The Role of Top Management Support and Technological Competencies in the Influence of Digital Business Transformation on Organizational Resilience

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Abstract:
The biggest challenge for SMEs in the market of emerging countries is related to their survival ability. To enable survival, businesses are required to implement digital business transformation as an adaptive step to respond to changes in culture, trends, and markets in the industry. This is accompanied by top management support to foster technological competencies, in proceeding with an increase of organizational resilience. This research aims to analyze the top management support role as well as the technological competence in linking the influence of digital business transformation with organizational resilience. The approach used is a quantitative one, through a collection of questionnaires to 200 respondents who are owners/managers of SME businesses in Batam City. Data analysis through SEM-PLS technique via SmartPLS software. The test results indicate digital business transformation's effect is significant on top management support and technological competencies, technological competencies have a significant effect on the resilience of the organization. Additionally, digital business transformation also plays a significant direct influence on the resilience of organizations.

INTRODUCTION

The ability to survive is characterized as part of the most crucial challenges for SMEs in emerging markets (Craighead et al., 2020). The limitations of SMEs do not become an obstacle to being able to continue to survive and face successive global crises, because this requires new research to study the determining factors that can help SMEs to develop better in the future crisis and recover quickly (Madi Oleh et al., 2021). Although there are no proven sources that are accurate about the factors that contribute to organizational resilience, digital business transformation has placed this area at the forefront of organizational resilience discussions.

Digital solutions have opened up more new opportunities for market companies in developing countries to offer their products to achieve higher levels of internationalization and creation as well as more competition and innovation (Bellaj, 2021). Through digital business transformation, it can be possible to increase organizational resilience, considering that this technology makes it easier for organizations to adapt their business processes to the dynamics that occur in customer needs and the business environment (Li

et al, 2021). This also allows them to respond quickly to changes in their markets or unexpected external conditions, increasing their ability to survive in uncertain situations (Schnase et al., 2021; Zhang et al., 2021).

The presence of digital technology also influences technological competencies (Alsmadi et al., 2023). This is because, with the transformation of SMEs towards digital, SMEs are directed to learn something new, which is related to the use of this technology. This can create a positive value for SMEs to be more updated in following existing trends and developments so that they can be implemented in their business activities they can automatically increase the resistance and organizational resilience of SMEs (Martins, 2023). Apart from that, top management support is also characterized as being able to support the effective implementation of digital business transformation, to further enable employees to obtain the required competencies and utilize them in their business operational activities (Rafique et al, 2022).

Therefore, more empirical research is needed regarding the role of top management support and technological competencies in connecting the influence of digital business transformation with organizational resilience. A study conducted by Al-Omush (2022) investigated the influence of digital business transformation on the economic innovation and resilience of SMEs. Research findings show that digital business transformation has a significant impact on the resilience of SMEs in emerging markets. However, this research is different, which replaces the economic innovation variable with top management support and technological competencies.

Researchers also considered the study implemented by Gichuhi et al. (2023) regarding the influence of management support on organizational resilience. The research findings indicate that management support has a significant positive effect on shaping organizational resilience. However, this research does not discuss the variables technological competencies and digital business transformation, as is what this research aims to examine.

METHODS

In this research, we will collect data from distributing survey questionnaires to SMEs in Batam City through 20 test question items. The population determined in the current research is none other than the entire SME market in Indonesia. Considering that the population quantity is not yet understood, the sample taken used a proportion ratio of 1:10, which is based on the assumption that 1 question item represents 10 respondents. This is as explained by Hair et al. (2019) that the minimum number of samples that must be processed in a study is at least or greater than 10 times the quantity of formative/structural indicators. Thus, it can be interpreted that the minimum number of respondents that can be used for sampling in this research is 200 people.

This is also in line with the application of non-probability sampling, specifically purposive sampling, which means that the sampling procedure is selected based on certain requirements and criteria used by researchers. The data obtained was then tested statistically using the SMART-PLS program, to carry out the Structural Equation Modeling - Partial Least Square (SEM-PLS) test, to test the hypothesis raised in this research.

RESULTS AND DISCUSSIONS

Descriptive Statistics and Univariate Comparisons

This respondent's descriptive data includes gender, age, highest level of education, position, and length of work, as presented in Table 1. Data collected from 200 respondents stated that the majority of respondents were male, with a percentage of 50.5%, while female was 49.5%. Then based on age, the majority are 26-32 years old, with a percentage of 46%. This was followed by 37.5% of respondents aged 18-25 years, 14.5% of respondents aged 33-40 years, and 2% of respondents aged over 40 years. In terms of education, the majority

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of respondents had a Bachelor's degree (S1), with a percentage of 58.5%. This was followed by 25.5% of respondents having a high school/vocational degree, 10.5% a diploma, and the remaining 5.5% a master's degree. Then for the position, most respondents were owners, with a percentage of 51.5%. This was followed by 97 respondents being managers, with a percentage of 48.5%. Meanwhile, based on the length of work criteria, the majority have worked between 3-5 years, with a percentage of 36%. This is followed by respondents who have worked for 1-2 years at 31%, respondents who have worked for more than 5 years at 18.5%, and the remaining 14.5% for respondents who have only worked for less than 1 year.

Table 1. Respondent Description

Criteria	Category	Frequency	Percentage
Gender	Male	101	50,5%
	Female	99	49,5%
Age	18 - 25 years old	75	37,5%
	26 - 32 years old	92	46%
	33 - 40 years old	29	14,5%
	>40 years old	4	2%
Education	SMA/SMK	51	25,5%
	Diploma	21	10,5%
	Bachelor (S1)	117	58,5%
	Master (S2)	11	5,5%
Position	Owner	103	51,5%
	Manager	97	48,5%
Length of Work	<1 year	29	14,5%
	1-2 years	62	31%
	3-5 years	72	36%
	>5 years	37	18,5%

Source: Primary data processed by the researcher (2024)

Convergent Validity Testing

Table 2. Outer Loading Results

Item	Outer Loading	Conclusion
X1_1	0.782	Valid
X1_2	0.799	Valid
X1_3	0.765	Valid
X1_4	0.784	Valid
X1_5	0.806	Valid
X1_6	0.847	Valid
Z1_1	0.767	Valid
Z1_2	0.761	Valid
Z1_3	0.786	Valid
Z1_4	0.841	Valid
Z1_5	0.821	Valid
Z1_6	0.753	Valid
Z2_1	0.724	Valid
Z2_2	0.739	Valid
Z2_3	0.784	Valid
Z2_4	0.791	Valid
Z2_5	0.766	Valid
Z2_6	0.819	Valid
Y1_1	0.789	Valid
Y1_2	0.802	Valid
Y1_3	0.776	Valid
Y1_4	0.785	Valid
Y1_5	0.812	Valid
Y1_6	0.844	Valid

Item	Outer Loading	Conclusion
Y1_7	0.851	Valid

Source: Primary data processed by the researcher (2024)

Table 3. AVE Result (Average Variance Extracted)

Variable	AVE	Remarks
Digital business transformation	0.664	Valid
Top management support	0.678	Valid
Technological competencies	0.705	Valid
Organizational resilience	0.639	Valid

Source: Primary data processed by the researcher (2024)

According to Hair et al. (2019), an item can be declared valid if it has an outer load value above 0.6. In this case, it can be stated that all question items in this research indicated a value of > 0.6 for the outer loading test. In other words, all variables are valid and there is no need to delete any indicators. All of these question items can be used for the next step in testing reliability. Likewise, obtaining an AVE value for all variable items is > 0.5, meaning that its validity can be declared guaranteed.

Discriminant Validity

Table 4. Cross-Loadings Results

Variable	Digital business transformation	Top management support	Technological competencies	Organizational resilience
X1_1	0.508	0.498	0.516	0.673
X1_2	0.425	0.525	0.470	0.703
X1_3	0.601	0.610	0.566	0.836
X1_4	0.518	0.459	0.527	0.699
X1_5	0.567	0.481	0.611	0.459
Z1_1	0.376	0.451	0.442	0.453
Z1_2	0.521	0.463	0.553	0.567
Z1_3	0.458	0.512	0.551	0.548
Z1_4	0.454	0.714	0.462	0.524
Z1_5	0.464	0.724	0.418	0.525
Z2_1	0.614	0.503	0.636	0.584
Z2_2	0.392	0.405	0.529	0.502
Z2_3	0.476	0.436	0.538	0.554
Z2_4	0.843	0.564	0.615	0.600
Z2_5	0.762	0.543	0.615	0.549
Y1_1	0.601	0.635	0.610	0.566
Y1_2	0.518	0.502	0.459	0.527
Y1_3	0.567	0.537	0.481	0.611
Y1_4	0.470	0.509	0.515	0.570
Y1_5	0.675	0.565	0.573	0.640

Source: Primary data processed by the researcher (2024)

Following the results presented in the table 4 above, it is stated that overall shows a strong correlation with the respective variables, because the value is above 0.7.

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Table 5. Average Fornell-Larcker Criterion Results

Variable	Digital business transformation	Top management support	Technological competencies	Organizational resilience
Digital business Transformation	0.844			
Top Management Support	0.689	0.808		
Technological Competencies	0.822	0.787	0.799	
Organizational resilience	0.787	0.751	0.742	0.809

Source: Primary data processed by the researcher (2024)

Following the results presented in the table 5 above, all variables meet these criteria, with each variable correlating with the appropriate indicators, where the correlation between the variable and itself is greater than the correlation with other variables.

Table 6. Heterotrait-Monotrait Ratio (HTMT Ratio) Results

Variable	Digital business transformation	Top management support	Technological competencies	Organizational resilience
Digital business transformation				
Top management support	0.724			
Technological competencies	0.939	0.988		
Organizational resilience	0.956	0.795	0.708	

Source: Primary data processed by the researcher (2024)

According to the table 6 above, it can be interpreted that there are 3 correlations with a value < 0.9, and there are 3 relationships with a value > 0.9, such as the relationship between top management support and digital business transformation, the relationship between technological competencies and digital business transformation and top management support, as well as digital relationships with organizational resilience. Thus, it can be stated that the HTMT results are marked as not meeting the criteria. However, for cross-loading testing and the Fornell-Lacker Criteria, it has met the standards and is considered valid. So, it can be concluded that the data is valid.

Table 7. Reliability Statistics Results

Variable	Composite Reliability	Conclusion
Digital business transformation	0.832	Reliable
Top management support	0.839	Reliable
Technological competencies	0.869	Reliable
Organizational resilience	0.822	Reliable

Source: Primary data processed by the researcher (2024)

According to Hair et al. (2019), a variable is declared reliable if it has a composite reliability value > 0.7. Based on the data in Table 7, it can be seen that the overall figure for each variable of composite reliability is greater than 0.7. This means that all question items are reliable.

Structural Model Evaluation (*Inner Model*)
To ensure that the regression model meets the requirements for convergent validity, the AVE value needs to be above 0.5. Then, the significance value must have an outer load above 0.6. Based on the findings above, it can be stated that each questionnaire item meets the validity criteria and has an AVE value > 0.5. This indicates that this model can be used for hypothesis testing.

Table 8. Path Coefficients Results

Path	T Statistics	P Values	Hypothesis	Explanation
DBT -> TMS	5.402	0.000	H1	Significant
DBT -> TC	0.355	0.761	H2	Not Significant
TMS-> TC	2.116	0.025	H3	Significant
DBT -> OR	11.230	0.000	H4	Significant
TMS -> OR	4.115	0.000	H5	Significant

Source: Primary data processed by the researcher (2024)

Based on the table 8 above, the following discussion can be drawn:
H1: The Influence of Digital Business Transformation on Top Management Support
Digital business transformation has a significant influence on top management support, which is proven by the statistical T value of 5.402, and the p value of 0.000 < 0.05. This is in line with research conducted by Al-Omush, (2022) which shows that there is a significant influence of digital business transformation on top management support because existing business transformation can generate interest and enthusiasm on the part of management to support creativity and innovation by utilizing skills. Digital.

H2: Influence of Digital Business Transformation on Technological Competencies
Digital business transformation does not have a significant influence on technological competencies, because it has a statistical T value of 0.355 and a p-value of 0.761 > 0.05. This is contrary to research conducted by Trieu et al. (2023) which shows that there is a significant influence of digital business transformation on technological competencies because existing business transformation can increase the competence of SMEs in operating digital technology for their business activities.

H3: Influence of Top Management Support on Technological Competencies
Top management support has a significant influence on technological competencies because it has a statistical T value of 2.116 and a p-value of 0.025 < 0.05. This is in line with research conducted by Gichuhi et al. (2023) which shows that there is a significant influence of top management support on technological competencies because existing management support can increase the competency of SME employees to use digital technology in their business activities.

H4: The influence of Digital Business Transformation on Organizational Resilience with a statistical T value of 11.230 and a p-value of 0.000 < 0.05.
Digital business transformation has a significant influence on organizational resilience because it has a statistical T value of 11.230 and a p-value of 0.000 < 0.05. This is in line with research conducted by Al Omush (2022) which shows that there is a significant influence of digital business transformation on technological competencies because existing management support can increase the competency of SME employees to use digital technology in their business activities.

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H5: Influence of Technological Competencies on Organizational Resilience
Technological competencies have a significant influence on organizational resilience because they have a statistical T value of 2.894 and a p-value of 0.011 < 0.05. This is in line with research conducted by Gichuhi et al. (2023) which shows that there is a significant influence of technological competencies on organizational resilience because existing technological competencies can increase organizational resilience in responding to changes in business situations and conditions.

Table 9. R-Square Results

Variable	R-Square	Adjusted R-Square
Top management support	0.708	0.704
Technological competencies	0.606	0.603
Organizational resilience	0.726	0.723

Source: Primary data processed by the researcher (2024)

Following the adjusted R-Square top management support value of 0.704, it shows that the independent variable can explain the top management support variable of 70.4%. Meanwhile, the adjusted R-Square technological competencies value is 0.603, indicating that the independent variables along with top management support can explain organizational resilience by 60.3%. Meanwhile, the adjusted R-Square organizational resilience value is 0.723, indicating that the independent and mediating variables can explain organizational resilience by 72.3%, while the remaining 27.7% is influenced by other variables.

Quality Index Testing Result

$$GoF\ Index = \sqrt{Average\ AVE\ x\ Average\ R^2}$$
$$Average\ AVE = \frac{0.664+0.678+0.705+0.639}{4} = 0.6715$$
$$Average\ R2 = \frac{0.704+0.603+0.723}{3} = 0.677$$
$$GoF\ Index = \sqrt{0.6715\ x\ 0.677}$$
$$GoF\ Index = 0.674$$

The calculation results indicate that the goodness of fit (GoF) value for the dependent variable is 0.674, meaning that the model quality is strong.

CONCLUSIONS
By the research results stated previously, it can be concluded that digital business transformation has a significant effect on top management support but does not have a significant effect on technological competencies. In this context, technological competencies play a significant influence in mediating the relationship between digital business transformation and organizational resilience but cannot mediate the relationship between top management support and organizational resilience. Apart from that, digital business transformation also has a direct and significant effect on organizational resilience.

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