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Knowledge Management and Scope of Balanced Scorecard on Competitive Advantages and University Performance

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ABSTRACT
This study aims to analyze the application of Knowledge management and The Scope of The Application of the Balanced Scorecard to The Competitive Advantage and Performance of Private Universities in Pekanbaru. The survey was conducted by distributing questionnaires to Educators and Education Staff. The sample used in this study amounted to 322 people consisting of 232 Educators and 90 Education Staff. The results of the distribution of the questionnaire were then tabulated and analyzed using a variance-based structural equation modeling (SEM), namely WarpPLS 5.0. The results of testing the proposed hypothesis show evidence that knowledge management has a significant effect on Competitive Advantage and The Performance of Private Universities in Pekanbaru but for the Scope of The Application of The Balanced Scorecard has no significant effect on Competitive Advantage and The Performance of Private Universities.
Keywords: *Performance of Private University, Knowledge Management, Application of The Balanced Scorecard, Competitive Advantage*

1. INTRODUCTION

Along with the increasing interest of the public to receive higher education, it has an impact on the increasing number of universities in Indonesia, both public and private. A large number of universities, on the one hand, give the effect of freedom of choices for users, on the other hand, creates an increasingly competitive realm of competition among universities.

In the context of reality, State Universities are the first choice for most prospective users. State Universities are positioned as institutions with quality qualifications above the average private universities. User positioning has brought opportunities for almost all public universities and is a challenge for most private universities. It is a challenge because it is the user's last option, which challenges many things for private universities.

The low competitiveness of private universities over state universities is indicated due to the inability to identify advantages, in addition to low performance. The superiority and performance of universities are reflected in the assessment of the Directorate General of Higher Education in the form of institutional accreditation.

To create a competitive advantage, an organization must have different resources from its competitors. One of the resources that can be highlighted is the knowledge resource. Knowledge management is a strategy for universities to identify the knowledge they have to create a competitive advantage that can improve overall university performance.

Likewise, with the performance of universities, which will achieve maximum results if it is supported by the information technology it has. In today's digital era the use of information technology is a demand and is a very appropriate strategy to create competitive advantage and improve the performance of higher education. Higher Education can utilize information technology in a variety of academic activities such as for administrative services, as a tool for teaching and learning activities, communication tools and the use of information technology to facilitate decision making.

The application of Knowledge management and balanced scorecards to the higher-education management system is carried out as an effort to provide quality services in supporting the implementation of the Tridarma of Higher Education. Through the concept of knowledge management and the application of the balanced scorecard, the higher-education can carry out the process of creating, innovating, transferring new knowledge, and creating competitive advantages within the higher-education which will ultimately improve the performance of the higher-education.

The purpose of this study was to determine the effect of knowledge management and the scope of the application of the balanced scorecard on competitive advantage and the performance of private universities in Pekanbaru. The formulation of the problem in this study are (1) Does knowledge management influence competitive advantage? (2) Does knowledge management affect the performance of higher education? (3) Does the scope of the application of the balanced scorecard affect competitive advantage? (4) Does the scope of the application of the balanced scorecard affect the performance of higher education? (5) Does competitive advantage affect college performance?

2. RESEARCH METHOD

2.1. Hypothesis Development

Knowledge management implementation in business shows that knowledge management is an important variable in the process of implementing resource-based competitive advantage development Carter [1] organizations that can grow and develop need capital, namely physical capital and virtual capital (human capital). Physical capital is the company's assets in the form of assets such as machinery, equipment, buildings, land, and other physical assets. Whereas organizational virtual capital is intangible and intangible capital, so it is difficult to record it in accounting such as intellectual capital. Kusuma [2] research results show that knowledge management has an effect on competitive advantage in manufacturing companies in Surabaya. Based on the review of the existing literature, the hypothesis in this study:

H1: Knowledge management affects competitive advantage

According to Zaied [3], knowledge management is a process that helps organizations to find, select, organize, disseminate, and transfer important information and expertise needed for activities. Knowledge management is the formalization and access to experience, knowledge, and expertise that create new capabilities that enable superior performance, encourage innovation and increase customer value Khan [4] examined the impact of knowledge management on company performance, the results of the study showed that knowledge management had an impact on company performance. Whereas Zaied [3] examined knowledge management in its role of improving company performance in several companies in Egypt, the results of their research showed a positive relationship between knowledge management and company performance. Based on existing literature studies, the hypotheses proposed in this study:

H2: Knowledge management influences university performance

Swayne [5] suggested that in creating competitive advantage, sometimes companies develop cost advantages or to distinguish themselves from other organizations. In creating a competitive advantage, the thing that must be done by a company or university is by analyzing both the analysis of the external and internal environment Caune [6]. Hamdy [7] conducted research related to BSC which was used in creating a competitive advantage in the banking sector and the results of his research found that BSC had a significant influence in creating a competitive advantage. This is due to the BSC component which consists of finance, customer satisfaction, internal business processes and learning and growth used in translating the strategies and objectives of each company division. Based on the available literature, the proposed hypothesis is:

H3: Balanced Scorecard influences Competitive Advantage

BSC is a tool used by companies for performance measurement systems Kaplan [8], management control systems Kaplan [9] and communication tools Kaplan [10] Some studies explain that BSC in educational institutions can be used as a management tool Cullen [11], evaluating university performance Binden [12]. Based on this research, the proposed hypothesis is:

H4: Balanced Scorecard has a positive effect on university performance

Li [13] states that competitive advantage has a positive influence on company performance. Li [14] measure competitive advantage based on price, quality, delivery dependability, product innovation and time to market. While company performance is measured based on market-based performance (Market performance) and financial performance (financial performance). Based on the results of previous studies, the proposed hypothesis:

H5: Competitive advantage influences university performance.

The population of this study was all teaching staff and education staff with details of the number of teaching staff totaling 1,102 and teaching staff totaling 484 spread across four private universities in Pekanbaru. The sample used in the study was 100 respondents. Data collection techniques using a questionnaire. Knowledge management variables are measured by 18 question items, university performance variables measured by the research and productivity construct, employee commitment, and industry linkage consisting of 11 question items. This study also added a balanced scorecard coverage variable measured by 6 question items and competitive advantage measured by 7 question items.

This research uses Partial Least Square (PLS) as an analysis tool. Hypothesis testing is used to explain the direction of the relationship between the independent variable and the dependent variable. This test is done by path analysis of the model that has been made. The WarpPLS 5.0 program can simultaneously test complex structural models so that the path analysis results can be seen in one regression analysis. The results of correlation between constructs are measured by looking at the path coefficients and their level of significance which are then compared with the research hypothesis.

3. RESULT

3.1. Questionaries' Return Level and Respondent Profile

Private universities sent questionnaires numbered four universities, and each university was given a questionnaire following the proportional number of teaching staff and education staff. Of the 100 questionnaires distributed, a total of 89 (89%) returned questionnaires. From the questionnaire that can be processed, the following demographics of respondents are presented.

Table 1 The Demographic of Respondent

Gender	**Percentage (%)**
Male	44%
Female	56%
Job Profiles	**Percentage (%)**
Staff	69%
Lecturer	31%
University	**Percentage (%)**
Universitas Islam Riau	48%
Universitas Lancang Kuning	27%
Universitas Abdurrab	13%
Universitas Muhammadiyah Riau	12%

The table above gives an overview of the characteristics of respondents by sex, job profile, and institution. By sex, the majority of respondents were women with a percentage of 56%. Judging from the job profile, staff became the most respondents compared to the lecturer with a percentage of 69%. And almost the majority of respondents take shelter at the Universitas Islam Riau with a percentage of 48%, and the remainder takes shelter at three other private universities with an average percentage of 17.33%.

3.2. Variable Description

Data analysis was performed on 89 respondents who met the criteria for data processing. The data processed is the result of the average respondent's answers from each study variable.

Table 2 Description of Respondent Answer

Variable	N	Mean.	StdDev
Knowledge management (KM)	89	3.185	0.266
Scope of Balance Scorecard (BSC)	89	3.173	0.395
Competitive Advantage (CA)	89	3.093	0.371
University Performance (UP)	89	3.196	0.357

From the table above it is known that the Scope of Scorecard Application Coverage has the highest standard deviation value among the 3 other variables namely .395. This means that the sample involved in providing answers to these variables is more varied than the other three variables. The Knowledge management variable with a small standard deviation illustrates that the sample data is increasingly homogeneous (almost the same).

3.3. Data Quality Testing Analysis

From the results of the questionnaire distributed to 89 respondents, the combined loadings and cross-loading outputs are used as indicators of convergent validity which are part of the measurement model in SEM-PLS [14]. The output is expected to display constructs in columns and indicators in rows obtained as follows:

Table 3 Combined Loadings and Cross-Loading

	KM	BSC	CA	UP	Type (a	SE	P value
KM1	**0.525**	0.028	0.051	0.160	Reflect	0.091	**<0.001**
KM9	**0.558**	0.112	0.119	-0.026	Reflect	0.090	**<0.001**
KM10	**0.502**	-0.035	0.249	0.089	Reflect	0.092	**<0.001**
KM11	**0.656**	-0.058	-0.095	0.121	Reflect	0.088	**<0.001**
KM12	**0.725**	0.072	-0.015	-0.151	Reflect	0.086	**<0.001**
KM13	**0.687**	0.061	-0.076	0.356	Reflect	0.087	**<0.001**
KM14	**0.663**	-0.061	-0.057	0.013	Reflect	0.088	**<0.001**
KM15	**0.710**	0.072	0.010	-0.153	Reflect	0.086	**<0.001**
KM16	**0.770**	-0.087	0.085	-0.220	Reflect	0.085	**<0.001**
KM17	**0.701**	-0.050	-0.103	-0.054	Reflect	0.087	**<0.001**
KM18	**0.652**	-0.036	-0.087	-0.033	Reflect	0.088	**<0.001**
BSC3	0.075	**0.735**	0.263	-0.286	Reflect	0.086	**<0.001**
BSC4	-0.020	**0.772**	0.151	-0.074	Reflect	0.085	**<0.001**
BSC5	-0.131	**0.579**	0.156	0.049	Reflect	0.090	**<0.001**
BSC7	-0.034	**0.548**	-0.270	0.510	Reflect	0.091	**<0.001**
BSC8	-0.083	**0.550**	-0.139	0.040	Reflect	0.090	**<0.001**
BSC9	-0.008	**0.825**	-0.006	0.035	Reflect	0.084	**<0.001**
BSC10	-0.235	**0.739**	0.088	0.233	Reflect	0.086	**<0.001**
BSC11	-0.010	**0.737**	-0.042	0.051	Reflect	0.086	**<0.001**
BSC12	0.172	**0.750**	-0.118	-0.213	Reflect	0.085	**<0.001**
BSC13	0.206	**0.740**	-0.083	-0.196	Reflect	0.086	**<0.001**
BSC14	0.008	**0.800**	-0.069	0.002	Reflect	0.084	**<0.001**
CA1	0.442	0.055	**0.704**	0.054	Reflect	0.087	**<0.001**
CA2	0.065	-0.005	**0.739**	-0.017	Reflect	0.086	**<0.001**
CA3	0.072	0.019	**0.838**	-0.025	Reflect	0.083	**<0.001**
CA4	-0.210	-0.068	**0.836**	-0.065	Reflect	0.083	**<0.001**
CA5	-0.098	0.105	**0.618**	-0.086	Reflect	0.089	**<0.001**
CA6	-0.090	0.015	**0.777**	0.025	Reflect	0.085	**<0.001**
CA7	-0.150	-0.095	**0.748**	0.111	Reflect	0.085	**<0.001**
UP4	0.116	0.091	-0.085	**0.569**	Reflect	0.090	**<0.001**
UP5	-0.274	-0.076	0.391	**0.634**	Reflect	0.088	**<0.001**
UP6	-0.192	-0.084	0.024	**0.747**	Reflect	0.085	**<0.001**
UP7	0.053	0.085	0.076	**0.776**	Reflect	0.085	**<0.001**
UP8	0.164	-0.004	0.086	**0.662**	Reflect	0.088	**<0.001**
UP9	0.064	-0.020	0.000	**0.759**	Reflect	0.085	**<0.001**
UP10	0.051	0.034	-0.206	**0.784**	Reflect	0.085	**<0.001**
UP11	0.016	-0.020	-0.222	**0.774**	Reflect	0.085	**<0.001**

Based on the test results show that the outer model meets the convergent validity requirements for reflective constructs where the loading value is above 0.50 and the p-value is significant (< 0.05). Hair [15] with these results, the constructed test meets the requirements of convergent validity and loading into other constructs is lower than that of the construct. Based on WarpPLS output the reliability test results are as follows:

Table 4 Cronbach's Alpha Coefficients

	Variables			
	KM	**BSC**	**CA**	**UP**
Cronbach's alpha coefficients	0.864	0.900	0.872	0.863

Based on the results of the reliability test of 4 (four) constructs obtained by Cronbach's Alpha above 0.6 so that all questions are declared reliable.

3.4. The Result of Goodness of Fit Model Test

Model fit indicators are arranged based on 3 indicators namely Average Path Coefficient (APC), Average R-squared (ARS) and Average Variance Inflation Factor (AVIF). The p-value is given for APC and ARS indicators

calculated by the estimation of resampling and Bonferroni like correction. Test results show:

Table 5 Model Fit and Quality Indices

Item	value	p	Description
Average path coefficient (APC)	0.305	<0.001	Significant
Average R-squared (ARS)	0.435	<0.001	Significant
Average adjusted R-squared (AARS)	0.419	<0.001	Significant
Average block VIF (AVIF)	1.257		Acceptable if <= 5, ideally <= 3.3

Thus, both the APC, ARS, and AARS values are significant at alpha levels below 5% and AVIF values below the value 5. Thus, the model in this study is fit.

3.5. The Coefficient of Determination (R2)

The coefficient of determination is used to test the goodness-fit of the regression model which can be seen from the R Square value. R square only exists for endogenous constructs. For a set of variable predictors on the criterion variable, the Q-Squares indicator or other term is called the Stoner-Geisser Coefficient [16]. To find out the influence of Knowledge Management variables and Scope of Balanced Scorecard on Competitive Advantage and University Performance can be seen through the magnitude of the coefficient of determination as follows:

Table 6 The coefficient of Determination

Model	Independent Variables	Dependent Variable	R-squared coefficients	Q-squared coefficients
1	Knowledge Management (KM) Scope of Balance Scorecard (BSC)	Competitive Advantage (CA)	0.361	0.380
2	Knowledge management (KM) Scope of Balance Scorecard (BSC) Competitive Advantage (CA)	University Performance (UP)	0.508	0.513

From the calculation of the value of R-squared Model 1 is 0.361. This means that 36.1% of the Competitive Advantage can be explained by Knowledge Management and Scope of the Balance Scorecard, while the remaining 63.9% is explained by other factors outside the model. While the Q-squared Model 1 value of 0.380 means that the estimated model shows a good predictive validity of 38%.
The calculation of the value of R-squared Model 2 is 0.508. This means that 50.8% of University Performance can be explained by Knowledge management, Scope of Balanced Scorecard Implementation and Competitive Advantage, while the remaining 49.2% is explained by other factors outside the model. While the Q-squared Model 2 value of 0.513 means that the estimation of the model shows good predictive validity of 51.3%.

3.6. Multicollinearity Test Results

Based on the results of the correlation test between independent variables by looking at VIF values, it can be concluded that there is no multicollinearity problem. This is supported by the VIF Full collinearity value which is relatively small, ie none greater than 3.3 [16].

Table 7 Multicollinearity Test Result

Variable	Full collinearity VIFs
Knowledge Management (KM)	1.753
Balance Scorecard Implementation (BSC)	1.065
Competitive Advantage (CA)	2.212
University Performance (UP)	2.006

These results can be concluded that the independent variable does not occur multicollinearity where the overall AVIF value is less than 5 [16] so that the model meets the classical assumption requirements in regression analysis.

3.7. Hypothesis Testing

The results of testing the hypothesis which states that the effect of knowledge management and balanced scorecard implementation on competitive advantage and university performance. To test the partial regression coefficients individually from each independent variable can be seen in Table 7 and Figure 1 below:

Table 8 Path Coefficients and P values

Hypothesis		Path coefficient	*p-value*	Decision
H_1	KM → CA	0.606	<0.001	Accepted
H_2	KM → UP	0.073	0.026	Accepted
H_3	BSC → CA	0.197	0.243	Rejected
H_4	BSC → UP	0.088	0.200	Rejected
H_5	CA → UP	0.562	<0.001	Accepted

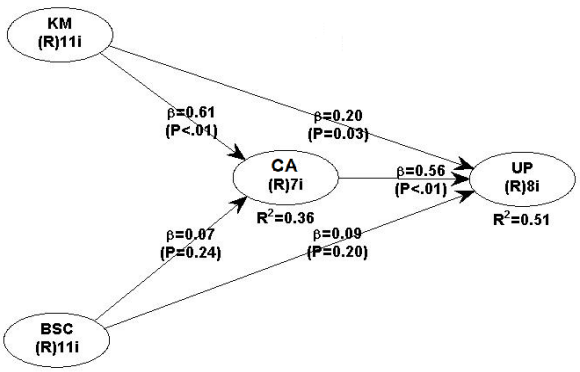

Figure 1 Test Results of WarpPLS

From the description above, thus we can construct multiple regression equations derived from the path coefficients as follows:

CA = 0.660 KM + 0.073 BSC
UP = 0.197 KM + 0.088 BSC + 0.562 KB

where:
UP: University Performance
CA: Competitive Advantage
KM: Knowledge Management
BSC: Balanced Scorecard Implementation

4. DISCUSSION

4.1. The Effect of Knowledge Management on Competitive Advantages

The Knowledge Management (KM) has a beta value of .660 and a p-value with a probability level of 0.001. Thus, it can be concluded that $p = 0.001 < \alpha = 0.05$, so that H_0 is rejected and H_1 is accepted which states that the Knowledge Management variable has a significant positive effect on Competitive Advantage.
Based on the results of data processing through PLS it is known that knowledge management has a positive influence on competitive advantage in private universities in Pekanbaru. These results indicate that the application of knowledge management can create a competitive advantage in an organization.
The results of this study are in line with research conducted by Jasinskas [17]. From the results of questionnaires distributed to respondents, the results of Jasinskas [17] research show that knowledge management has a significant effect on competitive advantage in manufacturing companies in Lithuanian. The results of his research show that without the right knowledge to do daily work, the company's goals will not be achieved. With the sense that knowledge can create a competitive advantage.

4.2. The Effect of Knowledge Management on Private University Performance

The Knowledge Management (KM) variable has a beta value of 0.197 and a p-value with a probability level of 0.026. Thus, it can be concluded that $p = 0.026 < \alpha = 0.05$ so that H_0 is rejected and H_2 is accepted, which states that the Knowledge Management has a significant positive effect on University Performance.
The second hypothesis states that knowledge management as measured by the construct of knowledge management infrastructure and knowledge management processes significantly influences the performance of private universities in Pekanbaru, thus it can be concluded that private universities that practice appropriate knowledge management practices and regard it as one of the most important tools for the organization it will be able to improve the performance of the organization.
The results of this study are consistent with research conducted by Kusuma [16]. Kusuma [16] research results show that knowledge management has a significant influence on company performance in Surabaya. Whereas [18] examined the practice of applying knowledge management to improve the performance of universities in Pakistan, the results of their research showed that knowledge management had a significant influence on university performance.

4.3. The Effect of Balance Scorecard Application on Competitive Advantages

The Balance Scorecard (BSC) has a beta value of .073 and a p-value with a probability level of .243. Thus, it can be concluded that $p = .243 > \alpha = .05$ so that H_0 is accepted and H_3 is rejected which states that the Balanced Scorecard Implementation has a positive but not significant effect on Competitive Advantage.
Based on the results of data processing through PLS, it is known that the Scope of Scorecard Application Coverage has a positive but not significant effect on competitive advantage in private universities in Pekanbaru. These results indicate that the application of the Balanced Scorecard has not been able to create a competitive advantage in an organization.
This is caused by the cognitive limitations possessed by individuals in receiving excess information provided by the balanced scorecard Kaufman [19]. In addition, based on observations made by researchers found that there are still many universities that have not implemented a balanced scorecard and lack of sufficient knowledge in its application. The results of this study are supported by research Sadeghi [20] who found that the BSC perspective of customer satisfaction and learning and growth get the lowest score which means the company still pays more attention to the use of financial perspectives, resulting in the company not being able to create a competitive advantage.

4.4. The Effect of Balance Scorecard Application on University Performance

The Balanced Scorecard (BSC) has a beta value of .088 and a p-value with a probability level of .200. Thus, it can be concluded that $p = .200 > \alpha = .05$ so that H_0 is accepted and H_4 is rejected, which states that the Balanced Scorecard Implementation has a positive but not significant effect on University Performance.
The fourth hypothesis states that the scope of the application of the balanced scorecard has an effect but is not significant on the performance of private universities in Pekanbaru, thus it can be concluded that the application of the balanced scorecard has not been able to significantly improve the performance of the organization.
The reason for not supporting this hypothesis is due to the existence of several obstacles in implementing one of them is the difficulty in determining the strategic goals and causal relationships and the lack of understanding of the strategy [14]. Besides, the presence of educators and educators in universities is not yet familiar with the use of BSC as a performance measurement tool. The results of this study are supported by Alani [1] who find that the use of BSC does not affect performance measurement due to lack of knowledge of university strategies and BSC concepts, training and lack of exposure to middle /low-level management such as library staff, registration staff, etc.

4.5. The Effect of Competitive Advantage on University Performance

The Competitive Advantage (KB) has a beta value of .562 and a p-value with a probability level of .001. Thus, it can be concluded that $p = .001 < \alpha = .05$, so H_0 is rejected and H_5 is accepted which states that the competitive advantage has a significant positive effect on University Performance.
The results of the third hypothesis test show that competitive advantage affects the performance of private universities in Pekanbaru. Competitive advantage can be obtained from the company's ability to manage its resources. Companies that can create competitive advantage will have the power to compete with other competitors because the products and services provided to customers have their charm. Thus, competitive advantage will be able to encourage improving organizational performance.
The results of this study support the research conducted by Kusuma [17] who found evidence that competitive advantage affects the performance of companies in Surabaya that apply knowledge management. This research is also supported by research conducted by [18] who found evidence that there is an influence between competitive advantage and company performance.

5. CONCLUSION AND SUGGESTIONS

This study examines the relationship between knowledge management practices and the scope of the application of the balanced scorecard to competitive advantage and the performance of private universities in Pekanbaru. The results show evidence that the variation of knowledge management variables as measured by the construct of knowledge management infrastructure and knowledge management processes has an influence on competitive advantage and the performance of private universities in Pekanbaru, thus it can be concluded that knowledge management has an important role in creating competitive advantage and improving university performance private sector in Pekanbaru. In contrast to the hypothesis testing the effect of the scope of the implementation of the balanced scorecard variable on competitive advantage and the performance of private universities in Pekanbaru, which shows the results that the scope of the application of the balanced scorecard does not affect the competitive advantage and performance of private universities in Pekanbaru. From the results of the study, it is suggested to private universities to be able to encourage educators and education staff to engage in knowledge management practices, because it can create a competitive advantage and play an important role in improving the performance of private universities, especially in Pekanbaru City.

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