities in developing enterprise resilience still needs to be explored (Ledesma, 2014; Nugroho et al., 2021).

According to Coutu (2002) and Hamel et.al (2003), organizational resilience is organization ability to put in place adaptive measures related to responding to threats received in order to survive, as well as the ability to cope with different disorders. However, a company's resilience is determined by its dynamic capabilities. Dynamic capacity refers to the ability of a company to intentionally create, develop and regulate its assets. They help companies adapt to new and volatile environments (Ali, 2020; Jiang et al., 2019).

Organizational resilience is the capacity of a business to dissipate and create situation specific responses effectively and eventually through transformative actions to focus entirely on disruptive surprises that jeopardize the firm's viability (Lengnick-Hall et al., 2011; Lengnick-Hall & Beck, 2005). Thus, amid a dynamic and uncertain environment, the dynamic character of the resilience idea has gained prominence. Certain studies address it explicitly (Lengnick-Hall et al., 2011), while others do it indirectly. Resilience is also referred to as the capacity to mitigate the vulnerability, adapt, adjust, and quickly recover from unforeseen circumstances (Erol et al., 2010). These criteria incorporate a dynamic component of the organization's capabilities (D. J. Teece et al., 1997). This definition includes the notion of not only surviving adversity but also gaining the flexibility essential to survive, grow, establish a more stable framework, and persist. It is a point of convergence between resilience (Lengnick-Hall et al., 2011) and the concept of dynamic capabilities (D. J. Teece et al., 1997).

Digital Adoption and Organizational Resilience

Tanriverdi and Lim (2017) provide the opinion that companies can survive and develop in complex situations, hyper competition, and disruptive ecosystems by developing adaptation capabilities that are activated by the organization's adoption of digitalization. Evidence from existing research and industry practice shows a theoretical relationship between digital adoption and organizational resilience. For example, several previous risk management studies (Kachali et al., 2012) show that the information and communication sector in the service industry is less affected by and recovers more quickly from external risks. In addition, companies equipped with information technology have shown stronger resilience during the COVID-19 pandemic (Akabayashi et al., 2023; Lin et al., 2020) compared to companies that did not adopt technology. Since entering industry 4.0, companies have begun to undertake digital adoption to compete again to maintain their position in the industry. Thus, the hypothesis in this research can be formulated as follows:

Hypothesis (H1): There is a significant relationship between Digital Adoption and Organizational Resilience

Digital Adoption and Risk Management Implementation

Digital technologies like Artificial Intelligence, Machine Learning, and Advanced Data Analytics have existed in some form or shape for the last couple of decades. However, the recent growth in processing power and the explosion of data available to 'learn from' mean innovative analytical tools are becoming far more useful and effective (von Solms & Langerman, 2020). A good example of area in the bank that can gain significant advantage from leveraging digital technology is the Treasury function. The reason is that there are a number of its activities, which fits well into a digital technology framework e.g. Machine Learning can improve cash flow forecasting; Payments and settlements can be automated through Artificial Intelligence; while Risk Management and Reporting of Capital and Liquidity exposures will greatly benefit from Big Data and Advanced analytics.

In the area of risk management, Espindola et al. (2022) has empirically investigated the impact of organizational

and external factors in the adoption of AI, blockchain, CC and big data for risk management based on the lenses of the RBV, institutional theory and TAM. The purpose is to provide a further understanding of the impact of those factors to enable the implementation of emergent technologies and improve risk management processes.

Hypothesis (H2): There is a significant relationship between Digital Adoption and Risk Management Implementation

Absorptive Capacity and Risk Management Implementation

Cuellar and Gallivan (2006) points the way to a method to measure Absorptive Capacity and project risk that can benefit from subsequent, more rigorous development and validation. The metric needs to be rigorously developed with additional, primary source data in order to identify the interactions and levels of influence of various antecedents on a firm's Absorptive Capacity. Practical methods and instrumentation for field measurement should also be developed to assess the level of Absorptive Capacity in situ. Cuellar and Gallivan (2006) complements the existing literature on software project risk but additional research should be conducted to ensure that the items used to operationalize the constructs from these two bodies of literature are consistent with each other.

Sadeghi et al (2021) stated that given the impact on the value of the enterprise, risk management is a topic that is discussed at the board level of organizations. Proactive organizations are developing capabilities to help them cope with disasters to avoid them, to mitigate their impact, and to recovery from them more quickly, building disaster immunity capability. The research uses complex adaptive systems theory to provide empirical support for how companies can develop disaster immunity capability through the development of absorptive capacity, change management capability, and the quality of information exchanged.

The lens of Absorptive Capacity can help to understand our risk management process, just as it helps to understand innovation process. We can reflect on the processes in each of the four phases (knowledge acquisition, assimilation, transformation and exploitation), to decide where we should put effort to improve. This provides strategic development, and efficient resource allocation to improve the risk management process, rather than the ad-hoc, organic, and often knee-jerk reactions in many companies (Weir et al., 2023). Based on the above perspective hypotheses are stated:

Hypothesis (H3): There is a significant relationship between Absorptive Capacity and Risk Management Implementation

Absorptive Capacity and Organizational Resilience

Studies examining the effect of absorptive capability on the relationship between entrepreneurial orientation and organizational resilience have found mix-outcomes. Aghdaie et al. (2017) found that Adaptive Capacity significantly mediates the relationship between Entrepreneurial Orientation and Organizational Resilience. They argue that organizations with high levels of Entrepreneurial Orientation tend to be more open to external knowledge and better able to assimilate it, which in turn enhances their Organizational Resilience. Similarly, a study by Iqbal et al. (2019) found that Adaptive Capacity partially mediates the relationship between Entrepreneurial Orientation and Organizational Resilience. The authors suggest that organizations with high levels of Entrepreneurial Orientation are more likely to seek out new knowledge and utilize it effectively, which in turn enhances their ability to adapt to changing circumstances.

In contrast, some studies have found that Adaptive Capacity does not mediate the relationship between Entrepreneurial Orientation and Organizational Resilience. Lee et al. (2016) found that while Entrepreneurial Orientation has a positive impact on Adaptive Capacity and Organizational Resilience, Adaptive Capacity does not mediate the relationship between Entrepreneurial Orientation and Organizational Resilience. The authors argue that while Adaptive Capacity is important for innovation and knowledge management, it is not essential for Organizational Resilience. Similarly, a study by Ali and Wang (2020) found that while Entrepreneurial Orientation and Organizational Resilience have a positive impact on firm performance, Adaptive Capacity does not mediate the relationship between Entrepreneurial Orientation and Organizational Resilience.

In summary, the literature on the mediating effect of Adaptive Capacity on the relationship between Entrepreneurial Orientation and Organizational Resilience is mixed. While some studies suggest that Adaptive

Capacity plays a significant mediating role, others argue that it does not. Based on the above perspective hypotheses are stated:

Hypothesis (H4): There is a significant relationship between Absorptive Capacity and Organizational Resilience

Risk Management Implementation and Organizational Resilience

In an uncertain world where change is inevitable, organizations need to be able to see more than short-term performance. They become more resilient and stronger to the risk of unexpected change. Ultimately, you will be more resilient. To achieve different benefits both in normal times and in the face of threats and unpredictable changes, companies must make various efforts to enhance the resilience of their operations. One attempt is to apply proactive risk management (Nauck et al., 2021).

According to Hudakova & Lahutan (2020), if you want to make your organization more resilient in today's dynamic environment, it is proposed to use risk management as an organizational requirement. Businesses often prepare to respond to crises. Implementing enterprise risk management (ERM) is therefore one of the tools to prevent crises and increase enterprise resilience. Current risk management focuses on addressing risks associated with extreme uncertainty and unknown unknowns (D. Teece et al., 2016). Lisdiono et al (2022) through their study in Indonesian SOEs, emphasizes the role of risk management practices in fostering organizational resilience and mediating leadership capabilities and resilience. The studies also revealed that corporate resilience can be built over time and grows stronger each time it overcomes adversity. Based on the above perspective hypotheses are stated:

Hypothesis (H5): There is a significant relationship between risk management implementation and organizational resilience.

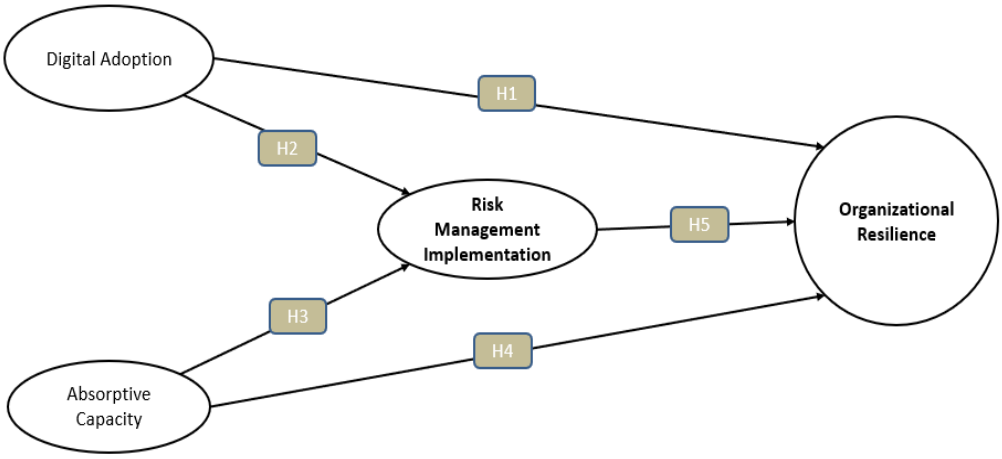

Figure 1. Conceptual Framework

MATERIALS AND METHOD

This study used a cross-sectional quantitative method using SEM (Structural Equation Modeling)-PLS. The data in this study were obtained by sending structured questionnaires to participants who served as leaders in the Indonesian banking industry, which cover all Indonesian bank categories at KBMI I-IV. The data collection period was carried out during October-November 2023. The questionnaire used in this study refers to the Likert scale. During the data collection period, the number of returned questionnaires was 30 respondents, which consisted of conventional banks (52%), regional development banks (30%), digital banks (8%), and sharia banks (10%).

This study is a descriptive and causally explained research study. The data is a methodological survey of board members and executives in the financial services industry as a source of factual information about how to implement digital adoption (DA), absorptive capacity (AC), risk management implementation (RMI), and organizational resilience (OR). The data in this survey are primary. The choice of primary data for this study is due to the nature of the information about individual perceptions and attitudes obtained through the distribution of structured questionnaires.

In this study, we applied non-probabilistic sampling based on the targeted sampling method that is more suitable for the scope and characteristics of the study. The sampling frame for this study includes all members of the banking industry at the C-suite, senior vice president, vice president level, and senior managers. The "senior" managers used in this study took a deductive approach and used investigative strategies. The study focused on the board and executive levels of all stakeholders in the banking sector on the OJK website and the website for each company in order to gain insight at the enterprise level (as a unit of analysis). They were selected as respondents because they play a key role in managing, controlling, and determining the company's policies and strategies. The target sample was selected because the survey requires respondents to meet certain criteria, such as those currently in board or senior management positions. Data are processed using a structural equation modeling (SEM) approach with a Partial Least Square SEM tool to test proposed hypotheses.

RESULT AND DISCUSSIONS

Descriptive Statistics

This study's descriptive analysis of constructs includes Digital Adoption, Absorptive Capacity, Risk Management Implementation, and Organizational Resilience. Table 1 presents the enterprise profile and the informant profile of the respondents.

Table 1. Respondents Demographic Profile of the Sample

	Frequency	Percent	Cum. Percent
Bank Type			
Conventional Banks	23	76.7	76.7
Regional Dev. Banks	3	10.0	86.7
Sharia Banks	3	10.0	96.7
Digital Banks	1	0.03	100.0
Bank Category			
Bank with Core Capital < IDR 6 trillions	7	23.3	23.3
Bank with Core Capital: IDR 6trillions – IDR 14 trillions	8	26.7	50.0
Bank with Core Capital: IDR 14 trillions – IDR 70 trillions	10	33.3	83.3
Bank with Core Capital: > IDR 70 trillions	5	16.7	100
Position			
CEO	3	10.0	10.0
Director	3	10.0	20.0
EVP/SEVP	2	6.7	26.7
Senior Vice President	8	26.7	53.4
Vice President	14	46.6	100.0
Education			
Bachelor degree	10	33.3	33.3
Diploma/Below	0	0.0	33.3
Doctor/PhD	0	0.0	33.3
Master degree	20	66.7	100.0

From the analysis we can describe several things as below i.e: path coefficient, validity and reliability test result.

Path Coefficient

Path coefficient from Digital Adoption to Organizational Resilience is 0.131, from Digital Adoption to Risk Management Implementation is 0.350; the relationship of Digital Adoption to Risk Management Implementation is stronger than Digital Adoption to Organizational Resilience. The path coefficient of Risk Management Implementation to Organizational Resilience is 0.531. The path coefficient from Absorptive Capacity to Organizational Resilience is 0.544 and Absorptive Capacity to Risk Management Implementation is 0.263.

The R^2 for Risk Management Implementation is 0.605 and R^2 for OR is 0.687. Thus, 60.5% of the proportion of variance of Risk Management Implementation could be explained by Digital Adoption and Absorptive Capacity. Digital Adoption, Absorptive Capacity and Risk Management Implementation could explain 68.7% of the proportion of variance in Organizational Resilience. Thus, Digital Adoption and Absorptive Capacity could explain Risk Management Implementation and Organizational Resilience quite well.

The Measurement Model Assessment

Table 2 exhibits construct and items for 4 variables, acceptance reliability and convergent validity values for all constructs. To evaluate internal reliability, we use Cronbach alfa and composite reliability. All Cronbach alfa and composite reliability are above 0.70 and below 0.95; thus the model has good reliability (Hair, 2018).

Table 2. PLS Result: Measurement Model Analysis and Model Fit Indices

Constructs	Internal Consistency		Convergent validity	Model Fit
	Cronbach Alfa	Composite Reliability	AVE	SRMR
DA	0.804	0.857	0.648	0.054
AC	0.889	0.915	0.642	
RMI	0.940	0.948	0.603	
OR	0.868	0.898	0.561	

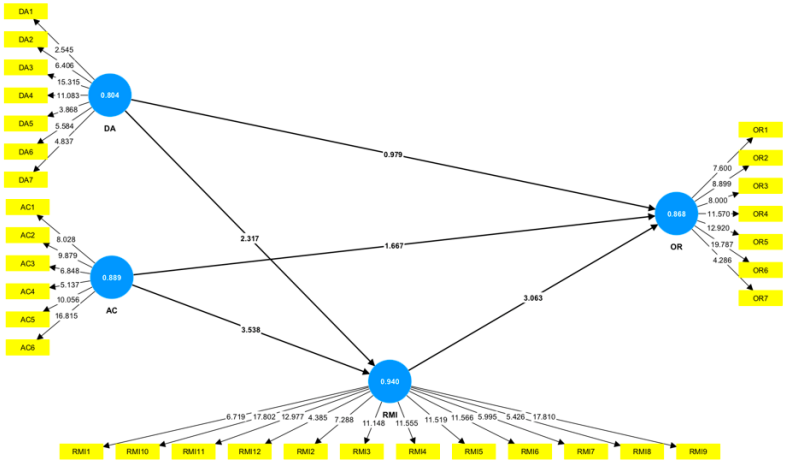

Figure 2. Path Coefficient

The average variance (AVE) is used to determine convergent validity; all 4 constructs have an AVE value grater than threshold of 0.5 (Hair, 2018); Hair et al., 2017). SMR value (as the goodness of measure for PLS-SEM) less than 0.08 is considered good fit (Hu & Bentler, 1999).

The results of testing hypotheses 1 to 5 proved that they could be all accepted (T-value >1.701) unless Digital Adoption against Organizational Resilience. The overall result of hypothesis test for direct effects are summarized in Table 3.

Table 3. Hypotheses testing

Hypothesis	Path	Path coefficient	T-values	Information
H1	DA=>OR	0.131	0.979	Rejected
H2	DA=>RMI	0.350	2.317	Accepted
H3	AC=>RMI	0.263	1.667	Accepted
H4	AC=>OR	0.544	3.538	Accepted
H5	RMI=>OR	0.531	3.063	Accepted

From the Table 3 and Figure 2 above, we can say that there are less significant impact between Digital Adoption and Organizational Resilience.

Discussions

According to the test results, Digital Adoption perceived a significant positive impact to Risk Management Implementation. The result of this research support the findings of Espinola et al. (2022) that showing the importance of having integration risk management through digital adoption programs in manufacturing companies.

Despite the potential benefits studied in the literature (Bag et al., 2021) and outlined in research reviews (Frank et al., 2019; Papadopoulos et al., 2022; Zheng et al., 2021), the adoption of emergent technologies in risk management is at an early stage (Baryannis et al., 2019) (Baryannis et al., 2019). Leveraging I4.0 technologies is far from trivial. The challenges to adopting these new-age technologies are myriad due to lack of skilled labour and technical know-how, financial constraints, operational complexities, lack of information management strategy, limited understanding of the return of investment, resistance to adopting and adapting their existing business models and practices, and lack of strategic alignment between business priorities and technological needs of the organization (Bag et al., 2021).

Also, based on the test results, Digital Adoption has minimum significant positive effect on Organizational Resilience. This finding does not support those of Kachali et al. (2012) in Information and Communication Sector in service industry; Lin. (2020) and Akabayashi et al. (2023). The results could explain that Digital Adoption is not the primary one in strengthening the Organizational Resilience. Hence, there are some other factors outside Digital Adoption which has better significance position in influencing Organizational Resilience in Indonesian Banking Industry, at this moment, not yet reach at that certain digital maturity stage.

Some results in relationship between Absorptive Capacity and Organizational Resilience has positive impact. This finding support what previous research by Aghdaie et al. (2017) and Iqbal et al. (2019) organizations with high levels of Entrepreneurial Orientation tend to be more open to external knowledge and better able to assimilate it, which in turn enhances their Organizational Resilience.

This research also demonstrates that there is a significant relationship between Absorptive Capacity and Risk Management Practice. The finding supports Cuellar and Gallivan (2006) and Dan Prince (2023) show Absorptive Capacity can help to understand the risk management process where we should effort to improve, whether in risk identification, risk measurement, risk monitoring or risk reporting process.

The last hypothesis is thru this research, Risk Management Implementation has positive impact to Organizational Resilience. This result aligned with same research by Hudakovaa & Lahutan (2020) and Lisdiono et al. (2022) that suggest to make organization more resilient, it is proposed to use risk management framework as organizational requirement. Implementing ERM is one of the framework to increase resilience. Nauck et al. (2021) promotes organization to have proactive risk management in order to have better response before the crisis. This finding streng then previous studies also, to revealed that corporate resilience can be built over time and grows stronger each time it overcomes adversity.

CONCLUSIONS

The research results outlined above suggest that Indonesian banks, in order to enhance Risk Management Practices, consider Digital Adoption and Absorptive Capacity. Digital Adoption also has little impact on enhancing Organizational Resilience in Indonesian banks. However, Risk Management Implementation and the Absorptive Capacity of banking people directly have a significant impact on Organizational Resilience in Indonesian banks.

Based on these results, it is recommended that the management teams of Indonesian banks recognize the factors that can affect Organizational Resilience and Risk Management Implementation, such as Digital Adoption and Absorptive Capacity.

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