International Journal of Economics, Business and Innovation Research
https://e-journal.citakonsultindo.or.id/index.php/IJEBIR
E-ISSN : 2964-0865
IJEBIR

Knowledge Management And Knowledge-Based Organization Building As Drivers Of Organizational Performance: Evidence From A Trade Education And Training Institution In Timor-Leste (A Study At IPPP-TL)

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Abstract

This study analyzes the influence of the level of knowledge management implementation and efforts to build a knowledge-based organization on organizational performance at the Trade Education and Training Institution in Timor-Leste (IPPP-TL). The research is motivated by the growing importance of knowledge as a strategic asset and by the institution's challenges, namely undocumented tacit knowledge and the lack of a structured knowledge-sharing system. A quantitative, descriptive-associative research design with a cross-sectional survey was applied. Data were collected through a five-point Likert-scale questionnaire, observation, and documentation from all 99 employees using a census technique, of which 95 questionnaires (95.96%) were returned and suitable for analysis. Data were analyzed using validity and reliability tests, classical assumption tests, and multiple linear regression. The results reveal that knowledge management (B = 0.452; p = 0.000) and efforts to build a knowledge-based organization (B = 0.398; p = 0.000) each have a positive and significant effect on organizational performance, and that both variables jointly explain 51.2% of its variation (F = 48.732; p = 0.000). These findings highlight the strategic importance of strengthening a knowledge-sharing culture and knowledge-based leadership in vocational training institutions.

Keywords: knowledge management, knowledge-based organization, organizational performance, vocational training, Timor-Leste.

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INTRODUCTION

In the knowledge economy, competitive advantage no longer depends solely on the ownership of physical assets but on an organization's ability to create, manage, and use knowledge continuously. Nonaka and Takeuchi (1995) argue that organizations that convert tacit knowledge into explicit knowledge through systematic processes develop a much higher capacity for innovation and adaptation than organizations that leave their knowledge scattered and undocumented. This view is supported by Darroch (2003), who found that the intensity of knowledge management practices is positively related to organizational performance, because learning and innovation become faster when knowledge is managed in a structured manner.

Besides knowledge management as a process, previous studies highlight the importance of organizations building themselves as knowledge-based organizations, that is, organizations that place knowledge at the foundation of all their activities rather than treating it as an operational complement. Grant (1996) explained that an organization's core capability is largely determined by how well it integrates the specialized knowledge of its members into collective value. Similarly, Senge (1990) developed the concept of the learning organization, which emphasizes that a shared learning culture, leadership that encourages openness, and a knowledge-sharing infrastructure are inseparable pillars of a high-performing organization. Andreeva and Kianto (2012) further found that the impact of knowledge management on performance is much greater when the practices are integrated with a comprehensive institutional transformation toward a knowledge-based organization. This finding is especially relevant for institutions that provide knowledge services, such as education and training institutions, whose success depends heavily on the quality and management of their intellectual resources.

In developing countries, the implementation of knowledge management faces specific challenges. Supyuenyong et al. (2009) reported that organizations in Southeast Asia are often constrained by cultural resistance and limited technological infrastructure, so that knowledge sharing and documentation do not run optimally. Alismaili et al. (2016) emphasized that the effectiveness of knowledge management is strongly influenced by local culture and institutional capacity, meaning that models that succeed in developed countries cannot simply be adopted without adjustment.

This study focuses on the Trade Education and Training Institution in Timor-Leste (IPPP-TL), a government institution under the Ministry of Trade and Industry that is responsible for producing skilled workers in the trade sector to support national economic development. As a vocational training provider, IPPP-TL must remain relevant, adaptive, and effective in carrying out its educational functions. The development of its human resources over the last two years is presented below.

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Table 1. Human Resource Condition of IPPP-TL, 2023–2024

No	HR Category	2023 (persons)	2024 (persons)	Growth (%)
1	Instructors/Teachers	45	52	15.6
2	Administrative Staff	28	30	7.1
3	Technical Staff	15	17	13.3
Total		88	99	12.5

Source: IPPP-TL, 2024

Table 1 shows that the number of IPPP-TL employees grew from 88 in 2023 to 99 in 2024, with the largest increase in the instructor category. This growth in the quantity of human resources should be accompanied by a stronger knowledge management system, because the knowledge and experience of senior instructors are still largely tacit and not adequately documented. This condition creates a real risk of losing intellectual assets when senior instructors retire or are reassigned before they can pass on their practical knowledge to the next generation.

The absence of a structured knowledge-sharing system also leads to duplicated effort and the waste of intellectual resources that could otherwise be used to improve the effectiveness of training programs, instructor productivity, and trainee satisfaction. The situation is increasingly critical because IPPP-TL plays a strategic role in producing a skilled workforce that supports the competitiveness of Timor-Leste's trade sector. Firmansyah et al. (2022) showed that knowledge management supported by transformational leadership and a learning organization culture significantly improves the performance of vocational schools in the digital era, which is a highly relevant finding for an institution like IPPP-TL.

Figure 1 presents the conceptual framework that guides this study. Knowledge management, which covers knowledge creation, storage, sharing, and application, represents the procedural-operational dimension, while efforts to build a knowledge-based organization, which cover a knowledge-sharing culture, knowledge infrastructure, knowledge-based leadership, and continuous learning, represent the institutional-structural dimension. Both are expected to lead to better organizational performance.

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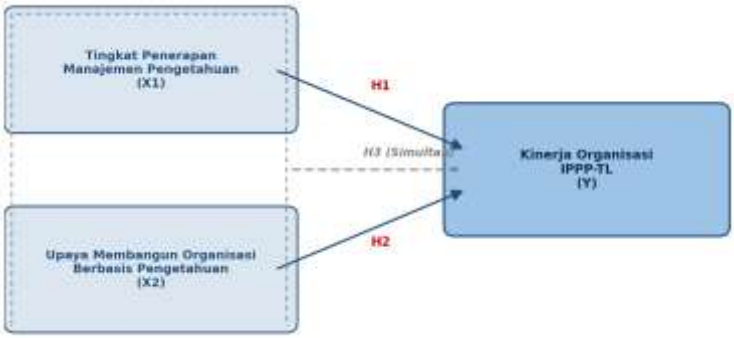


Figure 1. Conceptual Framework of the Study

Although international literature has demonstrated a positive relationship between knowledge management, knowledge-based organizations, and organizational performance, as found by Nawab et al. (2015) in the education sector in Pakistan, empirical studies focusing on education and training institutions in Timor-Leste, particularly IPPP-TL, remain very limited. This gap underlies the need for research that empirically measures the extent to which the level of knowledge management implementation and the efforts to build a knowledge-based organization influence the performance of IPPP-TL, while also formulating concrete and applicable recommendations for institutional improvement. This study therefore aims to examine these relationships, contributing theoretically to the knowledge management literature in developing countries and practically to the strategic decisions of IPPP-TL management.

Objectives

This study aims:

1. To analyze the influence of the level of knowledge management implementation on organizational performance at IPPP-TL.
2. To analyze the influence of efforts to build a knowledge-based organization on organizational performance at IPPP-TL.
3. To analyze the simultaneous influence of the level of knowledge management implementation and efforts to build a knowledge-based organization on organizational performance at IPPP-TL.

Research Design

This study employs a quantitative approach with a descriptive-associative design intended to examine causal relationships between variables in a measurable and objective manner. The descriptive element portrays the actual condition of knowledge management implementation, efforts to build a knowledge-based organization, and

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organizational performance at IPPP-TL, while the associative element tests the influence among these variables. The study uses a cross-sectional survey, in which data were collected at a single point in time to capture the condition of the three variables simultaneously. This design was chosen because it is efficient in terms of time and cost and allows data to be gathered from all members of the population at once.

The independent variables are knowledge management (X_1) and knowledge-based organization (X_2), and the dependent variable is organizational performance (Y). Based on the theoretical review and previous empirical studies, three hypotheses were proposed. H1: the level of knowledge management implementation has a positive and significant effect on organizational performance at IPPP-TL. H2: efforts to build a knowledge-based organization have a positive and significant effect on organizational performance at IPPP-TL. H3: both variables simultaneously have a positive and significant effect on organizational performance at IPPP-TL.

Population and Sample

The population consists of all instructors, administrative staff, and technical staff who were actively working at IPPP-TL in 2024, a total of 99 people. Because the population is small and accessible, this study used a census technique (total sampling), in which every member of the population is a respondent. This technique was chosen because partial sampling could reduce representativeness, given the diversity of employees in terms of gender, age, education, and length of service. Of the 99 questionnaires distributed, 95 were returned and usable, yielding a response rate of 95.96%. This rate is very high for an institution-based survey and indicates good employee involvement in institutional evaluation.

Research Variables and Instrument

The research variables comprise knowledge management (X_1), measured through knowledge creation, storage, sharing, and application; knowledge-based organization (X_2), measured through knowledge-sharing culture, knowledge infrastructure, knowledge-based leadership, and continuous learning; and organizational performance (Y), measured through training program effectiveness, trainee satisfaction, staff productivity, and innovation and program development. Each variable was measured with 20 questionnaire items on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). The indicator structure, together with representative questionnaire items, is summarized in the table below.

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Table 2. Research Variables, Indicators, and Questionnaire Items

Variable	Indicator	Representative Questionnaire Item
Knowledge Management (X_1)	1) Knowledge creation	1) The institution actively encourages employees to create new knowledge through research and innovation.
	2) Knowledge storage	2) Knowledge gained from training is well documented by the institution.
	3) Knowledge sharing	3) There are regular forums or meetings to share experiences and knowledge among employees.
	4) Knowledge application	4) Experience from previous training programs is used to improve subsequent programs.
Knowledge-Based Organization (X_2)	1) Knowledge-sharing culture	1) Employees feel comfortable sharing knowledge and experience openly.
	2) Knowledge infrastructure	2) There is an information technology system that supports knowledge storage and access.
	3) Knowledge-based leadership	3) Leaders serve as role models in a culture of learning and knowledge sharing.
	4) Continuous learning	4) The institution encourages employees to keep learning and developing their competencies.
Organizational Performance (Y)	1) Training program effectiveness	1) Education and training programs achieve the targets that have been set.
	2) Trainee satisfaction	2) Trainees are satisfied with the quality of education and training programs.
	3) Staff productivity	3) Budget resources are used efficiently and transparently.
	4) Innovation and program development	4) The institution actively innovates in developing new training programs.

Source: Probst et al. (2000); Senge (1990); Alzghoul et al. (2024); Kaplan & Norton (1992)

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Data Collection Technique

Primary data were collected through a structured questionnaire distributed directly to all employees, preceded by a pilot test on a small number of respondents to ensure that the statements were easy to understand. Direct observation was used to examine real knowledge management practices in the workplace, such as the availability of knowledge-sharing facilities and the use of information technology, and served as supporting data for triangulation. Secondary data were obtained through documentation, including annual performance reports, personnel statistics, and institutional policy documents, together with relevant literature.

Data Analysis Technique

The data were analyzed in several stages. In the instrument testing stage, validity was examined using Pearson product-moment correlation, with items considered valid when r-calculated exceeded 0.30 at the 5% significance level, and reliability was examined using Cronbach's alpha, with a value above 0.70 considered reliable. Classical assumption tests were then carried out before the regression analysis, comprising a normality test (Kolmogorov-Smirnov, significance above 0.05), a multicollinearity test (VIF below 10 and Tolerance above 0.10), and a heteroskedasticity test using a scatter plot. Multiple linear regression was used to test the influence of X_1 and X_2 on Y with the equation below.

$$Y = a + b_1X_1 + b_2X_2 + e$$

Where Y is organizational performance, a is the constant, b_1 and b_2 are the regression coefficients, and e is the error term. The t-test was used to test the partial effect of each independent variable (H1 and H2), the F-test was used to test their simultaneous effect (H3), and the coefficient of determination (R^2) was used to measure the proportion of variation in organizational performance explained by the model.

DISCUSSION

Respondent Profile and Instrument Quality

The study involved 95 respondents. Table 3 shows that the respondents were fairly balanced in terms of gender, with a slight male majority (54.7%). Almost half of the respondents (49.5%) were aged 30–40 years, and 31.6% were older than 40 years. Most respondents held a diploma or bachelor's degree (61.1%), followed by a master's degree (34.7%), and the largest group had worked for 5–10 years (43.2%). This combination of mature and experienced employees is relevant to knowledge management, because the tacit knowledge held by senior staff needs to be transferred systematically to younger staff.

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Table 3. Respondent Characteristics

Characteristic	Category	Number (%)
Gender	Male	52 (54.7%)
	Female	43 (45.3%)
Age	< 30 years	18 (18.9%)
	30–40 years	47 (49.5%)
	> 40 years	30 (31.6%)
Education	Diploma/Bachelor's	58 (61.1%)
	Master's	33 (34.7%)
	Doctoral	4 (4.2%)
Length of Service	< 5 years	22 (23.2%)
	5–10 years	41 (43.2%)
	> 10 years	32 (33.7%)

Source: Primary data processed, 2024

All questionnaire items were valid, with Pearson correlation values above 0.30 and significance at the 5% level. Table 4 shows that the Cronbach's alpha of all variables was far above the critical value of 0.70, indicating very good internal consistency among the items measuring the same construct.

Table 4. Reliability Test Results

Variable	Cronbach's Alpha	Critical Value	Remark
Knowledge Management (X_1)	0.872	0.70	Reliable
Knowledge-Based Organization (X_2)	0.841	0.70	Reliable
Organizational Performance (Y)	0.895	0.70	Reliable

Source: Primary data processed, 2024

Classical Assumption Tests

Before testing the hypotheses, the regression model was checked against the classical assumptions, as summarized in Table 5.

Table 5. Summary of Classical Assumption Test Results

Test	Method	Result	Criterion	Conclusion
Normality	Kolmogorov-Smirnov	Sig. = 0.148	Sig. > 0.05	Residuals are normally distributed
Multicollinearity	VIF and Tolerance	VIF = 1.823; Tolerance = 0.548	VIF < 10; Tolerance > 0.10	No multicollinearity
Heteroskedasticity	Scatter plot	Random spread	No pattern	No heteroskedasticity

Source: Primary data processed, 2024

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The Kolmogorov-Smirnov significance value of 0.148 is greater than 0.05, so the residuals are normally distributed, which is also supported by the Normal P-P Plot in Figure 2. The VIF value of 1.823 and the Tolerance value of 0.548 show that, although the two independent variables are conceptually related, their effects can be measured separately without distortion. The scatter plot in Figure 3 shows points spread randomly around zero without a systematic pattern, indicating homogeneous residual variance. The model is therefore appropriate for hypothesis testing.

Multiple Linear Regression and Hypothesis Testing

The regression results are presented in Table 6 and Figure 4. The regression equation is $Y = 0.847 + 0.452X_1 + 0.398X_2$.

Table 6. Summary of Multiple Linear Regression Results

Variable	Regression Coefficient (B)	t-calculated	Sig.	Remark
Constant	0.847	–	–	–
Knowledge Management (X_1)	0.452	5.312	0.000	Significant
Knowledge-Based Organization (X_2)	0.398	4.786	0.000	Significant
F-calculated	48.732		0.000	Significant (simultaneous)
R^2	0.512			51.2% of variation explained

Source: Primary data processed, 2024

Effect of Knowledge Management on Organizational Performance

Knowledge management has a positive and significant effect on organizational performance (B = 0.452; t = 5.312; p = 0.000), so Hypothesis 1 is accepted. This result is consistent with Nawab et al. (2015) and Darroch (2003), who found a consistent positive relationship between knowledge management practices and organizational performance. It also supports Massoudi and Birdawod (2023), who reported that knowledge management processes improve institutional performance in a university setting, and Firmansyah et al. (2022) for vocational schools. At IPPP-TL, knowledge creation through research and curriculum development, better storage and codification systems, and a stronger sharing culture among instructors are associated with higher training effectiveness, instructor productivity, and trainee satisfaction. Among the four indicators, knowledge sharing showed the strongest influence. This implies that a more intensive and structured sharing system is a strategic priority for IPPP-TL, since

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knowledge that is not widely shared tends to remain tacit and brings limited benefit to the organization. This agrees with Davenport and Prusak (1998), who argued that a strong culture of sharing matters more than technological sophistication.

Effect of Knowledge-Based Organization on Organizational Performance

Efforts to build a knowledge-based organization also have a positive and significant effect on organizational performance (B = 0.398; t = 4.786; p = 0.000), so Hypothesis 2 is accepted. This is in line with the theoretical arguments of Grant (1996) and Senge (1990) that transformation toward a knowledge-based organization supports superior performance. It is further consistent with Alzghoul et al. (2024), who showed that knowledge-oriented leadership builds a knowledge-centered culture that encourages innovative behavior and job satisfaction, and with Ugwu and Ejikeme (2023), who found that knowledge management together with organizational culture contributes positively to job performance. Among the four indicators, knowledge-based leadership had the most significant influence. The success of institutional transformation therefore depends strongly on the commitment and example of leaders, and not merely on the availability of systems or technology.

Simultaneous Effect of Knowledge Management and Knowledge-Based Organization on Organizational Performance

The F-test result (F = 48.732; p = 0.000) shows that knowledge management and knowledge-based organization jointly have a positive and significant effect on organizational performance, so Hypothesis 3 is accepted. The R^2 of 0.512 means that 51.2% of the variation in organizational performance is explained by the two variables, while the remaining 48.8% is explained by other factors outside the model, such as general leadership style, compensation, or external government policy. This supports Andreeva and Kianto (2012), who found that integrated knowledge management practices have a greater impact on performance than partial ones, and Danko and Crhová (2024), who showed that knowledge sharing improves organizational performance when it is combined with innovation and organizational learning. According to the regression equation, each one-unit increase in knowledge management raises organizational performance by 0.452 units, and each one-unit increase in knowledge-based organization raises it by 0.398 units, assuming the other variable is constant. Because the data are cross-sectional and perception-based, these results should be read as strong associations rather than proof of causality.

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CONCLUSION

This study concludes that the level of knowledge management implementation has a positive and significant effect on organizational performance at IPPP-TL, with knowledge sharing as the strongest indicator. Efforts to build a knowledge-based organization also have a positive and significant effect on organizational performance, with knowledge-based leadership as the most influential indicator. Simultaneously, both variables significantly influence organizational performance and explain 51.2% of its variation, while 48.8% is explained by other factors. The instruments were valid and reliable, and the regression model met all classical assumptions. These findings indicate that strengthening knowledge management systems and moving toward a knowledge-based organization are two complementary strategies for improving the effectiveness and competitiveness of IPPP-TL. In practice, management is advised to develop a digital knowledge platform, mentoring programs, and communities of practice, and to train leaders to act as champions of learning and sharing. Future studies should use a longitudinal design, extend the research to other training institutions in Timor-Leste, and combine perceptual data with objective performance data.

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