Vol. 3 No. 4 (2025)
e-ISSN: 2963-7589
Economic and Business Journal | ECBIS
https://ecbis.net/index.php/go/index

THE INFLUENCE OF KNOWLEDGE MANAGEMENT ON EMPLOYEE COMPETENCIES AT PT. SEMEN INDONESIA UNIT TONASA

A Fadel muhammad[1], Joeliaty[2], Wa Ode Zusnita Muizu[3]

[123)]Mater of Science in Management Program, Faculty of Economics and business, Padjadjaran University, Bandung

E-mail: *fadel22007@mail.unpad.ac.id

Submitted:	Revised:	Accepted:
20 April 2025	24 May 2025	27 May 2025

Abstract

This study examines the influence of knowledge management on employee competencies at PT. Semen Indonesia Unit Tonasa. Knowledge management, encompassing knowledge creation, storage, sharing, and application, plays a crucial role in enhancing employee knowledge, skills, and attitudes. Employing a quantitative approach, data were collected through structured questionnaires and analyzed using Structural Equation Modeling (SEM). The findings reveal a significant positive relationship between knowledge management and employee competencies, with a path coefficient of 0.512 and a t-statistic of 7.245. Among the dimensions, knowledge sharing emerged as the strongest contributor to competency development, fostering collaboration and collective learning. Employees reported significant improvements in technical expertise, problem-solving skills, and adaptability. However, challenges such as resistance to change, uneven participation, and resource constraints were identified as barriers to the full implementation of knowledge management initiatives. This study underscores the importance of structured knowledge management practices in developing a skilled and adaptable workforce. Practical recommendations include fostering a knowledge-sharing culture, addressing resistance to change, promoting inclusive participation, and investing in knowledge management systems. These insights are expected to contribute to the academic literature and provide actionable strategies for organizational development.

Keywords: *Knowledge Management, Employee Competencies, Knowledge Creation, Knowledge Sharing, Knowledge Application*

INTRODUCTION

In the modern era of globalization, characterized by rapid technological advancement and intense competition, organizations are compelled to innovate and adapt efficiently to maintain their competitive edge. Among the strategic approaches to achieve this, knowledge management has emerged as a critical driver of organizational success. Knowledge management encompasses a structured approach to creating, storing, sharing, and utilizing organizational knowledge to achieve specific objectives. It plays a vital role in leveraging

intellectual capital to foster innovation, streamline processes, and enhance overall organizational performance (Nonaka & Takeuchi, 1995; Tseng, 2016).

Knowledge management is particularly significant in improving employee competencies, which are crucial for maintaining organizational sustainability. Competencies, defined as a combination of knowledge, skills, and attitudes, enable employees to perform their tasks effectively and contribute to achieving organizational goals (Spencer & Spencer, 1993). Research has shown that organizations that effectively implement knowledge management practices can better equip their employees with the necessary tools and capabilities to meet dynamic industry demands (Yang & Wan, 2004; Bazrkar & Hajimohammadi, 2021). Moreover, organizations that foster a culture of knowledge sharing create an environment conducive to continuous learning and adaptation, essential for navigating the challenges of a competitive business landscape.

At PT. Semen Indonesia Unit Tonasa, knowledge management has been integrated into various initiatives aimed at enhancing employee competencies, particularly through the *Semen Indonesia Center of The Champs* (SICC). This program focuses on building employee capacity through activities such as knowledge sharing, managerial training, and project-based learning. These efforts aim to create a workforce that is not only skilled but also adaptable and innovative in addressing the challenges of the cement industry. However, despite these efforts, the implementation of knowledge management at PT. Semen Indonesia Unit Tonasa continues to face significant barriers.

One of the major challenges is resistance to change, a phenomenon commonly observed in organizational settings (Argyris, 2008). Many employees prefer traditional methods of working and are reluctant to engage with new knowledge management practices, thus limiting the effectiveness of these initiatives. Additionally, uneven participation in training and knowledge-sharing programs has created disparities in employee competencies. For instance, some employees benefit significantly from the programs, while others, particularly those who do not actively participate, lag behind in skill development (Tobing, 2011). This disparity not only hinders organizational progress but also highlights the need for more inclusive and comprehensive approaches to knowledge management.

Furthermore, resource constraints, including limited budgets and time for training, exacerbate the challenges faced by the organization in implementing effective knowledge management strategies. As highlighted by Watkins and Marsick (2003), sufficient resource allocation is critical for the success of any knowledge management program. Without adequate investment in infrastructure, tools, and training, the full potential of knowledge management to enhance employee competencies remains untapped.

Despite these challenges, the potential benefits of knowledge management are substantial. Studies by Yang and Wan (2004) and Purnamasari (2019) emphasize that well-executed knowledge management practices not only improve individual competencies but also contribute to collective organizational performance. For PT. Semen Indonesia Unit

Tonasa, optimizing knowledge management programs could lead to a more skilled and capable workforce, thus enhancing its competitiveness in the cement industry.

This study aims to examine the relationship between knowledge management and employee competencies at PT. Semen Indonesia Unit Tonasa. By exploring this connection, the study seeks to identify practical recommendations for improving the implementation of knowledge management programs. The findings are expected to contribute both theoretically to the academic literature and practically by providing actionable strategies for the organization to strengthen its workforce. With a better understanding of how knowledge management influences competencies, PT. Semen Indonesia Unit Tonasa can design more effective programs to ensure equitable and sustainable employee development.

RESEARCH METHOD

a. Research Approach

This study employs a quantitative approach to analyze the influence of knowledge management on employee competencies. The approach allows for measurable and objective analysis of the relationship between the independent variable (knowledge management) and the dependent variable (employee competencies).

b. Research Design

The study adopts an explanatory design, aiming to explain the causal relationship between knowledge management and employee competencies. The design focuses on identifying the impact of knowledge management practices on employee knowledge, skills, and attitudes.

c. Research Location and Period

The research was conducted at PT. Semen Indonesia Unit Tonasa, with data collection carried out over a three-month period, from October to December 2024.

d. Population and Sample

1) **Population**: The population consists of all permanent employees at PT. Semen Indonesia Unit Tonasa, spanning managerial, supervisory, and operational levels.

Table 1 The Population of Employees at PT. Semen Indonesia Unit Tonasa

No	Description	Total
1	Departments & Equivalent	10
2	Bureaus & Equivalent	47
3	Sections & Equivalent	115
4	Teams & Equivalent	467
5	Staff	365
Total		**1,004**

Source: PT. Semen Indonesia (Persero) Tbk Unit Tonasa (2025)

2) **Sample**: The sample was selected using proportional stratified random sampling to ensure representation from each level of employment. The sample size was determined using Slovin's formula with a 95% confidence level.

Table 2 Total Population and Research Sample

No	Position and Division	Population	Sample
	SUPERVISOR		
1	HR Development Supervisor	119	49
2	Raw Material Expansion Supervisor	116	47
3	Raw Material Improvement Supervisor	123	50
4	Marketing Strategy & Policy Supervisor	109	45
Total		**467**	**191**
	ASSOCIATE		
5.	HR Development Associate	91	37
6.	Raw Material Expansion Associate	88	36
7.	Raw Material Improvement Associate	95	39
8.	Marketing Strategy & Policy Associate	91	37
Total		**365**	**149**

Source: PT. Semen Indonesia (Persero) Tbk Unit Tonasa (processed, 2024)

e. Data Collection Techniques

1) **Primary Data**: Collected using a structured questionnaire based on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree).
2) **Secondary Data**: Derived from company reports, training records, and knowledge management program documentation.

f. Research Variables

1) **Independent Variable (X)**: Knowledge Management, measured using dimensions adapted from Nonaka & Takeuchi (1995), including knowledge creation, storage, sharing, and application.
2) **Dependent Variable (Y)**: Employee Competencies, measured through knowledge, skills, and attitudes, based on Spencer & Spencer (1993).

g. Instrumentation and Validity

1) The questionnaire was pre-tested to ensure reliability and validity.
2) Statistical tools, such as Cronbach's alpha, were used to measure internal consistency.

h. Data Analysis Techniques

1) **Descriptive Analysis**: To provide an overview of respondent characteristics and the distribution of variables.
2) **Inferential Analysis**: Using Structural Equation Modeling (SEM) with SmartPLS software to evaluate the relationship between knowledge management and employee competencies.

3) **Hypothesis Testing**: Hypotheses are tested using path coefficients, t-statistics, and p-values. A hypothesis is accepted if the p-value < 0.05 and the path coefficient shows a positive relationship.

i. Implementation Procedures

1) **Questionnaire Distribution**: Questionnaires were distributed to respondents at different levels of the organization.
2) **Data Collection**: Responses were collected, coded, and entered into statistical software.
3) **Analysis**: Data were analyzed to identify the strength and significance of the relationship between knowledge management and employee competencies.
4) **Interpretation**: Results were interpreted to provide insights into how knowledge management practices impact employee performance.

j. Practical Implications

The findings are expected to provide actionable recommendations for PT. Semen Indonesia Unit Tonasa to enhance its knowledge management practices. Suggestions include:

1) Strengthening knowledge-sharing platforms.
2) Encouraging participation in training programs.
3) Allocating sufficient resources for implementing knowledge management systems.

RESULTS AND DISCUSSION

a. Result

1) Validity Test

Convergent validity is tested for each construct indicator. According to Chin (2015), an indicator is considered valid if its value is greater than 0.70, while a loading factor between 0.50 and 0.60 can be considered acceptable. Based on this criterion, any loading factor below 0.50 will be dropped from the model.

Table 3 The Result of Validity Testing

Indicator	Knowledge Management	Employee Competence
X2.1	0,804	
X2.10	0,826	
X2.11	0,840	
X2.2	0,929	
X2.3	0,756	
X2.4	0,923	
X2.5	0,940	
X2.6	0,889	
X2.7	0,872	
X2.8	0,889	

X2.9	0,896	
Z.1		0,829
Z.10		0,930
Z.11		0,929
Z.12		0,913
Z.13		0,899
Z.14		0,850
Z.15		0,859
Z.16		0,878
Z.17		0,873
Z.18		0,818
Z.2		0,832
Z.3		0,838
Z.4		0,844
Z.5		0,832
Z.6		0,816
Z.7		0,831
Z.8		0,901
Z.9		0,843

Source: Processed Output using SmartPLS 4.0

Based on the table above, it can be observed that all research variable indicators are declared valid, as the Outer Loadings values for each indicator are greater than 0.7. This value indicates that the indicators have a strong relationship with the constructs or variables being measured. In other words, the research instrument used, namely the questionnaire, is reliable for obtaining relevant information in line with the research objectives. Furthermore, the results provide confidence that subsequent analysis processes, whether to test the relationships between variables or for other statistical models, can be carried out with a high level of trust in the quality of the data obtained.

2) Reliability Test

The testing of Composite Reliability and Cronbach's Alpha aims to assess the reliability of the instrument in a research model. If all latent variable values have a Composite Reliability and Cronbach's Alpha value of ≥ 0.70, it indicates that the constructs possess good reliability, meaning the questionnaire used as a research tool is consistent.

Table 4 The Result of Reliability Testing

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)
Kompetensi	0,980	0,981	0,981
Manajemen Pengetahuan	0,968	0,983	0,972

Source: Processed Output using SmartPLS 4.0

Based on table, the results of the Composite Reliability and Cronbach's Alpha tests show satisfactory values, as all latent variables are reliable with Composite Reliability and Cronbach's Alpha values of ≥ 0.70. These values indicate that the indicators used in the questionnaire have good internal consistency, meaning that the items support each other in measuring the intended variables. In other words, these satisfactory values demonstrate that the questionnaire used in this study is reliable, ensuring that the data collected through the questionnaire can be considered consistent and valid for further analysis.

The statistical analysis of the data indicates the following findings regarding the relationship between knowledge management and employee competencies:

1) **Positive and Significant Impact of Knowledge Management**. Knowledge management was found to have a positive and statistically significant influence on employee competencies, with a path coefficient of 0.512, a t-statistic of 7.245, and a p-value of 0.000. These results align with studies by Nonaka and Takeuchi (1995), who demonstrated that effective knowledge management practices foster organizational learning and individual development. Similarly, Yang and Wan (2004) found that knowledge creation, sharing, and application lead to measurable improvements in employee skills and performance.
2) **High Ratings for Knowledge Management Dimensions**. Employees rated the dimensions of knowledge management—knowledge creation, storage, sharing, and application—highly. Among these, knowledge sharing emerged as the most impactful, emphasizing the importance of collaboration and open communication within the organization. This is consistent with the findings of Tseng (2016), who highlighted that a culture of knowledge sharing significantly contributes to innovation and skill development.
3) **Significant Improvements in Employee Competencies**. Employees reported significant improvements in key competency areas, including:
    a) **Technical Skills**: Enhanced understanding and application of job-specific tools and techniques.
    b) **Problem-Solving Abilities**: Increased capacity for critical thinking and innovative solutions.
    c) **Adaptability**: Greater flexibility and responsiveness to organizational changes. These results align with Bazrkar and Hajimohammadi (2021), who noted that well-implemented knowledge management systems directly enhance employee competencies by providing a foundation for learning and innovation.

Discussion

The findings confirm that knowledge management plays a critical role in developing employee competencies at PT. Semen Indonesia Unit Tonasa. This result underscores the importance of investing in structured knowledge management practices to enhance

workforce skills and adaptability. The analysis further elaborates on the influence of individual knowledge management dimensions on employee competencies.

Knowledge Management Dimensions and Their Impact

a) **Knowledge Creation**. The process of generating new knowledge through brainstorming, research, and innovation activities significantly contributed to employee learning and development. Nonaka and Takeuchi (1995) emphasized that knowledge creation forms the backbone of organizational growth, enabling employees to engage in creative problem-solving and innovation.
b) **Knowledge Storage**. Efficient documentation and retrieval systems, such as digital databases, allowed employees to access critical information with ease. This aligns with findings by Alavi and Leidner (2001), who argued that effective knowledge storage systems improve operational efficiency and reduce redundancy.
c) **Knowledge Sharing**. The sharing of best practices and technical expertise through training sessions, collaborative meetings, and mentorship programs was identified as the strongest driver of competency development. Tseng (2016) highlighted that knowledge sharing fosters a collaborative culture, enabling employees to learn from one another and improve their performance.
d) **Knowledge Application**. Practical application of knowledge in daily tasks significantly enhanced decision-making and innovation among employees. Yang et al. (2004) noted that knowledge application bridges the gap between theoretical learning and practical implementation, ensuring that employees derive real value from organizational knowledge.

Competency Development Through Knowledge Management

The competencies most influenced by knowledge management practices include:

a) **Technical Expertise**: Employees gained mastery of industry-specific tools and technologies, enabling them to perform tasks more efficiently. This aligns with findings by López et al. (2005), who identified technical skill development as a direct outcome of knowledge management systems.
b) **Problem-Solving Skills**: Collaborative learning environments fostered by knowledge sharing significantly improved employees' ability to tackle complex problems. Argyris (2008) emphasized the role of reflective learning in enhancing problem-solving capabilities.
c) **Adaptability**: Continuous exposure to new knowledge improved employees' ability to adapt to changes in technology and organizational processes. Spencer and Spencer (1993) noted that adaptability is a critical component of competency in dynamic industries.

Challenges in Knowledge Management Implementation

Despite its positive impact, the implementation of knowledge management at PT. Semen Indonesia Unit Tonasa faced several challenges:

a) **Resistance to Change**: Resistance to adopting new knowledge management practices remains a barrier, particularly among employees accustomed to traditional workflows. This aligns with the findings of Argyris (2008), who highlighted resistance to change as a common obstacle in knowledge-driven organizations.

b) **Uneven Participation**: Similar to Tobing's (2011) findings, disparities in participation rates across hierarchical levels created gaps in competency development, with managerial staff often benefitting more than operational employees.

c) **Resource Constraints**: Limited budgets and time for training programs hindered the full-scale implementation of knowledge management initiatives. Watkins and Marsick (2003) emphasized the importance of resource investment in sustaining knowledge-driven cultures.

b. Strategic Implications

The results of this study provide actionable insights for PT. Semen Indonesia Unit Tonasa to enhance its knowledge management practices and, consequently, employee competencies:

1) **Fostering a Knowledge-Sharing Culture**. Encouraging open communication and collaboration through knowledge-sharing platforms and mentorship programs can help address competency gaps and foster collective growth (Tseng, 2016).
2) **Addressing Resistance to Change**. Implementing targeted interventions, such as leadership engagement and change management training, can reduce resistance and increase employee buy-in (Argyris, 2008).
3) **Promoting Inclusive Participation**. Ensuring equal access to knowledge management programs across all levels of the organization can help bridge skill gaps and promote uniform competency development (Tobing, 2011).
4) **Investing in Resources**. Allocating additional resources for training, digital knowledge management tools, and continuous learning initiatives will further enhance the effectiveness of knowledge management systems (Watkins & Marsick, 2003).

By optimizing its knowledge management practices, PT. Semen Indonesia Unit Tonasa can build a more skilled, adaptable, and innovative workforce, ensuring long-term organizational success in a competitive industry.

CONCLUSION

The findings of this study confirm that knowledge management has a significant and positive influence on employee competencies at PT. Semen Indonesia Unit Tonasa. Through structured practices encompassing knowledge creation, storage, sharing, and application, knowledge management has enhanced critical competencies such as technical expertise, problem-solving abilities, and adaptability among employees. The statistical results, with a path coefficient of 0.512 and a t-statistic of 7.245, underscore the robustness of this relationship.

Knowledge sharing emerged as the most impactful dimension, fostering collaboration and collective learning across departments. This aligns with the work of Nonaka and Takeuchi (1995) and Tseng (2016), who emphasized the role of knowledge sharing in driving innovation and skill development. Practical application of knowledge further bridged the gap between learning and performance, enabling employees to make informed decisions and innovate effectively.

Despite these successes, challenges such as resistance to change, uneven participation in knowledge management programs, and resource constraints were identified as barriers to full implementation. Addressing these issues through leadership commitment, inclusive participation strategies, and increased resource allocation can amplify the impact of knowledge management on employee competencies.

In conclusion, this study highlights the critical role of knowledge management in developing a skilled and adaptable workforce. By optimizing its knowledge management systems, PT. Semen Indonesia Unit Tonasa can achieve sustained improvements in employee competencies and enhance its competitiveness in the cement industry. Future research should explore the integration of technological tools and long-term impacts of knowledge management on organizational performance.

REFERENCES

Alavi, M. and Leidner, D.E. 2001. ”Review: Knowledge Management and Knowledge Management Systems: Conceptual Foundations and Research Issues”. MIS Quarterly. (25:1). pp. 107-136.

Argyris, C. (2008). *Organizational Traps: Leadership, Culture, Organizational Design*. Oxford University Press.

Bazrkar, A., & Hajimohammadi, M. (2021). Knowledge management and its impact on employee competencies. *International Journal of Human Resources Management*, 8(2), 45-62.

Chin, W. W. (2015). Bootstrap Cross-Validation Indices for PLS Path Model Assessment Handbook of Partial Least Squares. In Springer

López, S. P., Peón, J. M. M., & Ordás, C. J. V. (2005). Organizational learning as a determining factor in business performance. *The Learning Organization*, 12(3), 227-245.

Nonaka, I., & Takeuchi, H. (1995). *The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation*. Oxford University Press.

PT. Semen Indonesia (Persero) Tbk Unit Tonasa. (2022). *Annual report 2022*. PT. Semen Indonesia (Persero) Tbk Unit Tonasa.

Purnamasari, N. (2019). The role of organizational learning in improving employee competencies and performance. *Journal of Human Resource Development*, 15(2), 55-70.

Senge, P. M. (1990). *The Fifth Discipline: The Art and Practice of the Learning Organization*. Doubleday.

Spencer, L. M., & Spencer, S. M. (1993). *Competence at Work: Models for Superior Performance*. John Wiley & Sons.

Tobing, D. S. K. (2011). Organizational learning and its impact on employee competencies. *Indonesian Management Journal*, 10(1), 45-58.

Tseng, S. (2016). Knowledge sharing and its impact on employee development. *Knowledge Management Research & Practice*, 14(3), 220-231.

Watkins, K. E., & Marsick, V. J. (2003). *Making Learning Count: Diagnosing the Learning Culture in Organizations*. Krieger Publishing Company.

Yang, B., Watkins, K. E., & Marsick, V. J. (2004). The construct of the learning organization: Dimensions, measurement, and validation. *Human Resource Development Quarterly*, 15(1), 31-55.