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Original Article

The Effect of Dynamic Capabilities on Organization Resilience With Mediation of Digital Transformation

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Abstract *- Dynamic capabilities have been a hot topic of conversation lately. There have been many studies about it and discussions that there is support for an object or vice versa. This research explores dynamic capabilities' effect on organizational resilience through digital transformation mediation. Data was taken by distributing questionnaires via Google form as primary data. Data analysis was performed with smart PLS. Of the two direct effect hypotheses, one hypothesis was proven to have a positive and significant relationship, namely, dynamic capabilities to organizational resilience. In contrast, dynamic capabilities to digital transformation had a negative but not significant relationship. A negative and insignificant effect was found on the relationship between dynamic capabilities on organizational resilience with digital transformation mediation.*

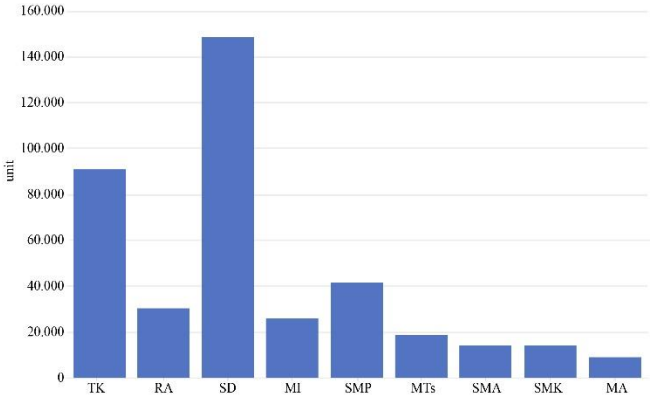
Keywords *- Dynamic capabilities, Organizational resilience, Digital transformation.*

1. Introduction

In fact, all countries in the world regulate education, whether formal, informal, or non-formal. There is a lot of news that the children of officials and socialites go to certain schools. Once the importance of education, all countries have a ministry that deals with education. Not long ago, the Minister of Education, Culture, Research and Technology (Kemendikbudristek) of the Republic of Indonesia gave a speech at the United Nations (UN) at the 2022 Transforming Education Summit event conveying the transformation of education in our country. To support education transformation after the Covid-19 pandemic, Indonesia carries the theme "Recover faster, get up stronger". This theme is part of problem management, namely the adjustment period after the Covid-19 pandemic. All lines must readjust from online to offline.

It supports the fact that education makes a significant contribution to nation-building. There is no denying that. But the question arises, whose responsibility is it to provide basic education? Is it only the government, or do private schools also have a role? In fact, there are many good private schools (Raychaudhuri, 2020). Actually, universities should have responsibility for schools, especially elementary schools. Universities, in fact, have not paid attention to elementary schools even though education starts from elementary schools (UNESCO, 2021), and there are so many elementary schools in Indonesia.

Graph 1 below can provide how many elementary schools there are in Indonesia.



Graph 1. Number of Schools in Indonesia by Education Level (2021/2022 Academic Year),

Source: Kadadata, https://databoks.katadata.co.id/datapublish/2022/03/07/ada-394-ribu-unit-school-di-indonesia-mayoritas-sd (Uploaded on November 15, 2022)

From Graph 1 above, according to the Indonesian Statistical Report for the 2021-2022 year, it is known that the number of Elementary Schools (SD) reached 148,863 units, with 87.74% of them stating Elementary Schools (SD), 26,129 units of Madrasah Ibtidaiyah (MI), with 93.45% of them are private Elementary Schools (SD). Of course, the challenge is intense competition with so many elementary schools. In the end, many private primary schools closed, so the number of private primary schools decreased, as revealed by ASTA management (2020). Apart from that, another serious challenge is that Public Elementary Schools add new study groups (Usman, 2020).

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In reality, many private primary schools have experienced a decline in the number of students, so costs have become expensive. Thus, schools need resource support (Maag Merki et al., 2021), especially during post-covid-19 adjustments, schools are expected to be able to make leaps of progress (Astungkoro, 2022), (Swasty, 2022), (Chabibie, 2020)). In order to survive, schools must change, continue to learn and accept change (UNESCO, 2021). Still continuing the UNESCO explanation (2021), schools must prepare generation 5.0 in an interesting, inclusive way, have a large library with electronic books with devices connected to internet channels and dare to use technology. The Ministry of Education and Culture is preparing a breakthrough in the use of technology by 1) maximizing digital infrastructure, 2) creating a global vision and digital transformation, and 3) creating a national digital learning system (Purbosono, 2022).

The Ministry of Education and Culture has also prepared a roadmap for the next 15 years (Chabibie, 2020). It states how important digital transformation is because it is significant for organizational recovery and recovery (Zhang et al., 2021). Digital transformation is important for organizations to increase their resilience (Zhang et al., 2021). Digital transformation is the process by which the "digital world" merges with the "physical world" (Yoo et al., 2010). On the one hand, digital transformation also faces opportunities and threats (Verhoef et al., 2021), including in the world of education. Therefore, it must be remembered and considered that technological progress in education must be holistic (Parker et al., 2022). Based on the description above, it is very open for research with a focus on the influence of DC on organizational resilience through digital transformation. With that in mind, the question of this research is what is the impact of DC on organizational resilience through digital transformation? This study aimed to find DC's positive or negative effects on organizational resilience through digital transformation.

The Covid-19 pandemic situation forces all schools to learn with technology in the hope that the end result will be harmonious and integrative for more active, flexible and meaningful (Rapanta et al., 2021). It can be said that schools have utilized DC. In accordance with the Resource-Based View (RBV) theory, in the current competition or global competition in market conditions that change rapidly or dynamically, organizations need to increase DC so that it is expected to be able to adjust to dynamic changes that occur. DC concerns with the institutional capacity to take advantage of opportunities to overcome threats so that the organization survives. DC is an organization's ability to integrate, build, and rearrange its internal and external competencies to deal with a rapidly changing environment (Teece, 2007). DC integrates, builds, and rearranges its internal and external competencies to deal with environmental changes (Teece et al., 2009).

This research contributes to DC theory which is a theoretical framework for many studies in the field of business; in this study, DC theory is applied to the world of education, and a model is put forward about the role of DC in education. In the DC literature, a DC process has been applied that modifies the current resource base, namely sensing, seizing, and transformation (D. J. Teece, 2007). DC theory originates from the resource-based view theory (RBV) by explains how the external environment influences institutional resources to remain competitive (Schilke et al., 2018). DC processes that modify resources are sensing, seizing, and transformation. Institutional capacity to sense market opportunities and threats, seize highly profitable market opportunities and then change the institutional resource base to navigate the DC market volatility (D. J. Teece, 2007). This study implements, in the world of education, the use of DC (Hitt et al., 2021) to develop the concept of DC, namely sensing, seizing, and transformation as the main means that enable schools to manage digital transformation.

This research refers to the opinion of R. Sousa & Voss (2008) that DC is to explain the causal relationship that allows organizations to recover and adapt from Covid-19 disturbances so that organizations survive/are resilience. In terms of etymology, the word resilience comes from the words "resilire" and "resilio", which in Latin means "to rise again" or "jump back" (Gruber et al., 2020). Organizational resilience is a multidisciplinary and multifaceted concept with the ability to return to pre-disruption and post-disruption states (Bhamra et al., 2011). Organizational resilience is included in the field of organizational management research, opening the door for research on organizational resilience (Meyer & Rowan, 1977). Resilience in this context is not just about biological survival; it also implies the ability to grow and develop in the future, which highlights the psychological aspects of resilience (Reich, 2006). A resilient organization is an organization that is able to make and maintain positive adjustments under challenging conditions (Sutcliffe & Vogus, 2003). There are two dimensions of organizational resilience, namely adaptability and agility (Akpan et al., 2022), namely how the ability of the organization to survive and the agility of the organization to deal with changes due to rapidly changing situations in the organizational environment.

Enterprise digital transformation involves integrating internal and external resources through information technology, computing, communication, and connectivity to reshape the company's vision, strategy, organizational structure, processes, capabilities, and culture to adapt to the changing digital world (Vial, 2019). Nwankpa & Roumani (2016) were among the first to develop digital transformation, such as big data, analytics, cloud, mobile and social media platforms, integrating digital technologies

such as social media, big data, analytics, cloud and mobile technology to drive change. There are nine digital transformation dimensions: structural, informational, environmental, security, quality, financial, cultural, innovation, and participatory (Zaoui et al., 2019). This study takes one dimension in accordance with a research in the field of education, namely the innovation dimension, which consists of three constructs: technological design, technological process, and ICT management.

This study has a conceptual framework as a framework for thinking processes that aim to describe the basis for thinking processes in order to carry out research concept analysis based on existing theories and empirical research. Theoretical studies are carried out to direct the flow and thinking process of deductive writing. Referring to Sekaran and Bougie (2016), deductive reasoning tests theories that have universal properties to analyze something specific or special. Inductive reasoning is a process in which certain phenomena are observed and arrive at general conclusions (Sekaran & Bougie, 2016). The empirical study is research which is a generalization process of something specific to be able to conclude in general so that it can be implemented or used in other tests. Inductive reasoning tends to be used in empirical studies. Theoretical and empirical studies can provide a basis for determining indicators to assess the independent, dependent, mediating, and moderating variables used in this study. Digital transformation offers useful information and resources to continue business and build resilience in disruptive situations.

Concerning the unpredictable future is the main process of DC which identifies opportunities for organizational growth before the possibility becomes clear to all (D. Teece et al., 2016). Proactivity is the key to preparing to seize opportunities, in this case, technology or as a solution to be implemented (D. J. Teece, 2018). Sensing for novelty is influenced by abilities such as sensing, rational thinking, and planning scenarios that proactively identify the implications of observed events and organizational trends (D. Teece et al., 2016). A strong sensory capacity is urgently needed to manage the post-Covid-19 situation because education has an extraordinary effect. Digital transformation is expected to be able to maintain the continuity of schools (SD), and education can recover faster and rise stronger (Astungkoro, 2022), (Swasty, 2022), (Rahmawati, 2022).

In response to opportunities or challenges in overcoming organizational problems, organizations can appoint staff to build digital transformation within their organizations (Pool, 2020). The dynamic capabilities framework provides a powerful lens for studying strategic organisational change (Schilke et al., 2018). DC describes an organization's capacity: “(a) to sense and use opportunities to overcome threats, (b) to seize opportunities, and (c) to maintain competitiveness through upgrades, acquisitions, mergers and when necessary then reconfiguring tangible and intangible assets (Teece, 2007). Related to digital transformation, Sambamurthy et al. (2003) propose that organizations should use information technology infrastructure (Warner & Wäger, 2019). Information technology utilization competencies have been reported to enable various agile responses, ranging from complex steps, such as starting a new company venture for new product development, to simple steps, such as adjusting existing production processes and resource utilization (Rigby et al., 2016).
Thus, it is expected that hypothesis (H1): DC variable has a positive effect on digital transformation variables.

Digital transformation has become an important pathway for organizations to increase their resilience. It is very important that there is the practical significance for organizations to effectively carry out digital transformation in order to achieve organizational resilience (Zhang et al., 2021). Strategic technology investments help organizations develop systematic controls, sustain them in crises, actively seek available resources, and quickly develop adaptive solutions. Digital transformation prepares for organizational survival and success when facing unexpected crises (He et al., 2022).

Therefore, the expectation is H2: Digital transformation variables positively affect organizational resilience.

DC describes a company's capacity, which includes "(a) to sense and shape opportunities and threats, (b) to seize opportunities, and (c) to maintain competitiveness through upgrading, acquisition, merger, and reconfiguration of tangible and intangible assets" (D. J. Teece, 2007). Related to digital transformation, Sambamurthy et al. (2003) propose that organizations should use information technology infrastructure (Warner & Wäger, 2019). Information technology utilization competencies have been reported to enable a variety of agile responses, ranging from complex steps such as starting a new business for new product development to simple steps such as adjusting existing production processes and resource utilization (Rigby, D., Sutherland, J, and Takeuchi, 2016).
Thus, H3: DC variable positively affects organizational resilience through digital transformation.

2. Methodology

This study uses a quantitative method approach, which means that researchers formulate problems and then identify them into hypotheses. The population of this study refers to all groups of people, events or interesting things that researchers want to investigate (Sekaran & Bougie, 2016, p. 236), namely teachers and elementary school employees. The sample was determined according to the opinion of Hair et al. (2018), namely (Number of indicators + the number of

latent variables) x (5 to 10 times). Based on these guidelines, the minimum sample size for this study = (17 + 3) x 5 = 100 respondents. The sample for this research was taken from teachers and elementary school employees at the Santo Dominikus Foundation located on the island of Java, Indonesia, to be precise, elementary schools in the cities of Yogyakarta, Purwokerto, Cirebon and Cimahi with a total of 120 respondents.

The research instrument used in this study was a questionnaire with five Likert scales to measure respondents' perceptions of this research phenomenon. The Likert scale measures how much the respondent agrees or disagrees with the given statement (Sekaran & Bougie, 2016). Giving a score is strongly disagree (1), disagree (2), neutral (3), agree (4), and strongly agree (5).

As for data analysis using descriptive statistical data analysis and Partial Least Square SEM, this analysis is one of the analyzes used to develop or estimate an existing theory (Sarwono, J and Narimawati, 2015). In this study, the use of the PLS structural model was assisted by the SmartPLS 3.0 software. Based on this explanation, the research model for this research is as follows.

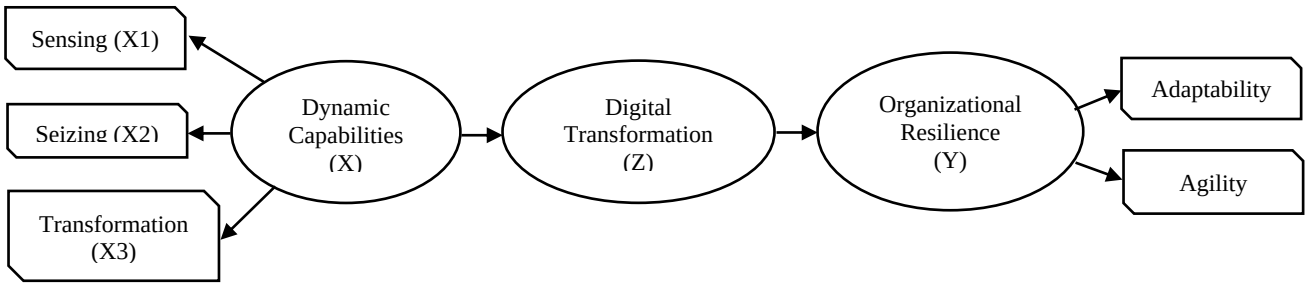

Fig. 1 Research Model

Source: Researchers (2022)

Based on the explanation and Figure 1 above, the research hypothesis is as follows.
H1: Dynamic capabilities have a positive effect on organizational resilience.
H2: Digital Transformation has a positive effect on organizational resilience.
H3: Dynamic capabilities have a positive effect on organizational resilience through digital transformation

Table 1 below presents the operational definition of this research.

Table 1. Identification and Operationalization of Variables

No.	Variable Identification	Variable Operational Definitions
1.	Independent variables: Dynamic Capabilities (X) with dimensions Sensing (X1), Seizing (X2), Transformation (X3)	• Sensing is DC's main process that identifies opportunities for growth before such possibilities become real for all (Hussain & Malik, 2022). • Seizing or seizing the second DC generic process which involves mobilizing resources to address opportunities and neutralize threats (Hussain & Malik, 2022) • Transformation or transformation is the ability needed to realize the opportunities that are created (Hussain & Malik, 2022)
2.	Mediation variable: Digital Transformation (Z)	Digital transformation is the implementation of technology in companies or organizations so that they can remain competitive and have the ability to adapt to changes that occur in the business environment quickly. ICT Management manages Information and Communication Technology (ICT), a large umbrella term covering all technical equipment for processing and conveying information. ICT covers two aspects: information technology and communication technology (Zaoui et al., 2019).
3.	Dependent variable: Organization Resilience (Y) with dimensions of adaptability (Y1) and agility (Y2)	Organizational resilience is an organisation's ability to anticipate, plan and respond to adversity when it occurs, which manifests as an organization that is flexible and sustainable towards transformation (Heredia, Rubiños et al., 2022). Adaptability is the ability of an organization to change "strategies, activities, management systems, governance structures and decision support capabilities" so that the organization is able to survive all disturbances. Agility is a quick and effective response to changes for the sake of organizational resilience (Akpan et al., 2022).

Source: Researchers (2022)

Furthermore, through table 2 below, the evaluation criteria for the evaluation of the reflective measurement model are conveyed.

Table 2. Test the Reliability and Validity of the Reflective Measurement Model

Reliability Test	Parameter	Rule of Thumbs
Internal consistency	Composite reliability	Equal to and greater than 0.7.
Validity test	Parameter	Rule of Thumbs
Convergent	reliability indikator (outer loading)	Greater than 0.708.
	Average variance extracted (AVE)	More than 0.5.
Discriminant	AVE root and correlation of latent variables (Fornell-Larcker Criterion)	Root AVE > Correlation of latent variables.

Source: (Sekaran & Bougie, 2016); (Hair et al., 2018)

3. Results

The data used in this study are valid and reliable data with the results of validity and reliability tests.
Table 3 below is the result of path coefficient analysis and hypothesis testing.

Table 3. Path Coefficient Results and Hypothesis Testing

Hypothesis	Path	Path Coefficient	T-Statistic	P-Values	Remarks
1	Dynamic Capabilities → Digital Transformation	-0,098	0,188	0,851	Not significant
2	Digital Transformation → Organizational Resilience	0,399	4,742	0,000	Significant

Source: Data Processing By Researchers (2022)

This study uses a margin of error of 5% or a 95% confidence level. Therefore, the hypothesis is accepted if the p-value < 0.05. Based on Table 1, the results show that

- The Dynamic Capabilities → Digital Transformation path has p-values = 0.188 > 0.05, so the first hypothesis is not supported. The direct effect of Dynamic Capabilities on Digital Transformation has a path coefficient value of -0.098 which means it shows a negative relationship. With p-values > 0.05, the results can be interpreted as Dynamic Capabilities do not directly affect Digital Transformation. Thus the increase or decrease in Dynamic Capabilities does not affect the increase or decrease in Digital Transformation.
- The Digital Transformation Path → Organizational Resilience (H2) has a p-value = 0.00 <0.05, supporting the second hypothesis. The direct effect of Digital Transformation on Organizational Resilience has a path coefficient value of 0.399. It is positive, which means that Digital Transformation has a significant positive influence on Organizational Resilience. Therefore, every time there is an increase in the level of Digital Transformation, the Organizational Resilience of SD will also increase, and vice versa; if Digital Transformation decreases, the Organizational Resilience of SD will also decrease.

Table 4. Mediation Test

Hypothesis	Path	Path Coefficient	T-Statistic	P-Values	Remarks
3	Dynamic Capabilities → Digital Transformation → Organizational Resilience	-0,039	0,192	0,848	Not significant

Source: Data Processing By Researchers (2022)

The indirect effect of Dynamic Capabilities on Organizational Resilience through Digital Transformation mediation obtained a coefficient value of -0.039, and the p-value of the Sobel test was 0.848. Because the p-value > 0.05, the result is that the Digital Transformation variable is not able to mediate the effect of Dynamic Capabilities on Organizational Resilience. That means H3 is rejected.

Examination of the goodness of fit model in PLS can be seen from the predictive-relevance value (Q2). The Q2

value is calculated based on the R2 value of each endogenous variable as follows.

Table 5. R^2 Test Results

	R Square
Organizational Resilience	0,721
Digital Transformation	0,513

Source: Data Processing By Researchers (2022)

The predictive relevance value (Q2) is obtained as follows

$Q2 = 1 – (1 – R12) (1 – R22)$
$Q2 = 1 – (1 – 0.513) (1 – 0.721)$
$Q2 = 0.864$

The calculation results show that the predictive-relevance value of 0.864 or 86.4% is very high, so the model can be said to have a relevant predictive value. The predictive relevance value of 86.4% indicates that the diversity of the data that can be explained by the PLS model built is 86.4%. In other words, the information contained in the data is 86.4% which the model can explain. The remaining 13.6% is explained by other variables (which are not included in the model) and errors.

4. Discussion

The variables of this study include three, namely Dynamic Capabilities, Digital Transformation, and Organizational Resilience. This discussion aims to achieve research objectives and interpret the significance level of research hypotheses and findings. Of the three variables in this study, there are valid and reliable indicators. These results show that all indicators are in accordance with the situation that occurred in SD at the Santo Dominic Foundation. Of the three hypotheses, there is one significant hypothesis, namely H2 and two insignificant hypotheses, namely H1 and H3.

4.1. The Effect of Dynamic Capabilities on Digital Transformation

According to previous research, Dynamic Capabilities are significant for Digital Transformation (Marx et al., 2021), (Ellström et al., 2022). This finding is also supported in terms of digital dynamic capabilities that directly influence strategic renewal (Lukito et al., 2021). The results of the study show different results from the results of some of these previous studies.

The results of this study show differences from previous studies. The path coefficient results are negative, meaning dynamic capabilities and digital transformation does not have a unidirectional relationship. The results also show that the hypothesis is rejected, meaning that Dynamic Capabilities are not significant to Digital Transformation (H1 is rejected). The results of this study support the findings of previous research, namely D. J. Teece's (2007) research. In order for an organization or company to be successfully involved in digital transformation, companies need a series of activities to facilitate dynamic capabilities in their business and organizational models. Other studies suggest that there should be further research on the effect of dynamic capabilities on digital transformation for digital maturity (Marx et al., 2021). On the other hand, leaders must reconfigure shared capabilities to create dynamic capabilities (Ellström et al., 2022). This is because, as Karimi and Walter (2015) explained, it is difficult for managers/leaders to know an organization's ability to ensure the success of digital transformation (Ellström et al., 2022).

The research results of D. J. Teece (2007) do not explicitly state whether the relationship between dynamic capabilities and digital transformation is significant but asks that organizations facilitate dynamic capabilities in the form of a series of activities to engage in digital transformation. Reflecting on previous research conducted by Karimi and Walter (2015), Marx et al. (2021), and Ellström et al. (2022), it can be stated that the results of this study support previous research as mentioned.

4.2. The Effect of Digital Transformation on Organizational Resilience

The results of this study are that digital transformation has a significant positive effect on organizational resilience, so H2 is supported. The better the digital transformation, the better the organizational resilience. This answers H2, which is testing the effect of digital transformation on organizational resilience in elementary schools at the Santo Dominikus Foundation. This finding is in line with the results of previous research that digital transformation has a positive effect on organizational resilience (Li et al., 2022), also for small and medium enterprises (Syed et al., 2020) and digital transformation is also a key factor in organizations to create resilience. Organization (Zhang et al., 2021). Digital technology can better maintain an organization's existence in times of crisis because it has the potential to assist organizations in building infrastructure with support systems to increase systematic control (He et al., 2022). This proves that the effective use of digital elements is increasingly becoming an important component of resilience (Aksay & Şendoğdu, 2022)

The use of digital transformation supports resilience for companies (Li et al., 2022), small and medium enterprises (Syed et al., 2020) and schools, namely elementary schools, as the results of this study. Digital transformation is the key to building organizational resilience, and using digital transformation can overcome organizational crises so that organizations can survive.

4.3. Mediation of Digital Transformation on the Influence of Dynamic Capabilities on Organizational Resilience

Based on the analysis in Table 4, hypothesis 3 of the effect of dynamic capabilities on organizational resilience through digital transformation is not significant or not supported. Based on the results of the data analysis in Table 3, it is known that the effect of dynamic capabilities on digital transformation is not significant, and the effect of dynamic capabilities on organizational resilience is significant. Thus, it is found that there is no digital transformation mediating effect on the effect of dynamic capabilities on organizational resilience. This means that digital transformation cannot help bridge the dynamic capabilities of SD at the Santo Dominican Foundation for organizational resilience.

This finding is in line with the explanation of Alkhamery et al. (2021), who have the same model, namely the mediation of digital transformation on the effect of dynamic capabilities on organizational resilience, explained that including technological factors in the relationship of dynamic capabilities to organizational resilience through digital transformation still needs to be explained further. Hussain & Malik (2022) conveyed a similar opinion that digital technology and organizational attitudes towards digital technology need to be dismantled/studied more broadly. The development of digital capabilities is very important to generate innovation and take advantage of the mediating effect of technological capabilities to improve company performance. This is even more critical in less developed countries where the adoption of digital platforms has a disruptive impact due to reduced costs and ease of implementation (Heredia, Castillo-Vergara, et al., 2022).

5. Conclusion

From the results of the discussion above, it can be concluded that digital transformation does not support organizational resilience. This is because not all efforts to maintain the organization can be accepted by stakeholders. Associated with digital transformation, many things must be explained, learned, and are expected to produce innovations to maintain the organization. The use of transformational digital mediation still needs to be tried and tested so that you find the right results, even though everything is open to the expected final results.

The context of schools and companies is very different, so this research and the object of research in schools should continue to be promoted to get more relevant results because the terms are increasingly familiar among teachers and elementary school employees. Data collection needs to be adjusted to the habits of the local school, for example, face-to-face, so that there is an explanation that the respondent does not know. Data can be expanded again so as not to limit generalization.

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