TECHNOLOGICAL CAPITAL MEDIATION IN THE RELATIONSHIP OF TRANSFORMATION STRATEGY WITH STUDENT ACADEMIC PERFORMANCE

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ABSTRACT

The accelerating development of digital technology, as one of the main features of the 21st century, has made the business environment much more volatile and unpredictable, where not only the prosperity but also the viability of companies is uncertain. A fit strategy is needed to deal with this, including the learning process in order to achieve the expected academic performance through technological capital, which is part of intellectual capital.

This study aims to examine the effect of the transformation strategy on academic performance through the role of technological capital. The approach and type used in this research is quantitative research using primary data in the form of scores from questionnaire answers or collected respondents. Respondents from this study were lecturers, students and postgraduate education staff in all study programs.

The results of the study show that technological capital partially mediates the relationship between transformation strategy and academic performance. This shows that the transformation strategy influences academic performance through the role of technological capital and other factors.

For further research, it is necessary to explore variables other than technological capital related to the effect of transformation strategy on academic performance.

KEYWORDS: transformation strategy, academic performance, technological capital.

I. PRELIMINARY

1. Background of the problem

Academic performance is the final result achieved by a person as a success while attending education in an educational institution. Academic performance is related to learning achievement, learning success (O'Connor &Paunonen, 2007). Academic performance is part of this learning performance related to learning. Winkel (1991) defines learning as a psychological mental activity,

which takes place in active interaction with the environment, which results in changes in knowledge, understandings, skills, and values.

This level of academic performance is based on two things, namely academic and social integration. Academic and social integration affect student study performance. Baker and Siryk (1999) in (Rienties, Beausaert, Grohnert, Niemantsverdriet, &Kommers, 2012) divide into four concepts in academic integration including academic, social, personal, and emotional adjustments and attachments.

To achieve the desired academic performance, a fit strategy is needed. In the current era, digital transformation is important to achieve a fit academic strategy. Digital transformation refers to the processes and strategies of using digital technology to drastically change the way businesses operate and serve customers. That's because every organization increasingly relies on data and technology to operate more efficiently and deliver value to customers, in this case students.

The accelerating development of digital technology, as one of the main features of the 21st century, has made the business environment much more volatile and unpredictable, where not only the prosperity but also the viability of companies is uncertain. Digital technology is essential for designing new and more competitive learning models. However, digital technology alone is not enough to help universities improve their market position and academic performance. This requires the constant integral use of modern digital technologies, adequately guided and directed in the activity of changing products, processes, organizational structures, organizational culture, in the overall learning model, with a focus on optimal satisfaction of consumer needs.

The transformation strategy is important for academic performance. Academic performance is the final result achieved by a person as a success while attending education in an educational institution. According to O'Connor &Paunonen (2007) (in 2 SukmaManika Sari, 2019) explains that in the existing literature and articles, the terms learning achievement and learning success are often used to express the same thing. In discussing the performance of this study, first discussed the meaning of learning. Winkel (1991) (in SukmaManika Sari, 2019) defines learning as a psychological mental activity, which takes place in active interaction with the environment, which results in changes in knowledge, understandings, skills, and values. Referring to the research results of Khalique et al. (2011) that technological capital is the most important component of intellectual capital, because it is based on information technology (IT), research and development (R&D), and protection rights. According to Hashim et al. (2015) that technological capital supports knowledge that can be shared quickly and can be accessed by others. Grigoriev, Yeleneva, Golovenchenko, & Andreev (2014) argue that the existence of technological capital will support knowledge which is an intangible resource that shapes market or company value. (2015) that technological capital supports knowledge that can be shared quickly and can be accessed by others. Grigoriev, Yeleneva, Golovenchenko, & Andreev (2014) argue that the existence of technological capital will support knowledge which is an intangible resource that shapes market or company value. (2015) that technological capital supports knowledge that can be shared quickly and can be accessed by others. Grigoriev, Yeleneva, Golovenchenko, & Andreev (2014) argue that the existence of technological

capital will support knowledge which is an intangible resource that shapes market or company value.

The importance of technology capital is due to the rapid development of technology and information and at any time it is definitely needed by the company. Technology capital draws on its unique know-how from investments in research and development, branding, and organizational capital. What distinguishes technological capital from other forms of capital is the fact that a company can use it simultaneously in several domestic and foreign locations (Secundo, Ndou, Vecchio, & De Pascale, 2020). Based on this explanation, research was carried out on the topic **TECHNOLOGICAL CAPITAL MEDIATION IN THE RELATIONSHIP OF TRANSFORMATION STRATEGY WITH ACADEMIC PERFORMANCE.**

2) Formulation of the problem
a) Does the transformation strategy affect academic performance directly.
b) Does the transformation strategy affect the role of technological capital.
c) Does the role of technological capital affect academic performance.
d) Does the transformation strategy affect academic performance through the role of technological capital.

II. THEORETICAL BASIS
a) Contingency Theory
According to Otley (1980) (in Atiek Sri Purwati, 2006) the basic thesis of the contingency approach is that there is no organizational concept or design that can be applied universally anywhere or under any conditions and effectively. An organizational design is only appropriate or suitable (fit) for a particular context or condition. The use of the contingency approach should encourage researchers to identify the appropriate conditions for a particular organizational design and develop a theory that supports it (Atiek Sri Purwati, 2006). The contingency theory approach identifies optimal forms of organizational control under different operating conditions and attempts to explain how the operating procedures of such organizational controls operate.

b) Transformation Strategy
Digitization, including converting paper-based data into digital, is one of the stages that we inevitably have to go through so that a paperless process can be achieved. The use of paper hinders processing speed and accuracy, reduces quality and outcome, as well as complicates processes that maintain the integrity and confidentiality of information. Digital Transformation is basically related to using digital technology to improve processes (connecting processes digitally often requires digital transformation), enriching the customer experience by providing new business possibilities through the use of digital technology.

The characteristics of digital technology form the basic idea of the concept of digital transformation in the form of a transformation strategy. In the last two decades, the concept of digital transformation has received considerable attention in academia, but it is only in recent years that the application of this concept has become effective in commercial practice. Digital transformation is a global phenomenon that economic policy makers, entrepreneurs, intellectual elites talk about every

day. It is a term that is increasingly being prioritized due to the fact that it is a global trend, but also because of the real advantages and opportunities that this concept brings to the rest of society. A review of the literature on the topic of digital transformation has revealed that there is no generally accepted definition, uniform and comprehensive definition of the term digital transformation. In addition, it is often heard in public and read in the press or in scholarly publications that the terms digitization and digitization are used synonymously for digital transformation. Fitzgerald, Kruschwitz, Bonnet, & Welch, (2013) 5 defines digital transformation as the use of modern digital technologies (mobile devices, analytical tools, social media, etc.) in the process of enhancing the user experience of products and services, simplifying operational business activities and changing business models. Traditional business. Martin (2008) believes that digital transformation signifies the use of information and communication technology, which is not a trivial automation function, but contributes to enhancing existing ones, and also to create new capabilities in business and public life. According to Jari Collin et. al (2018) and Gerald C. Kane, Doug Palmer (2015) digital transformation and digitization are terms used interchangeably to describe concepts affecting policy, business, and other important social issues. In the paper Minonne, Wyss, Schwer, Wirz, &Hitz (2018), the literature review begins with the sentence: "Digitalization, also called digital transformation…" Foerster-Metz, Marquardt, Golowko, Kompalla, & Hell (2018) and Beck, Mahdad, Beukel, &Poetz (2018) use digitization and digitization as synonyms for digital transformation. Several authors make a distinction between digitization, digitization and digital transformation. Digitalization, as the application of digital technology,

c) Academic Performance

Empirical academic performance can be photographed from three dimensions. The student dimension includes aspects of tangibles (educational infrastructure), reliability (reliability of lecturers and academic staff), responsiveness (responsiveness), assurance (treatment of students) and empathy (understanding of student interests). The study program dimensions include aspects of curriculum, learning and academic atmosphere, students and graduates, students and graduates, human resources, academic facilities and infrastructure, research, community service and collaboration, management systems. Institutional dimensions (PPs) include aspects of student and graduate standards, curriculum standards, learning and academic atmosphere, research and community service, and quality assurance. For this reason, this study sets targets on these three dimensions covering all aspects included in it. Conceptually, performance can be defined as a degree of achievement. This means that the performance of an institution can be seen from the extent to which the organization can achieve its goals based on predetermined goals. Given that the purpose of an institution is to achieve certain predetermined goals, information about the performance of the organization/institution is very important (Bambang, 2008:2). The performance of an institution can be seen from the extent to which the organization can achieve goals based on predetermined goals. Given that the purpose of an institution is to achieve certain predetermined goals, information about the performance of the organization/institution is very important (Bambang, 2008:2). The performance of an institution can be seen from the extent to which the organization can achieve goals based on predetermined goals. Given that the purpose of an institution is to achieve certain predetermined goals, information about the performance of the organization/institution is very important (Bambang, 2008:2).

d) Capital Technology

Based on Khalique et al. (2011) according to previous research, explains that technological capital is the most important component of intellectual capital, because it is based on information technology (IT), research and development (R&D), and protection rights. According to Hashim et al. (2015) that technological capital supports knowledge that can be shared quickly and can be accessed by others. Grigoriev, Yeleneva, Golovenchenko, & Andreev (2014) argue that the existence of technological capital will support knowledge which is an intangible resource that shapes market or company value. The importance of technology capital is due to the rapid development of technology and information and at any time it is definitely needed by the company. Technology capital makes its unique know-how from investments in research and development, brand, and organizational capital. What differentiates technological capital from other forms of capital is the fact that a company can use it simultaneously in several domestic and foreign locations (Secundo et al., 2020).

e) Conceptual Framework

Transformation Strategy		Academic Performance
	Technologi Capital	

Chart 1. Conceptual framework

f) Hypothesis

The hypothesis proposed in this study is:

1) The transformation strategy directly affects academic performance.
2) The transformation strategy influences the role of technological capital.
3) The role of technological capital influences academic performance.
4) The transformation strategy influences academic performance through the role of technological capital.

III. RESEARCH METHODS

Types of Research and Description of the Research Population (Object).

The approach and type used in this research is quantitative research using primary data in the form of scores from questionnaire answers or collected respondents. Quantitative research measures or tests the effect of transformation strategy variables on academic performance through the role of technological capital.

Sampling technique.

According to Sugiyono (in Ghanimata, 2012) the sample is part of the number and characteristics possessed by the population. Determining the number of samples using non-probability sampling,

namely purposive sampling method sampling technique with certain considerations of respondents who are considered to have knowledge of the influence to be analyzed, it can be said that the sample units visited are adjusted by certain criteria based on the purpose of this research topic.

Data collection technique
Data Types and Data Sources

The type of data in this study uses primary data, namely data obtained by direct observation of the object under study. In this study, the type of data is primary data with respondents from the Postgraduate leadership, lecturers and Postgraduate students at Surabaya State University. The source of data obtained was in the form of answers from the results of filling out questionnaires which were distributed to Postgraduate leaders, lecturers and students.

Method of collecting data

In this study, the data collection method was used with a respondent's questionnaire, namely a list of questions that had been arranged systematically in order to obtain data and information about the effect of the transformation strategy on academic performance through technological capital. The data collection method is carried out by giving a physical set of written questions that have been prepared to the research object or respondent. The procedure for the data collection method with a questionnaire is as follows: come to the specified location, distribute the questionnaire according to the intended party, the respondent is required to fill in a general identity and answer the questionnaire according to the guidelines, then the results of the questionnaire answers are collected, selected and further analyzed.

Data analysis technique
Validity test

According to Ghozali (in Ghanimata, 2012) Validity test is used to measure whether or not a questionnaire is valid or valid. A questionnaire is said to be valid if the questions and questionnaire are able to reveal something that will be measured by the questionnaire. The validity test can be seen through the correlation coefficient which has a significant value (level of significance) less than 5% which indicates that the statements of the instrument are valid as indicators.

Reliability Test

According to Ghozali (in Ghanimata, 2012) Reliability is a tool for measuring a questionnaire which is an indicator of a variable. A questionnaire is said to be reliable or reliable if the answers to the questions are consistent or stable over time. Reliability test can be known by comparing the value of Cronbach's Alpha and the value of the reliability coefficient. It is said to be reliable if the Cronbach's Alpha value is > 0.6.

Descriptive Analysis

Data analysis by describing or concluding the respondent's response data on the research variables. This analysis calculates the average respondent's answers and personal data as a whole. Data collection through the distribution of questionnaires as much as 50 to 30 respondents.

Multiple Linear Regression Analysis

This technique is used to test the questions used in the questionnaire and measure the effect of more than one independent variable on the dependent variable with the aim of knowing the effect of expertise in using information system technology, suitability of technology tasks and e-commerce on company performance.

Classic assumption test

Normality Test According to Ghozali (in Ghanimata, 2012) aims to test whether in a regression model, the dependent variable, independent variable, or both have a normal distribution or not. The basis for decision making is as follows: (1) if the data spreads around the diagonal line and follows the direction of the diagonal line, then the regression model meets normality. (2) If the data spreads away from the diagonal line and does not follow the direction of the diagonal line, then the regression model does not meet normality.

Multicollinearity Test

It can be useful to test and find out whether there is a correlation finding between the independent variables. A good regression result is that there is no correlation between the independent variables. If the results state that the independent variables are correlated, then these independent variables are not orthogonal (independent variables that have a correlation value between other independent variables equal to zero. According to Ghozali (in Ghanimata 2012: 50) multicollinearity can be detected from the Variance Inflation Factor (VIF) value.) a tolerance value above 0.1 and a VIF value below 10 indicate that there is no multicollinearity between the independent variables.

Heteroscedasticity Test

According to Ghozali (in Ghanimata, 2012) the heteroscedasticity test aims to find out whether in the regression model there is variance inequality from one observation residual to another observation. The regression model is said to be good if there is homoscedasticity, namely the variance and residuals from observation to other observations are fixed or there is no heteroscedasticity. The way to detect whether or not heteroscedasticity occurs is by looking at certain pattern points on the scatter plot graph between the residual variable (SRESID) and the dependent variable (ZPRED) determined by the Y axis of the actual prediction and the X axis as the residual. The points that should be spread above and below the number 0 on the Y axis, if there are points with a wave-like pattern or narrow, then heteroscedasticity is said to have occurred.

Determination Coefficient Test ( )R^2

According to Ghozali (in Ghanimata 2012: 54) that the coefficient of determination basically measures how far the model's ability to explain the variation of the dependent variable. The value of the coefficient of determination is between zero and one. A small value means that the ability of the independent variables to explain variations in the dependent variable is very limited. A value close to one means that the independent variables provide almost all the information needed to predict the variation of the dependent variable.R^2

Hypothesis testing

Model Feasibility Test (F Test)

Model feasibility test to measure the accuracy of the sample regression function in interpreting the actual value of the t statistic, the f statistic and the coefficient of determination. The statistical calculation is said to be significant if the statistical value is in the area where Ho is rejected and vice versa it is not said to be significant if the statistical value is in the area where Ho is accepted. The F11 statistical test is used to show whether all independent variables have a joint effect on the dependent variable. The test criteria are as follows: a. P-value <0.05 indicates the model test is feasible to use in research. b. P-value > 0.05 indicates the model test is not suitable for use in research.

Statistical Test t

According to Ghozali (in Ghanimata 2012: 53) Hypothesis test T basically shows how far the influence of one independent variable individually explains the variation of the dependent variable. The way to test that is with a significant level (α) = 0.05 and compare the value of t count with t table. If t count > t table then Ho is rejected and H1 is accepted (significantly) partially the independent variable influences the dependent variable (hypothesis accepted). The partial hypothesis test is based on the probability value of the data processing results of the Parametric Statistics SPSS program as follows: (a) If significance > 0.05 then Ho is accepted and H1 is rejected, meaning that there is no influence between the independent and dependent variables. (b) If the significance is <0.05 then Ho is rejected and H1 is accepted, meaning that there is influence between the independent and dependent variables

IV. RESULTS AND DISCUSSION

1) Results

Population is an individual or unit or element that has certain characteristics determined by the researcher. The population in this study was the Postgraduate academic community at Surabaya State University. The sampling will be carried out by purposive sampling technique. According to Sugiyono (2016: 85), purposive sampling is a sampling technique for data sources with certain considerations.

The data in this study are primary. The definition of primary data according to Sugiyono (2015) is a data source that directly provides data to data collectors. Primary data was obtained by distributing questionnaires to the business units of medium and large manufacturing companies in East Java engaged in the creative industry who were expected to be respondents and fill out the questionnaire. In addition to distributing the questionnaire online, to increase the sample probability obtained, the questionnaire was also distributed offline. Until now, a research instrument has been prepared in the form of a research questionnaire that has been distributed to the Postgraduate academic community at Surabaya State University. The items from the questionnaire are:

1. TRANSFORMATION STRATEGY (X)

Organizational transformation is a strategy and implementation to bring the organization from the old form and system to a new form and system by adjusting all of its derivative elements (system,

structure, people, culture) in order to increase the effectiveness of the organization to achieve the goals set in line with the vision and mission of the organization/company. With items:

Table1.Item Transformation Strategy Questions

1	Postgraduate reviews the vision and mission at least once every 3 years
2.	Postgraduate prepares programs to deal with changes in the external environment
3.	The Postgraduate prepares strategies and programs to increase market share
4.	The Postgraduate has a program to identify strengths and weaknesses and use them to deal with external challenges and threats
5.	The Postgraduate manages its operations to create a competitive advantage
6.	Postgraduate studies prepare organizational leaders who are able to mobilize all organizational resources and organs to achieve the organization's vision
7.	Postgraduate in managing human resources to create competitive advantage
8.	Postgraduate develops an organizational culture that supports the achievement of vision and mission
9.	Postgraduate manages risk so as to support organizational success

2. ACADEMIC PERFORMANCE (Y)

Academic performance is postgraduate performance Surabaya State University which is a picture of the results of the organization's work in achieving its goals which of course will be influenced by the resources owned by the organization. The performance of a tertiary institution is a parameter used to measure the achievement of higher education goals, which includes:

a. Internationalization

b. publication and reputation

c. Financial Ratios

Items questions are as follows:

Table2. Academic Performance Question Items

1.	At Postgraduate there needs to be competent foreign lecturers/staff
2.	The Postgraduate accepts foreign students
3.	In Postgraduate carry out international activities (research collaboration, student mobility)
4.	In Postgraduate there is Down streaming of research results
5.	In Postgraduate produce research that is recognized nationally and internationally
6.	Postgraduate. Have a good reputation for teaching
7.	The Postgraduate Program has a specificity and character for the resulting research

8.	At Postgraduate there are many achievements that students achieve
9.	Alumni/graduates have strategic positions within the entity.
10.	Postgraduates have various sources of income (from government, private, research, business)
11.	Graduates have sufficient endowment funds
12.	Postgraduate accepts the best students
13.	Have the proportion of postgraduate students who are able to produce the best research

3. TECHNOLOGICAL CAPITAL (Z)

Technological capital is knowledge of informatics technology used in the teaching and learning process. The question items related to technological capital are as follows:

Table3. Technogical Capital Inquiry Items

1.	Postgraduate lecturers must have reliable IT knowledge
2.	Postgraduate education personnel must have reliable IT knowledge
3.	IT facilities and infrastructure in Postgraduate must be qualified
4.	Postgraduates must hold workshops on IT knowledge for lecturers and educational staff.
5.	Lecturers have a certificate on IT or similar
6.	In Postgraduate technological knowledge is easy to understand, transfer and use
7.	Our company has had a leading role in the market for a long time based on technology capital
8.	Our company has a large number of technological concepts useful for innovation
9.	The postgraduate uses the latest and high-tech equipment & technology to stay competitive
10.	Postgraduates have a good research and development infrastructure, research budget & protection rights
11.	Postgraduates have sufficient budget for technology development
12.	The postgraduate has the skilled and professional employees necessary for technological innovation
13.	Postgraduate has a good system for securing intellectual property
14.	Postgraduate has a good system to protect industrial property

DATA ANALYSIS

THE EFFECT OF TRANSFORMATION STRATEGY ON ACADEMIC PERFORMANCE

Prior to mediation testing, the first thing to do was to test the effect of the transformation strategy on academic performance.

Evaluation of the Measurement Model (Outer Model)

The evaluation of the measurement model here is a validity test and a reliability test. The validity test itself consists of convergent validity and discriminant validity.

1. Validity test

The convergent validity test aims to determine the validity of each indicator relationship with its latent variables. Test the validity of this convergent by looking at the loading factor values of the indicators that measure the construct. In this study, the convergent validity test was carried out in 2 rounds because in the first round there were items that had poor convergent validity. The results of the convergent validity test in the first round are as follows:

Table4.Combined Loadings1st round

	performance	Strategy
X1		0.797
X2		0.790
X3		0.622
X4		**0.481**
X5		0.679
X6		0.824
X7		0.833
X8		0.725
X9		0.693
Y1	**0.533**	
Y10	**0.400**	
Y11	**0.474**	
Y12	**0.388**	
Y13	0.639	
Y2	0.739	
Y3	0.756	
Y4	0.763	
Y5	0.752	
Y6	0.728	
Y7	**0.582**	
Y8	0.615	
Y9	0.756	

Source: Appendix

Based on the table above, it can be explained that the results of the first convergent validity test have items that have a value less than 0.60, namely items X4, Y1, Y7, Y10, Y11 and Y12, meaning that these items have convergent validity that is not good, so they must be eliminated from next test.

Table5.Combined Loadings2nd round

	performance	Strategy
X1		0.812
X2		0.791
X3		0.610
X5		0.676
X6		0.818
X7		0.840
X8		0.753
X9		0.707
Y13	**0.595**	
Y2	0.792	
Y3	0.801	
Y4	0.788	
Y5	0.786	
Y6	0.696	
Y8	**0.562**	
Y9	0.746	

Source: Appendix

Based on the table above, it can be explained that the results of the second convergent validity test still contain items that have a value of less than 0.60, namely items Y8 and Y13, meaning that these items have convergent validity that is not good, so they must be eliminated from further testing.

Table6.Combined Loadings3rd round

Indicator	Loading Value	p-values
X1	0.815	0.000
X2	0.789	0.000
X3	0.603	0.000
X5	0.675	0.000
X6	0.820	0.000
X7	0.841	0.000
X8	0.754	0.000
X9	0.710	0.000
Y2	0.818	0.000
Y3	0.844	0.000
Y4	0.823	0.000
Y5	0.792	0.000
Y6	0.678	0.000

| Y9 | 0.708 | 0.000 |

Source: Appendix

After the third test, it turned out that all the remaining items from each variable had a value of more than 0.60 besides that the resulting p-value was below 5%. This means that all indicators have good convergent validity.

The loading value of each indicator to the construct must meet the requirements, loading between indicators must also be considered, where the loading value to other constructs is lower than that construct (cross loading). The results of the cross loading values are as follows:

Table7.Cross Loadings

	Performance	strategy
X1	0.624	0.815
X2	0.519	0.789
X3	0.535	0.603
X5	0.349	0.675
X6	0.564	0.820
X7	0.535	0.841
X8	0.589	0.754
X9	0.448	0.710
Y2	0.818	0.494
Y3	0.844	0.575
Y4	0.823	0.682
Y5	0.792	0.558
Y6	0.678	0.457
Y9	0.708	0.480

Source: Appendix

The table above shows that the loading values X1 to X9, the values in the transformation strategy column are greater than the values in the academic performance column. Likewise the loading values Y2 to Y9, the values in the academic performance column are greater than the values in the transformation strategy column. This means that all indicators on the transformation strategy and academic performance have good convergent validity. The next check of convergent validity is by looking at the AVE output. The construct has good convergent validity if the AVE value exceeds 0.50. The results of the AVE value are:

Table8.AVE value

Variable	AVE
Business performance	0.608
Transformation Strategy	0.570

Source: Appendix

The AVE value of performance and strategy variables is more than 0.50 so it can be concluded that performance and strategy have a good convergent validity value.

2. Test Reliability

The final evaluation on the outer model is composite reliability and Cronbach alpha. Composite reliability and Cronbach alpha test the reliability value of the instrument on a variable. A variable is said to meet the reliability test if it has a composite reliability and Cronbach alpha value of more than 0.7. The following are the composite reliability and Cronbach alpha values for each research variable:

Table9.Composite Reliability and Cronbach Alpha

	Cronbach's Alpha	Composite Reliability
Business performance	0.870	0.902
Transformation Strategy	0.890	0913

Source: Appendix

Based on the table above, it shows that the composite reliability and Cronbach's Alpha values of all research variables have a value of more than 0.70 so it can be concluded that the performance and strategy variables have high reliability.

3. Structural Model Evaluation

In assessing the structural model with the PLS structure, it can be seen from the R-Square value for each endogenous latent variable as the predictive power of the structural model. The R-Square value is a goodness fit model test. Changes in the R-Square value are used to explain the effect of certain exogenous latent variables on endogenous latent variables, whether they have a substantive effect. The results of the PLS R-Squares represent the total variance of the construct described by the model. The Warp-PLS results regarding the research hypothesis are divided into 3 models including:

Table10.Hypothesis testing

No.		Path coefficients	T Statistics (|O/STDEV|)	P Values	Information
1.	Transformation Strategy➔business performance	0.704	8,840	0.000	accepted

Source: Appendix

The explanation from the table above is that the transformation strategy has a significant positive effect on academic performance seen from the T-statistics value of 8.840 with a significant level (p-value) of less than 5%. So that the hypothesis which states that "Strategy has an effect on performance" is proven true.

Table11.R-Square value

	R Square
business performance	0.496

Source: Appendix

Based on the R-square value table, it shows that the magnitude of the influence of the transformation strategy on academic performance is 49.6%.
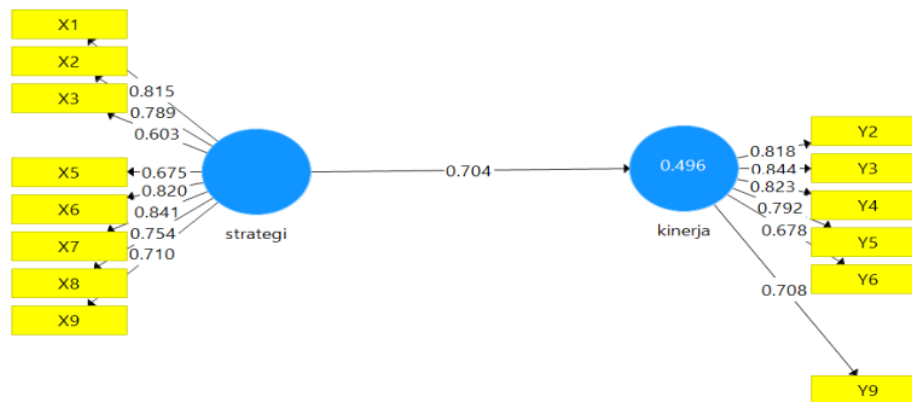

Chart2.Direct influence

THE EFFECT OF TRANSFORMATION STRATEGY ON ACADEMIC PERFORMANCE THROUGH TECHNOLOGICAL CAPITAL
The mediation test will be carried out if the transformation strategy affects academic performance.

Evaluation of the Measurement Model (Outer Model)

1. Validity test
The convergent validity test aims to determine the validity of each indicator relationship with its latent variables. Test the validity of this convergent by looking at the loading factor values of the indicators that measure the construct. To assess convergent validity, the significant value is less than 5%. In this study, the convergent validity test was carried out in 2 rounds because in the first round there were items that had poor convergent validity. The results of the convergent validity test in the first round are as follows:

Table12.Combined Loadings1st round

	Performance	strategy	Technological
X1		0.818	
X2		0.778	

	Performance	strategy	Technological
X3		**0.592**	
X5		0.673	
X6		0.823	
X7		0.840	
X8		0.764	
X9		0.715	
Y2	0.812		
Y3	0.836		
Y4	0.810		
Y5	0.801		
Y6	0691		
Y9	0.718		
Z1			0.618
Z10			0.758
Z11			0.625
Z12			0.798
Z13			0.756
Z14			0.757
Z2			0.683
Z3			**0.573**
Z4			0.753
Z5			0.666
Z6			0.833
Z7			0.732
Z8			0.800
Z9			**0.584**

Source: Appendix

Based on the table above, it can be explained that the results of the first convergent validity test have items that have a value of less than 0.60, namely items X3, Z3 and Z9, meaning that these items have poor convergent validity, so they must be eliminated from further testing.

Table13.Combined Loadings2nd round

Indicator	Loading Value	p-values
X1	0814	0.000
X2	0.772	0.000
X5	0.673	0.000
X6	0.848	0.000
X7	0.848	0.000
X8	0.775	0.000
X9	0.730	0.000
Y2	0.810	0.000

Indicator	Loading Value	p-values
Y3	0.836	0.000
Y4	0.810	0.000
Y5	0.798	0.000
Y6	0.690	0.000
Y9	0.722	0.000
Z1	0.609	0.000
Z10	0.777	0.000
Z11	0.650	0.000
Z12	0.807	0.000
Z13	0.780	0.000
Z14	0.762	0.000
Z2	0.666	0.000
Z4	0.733	0.000
Z5	0.651	0.000
Z6	0.828	0.000
Z7	0.739	0.000
Z8	0.810	0.000

Source: Appendix

After the second test, it turned out that all the remaining items from each variable had a value of more than 0.60 besides that the resulting p-value was below 5%. This means that all indicators have good convergent validity.

The loading value of each indicator to the construct must meet the requirements, loading between indicators must also be considered, and where the loading value to other constructs is lower than that construct (cross loading). The results of the cross loading values are as follows:

Table14.Cross Loadings

	performance	strategy	Technological
X1	0.621	0814	0.481
X2	0.519	0.772	0.233
X5	0.341	0.673	0.254
X6	0.561	0.848	0.447
X7	0.535	0.848	0.363
X8	0.580	0.775	0.546
X9	0.452	0.730	0.345
Y2	0.810	0.474	0.476
Y3	0.836	0.579	0.620
Y4	0.810	0.660	0.611
Y5	0.798	0.526	0.674
Y6	0.690	0.433	0.558
Y9	0.722	0.446	0.647

	performance	strategy	Technological
Z1	0.465	0.375	0.609
Z10	0.642	0.470	0.777
Z11	0.437	0.309	0.650
Z12	0.723	0.476	0.807
Z13	0.616	0.516	0.780
Z14	0.534	0.349	0.762
Z2	0.512	0.333	0.666
Z4	0.678	0.462	0.733
Z5	0.376	0.199	0.651
Z6	0.670	0.373	0.828
Z7	0.436	0.163	0.739
Z8	0.539	0.246	0.810

Source: Appendix

The table above shows that the loading values X1 to X9, the values in the transformation strategy column are greater than the values in the academic performance and technological capital columns. The value of loading Y2 to Y9, the value in the academic performance column is greater than the value in the transformation strategy and technological capital column. Likewise, the loading values Z2 to Z14 in the technological capital column are greater than the values in the academic performance and transformation strategy columns. This means that all indicators on the transformation strategy and academic performance have good convergent validity.

The next check of convergent validity is by looking at the AVE output. The construct has good convergent validity if the AVE value exceeds 0.50. The results of the AVE value are:

Table15.AVE value

Variable	AVE
Business Performance	0.608
Transformation Strategy	0.612
Technological capital	0.544

Source: Appendix

The AVE value of the performance, strategy and technological variables is more than 0.50 so that it can be concluded that performance, strategy and technological have a good convergent validity value.

2. Reliability Test
The final evaluation on the outer model is composite reliability and Cronbach alpha. Composite reliability and Cronbach alpha test the reliability value of the instrument on a variable. A variable is said to meet the reliability test if it has a composite reliability and Cronbach alpha value of more than 0.7. The following are the composite reliability and Cronbach alpha values for each research variable:

Table16.Composite Reliability and Cronbach Alpha

	Cronbach's Alpha	Composite Reliability
Bisi Performance	0.870	0.902
Strategy	0.894	0.916
Technological	0.923	0.934

Source: Appendix

Based on the table above, it shows that the composite reliability and Cronbach's Alpha values of all research variables have a value of more than 0.70 so it can be concluded that the performance and strategy variables have high reliability.

3. Structural Model Evaluation

In assessing the structural model with the PLS structure, it can be seen from the R-Square value for each endogenous latent variable and the predictive power of the structural model. The R-Square value is a goodness fit model test. Changes in the R-Square value are used to explain the effect of certain exogenous latent variables on endogenous latent variables, whether they have a substantive effect. The results of the PLS R-Squares represent the total variance of the construct described by the model. The Warp-PLS results regarding the research hypothesis are divided into 3 models including:

Table17.Hypothesis testing

No.		Path coefficients	T Statistics (IO/STDEVI)	P Values	Information
1.	Transformation strategy ->Business performance	0.379	3,360	0.002	accepted
2.	Transformation strategy -> technological capital	0.508	4,177	0.000	accepted
3.	technological capital->Business performance	0.581	4,452	0.000	accepted

Source: Appendix

The explanation from the table above is:

1. Strategy significant positive effect on performance seen from the T-statistics value of 3.360 with a significant level (p-value) of less than 5%. So that the hypothesis which states that "Strategy has an effect on performance" is proven true.
2. Strategy significant positive effect on technological seen from the T-statistics value of 4.177 with a significant level (p-value) of less than 5%. So that the hypothesis which states that "Strategy influences technological" is proven true.
3. Technological capital significant positive effect on performance seen from the T-statistics value of 4.452 with a significant level (p-value) of less than 5%. So that the hypothesis which states that "Technological influences performance" is proven true.

Table18. R-Square value

	R Square
Performance	0.704
technological	0.259

Source: Appendix

Based on the R-square value table, it shows that the magnitude of the influence of the transformation strategy and technological capital on academic performance is 49.6%, while the magnitude of the influence of technological capital on academic performance is 25.9%.
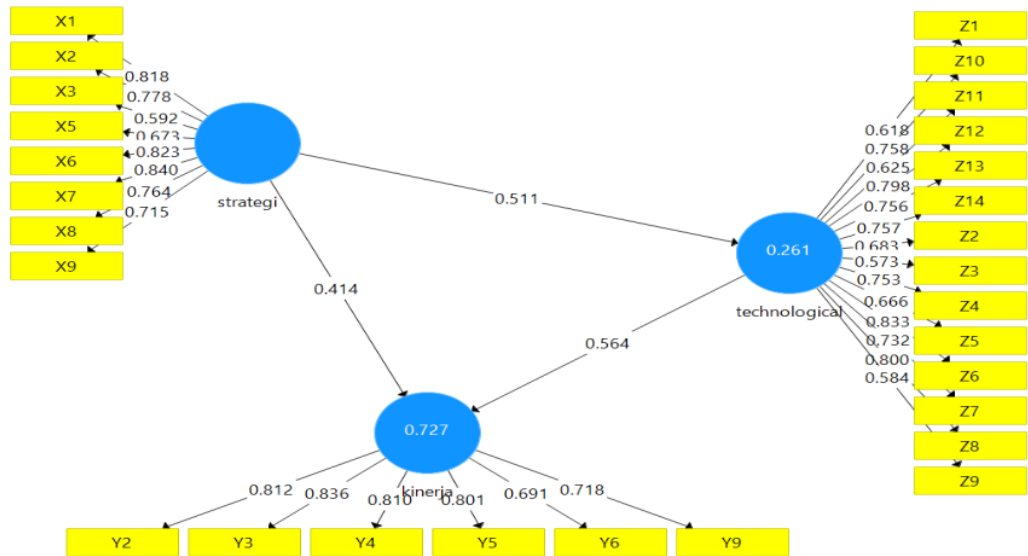

Chart3.Indirect Influence

2) Discussion

The R-square value indicates that the influence of the transformation strategy on academic performance is 49.6%. This matter indicating the magnitude of the independent variable transformation strategy affects the value of the dependent variable, academic performance of 49.6%. The transformation strategy is closely related to digital transformation. Digital Transformation is basically related to using digital technology to improve processes (connecting processes digitally often requires digital transformation), enriching the customer experience by providing new business possibilities through the use of digital technology. Academics at all levels and scopes must understand digital transformation to build their strategy.

To achieve the desired academic performance, a fit strategy is needed. In the current era, digital transformation is important to achieve a fit academic strategy. Digital transformation refers to the processes and strategies of using digital technology to drastically change the way businesses operate and serve customers. That's because every organization increasingly relies on data and technology to operate more efficiently and deliver value to customers, in this case students.

The accelerating development of digital technology, as one of the main features of the 21st century, has made the business environment much more volatile and unpredictable, where not only the prosperity but also the viability of companies is uncertain. Digital technology is essential for designing new and more competitive learning models. However, digital technology alone is not enough to help universities improve their market position and academic performance. This requires the constant integral use of modern digital technology, adequately guided and directed in the activity of changing products, processes, organizational structures, organizational culture, in the overall learning model, with a focus on optimal satisfaction of consumer needs.

The transformation strategy is important for academic performance. Academic performance is the final result achieved by a person as a success while attending education in an educational institution. According to O'Connor &Paunonen (2007) (in SukmaManika Sari, 2019) explains that in the existing literature and articles, the terms learning achievement and learning success are often used to express the same thing. In discussing the performance of this study, first discussed the meaning of learning. Winkel (1991) (in SukmaManika Sari, 2019) defines learning as a psychological mental activity, which takes place in active interaction with the environment, which results in changes in knowledge, understandings, skills, and values-attitudes. Referring to the research results of Khalique et al. (2011) that technological capital is the most important component of intellectual capital, because it is based on information technology (IT), research and development (R&D), and protection rights. According to Hashim et al. (2015) that technological capital supports knowledge that can be shared quickly and can be accessed by others. Grigoriev, Yeleneva, Golovenchenko, & Andreev (2014) argue that the existence of technological capital will support knowledge which is an intangible resource that shapes market or company value.

Based on the results of statistical tests, it shows that the transformation strategy has an effect on academic performance through the implementation of technological capital as indicated by the R-square value indicates that the magnitude of the influence of the transformation strategy and technological capital on academic performance is 49.6% while the magnitude of the influence of technological capital on academic performance is 25.9%.

The transformation strategy affects academic performance through the implementation of technological capital. Based on Khalique et al. (2011) according to previous research, explains that technological capital is the most important component of intellectual capital, because it is based on information technology (IT), research and development (R&D), and protection rights. According to Hashim et al. (2015) that technological capital supports knowledge that can be shared quickly and can be accessed by others. Grigoriev, Yeleneva, Golovenchenko, & Andreev (2014) argue that the existence of technological capital will support knowledge which is an intangible resource that shapes market or company value.

The importance of technology capital is due to the rapid development of technology and information and at any time it is definitely needed by the company. Technology capital draws on its unique know-how from investments in research and development, branding, and organizational capital. What differentiates technological capital from other forms of capital is the fact that a company can use it simultaneously in several domestic and foreign locations (Secundo et al., 2020).

V. CONCLUSION

Based on the results of statistical tests and discussion, it can be concluded that:

1. The transformation strategy influences postgraduate academic performance.

2. The transformation strategy influences the role of technological capital.

3. There is the role of technological capital that influences academic performance.

4. The transformation strategy influences academic performance through the role of technological capital partially.

BIBLIOGRAPHY

Atiek Sri Purwati, SZ (2006). Contingency Theory, Management Control Systems and Corporate Outcomes: Implications for Current and Future Research. AngewandteChemie International Edition, 6(11), 951–952., 2013–2015.

Beck, S., Mahdad, M., Beukel, K., &Poetz, M. (2018). Digital Transformation in Business Research: A systematic literature review and analysis. Paper to Be Presented at DRUID18 Copenhagen Business School, Copenhagen, Denmark June 11-13, 2018. Retrieved from http://conference.druid.dk/acc_papers/bto5poplqa0deatam7lcvtzc0td83b.pdf

Fitzgerald, M., Kruschwitz, N., Bonnet, D., & Welch, M. (2013). Embracing Digital Technology: A New Strategic Imperative. MIT Sloan Management Review, 1–12. Retrieved from http://sloanreview.mit.edu/projects/embracing-digital-technology?switch_view=PDF

Foerster-Metz, US, Marquardt, K., Golowko, N., Kompalla, A., & Hell, C. (2018). Digital Transformation and its Implications on Organizational Behavior. Journal of EU Research in Business, 2018, 1–14. https://doi.org/10.5171/2018.340873

Gerald C. Kane, Doug Palmer, ANPDK and NB (2015). Strategy, not Technology, Drives Digital Transformation. MIT Sloan Management Review and Deloitte University Press. https://doi.org/10.1176/appi.ajp.159.9.1620

Ghanimata, F. (2012). Analysis of the Influence of Price, Product Quality, and Location on Purchasing Decisions on Buyers of Milkfish JuwanaElrina Semarang. Diponegoro University Faculty of Economics and Business Thesis, 1–54. Retrieved from https://ejournal3.undip.ac.id/index.php/djom/article/viewFile/755/730

Grigoriev, SN, Yeleneva, JY, Golovenchenko, AA, & Andreev, VN (2014). Technological capital: A criterion of innovative development and an object of transfer in the modern economy. Procedia CIRP, 20(C), 56–61. https://doi.org/10.1016/j.procir.2014.06.144

Hashim, MJ, Osman, I., &Alhabshi, SM (2015). Effect of Intellectual Capital on Organizational Performance. Procedia - Social and Behavioral Sciences, 211(September), 207–214. https://doi.org/10.1016/j.sbspro.2015.11.085

Jari Collin, Kari Hiekkanen, Janne J. Korhonen, Marco Halén, Timo Itälä, MH (2018). IT Leadership in Transition The Impact of Digitalization on Finnish Organizations.

Khalique, M., Shaari, JAN, & Hassan, A. (2011). Intellectual Capital and Its Major Components.

International Journal of Current Research, 3(6), 343–347. https://doi.org/http://ssrn.com/abstract=1892844

Martin, A. (2008). Digital literacy: concepts, policies and practices. In Peter Lang Publishing (pp. 1–313). Retrieved from http://librariesandtransliteracy.wordpress.com/2011/01/26/two-free-books-on-digital-literacies/

Minonne, C., Wyss, R., Schwer, K., Wirz, D., &Hitz, C. (2018). Digital maturity variables and their impact on the enterprise architecture layers. Problems and Perspectives in Management, 16(4), 141–154. https://doi.org/10.21511/ppm.16(4).2018.13

Secundo, G., Ndou, V., Vecchio, P. Del, & De Pascale, G. (2020). Sustainable development, intellectual capital and technology policies: A structured literature review and future research agenda. Technological Forecasting and Social Change, 153(March 2019), 119917. https://doi.org/10.1016/j.techfore.2020.119917

SukmaManika Sari, P. (2019). The Influence of Personality Types A and B on Accounting Student Performance. E-Jurnal of Accounting, 29(1), 50. https://doi.org/10.24843/eja.2019.v29.i01.p04

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