Identification of Performance Variables For Design of Development Strategies Private Higher Education (Case Study, Indonesian Institute Of Technology)

Abdul Haris Lahuddin[1].

[1]Industrial Engineering, International University Liaison Indonesia, Associate Tower 7th Floor. Intermark, BSD City – South Tangerang, Indonesia, 1530
e-mail: abdul.Lahuddin@iuli.ac.id

ABSTRACT. The purpose of this study is to obtain the characteristics of the dominant performance variables in relation to the development strategy of Private Higher Education (PTS). The expected output from the research results is a priority ranking of the most influential performance factors in the development strategy of the Indonesian Institute of Technology. In this study, the design of a development strategy was carried out using the Space Matrix analysis method and SWOT analysis to produce a Grand Strategy where the PTS-ITI strategic position lies in the Strengths Opportunities (aggressive strategy) position. Data processing uses factor analysis to identify the dominant performance variables, where there are 26 variables that are prioritized as a priority in implementing strategies so that the attainment of predetermined organizational goals can be more effective and successful.

Keywords: Performance Variables, Factor Analysis, Space Matrix Analysis, SWOT, Grand Strategy.

1. INTRODUCTION

In PTS, the service or service process for converting inputs into outputs can be described in their routine activities, namely carrying out the tridarma of higher education, namely:

- Education & Teaching
- Research, and
- Community Service

To carry out these activities requires good strategic planning and basically strategic planning is very influential because the wrong strategy will cause the goals/objectives that we set will not be achieved. In every strategic plan, we will always be faced with the environment, where one of the most difficult environmental characteristics is uncertainty. In addition to this uncertainty, the environment is also dynamic and complex, so many factors interact in various ways, that we do not know how these interactions take place.

The strategy formulation is based on an analysis of the PTS-ITI environment, both internal and external factors, and by using the SWOT analysis a space matrix and grand strategy will be obtained that are in accordance with the current conditions of PTS-ITI and it is hoped that the results of identifying performance variables will be a useful consideration for PTS-ITI leaders to be able to implement more appropriate strategic planning so that the achievement of organizational goals of PTS-ITI is more effective and successful.

The purpose of this study is to obtain the characteristics of the dominant performance factors in relation to the development strategy of private tertiary institutions. The expected output from the research results is the priority ranking of the most influential performance factors in the PTS development strategy in general and ITI in particular, so that it can contribute ideas to PTS managers in general, and ITI in particular in improving the strategic planning process, so that it is able to adapt to its environment, can develop itself to the highest position in the coaching phase, namely self-actualization and ultimately produce graduates with good quality, which are human resources in carrying out development.

This research is expected to be able to apply known organizational theories for a non-company organization such as PTS, and is expected to pave the way and contribute to further researchers, especially research related to the world of education in private tertiary institutions. In this study, an attempt was made to approach organizational theories to analyze problems related to performance and development strategy.

2. LITERATURE REVIEW

2.1. Corporate Strategy Formulation

SWOT elements can be used to create a strategy for a company. For that there are two steps that must be done sequentially, namely:

- SPACE Matrix analysis
- SWOT Matrix analysis

2.2. Space Matrix analysis

Space stands for The Strategic Position and Action Evaluation. This analysis, as stated by R. Howe, R. Mason and K. Dickel and adapted by Fred R. David, is carried out by assessing all strategic factors and then processing these values so that they can be displayed on a two-dimensional coordinate system.

The SO quadrant located in Cell 1 is the most profitable position where the company is looking for opportunities and has the power to seize them. This position supports a growth oriented strategy or an aggressive strategy. The ST quadrant is located in Cell 2, a company with several strengths that is facing external threats. This position supports a diversification strategy, namely using strengths to create opportunities in the future. The WO quadrant in Cell 3, the company is seeing opportunities but experiencing problems in seizing them because the company has weaknesses. This position supports a turnaround oriented strategy, namely eliminating deficiencies so that they are more effective in seizing opportunities. The WT quadrant in Cell 4 is the most unpleasant position where the company is facing external threats along with a weak position. This position supports a defensive strategy, namely surviving while reviewing the company's involvement in the product that is being threatened.

2.3. SWOT Matrix analysis

SWOT analysis provides a strong foundation in strategy formulation, so that the alternative strategies that emerge are realistic and precise. SWOT matrix analysis is carried out using a matrix to produce alternative strategies by utilizing External Factor Evaluation and Internal Factor Evaluation.

SWOT elements are strengths, weaknesses, opportunities and threats. The elements of strength and weakness consist of the strengths and weaknesses within the company, the elements of opportunities and threats consist of factors of opportunities and threats to the company from the external environment. It is necessary to pay close and careful attention to identifying each of these factors correctly from the company's environment and categorizing them correctly to one of the elements because it will affect the grand strategy that will be implemented by the company. Don't make mistakes in identifying, so that factors that should be taken into account are ignored instead. On the other hand, factors that really don't need to be taken into account are instead given a large value or errors in categorizing a factor whether it includes opportunities, threats, strengths, or weaknesses.

There are two steps that are carried out in parallel in a SWOT analysis, namely:

- External Environmental Scanning
- Internal Environmental Scanning or Organizational Analysis.

The strategy formula obtained is a grand strategy which will be recommended next to create an appropriate operating strategy for the company by considering the priority ranking of performance variables obtained based on factor analysis. The combination of the four elements of the grand strategy from the SWOT matrix analysis is:

- SO Strategy: Is a strategy to take advantage of opportunities by leveraging the company's internal strengths.
- ST Strategy: Is a strategy to deal with or avoid threats by utilizing the strengths of the company.
- WO Strategy: Is a strategy to overcome weaknesses by taking advantage of existing opportunities.
- WT Strategy: Is a strategy that minimizes weaknesses while preventing external threats. The appropriate strategy is to survive.

2.4. Factor Analysis

Data processing in this study uses the statistical method of factor analysis. Factor analysis is a tool for analyzing a given number of variables in a way of measuring that is focused on theory and actual reality by analyzing the intercorrelations between these variables to determine whether the variations that appear in these variables originate or are based on a number of basic factors the same one. In other words, factor analysis tries to simplify the complex and varied relationships between a set of observed research variables, by revealing the same dimensions or factors (common factors) that can link these variables.

Factor analysis can be used for a variety of purposes. However, in general the use of this

method can be classified into three categories, namely:
1. Exploratory uses.
Factor analysis has the ability to investigate and detect a pattern of existing variables, with the aim of finding a new concept with the possibility of reducing data from the basic data.
2. Affirmation of a hypothesis (confirmatory uses).
Factor analysis has the ability to conduct tests or hypotheses regarding the structure and new variables related to a number of significant factors and the expected factor loading.
3. Measuring devices.

In factor analysis there are two important assumptions, namely:
1. The uniqueness of each variable does not contribute to the relationship between variables.
2. The factors formed in the analysis are independent of one another.
Suppose there are m observation variables, namely X1, X2, …., Xm where each variable is correlated with each other, it can be said that these variables have p common factors that underlie the correlation between the variables and have m unique factors that distinguish the characteristics between the variables. Let's say the common factors are F1,F2,….,Fp.

While the unique factors are U1,U2, …Um. The basic mathematical model of factor analysis used for each variable Xj where j = 1,2,3,…, m, can be formulated as follows:

Xj=Ai1Fi + Aj2F2 + Aj3F3 + ….+ AjpFp + bj1Uj

This basic model is a linear and additive model aimed at maximizing correlation reproduction, where each variable Xj is linearly related to the common factor Fr where r = 1,2,3…, participant unique factor Uj where here j = 1,2,3, ….m. The coefficient of the common factor Ajr is called the factor weight (factor loading).
The basic model of factor analysis above can be modified to become:

$$Xj = \sum_{r=1}^{p} AjrFr + bjUj$$

Where,
Xj = -j manifest variable
Fr = common factor, r = 1,2,3,…p
Uj = unique factor, j = 1,2,3,…m
Ajr = Loading the general factor of the -j variable on the r factor (A is the j x r matrix)
Bj = Loading unique factor of the -j variable

The reliability coefficient indicates the quality of the entire data collection process in a study. The method used to measure the reliability of this measuring instrument is the Cronbach method. Cronbach's Alpha (α) reliability formula is:

$$\alpha = \frac{kr}{1 + (k-1).r}$$

With :
α = Coefficient of reliability measuring instrument
K = The number of manifest variables that make up the latent variables
r = Average correlation between manifest variable values

3. METHODOLOGY

3.1. Problem Solving Methodology :

Research Objectives.

The first step taken in carrying out research is to set goals, because goals are the basis for determining the direction of research activities. The purpose of this study was to obtain the characteristics of the results of "Identification of Performance Variables for the Design of Private Higher Education Development Strategies" (Case Study, Indonesian Institute of Technology).

Theoretical basis.

The theoretical basis is a reference in discussing problems, determining the variables to be studied, processing and analyzing research data.
The theoretical basis related to this research is the understanding of management strategy theory, measurement and research methods, techniques related to data collection, and techniques related to statistical data processing and analysis.

Preliminary studies.

Preliminary studies were conducted to obtain information relating to the general conditions of private universities, especially the Indonesian Institute of Technology. The sources needed in the preliminary study are various references issued by Kopertis and direct observation of the activities of the Indonesian Institute of Technology.

From the preliminary study it was possible to produce a sequence of routine activities from the Indonesian Institute of Technology which became the basic formula in identifying the reference

variables to be examined in the preliminary study through direct interviews with the preliminary sample.

Methods of identification are obtained from various literature and results of observations in private tertiary institutions, especially the Indonesian Institute of Technology, which is carried out while still guided by references to literature studies.

The variables used in this study are strategic variables related to the activities in the service process at the Indonesian Institute of Technology. This is done by conducting direct interviews with samples that have been selected for preliminary study purposes. The sample for the preliminary study is structural and functional educational staff who play a role in the service process, understand the problems and manage the organization at the Indonesian Institute of Technology. In this preliminary study, an attempt was made to seek more detailed information about the performance variables that influence the development strategy at the Indonesian Institute of Technology, which then gave birth to the actual research variables, which would be used in research.

 Determination of Strategic Variables.
After obtaining a general description of the performance related to the service process at the Indonesian Institute of Technology and confirmed with the actual situation in the field, which was carried out by a preliminary study, a set of real variables was obtained that would be used in this study.

These variables are in the form of strategy variables which are considered to represent activities in the service process at the Indonesian Institute of Technology.

 Data Collection Plan.
There are 2 types of data:
1. Primary data, namely data directly collected/ obtained from the first source.
2. Secondary data, namely data that is not directly obtained from the first source and has been compiled in the form of written documents.

The data to be processed were obtained from primary data taken directly from structural and functional educational staff at the Indonesian Institute of Technology, while secondary data was obtained from KOPERTIS (Private Higher Education Coordinator), such as data regarding accreditation, the higher education system, and others.

 Data Processing.
After the data has been collected, edited and made into a matrix, the data processing stage begins using the Factor Analysis method with the help of a computer using SPSS (Statistics Software for Social Science) Microsoft Windows Release 6.0 software. The choice of this factor analysis method is based on the consideration that this method is considered the most suitable for the expected results, namely in the form of the main component which is the dominant variable.

 Analysis, Conclusions & Suggestions.
Analysis and conclusions are drawn based on the results of data processing, and with the results of the SWOT analysis and cause-and-effect diagrams, it is hoped that conclusions and suggestions that are broader in nature can be drawn.

3.2. Factor Analysis Methodology

In general, the factor analysis methodology can be explained as follows:

 Preparation of Raw Data Matrix.
Opinion data from respondents, namely data based on a Likert scale which is done by coding data by giving numbers to each answer so that it can be processed with SPSS software, arranged in a raw data matrix with the format m x n where m is the number of cases or respondents and n is the number observed research variables.

 Preparation of Correlation Matrix.
Correlation matrices are prepared to obtain the value of the closeness of the relationship between variables, and the calculation of this correlation value is carried out by several tests to see whether there is a match between the correlation values obtained in the factor analysis method.

All variables have a fairly high correlation indicated by the determinant value of the correlation matrix which is close to 0 (zero). Testing whether the correlation matrix is an identity matrix or not is done by testing the Bartlett Test of Sphericity. The identity matrix cannot be used for further factor analysis.
At this stage, testing is done on the value of the partial correlation coefficient. If these variables have a common factor, then the correlation coefficient between pairs of variables must be

small if the linear influence of other variables is removed.

Partial correlations are estimates between unique factors and must be close to 0 (zero), to meet the assumptions of factor analysis. The negative sign of the partial correlation coefficient is the anti-image correlation. If the proportion of large coefficients is high enough, then the use of factor analysis must be reviewed.

Kaiser Meyer Olkin (KMO) is a measurement for sampling adequacy, Measure Sampling Adequacy (MSA) is a test to determine the adequacy of the use of factor analysis. KMO price is an index to compare the size of the partial correlation coefficient. If the square of the sum of the partial correlation coefficients among all pairs of variables is smaller than the sum of the squares of the correlation coefficients, then the value of KMO is close to 1 (one). A small KMO value indicates that factor analysis is not suitable for use, because the correlation between pairs of variables cannot be explained by other variables.
Kaiser (1974) sets the price of KMO as 0.9 which is a very satisfactory price, 0.7 is a moderate price, 0.6 is moderate (neither good nor bad), while 0.5 is a low price. satisfactory, and a price below 0.5 is an unacceptable price. To find out the suitability of sampling from each variable, a measure of the adequacy of sampling is used. The low MSA price can be used as a consideration to remove this variable at a later stage.

Factor Extraction.
This stage aims to reduce the data, a number of independent or uncorrelated factors or independent factors will be obtained. Factor extraction is based on the Eigenvalue or root characteristics to determine whether a variable that shows closeness between variables can be appropriate to represent latent variables, the result of this stage is a matrix that has not been rotated.

Factor Weighting.
The factor matrix shows the coefficients of variables that are difficult to standardize for each factor. This coefficient is called factor weight (factor loading). Factors with high coefficients (absolute prices) for a variable indicate the closeness of the relationship with that variable. Factor weight indicates the magnitude of the contribution of the manifest variable to the latent variable. The manifest variable that has a greater factor weight has a more significant influence on the latent variable. Based on the weight of this factor, manifest variables can be grouped into certain latent variables, and discarded if they are not significant.

To reduce the manifest variable, the smallest allowable factor weight is first determined. For samples under one hundred, the smallest factor weight is set at 0.3. Meanwhile, for samples with a size above 100, the smallest factor weight is used which is set equal to 0.5 (Dillon, 1984). However, this factor weight limit is not absolute, determining this minimum limit can depend on the research model made, the number of samples, and the samples taken.

Factor Rotation.
The purpose of factor rotation is to extract the factors, so that a simple factor structure is produced, because by going through a simple factor structure it will be easier to identify and interpret these factors. The rotation process shows the flexibility of a study to obtain diverse views for the same data. And from the results of this rotation we get manifest variables that have a tendency to group together to form latent variables.

In simplifying rows or columns, as many values of the elements in each row or column are made as close to zero as possible. Both of these simplifications will eventually result in the same simple structure. There are three well-known types of orthogonal rotation methods, namely: varimax, quartimax and equatimax. In the following section, the rotation method with varimax is only discussed because this method will give the best results when compared to other methods.

The rotation-varimax method was developed by Kaiser (1958) which emphasizes the simplification of the (factor) columns in the factor matrix. If the variance has a maximum value then the factors will be easy to interpret and have simplicity, in this sense the loading-loading of a factor will have a value of 0 (zero) or 1 (one).

3.3. Situation & Strategy Analysis Methodology
In this methodology, the identification of the strategic factors is carried out, namely the factors that exist in the company's environment, both external and internal environment that determine the future of the company and classify precisely those environmental factors, as well as the process for organizing and assessing these factors. For more details, each process is as follows:

 Issue Priority Matrix Method.
To identify the factors in the remote environment and classify them into opportunities or threats.
 The concept of Basic Competitive Forces.
To identify factors in the industry environment and classify them into opportunities and threats.
Analysis of Competitors, Customers, Employees, Suppliers, Creditors.
To identify the factors in the operating environment and classify them into opportunities and threats.
 Value Chain Analysis.
To identify the factors within the corporate body and classify them into strengths or weaknesses.
 External Factor Evaluation.
To organize the factors of opportunities and threats, assess the influence of each factor on the company and see the company's response to each factor and finally assess how well the company responds to all of these external factors.
 Internal Factor Evaluation.
To organize the strengths and weaknesses factors, assess the influence of each factor on the company and see the company's response to each factor and finally assess how well the company responds to the overall factors in it.

Furthermore, the strategic factors, namely a number of strengths, weaknesses, opportunities and threats, are used to create the Space Matrix and SWOT Matrix.
 Space Matrix.
To determine the company's current strategic position.
 SWOT Matrix.
To produce a suitable Grand Strategy for the company with reference to its current strategic position.

The Grand Strategy obtained from the SWOT Matrix is the basis for making the PTS-ITI Strategy (Operating Strategy) by considering the strategic priority rankings arranged in the Cause-Effect Diagram, from the analysis of performance variables resulting from Factor Analysis data processing using SPSS (Statistics Package for Social Science).

4. RESULT

The results of data processing by factor analysis using the Statistical Package Social Science (SPSS) software for MS Windows Release 6.0 found that all variables have a fairly high correlation, there is a suitability of the correlation values obtained in the factor analysis method indicated by the correlation matrix determinant value equal to 0 (zero).

Kaiser Meyer Olkin (KMO) measurement with a value of 0.856 indicates the suitability of using factor analysis. Calculation of the results of the reliability of measuring instruments with a value of α = 0.75 indicates the quality of the entire data collection process is satisfactory, respondents are consistent in answering the questions asked.

Of the 30 research variables used to identify dominant performance variables, 9 main components were successfully filtered based on eigenvalues or root characteristics ≥ 1 , where the 9 main components can explain 89.9% of the total variance and only 10.1 % of variance that is not reflected in the 9 principal components. So it can be said that the 9 main components can represent the 30 observed variables.

Of the 9 main components, there are 4 variables that are not significant because they have a factor weight (factor loading) ≤ 0.5, namely the variables X1, X16, X23 and X29. And there are 26 variables that are considered important by the respondents and these variables positively dominate each of the main components. From the results of data processing, it is shown the priority ranking order with the loading factor of each variable which shows things that need to be considered in an effort to improve PTS-ITI performance factors. The improvement strategy includes efforts that pay attention to 5 aspects, namely; Academic Aspects, Facility Aspects, Professional Aspects, Operational Aspects and Activities Supporting Aspects.

The PTS-ITI strategy analysis is to determine the current PTS-ITI strategic position, the results of which are used to determine the appropriate grand strategy for PTS-ITI. To determine the strategic position used analysis "Space Matrix" whose formulation is the result of data processing external factor evaluation and internal factor evaluation. In answering questions on the formulation and giving assessments and weights for this analysis, it is carried out by involving representatives of each section of the relevant departments and related leaders.

The Space Matrix made is the period in 2023, namely the current strategic position that is being implemented.

TABLE SPACE MATRIX PTS-ITI, 2023

OPPORTUNITIES	score
1. Utilization of assistance from financial institutions, private government.	+ 4
2. Research & Development Fund from the government.	+ 5
3. Research & Development Fund from the private sector.	+ 4
4. Development of Science / Science focus.	+ 2
5. Awareness of educational needs.	+ 3
6. Almost no newcomers.	+ 2
7. There is no replacement service.	+ 1
8. Recognition from the government (accreditation)	+ 5
9. Service quality competitors are lower than PTS-ITI.	+ 1
10. R & D competitors under PTS-ITI.	+ 3
11. Quality of competitive educational personnel under PTS-ITI.	+ 4
12. General Image PTS-ITI is better than competitors.	+ 3
JUMLAH	**+ 37**

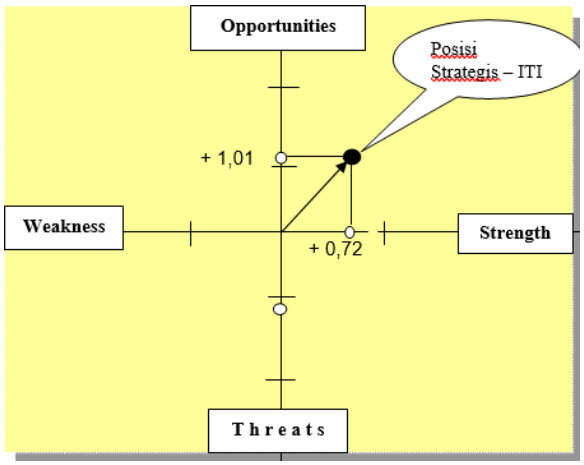
THREATS	*score*
1. Per capita income level decreased (monetary crisis).	- 4
2. Technology Change / Technology focus.	- 2
3. Government instability.	- 2
4. Decreased employment.	- 3
5. Regulations in the field of education are inconsistent.	- 3
6. Competition is quite high between PTS.	- 1
7. Consumers have a high bargaining position.	- 2
8. Suppliers have a high bargaining position.	- 2
9. Promotion of competitors is more aggressive than PTS-ITI.	- 4
10. Competitor location is better than PTS-ITI.	- 2
11. Competitor capacity is bigger than PTS-ITI.	- 1
12. Competitor productivity is greater than PTS-ITI.	- 1
13. Competitor experience is greater than PTS-ITI.	- 3
14. The attractiveness of PTS-ITI is less to attract & retain potential personnel.	-1
JUMLAH	**-31**

STRENGTHS	*score*
1. The organizational structure is in accordance with the objectives, strategy, policies and PTS-ITI work programs.	+ 3
2. The PTS-ITI organizational structure is in the form of a Matrix so as to optimize existing resources.	+ 4
3. Fix Asset PTS-ITI supports the mission, …	+ 3
4. PTS-ITI human resources are very appropriate and support the mission,	+ 4
5. BALIT is competitive, it is rare to find other PTS.	+ 4
6. BAPEMAS is competitive, and rarely found in other PTS.	+ 4
7. Infrastructure Firm: Collaborative Association with PUSPIPTEK for facility utilization.	+ 5
8. HRM has quantity & quality, in collaboration with ITB & PUSPIPTEK.	+ 5
9. Technology Development: self-development in accordance with the development of science & technology.	+ 3
JUMLAH	**+ 35**

STRENGTHS	*score*
1. The organizational structure is less understood by every personnel.	-3
2. Institutions & Work Procedures are not clearly defined in PTS-ITI.	-3
3. Institutions & Work Procedures cannot accommodate objectives, …	-2
4. Institutions & Work Procedures like that have a bad influence…	-2
5. PTS-ITI financial sources only come from students.	-5
6. Less than optimal Sub Bag. BAAK, BALIT, BAPEMAS from the quality of service and the development of its functions.	-4
JUMLAH	**- 19**

- Average Opportunities = + 37/12 = + 3,08
- Average Threats = - 31/14 = - 2,07
- Average Strength = + 35/9 = + 3.89
- Average Weaknesses = - 19/6 = - 3,17

Then: Coordinate Y = + 3.08 + (-2.07) = 1.01
and Coordinate X = + 3.89 + (-3.17) = 0.72



The results of the SWOT analysis show that:
 Weighted score of internal strengths and weaknesses factor is 2.79
 Weighted external factor score opportunities and threats is 2.58
 The average of Private Higher Education is 3.0, meaning that the attention or response of PTS-ITI to internal and external factors is still below average.
 By considering the Grand Strategy, namely the Strengths and Opportunities strategy, then based on the Performance Variables for the Operational Strategy, a strategy that supports the Grand Strategy can be implemented so that the effectiveness and achievement of organizational goals is more optimal

5. CONCLUSION

Of the 30 research variables used to identify dominant performance variables, 9 main components were filtered out based on eigenvalues or root characteristics ≥ 1 , where the 9 main components explained 89.9% of the total variance with 26 variables considered important by respondents and these variables positively dominated each of these main components. There is 10.1% of the variance that is not described in the 9 main components, as many as 4 variables that are not significant because they have factor weights (factor loading) 0.5 is the variable X1, X16, X23 and X29.

The Kaiser Meyer Olkin (KMO) measurement with a value of 0.856 indicates the suitability of using the factor analysis method. Calculation of the results of the reliability of measuring instruments with a value of $\alpha = 0.75$ indicates the quality of the entire data collection process is satisfactory, respondents are consistent in answering the questions.

The results of the strategic analysis of the space matrix show that the strategic position of PTS-ITI is located at the x coordinate; 0.72 and y ; 1.01 in the position of Strengths Opportunities (aggressive strategy), which is a strategy to take advantage of opportunities by leveraging the strengths of PTS-ITI.

The weighted scores for internal factors and external factors were 2.79 and 2.58 respectively, less than 3.0, namely the average of private tertiary institutions, which means that the attention or response of PTS-ITI to internal factors and external factors is still below average.

By considering the Grand Strategy, namely the Strengths and Opportunities strategy, based on the Performance Variables for the Operational Strategy, it is expected that PTS-ITI leaders can apply the right strategy so that the effectiveness of achieving organizational goals is more optimal.

In the process of identifying performance variables and in answering questions on strategy formulation as well as giving assessments and weights for space matrix and SWOT analysis it is best done by involving representatives of each section such as BALIT, BAPEMAS, BAAK and related leaders so that the results obtained and the expected solutions can be more appropriate to achieve the goals of the PTS-ITI organization.

References.

Departemen Pendidikan dan Kebudayaan, "Pedoman Evaluasi dan Akreditasi Perguruan Tinggi Swasta." Proyek Peningkatan Perguruan Tinggi Swasta, Direktorat Jenderal Pendidikan Tinggi, Jakarta, 2021

Dillon, William R and Goldtein, Matthew, "Multivariate Analysis ; Methods and Applications." John Willey & Sons, New York, 2016.

Hill, Charles W.L., and Jones Gareth R, "Strategic Management : an Integrated Approach." Houghton Mifflin Company, 2015.

Kotler, Philip, "Marketing Management Analysis, Planning, Implementation and Control." 12th edition, International edition, Prentice Hall, 2015.

Pearce, John A & Robinson, Jr., Richard B, "Formulation, Implementation & Control of Competitive Strategy.". 4th editition, Richard D Irwin, Inc, 1991.

.

"SPSS for Windows" Microsoft Corporations, Chicago, 2019.

Wheelen, Thomas L., and Hunger J.David, "Strategic Management and Business Policy." 6th edition, Addison Wesley Longman, Inc, 2017