Application of Intellectual Capital in Improving Employee Performance and Time Management as Intervening Variables

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ABSTRACT	Published Online: November 08, 2023
The employee performance in the government sector has a significant impact on services to the community. This study aims to analyze how intellectual capital, which includes employee knowledge, skills and relationships, can influence employee performance in the South Sulawesi Provincial Government with time management as an intervening variable. Through qualitative and quantitative methods, this research reveals that intellectual capital has a positive correlation with increasing employee performance. However, optimal application of intellectual capital requires effective time management. The results of the analysis show that time management acts as a mediator in the relationship between intellectual capital and employee performance. In other words, good time management allows intellectual capital to be applied more effectively, thereby improving employee performance. This research offers insight for the South Sulawesi Provincial Government in its efforts to improve employee performance through optimizing intellectual capital and efficient time management.	**KEYWORDS:** Intellectual capital, employee performance, time management.

1. INTRODUCTION

Observing the rapid development of information technology, the success of an organization, including government, depends on human resources. The emphasis on government performance depends on the role of employees in providing effective and efficient public services to the community (Pidd, 2012. Thus, employee intellectual capital is one of the main factors that determine employee performance and public services.

According to Helmiatin et al (2016), intellectual capital consists of applied experience, organizational technology, customer relations, and skills used in creating an organization that has a competitive advantage. Intellectual capital, which consists of knowledge, skills and relationships possessed by employees, has great potential to increase productivity and service quality. According to Gunawan (2018) intellectual

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capital also includes knowledge, information, intellectual property and experience, which can be used to produce intellectual property known as intellectual capital which is interpreted as a set of rational collective knowledge. However, implementing and optimizing this intellectual capital requires an effective time management approach.

The South Sulawesi Provincial Government, as one of the government entities in Indonesia, certainly has its own challenges in improving employee performance. According to Kusashi in Adebisi (2013), time management problems can cause organizations to bear heterogeneous risks with various tasks and responsibilities that must be carried out. Management of employee intellectual capital can be done optimally with a time management approach (Qurani et al, 2023). Thus, time management can be considered as one of the key factors that influence intellectual capital in improving employee performance.

Wahyudi (2022) defines intellectual capital as an organization's ability to create, disseminate and apply knowledge. Human Resources also known as human resources have a very important role in an organization. Five indicators that can be used in the intellectual capital variable are knowledge mastery, innovation capability, relational

strength, infrastructure and processes, and reputation and branding.

One resource that must be managed well is time. Sandra (2013) defines time management as the ability to prioritize, schedule, and carry out one's responsibilities to one's satisfaction. In addition, time management is a person's ability to plan, organize, mobilize, and monitor the productivity of their time by prioritizing, scheduling, and carrying out activities so that a person (Claessens et al., 2007). There are five indicators of time management variables used in this research, namely completing tasks on time, effective prioritization, efficiency in tasks, use of time management tools, and balance of work time and free time.

Mangkunegara (2017) explains that performance is a comparison of the results achieved with the role and workforce per unit of time. It also includes the results achieved by workers in terms of quantity and quality in accordance with their responsibilities. The level of education, initiative, work experience and employee motivation influence a person's performance. The results of the work will provide feedback for someone to continue doing good work and hopefully produce optimal work. There are five indicators of employee performance variables used in this research, namely productivity, work quality, attendance & punctuality, communication & teamwork skills, and achievement of individual goals (Komar, 2021). The framework concept is shown in Figure 1.
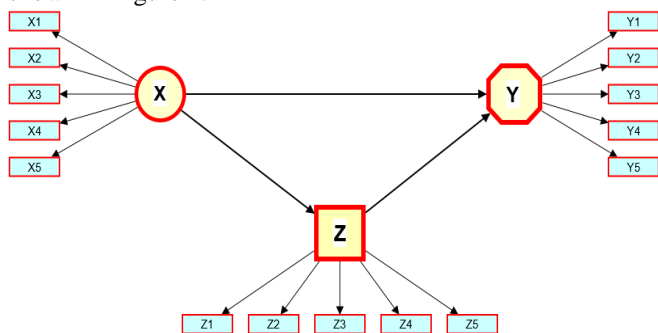

Figure 1. Concept Framework

To understand and analyze the relationship between intellectual capital (Y) and employee performance (Y) with time management (Z) as an intervening variable in the South Sulawesi Provincial Government. This research is expected to provide recommendations and strategies for the South Sulawesi Provincial Government in improving employee performance through optimizing intellectual capital and time management.

II. METHODOLOGY

The data used in this research is primary data obtained by giving questionnaires to respondents. The population in this research is all regional apparatus organizations in the South Sulawesi provincial government. The sample was determined using the census sampling method so that the total sample was 26 regional apparatus organizations with a total of 185 respondents.

Research analysis is the processing of data that has been collected, and the interpretation of the results of processing the collected data along with the conclusions (Priyatno, 2008). Thus, data analysis needs to be carried out as a concrete step to prove the data that has been collected in the field which is done by processing, data description, interpreting, and concluding the results (Irwan & Haryono, 2015). Data analysis and processing in this research uses descriptive statistical methods, namely data analysis to obtain the distribution of respondents' answers by determining the mean value, standard deviation and inferential statistics through structural equation model (SEM) analysis with Partial Least Square (SEM-PLS) to analyze the influence between variables.

III. RESULTS AND DISCUSSION

The outer model is a measurement model used to test and evaluate the relationship between response and predictor variables. The analysis of the measurement model is divided into two parts namely the reliability test and the validity test. The outer model is shown in Figure 2 and Outer Loading is shown in Table 1.
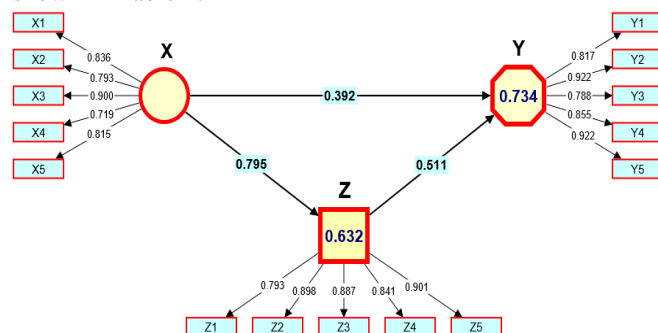

Figure 2. Outer Loading Model

Table 1. Outer Loading, Cronbach's Alpha, Composite Reliability dan Average Variance Extracted (AVE).

Variable	Item	Indicator	Outer Loading	Cronbach's Alpha	Composite Reliability	AVE
Intellectual Capital (X)	X1.1	Knowledge Mastery	0.836	0.872	0.881	0.664
	X1.2	Innovation Capability	0.793			
	X1.3	Relational Strength	0.900			
	X1.4	Infrastructure & Processes	0.719			
	X1.5	Reputation & Branding	0.815			

Time Management (Z)	Z1	On time in completing assignments	0.793	0.915	0.917	0.748
	Z2	Effective Prioritization	0.898			
	Z3	Efficiency in completing tasks	0.887			
	Z4	Use of time management tools	0.841			
	Z5	Balance of work time and free time	0.901			
Employee performance (Y)	Y1	Productivity	0.817	0.913	0.916	0.744
	Y2	Quality of work	0.922			
	Y3	Attendance and punctuality	0.788			
	Y4	Communication and teamwork skills	0.855			
	Y5	Achievement of individual goals	0.922			

According to Table 1, the intellectual capital variable is measured by 5 (five) valid measurement items where the outer loading value is between 0.719 - 0.900, which shows that the five measurement items are strongly correlated in carrying out intellectual capital. The level of intellectual capital reliability is acceptable with a composite reliability value of 0.881 and Cronbach's alpha 0.872 above 0.700 and convergent validity as shown by AVE 0.664 > 0.500 (Hair et al, 2021). Among the five valid measurement items, the relationship strength indicator (X1.3) shows greater results as reflected by X1.3 (LF = 0.900) so that relationship strength shows the importance of the relationships and networks that the government has with various stakeholders. This reflects good relations with other parties, such as the community, the private sector, or the central government. In the Infrastructure and process indicator (X1.4), the results obtained are reflected by (LF = 0.719) which has low indicator strength, this shows that infrastructure and processes have weaknesses or obstacles in the system, technology or work methods used by the South Sulawesi Provincial Government.

The time management variable is measured by five valid measurement items where the outer loading value is between 0.793 - 0.901, which indicates that the five measurement items are strongly correlated in carrying out time management. The level of reliability of time management is acceptable with a composite reliability value of 0.916 and Cronbach's alpha 0.913 above 0.700 and convergent validity as shown by AVE 0.748 > 0.500, (Hair et al, 2021). Among the five valid measurement items, the indicator Balance of Work Time and Leisure (Z5) shows greater results as reflected by (LF = 0.900), this shows that employees in the South Sulawesi Provincial Government are able to divide their time well between work tasks and time. rest or recreation. This can be an indication of good employee well-being and can contribute to better employee performance in the long term. In the indicator for completing tasks on time (Z1), the results obtained are reflected by (LF = 0.793) which

has low indicator strength, this shows that even though employees have a good work time balance, there are obstacles or difficulties in completing tasks within the deadline. which is determined. This can be due to a variety of reasons, ranging from a heavy workload, lack of resources, or perhaps a lack of clarity in instructions or expectations.

The employee performance variable is measured by five valid measurement items where the outer loading value is between 0.788 - 0.922, which indicates that the five measurement items are strongly correlated in carrying out employee performance. The level of employee performance reliability is acceptable with a composite reliability value of 0.916 and Cronbach's alpha 0.915 above 0.700 and convergent validity as shown by AVE 0.744 > 0.500 (Hair et al, 2021). Among the five valid measurement items, the indicators for quality of work (Y2) and achievement of individual goals (Y5) show greater results as reflected by (LF = 0.922), indicating that employees in the South Sulawesi Provincial Government seem to emphasize the quality of work and achievement of individual goals. Employees demonstrate that they are able to perform work to a high standard and meet the targets set for them. In the productivity indicator (Y1), the results obtained are reflected by (LF = 0.817) which has low indicator strength, this shows that although the quality of work and achievement of individual goals is high, employee productivity appears to be less than optimal. This can be caused by various factors, such as uneven workload, lack of resources, or perhaps interference or distractions in the work environment.

Table 2. Fornell dan Lacker Criterion

	Employee performance (Y)	Time management (Z)	Intellectual capital (X)
Employee performance (Y)	0.863	-	-

Time management (Z)	0.823	0.865	-
Intellectual capital X)	0.799	0.795	0.815

Table 2, evaluation of discriminant validity needs to be done by looking at the Fornell and Lacker criteria. Discriminant validity is a form of evaluation to ensure that variables are theoretically different and proven empirically/statistically tested. Fornell and Lacker's criterion is that the root AVE of the variable is greater than the correlation between the variables. The employee performance variable has a greater AVE root (0.863), a greater correlation with the time management variable (0.823), a greater correlation with the intellectual capital variable (0.799).

Table 3. Heterotrait Monotrait Ratio (HTMT)

	Heterotrait-monotrait ratio (HTMT)
Time management (Z) <-> Employee performance (Y)	0.899
Intellectual capital (X) <-> Employee performance (Y)	0.887
Intellectual capital (X) <-> Time management (Z)	0.880

Table 3 depicts the HTMT value where Hair et al (2019) recommends that HTMT is a measure of discriminant validity and is considered more sensitive or accurate in detecting discriminant validity. The recommended value is below 0.90. The test results show that the HTMT value is below 0.90 for the variable pair, so discriminant validity is achieved. The results of this test show that the variable divides the variance of the measurement items into the items that measure it more strongly than divides the variance into other variable items.

Table 4. Inner VIF model

	Employee performance (Y)	Time management (Z)	Intellectual capital (X)
Employee performance (Y)	-	-	-
Time management (Z)	2.716	-	-
Intellectual capital X)	2.716	1.000	-

Table 4 depicts the Inner VIF value. Before testing the structural model hypothesis, it is necessary to see whether there is multicollinearity between the variables, namely the statistical measure of the inner VIF. The estimation results

show that the inner VIF value < 5,000, so the level of multicollinearity between variables is low. These results confirm that the parameter estimation results in SEM PLS are robust (not biased).

Table 5. R-square

	R-square	R-square adjusted
Employee performance (Y)	0.734	0.731
Time management (Z)	0.632	0.630

Based on Table 5, the adjusted R-square statistical measure describes the large variation in endogenous variables that can be explained by other exogenous/endogenous variables in the model. According to Chin (1998), the qualitative adjusted R-square interpretation value is 0.19 (low influence), 0.33 (moderate influence) and 0.66 (high influence). Based on the processing results above, it can be said that the influence of intellectual capital on time management is 63.2% (high influence). The magnitude of the influence of intellectual capital and time management on employee performance is 73.4% (high influence).

Table 6. Q square

	SSO	SSE	Q^2 (=1-SSE/SSO)
Employee performance (Y)	925.0	426.7	0.539
Time management (Z)	925.0	495.9	0.464
Intellectual capital _(X)	925.0	925.0	0.000

According to Table 6, the Q square value describes a measure of prediction accuracy, namely how well each change in exogenous/endogenous variables is able to predict endogenous variables. This measure is a form of validation in PLS to state the suitability of model predictions (predictive relevance). A Q square value above 0 indicates that the model has predictive relevance, however in Hair et al (2019) the qualitative interpretation of the Q square value is 0 (low influence), 0.25 (moderate influence) and 0.50 (high influence). Based on the processing results above, the Q square value of the time management variable is 0.464 > 0.250 (moderate influence) and employee performance is 0.539 > 0.50 (high influence).

Table 7. Standardized Root Mean Square Residual (SRMR)

	Saturated model	Estimated model
SRMR	0.079	0.079
ULS	0.750	0.750

G	0.718	0.718
Chi-square	664.142	664.142
NFI	0.760	0.760

According to Table 7, Standardized Root Mean Square Residual (SRMR) is a measure of model fit, namely the

difference between the data correlation matrix and the estimated model correlation matrix. Hair et al (2021) stated that SRMR values below 0.080 indicate model fit. However, Schmelleh et al (2003) SRMR values between $0.08 - 0.10$ are still acceptable fit. The model estimation result is 0.079, which means that the model has good model fit.

Table 8. PLS Predict

	predict	PLS-SEM_RMSE	PLS-SEM_MAE	LM_RMSE	LM_MAE
Y1	0.428	0.560	0.428	0.568	0.437
Y2	0.582	0.458	0.361	0.472	0.358
Y3	0.400	0.544	0.439	0.536	0.439
Y4	0.383	0.502	0.414	0.508	0.426
Y5	0.538	0.482	0.372	0.498	0.377
Z1	0.443	0.522	0.425	0.520	0.413
Z2	0.467	0.602	0.431	0.608	0.444
Z3	0.515	0.552	0.417	0.550	0.416
Z4	0.410	0.666	0.508	0.595	0.449
Z5	0.478	0.572	0.419	0.583	0.433

Table 8 shows that the PLS prediction results have a good measure of predictive power. According to Hair et al (2019), the PLS model is said to have high predictive power if all or most of the endogenous variable measurement items have a lower RMSE (Root Mean Squared Error) or MAE (mean absolute error) PLS model compared to the linear regression model (LM). If most or equal to 50% of the items measuring endogenous variables in the PLS model have lower RMSE (Root Mean Square Error) and MAE (mean absolute error)

values for the PLS model compared to linear regression (LM), then the PLS model has medium predictive power. If the portion is small, the PLS model is low, so it has low predictive power. Based on the results of processing observations of RMSE and MAE values, the number of most measurement items in the PLS model with lower RMSE and MAE values than the linear regression model (LM). Based on the processed results table, Table 8 shows that the proposed PLS model has high predictive power.
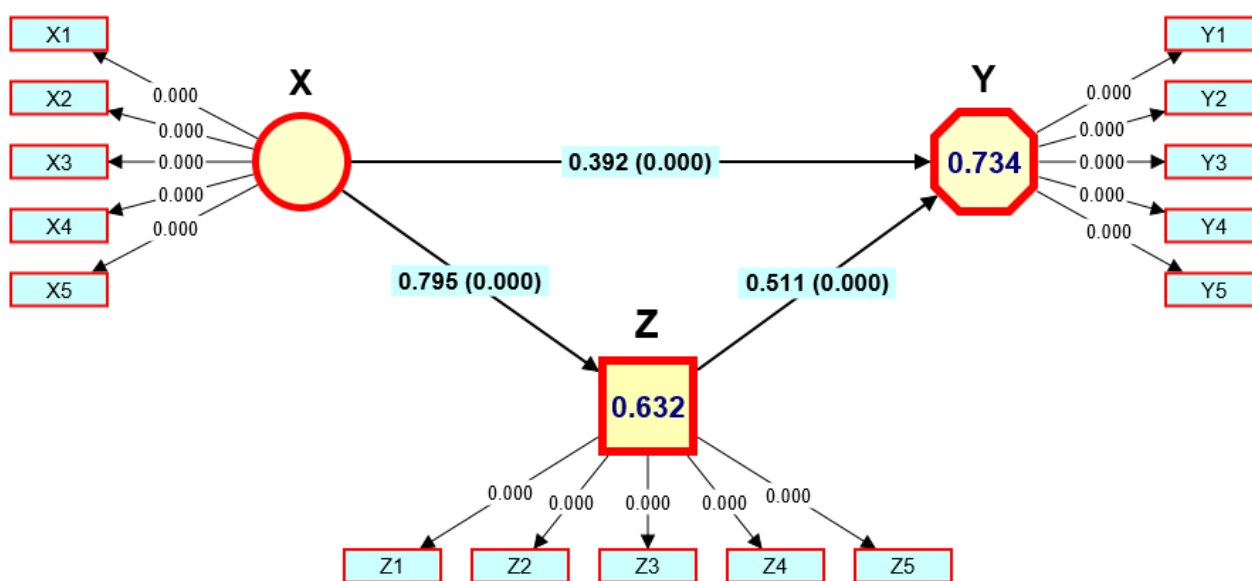
Figure 3. Path Diagram Coefficient and p-value

Table 9. Hypothesis test

Hypothesis	Hypothesis statement		Path Coefficients	t-test	p-value	Results and description
H1	Intellectual Capital has a positive and significant effect on time management	X → Z	0.795	27.060	0.000	Hypothesis accepted
H2	Intellectual Capital has a positive and significant effect on employee performance	X → Y	0.392	5,014	0.000	Hypothesis accepted
H3	Time management has a positive and significant effect on employee performance	Z → Y	0.511	6.789	0.000	Hypothesis accepted
H4	Intellectual capital has a positive and significant effect on employee performance through time management	X2 → Z → Y	0.406	6.508	0.000	Hypothesis accepted

According to table 8 and figure 3, the calculated t-value for the intellectual capital variable on time management is 27,060 with a significance p-value of 0.000. This shows that the calculated t-value is greater than the bootstrapping process, the t-value is above 1.960 and the significance value is smaller than 0.050, and the path coefficient value shows a positive sign, namely 0.795. So it can be concluded that intellectual capital has a positive and significant effect on time management in the South Sulawesi Provincial government. Based on the results of the data analysis above, hypothesis 1 is accepted.

Table 8 and Figure 3 show that the calculated t-value for the intellectual capital variable on employee performance is 5,014 with a significance p-value of 0.000. This shows that the calculated t-value is greater than the bootstrapping process, the t-value is above 1.960 and the significance value is smaller than 0.050, and the path coefficient value shows a positive sign, namely 0.392. So it can be concluded that intellectual capital has a positive and significant effect on the performance of the South Sulawesi Provincial government. Based on the results of the data analysis above, hypothesis 2 is accepted.

Table 8 and Figure 3 show that the calculated t-value for the time management variable on employee performance is 6,789 with a significance p-value of 0.000. This shows that the calculated t-value is greater than the bootstrapping process, the t-value is above 1.960 and the significance value is smaller than 0.050, and the path coefficient value shows a positive sign, namely 0.511. So it can be concluded that time management has a positive and significant effect on the performance of the South Sulawesi Provincial government. Based on the results of the data analysis above, hypothesis 3 is accepted.

Table 8 and Figure 3 show that the calculated t-value for the intellectual capital variable on employee performance through time management was obtained at 6,508 with a significance p-value of 0.000. This shows that the calculated t-value is greater than the bootstrapping process, the t-value is above 1.960 and the significance value is smaller than 0.050, and the path coefficient value shows a positive sign, namely 0.406. So it can be concluded that intellectual capital has a positive and significant effect on performance through time management in the South Sulawesi Provincial government. Based on the results of the data analysis above, hypothesis 4 is accepted.

IV. CONCLUSION

The research findings show that intellectual capital has a significant influence on time management. This indicates that the quality of knowledge, skills and other capabilities possessed by employees in the South Sulawesi Provincial Government play an important role in improving their ability to manage time effectively. There is a positive and significant relationship between intellectual capital and employee performance. This confirms that investment in developing employee capabilities, knowledge and skills can have a direct impact on improving their performance. Time management not only influences employee performance directly, but also functions as an intervening variable that mediates the influence of intellectual capital on employee performance. This shows that good time management practices can optimize the contribution of intellectual capital to employee performance. The research results show that intellectual capital can improve employee performance through improvements in time management. This indicates that, although intellectual capital is a valuable asset, its application in improving employee performance is more effective when supported by good time management practices.

V. ACKNOWLEDGMENTS

VI. DISCLOSURE

The author reports no conflicts of interest in this work. All authors contributed and were actively involved in the research.

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