“The effect of talent and knowledge management on employee retention: The mediating role of employee engagement”

AUTHORS	Nursaid Trias Setyowati Wenny Murtalining Tyas

ARTICLE INFO	Nursaid, Trias Setyowati and Wenny Murtalining Tyas (2026). The effect of talent and knowledge management on employee retention: The mediating role of employee engagement. *Problems and Perspectives in Management*, *24*(4), 344–364. doi:10.21511/ppm.24(4).2026.22
DOI	http://dx.doi.org/10.21511/ppm.24(4).2026.22
RELEASED ON	Monday, 09 November 2026
RECEIVED ON	Monday, 11 May 2026
ACCEPTED ON	Wednesday, 21 October 2026

LICENSE	This work is licensed under a Creative Commons Attribution 4.0 International License

JOURNAL	"Problems and Perspectives in Management"
ISSN PRINT	1727-7051
ISSN ONLINE	1810-5467
PUBLISHER	LLC “Consulting Publishing Company “Business Perspectives”
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”

NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
63	2	23

© The author(s) 2026. This publication is an open access article.

BUSINESS PERSPECTIVES

LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10,
Sumy, 40022, Ukraine

www.businessperspectives.org

Nursaid (Indonesia), **Trias Setyowati** (Indonesia), **Wenny Murtalining Tyas** (Indonesia)

THE EFFECT OF TALENT AND KNOWLEDGE MANAGEMENT ON EMPLOYEE RETENTION: THE MEDIATING ROLE OF EMPLOYEE ENGAGEMENT

Abstract

Amid rising labor mobility and competition for skilled employees, this study aims to examine how talent and knowledge management relates to employee engagement and retention, with employee engagement as a mediator, among private-sector employees in Indonesia's manufacturing, banking, retail, service, and logistics sectors. Using a combination of purposive and snowball sampling, 543 valid responses (from 964 distributed questionnaires across 97 companies) were analyzed using partial least squares structural equation modeling (PLS-SEM). Talent management (β = 0.554) and knowledge management (β = 0.379) were positively associated with employee engagement (R^2 = 0.721), and both were also directly associated with employee retention (β = 0.275 and β = 0.315, respectively; R^2 = 0.632). Employee engagement was positively associated with employee retention (β = 0.290), and its indirect effects for talent management (β = 0.161) and knowledge management (β = 0.110) were statistically significant ($p < 0.001$), confirming employee engagement as a significant partial mediator (VAF = 36.93% and 25.88%, respectively). Direct effects of talent and knowledge management on retention remained somewhat larger than their indirect effects through engagement, but the substantial VAF values indicate that employee engagement is a meaningful complementary pathway, alongside direct organizational investment in talent development and knowledge management, through which these practices are associated with employee retention. The study extends social exchange theory and the resource-based view and offers practical implications for strengthening retention in the sampled Indonesian private companies.

Keywords talent, knowledge, engagement, retention, workforce

JEL Classification M12, M54, J24, D23

Type of the article: Research Article

Received on: 11th of May, 2026
Accepted on: 21st of October, 2026
Published on: 9th of November, 2026

© Nursaid, Trias Setyowati, Wenny Murtalining Tyas, 2026

Nursaid, Lecturer, Department of Management, Faculty of Economics and Business, Universitas Muhammadiyah Jember [Muhammadiyah University of Jember], Indonesia. (Corresponding author)

Trias Setyowati, Dr., Lecturer, Department of Management, Faculty of Economics and Business, Universitas Muhammadiyah Jember [Muhammadiyah University of Jember], Indonesia.

Wenny Murtalining Tyas, Mrs., Department of Management, Faculty of Economics and Business, Universitas Muhammadiyah Jember [Muhammadiyah University of Jember], Indonesia.

This is an Open Access article, distributed under the terms of the Creative Commons Attribution 4.0 International license, which permits unrestricted re-use, distribution, and reproduction in any medium, provided the original work is properly cited.

Conflict of interest statement:
Author(s) reported no conflict of interest

INTRODUCTION

Employee retention has become a major strategic challenge worldwide amid rising labor mobility, digital transformation, and intensified competition for skilled employees. Only about 23% of employees globally are actively engaged in their work (Gallup, 2023), and organizations that fail to manage talent and knowledge effectively face a higher risk of losing high performers (Deloitte, 2025), raising recruitment costs and disrupting operational continuity.

These challenges are pronounced in Indonesia's private sector, the largest contributor to national employment, which faces high labor mobility (BPS, 2025; Santoso et al., 2021) and rising employee expectations driven by digital transformation (PwC, 2024). Retaining employees is therefore no longer a matter of compensation alone but of how organizations manage human capital and knowledge. Empirical evidence on talent management, knowledge management, and employee retention remains inconsistent, with some studies reporting positive associations (Abid, 2025; Axiak et al., 2025; De Clercq & Pereira, 2025; Karim

http://dx.doi.org/10.21511/ppm.24(4).2026.22

et al., 2025; Kmieciak, 2024; Nassani et al., 2024) and others reporting null or weak effects (Aripah & Azzuhri, 2025; Nasruddin & Putri, 2023).

The mechanism underlying these relationships also remains unclear. Employees who perceive organizational support through talent development and knowledge-sharing tend to report higher engagement, which may in turn be associated with stronger retention. However, evidence on this pathway remains limited, particularly in developing-country contexts such as Indonesian private companies, where talent competition, workforce mobility, and digital transformation continue to intensify.

1. LITERATURE REVIEW AND HYPOTHESES

Employee retention refers to employees' willingness and intention to remain with their current organization, distinct from turnover intention, which reflects an employee's conscious intention to leave (Deloitte, 2025; Gallup, 2023). This study integrates social exchange theory (SET) (Blau, 1964) and the resource-based view (RBV) (Barney, 1991) to explain the relationships among talent management, knowledge management, employee engagement, and employee retention. SET proposes that favorable organizational treatment encourages employees to reciprocate with positive attitudes and behaviors, including stronger engagement and willingness to remain (Ahmed et al., 2025; Hartley, 2025; Hooi, 2025). RBV complements this by treating human capital and organizational knowledge as strategic resources that organizations cultivate through talent management (identifying, developing, and retaining employees with critical competencies) and knowledge management (creating, sharing, and applying organizational knowledge) (Banerjee & Sharma, 2025; Collings & Mellahi, 2009; Di Prima et al., 2024). Together, these theories suggest that talent and knowledge management practices are associated with favorable employee attitudes and, through employees' psychological responses, with stronger retention.

Employee engagement is shaped not only by individual characteristics but also by organizational practices that signal support and development opportunities (Ahmad et al., 2024; Azila-Gbettor et al., 2025). Talent management is generally positively associated with engagement, as employees interpret career development and training opportunities as evidence of organizational investment (Alves et al., 2025; Axiak et al., 2024; Karim et al., 2025; Li et al., 2024; Ramanan et al., 2024), though the strength of this relationship varies across organizational contexts. Similarly, knowledge management (encompassing knowledge creation, sharing, and application) is associated with stronger engagement where organizations promote knowledge-sharing cultures and collaborative learning (Banerjee & Sharma, 2025; Di Prima et al., 2024; Khalil & Samhan, 2025; Koh & Abdul Razak, 2024; Latukha et al., 2024). However, most existing evidence comes from knowledge-intensive organizations, leaving it unclear whether similar patterns hold in broader organizational settings, including private companies in developing economies, and few studies have examined talent and knowledge management simultaneously.

Talent management is also widely associated with employee retention, as career development, succession planning, and continuous training signal long-term organizational investment (Abid, 2025; Axiak et al., 2025; Collings & Mellahi, 2009; Montero Guerra & Danvila-Del Valle, 2024; Shah et al., 2024; Tusquellas et al., 2024). However, this relationship is not uniformly supported. Nasruddin and Putri (2023) found no significant relationship among millennial employees, and Aripah and Azzuhri (2025) reported a positive but statistically insignificant direct effect, suggesting the relationship may be contingent on organizational context. Knowledge management is likewise associated with retention through its contribution to continuous learning and perceived organizational support (De Clercq & Pereira, 2025; Glaser et al., 2024; Kmieciak, 2024; Le et al., 2024; Nassani et al., 2024), although evidence again remains concentrated in knowledge-intensive settings.

These inconsistencies suggest that the effects of talent and knowledge management on retention may not be purely direct but may operate partly through

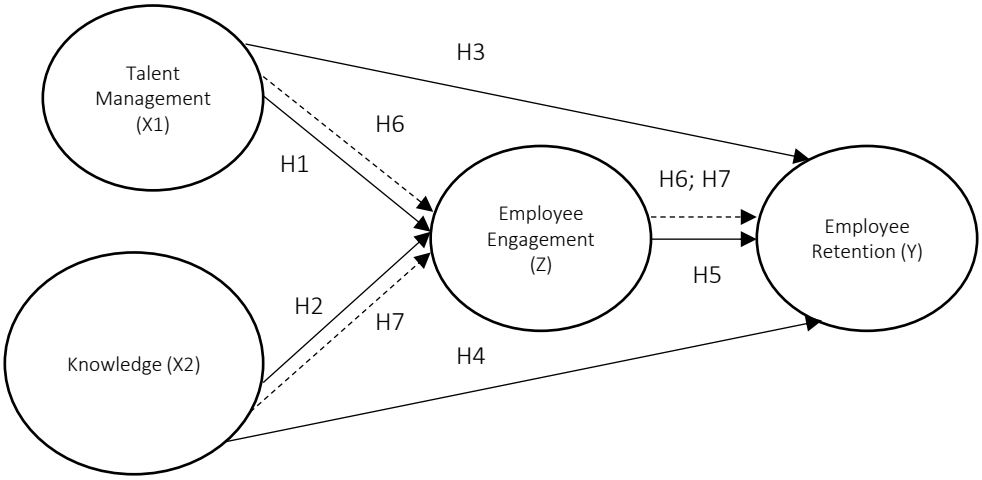


Figure 1. Research model

additional psychological mechanisms. Employee engagement is a plausible candidate: engaged employees are generally more willing to sustain their relationship with the organization (Ahmad et al., 2024; Azila-Gbettor et al., 2025), and organizational practices that strengthen perceived support are, through the reciprocity logic of SET, associated with stronger engagement and retention (Aftab et al., 2025; Ahmed et al., 2025; Hartley, 2025; Hooi, 2025). Existing mediation research, however, has focused mainly on leadership, psychological safety, or work–life balance as antecedents (Butler, 2025; Divya et al., 2025; Hamdallah et al., 2025; Mayfield & O'Donnell, 2025), with comparatively little evidence on whether employee engagement mediates the joint effects of talent and knowledge management on retention within a single framework, particularly outside developed-country or knowledge-intensive contexts.

Taken together, this literature points to three gaps this study addresses. The first is inconsistent evidence on the direct talent management–retention relationship across contexts. The second is knowledge management evidence concentrated in knowledge-intensive organizations and developed economies, limiting generalizability to private companies in developing countries. Finally, the third is limited integration of talent management and knowledge management within a single framework that also tests employee engagement as a mediating mechanism. Examining these relationships among Indonesian private-company employees operating under rising labor mobility, digital transformation, and talent competition extends existing evidence to a developing-economy context.

Accordingly, this study aims to examine the effect of talent management and knowledge management on employee retention, with employee engagement as a mediator, among private-sector employees in Indonesia.

Based on this theoretical and empirical foundation, the following hypotheses are proposed:

H1: Talent management is positively associated with employee engagement.

H2: Knowledge management is positively associated with employee engagement.

H3: Talent management is positively associated with employee retention.

H4: Knowledge management is positively associated with employee retention.

H5: Employee engagement is positively associated with employee retention.

H6: Employee engagement mediates the relationship between talent management and employee retention.

H7: Employee engagement mediates the relationship between knowledge management and employee retention.

http://dx.doi.org/10.21511/ppm.24(4).2026.22

2. METHOD

This study employed a quantitative approach using a cross-sectional survey design to examine the relationships among talent management, knowledge management, employee engagement, and employee retention (Figure 1). The study focused on private-sector employees in Indonesia, given the growing challenges of talent competition and workforce retention. A quantitative approach was appropriate because it enables examination of relationships among latent constructs and assessment of direct and indirect effects within the proposed conceptual framework (J.W. Creswell & J.D. Creswell, 2022; Ghozali, 2021).

The target population comprised employees working in private companies in Indonesia. Respondents were selected using purposive sampling through the online distribution of structured questionnaires (Appendix A, Table A1) to employees who met the study criteria. The inclusion criteria were: (1) being employed as a permanent or contract employee in a private company in Indonesia, (2) having at least one year of work experience to ensure sufficient exposure to organizational management practices, and (3) voluntarily agreeing to participate in the study. Respondents represented various organizational levels, including operational staff, customer service officers, supervisors, unit heads, managers, and branch managers, working in manufacturing, banking, retail, service, and logistics.

A total of 964 online questionnaires were distributed to employees meeting the study eligibility criteria between July and December 2025. Of these, 708 questionnaires were returned, yielding a response rate of 73.44%. A screening procedure was subsequently conducted using predefined eligibility criteria. Responses were excluded if participants (1) had less than one year of work experience, (2) were not employed by eligible private companies within the targeted sectors, (3) declined participation after opening the questionnaire, or (4) exhibited inconsistent response patterns, such as straight-lining across questionnaire items. Based on these criteria, 165 questionnaires were excluded, comprising 41 respondents with insufficient work experience, 28 respondents from ineligible companies, 54 respondents who selected "I do not wish to participate", and 42 questionnaires displaying inconsistent response patterns. Consequently, 543 valid questionnaires were retained for the final analysis (Table 1).

The final sample comprised 543 respondents from 97 private companies operating in the manufacturing, banking, retail, service, and logistics sectors in Indonesia. The number of respondents per company ranged from three to 12 employees, depending on company size and employee participation. Collecting multiple respondents from the same company enabled a broader representation of employees' perceptions regarding talent management, knowledge management, employee engagement, and intention to stay.

Table 1. Questionnaire distribution

Information	Response	
	Frequency	%
Questionnaires distributed	964	100.00
Questionnaires returned	708	73.44[a]
Ineligible respondents:	165	23.31[b]
Work experience < 1 year	41	5.79[b]
Not employed in eligible private companies	28	3.95[b]
Declined participation after opening the questionnaire	54	7.63[b]
Straight-lining / inconsistent response patterns	42	5.93[b]
Valid questionnaires	543	56.33
Overall valid response rate	543	56.33[a]

Note: a = percentage of questionnaires distributed; b = percentage of questionnaires returned.

Based on Table 2, the respondents were predominantly aged 21–30 years (53.2%), with a balanced gender distribution between males (50.8%) and females (49.2%). Most respondents held a bachelor's degree (58.7%) and had 4–7 years of work experience (40.3%). The largest proportion worked in manufacturing (30.0%), followed by services (21.9%) and banking (20.1%). In terms of position, operational staff represented the largest group (33.3%), while 67.8% of respondents were permanent employees. Overall, the sample represented diverse age groups, educational backgrounds, work experience, industry sectors, job positions, and employment statuses, providing an appropriate basis for examining the study variables.

Table 2. Respondent characteristics

Category	Value	Frequency	Percentage (%)
Age	21–30 years	289	53.2
	31–40 years	188	34.6
	41–50 years	66	12.2
Gender	Male	276	50.8
	Female	267	49.2
Education Level	High School	45	8.3
	Diploma	113	20.8
	Bachelor's Degree	319	58.7
	Master's Degree	66	12.2
Work Experience	1–3 years	139	25.6
	4–7 years	219	40.3
	> 7 years	185	34.1
Company Sector	Manufacturing	163	30.0
	Banking	109	20.1
	Retail	98	18.0
	Service	119	21.9
	Logistics	54	10.0
Job Position	Operational Staff	181	33.3
	Customer Service Officers	92	16.9
	Supervisors	118	21.7
	Unit Heads	71	13.1
	Managers	55	10.1
	Branch Managers	26	4.8
Employment Status	Permanent Employee	368	67.77
	Contract Employee	175	32.23
Total		543	100

Talent management (X1) and knowledge management (X2) were specified as reflective constructs, with causality flowing from each latent construct to its observed indicators, consistent with reflective measurement theory (Coltman et al., 2008; Jarvis et al., 2003). Talent management reflects employees' overall perception of the effectiveness of organizational talent practices, whereby talent acquisition, development, and deployment are treated as manifestations of a common underlying construct rather than independent components. This is consistent with the conceptualization of talent management as an integrated set of practices covering attraction/acquisition, development, and deployment (Yildiz & Esmer, 2023). Previous empirical research has likewise conceptualized talent management as a broader construct comprising multiple talent-management practices (Aljbour et al., 2022; Claus, 2019; Dzimbiri & Alex Molefi, 2022). Empirically, the inter-item correlations for X1 ranged from r = 0.545 to 0.801 (Table 4), while the outer loadings ranged from 0.821 to 0.931 (Table 7), indicating relatively strong and consistent relationships among the indicators and supporting their interpretation as manifestations of a common construct.

Knowledge management (X2) was similarly specified as reflective because it represents employees' overall perception of organizational knowledge-management effectiveness, manifested through knowledge creation, sharing, and application (Nonaka & Takeuchi, 1995; Popa & Ștefan, 2019). Previous empirical research has also operationalized knowledge creation, knowledge sharing, and knowledge application as observable dimensions of knowledge management (Popa & Ștefan, 2019). In the present data, inter-item correlations for X2 ranged from r = 0.622 to 0.853 (Table 4), while outer loadings ranged from 0.861 to 0.953 (Table 7), indicating strong relationships among the indicators and supporting their interpretation as manifestations of a common knowledge management perception.

One item was used to represent each domain as a short-form adaptation of established measures. The items were selected based on their correspondence with the core content of domains previously used in research, namely talent acquisition, talent development, and talent deployment in talent management (Aljbour et al., 2022; Claus, 2019; Dzimbiri & Alex Molefi, 2022), and knowledge creation, knowledge sharing, and knowledge application in knowledge management (Popa & Ștefan, 2019). The selected items retained the core content of the established domains while maintaining questionnaire parsimony. The potential effects of item reduction were addressed through empirical reliability and validity assessment, consistent with guidance on theoretically justified and empirically evaluated short-form scales (Cheah et al., 2018; Smith et al., 2000). Content-validity support was further provided through translation/back-translation and pilot-test results (Table 5).

http://dx.doi.org/10.21511/ppm.24(4).2026.22

Table 3. Summary of operational definitions and measurement scale

Variable	Operational Definition	Main Dimensions/ Indicators	Adaptation Note	Original Scale Source
Talent Management (X1)	Talent management is a strategic human resource planning process within an organization that involves identifying, attracting, recruiting, developing, deploying, and optimizing employees' talents to fill key positions by aligning individuals' skills and competencies with organizational needs.	Talent Acquisition, Talent Development, Talent Deployment	One representative item was adapted per dimension (Acquisition, Development, Deployment) from the multi-item scales in the source studies and condensed to keep the total questionnaire length manageable across four constructs. Wording was adjusted to a first-person, organization-referent format.	(Alves et al., 2025; Karim et al., 2025; Li et al., 2024)
Knowledge Management (X2)	Knowledge management refers to the organizational processes used to create, share, and apply knowledge to improve employees' capabilities, organizational learning, and organizational performance. Rather than emphasizing individual competence alone, knowledge management reflects how organizations systematically facilitate the generation, dissemination, and utilization of knowledge.	Knowledge Creation, Knowledge Sharing, Knowledge Application	Items adapted from knowledge-process scales (creation, sharing, application), condensed to one item per dimension, following the same adaptation logic as X1.	(Banerjee & Sharma, 2025; Di Prima et al., 2024; Khalil & Samhan, 2025)
Employee Engagement (Z)	Employee engagement is the utilization of organizational members in their respective roles through the physical, cognitive, and emotional expression of themselves in the performance of their job responsibilities within the organization.	Vigor, Dedication, Absorption	One item per UWES dimension (Vigor, Dedication, Absorption) was adapted (Schaufeli et al., 2019), consistent with the validated ultra-short UWES-3 measure, rather than an ad hoc shortening of the original 9-item UWES-9.	(Abid, 2025; Axiak et al., 2025; Schaufeli et al., 2006, 2019; Tusquellas et al., 2024)
Employee Retention (Y)	Employee Retention (intention to stay) refers to an employee's self-reported intention to remain employed with the current organization, as opposed to seeking or accepting alternative employment. This study operationalizes Employee Retention as a single reflective construct, ***Intention to Stay***, measured with items adapted from validated intention-to-stay/turnover-intention scales.	Longevity Intention, Job-Search Avoidance, Preference to Remain	Items reverse-adapted from turnover-intention item stem into intention-to-stay wording.	(Gelencsér et al., 2025; Mansour, 2025; Mobley et al., 1978; Treuren, 2025)

Table 4. Inter-item correlation matrix: Talent management (X1) and knowledge management (X2)

	X1.1	X1.2	X1.3	X2.1	X2.2	X2.3
X1.1	1.000	0.644	0.545			
X1.2	0.644	1.000	0.801			
X1.3	0.545	0.801	1.000			
X2.1				1.000	0.736	0.622
X2.2				0.736	1.000	0.853
X2.3				0.622	0.853	1.000

Note: Pearson correlations, n = 543; all $p < .001$.

Data were collected from employees working in private companies in the manufacturing, banking, retail, service, and logistics sectors. Because snowball sampling was employed, multiple respondents may have originated from the same company. Nevertheless, the unit of analysis was the individual employee, and each respondent was treated as an independent observation for the purposes of PLS-SEM analysis.

The research instrument was developed through a structured five-stage process. First, measurement items were adapted from previously validated scales (Table 3) to ensure content validity. Second, because the original scales were published in English, two bilingual translators with backgrounds in human resource management translated the adapted items into Indonesian, following a forward-translation and reconciliation procedure. Third, an independent bilingual translator with no access to the original items back-translated the Indonesian version into English. We reviewed and reconciled any discrepancies between the back-translated and original versions to ensure semantic equivalence. Fourth, we pilot-tested the reconciled instrument with 30 employees who met the study's eligibility criteria but were excluded from the final sample. The pilot test (Table 5) demonstrated satisfactory reliability, with Cronbach's alpha values ranging from 0.816 to 0.889 across all constructs, while all corrected item–total correlation coefficients exceeded the recommended threshold of 0.30 (0.515–0.837), indicating adequate internal consistency and item discrimination. Minor revisions were subsequently made to improve the clarity and readability of several questionnaire items based on participants' feedback. Finally, the refined structured online questionnaire was administered to eligible respondents for the main data collection.

Data analysis was performed using SmartPLS. Following the recommendations of Hair et al. (2019), the analysis consisted of two stages: measurement model assessment and structural model assessment. The measurement model evaluation included indicator reliability, internal consistency reliability, convergent validity, and discriminant validity. The structural model assessment included collinearity diagnostics, path coefficient estimation, coefficient of determination (R^2), effect size (f^2), predictive relevance (Q^2), and mediation analysis. Bootstrapping with 5,000 subsamples was employed to test the significance of both direct and indirect relationships.

2.1. Statements

This study was conducted in accordance with the ethical principles for research involving human participants. Participation was entirely voluntary, and all respondents were informed of the purpose of the study before completing the questionnaire. Informed consent was obtained electronically from all participants prior to data collection. Respondents were assured that their participation was anonymous, that no personally identifiable information would be collected, and that the data would be used solely for academic research purposes. Participants were also informed that they could withdraw from the survey at any stage without any consequences.

The datasets generated and analyzed during the current study are available from the corresponding author upon reasonable request. To protect participants' confidentiality, the raw data are not publicly available because they contain organizational and individual information obtained under conditions of anonymity.

The measurement instrument, variable operationalization, and statistical procedures are described

Table 5. Pilot test reliability results (n = 30)

Construct	Item	Mean	SD	Corrected Item–Total Correlation	Cronbach's Alpha
Talent Management (X1)	X1.1	4.57	0.50	0.515	0.816
	X1.2	4.43	0.57	0.812	
	X1.3	4.50	0.57	0.700	
Knowledge Management (X2)	X2.1	4.33	0.55	0.837	0.889
	X2.2	4.20	0.76	0.822	
	X2.3	4.23	0.68	0.741	
Employee Engagement (Z)	Z.1	4.40	0.56	0.726	0.846
	Z.2	4.47	0.63	0.686	
	Z.3	4.43	0.50	0.747	
Employee Retention (Y)	Y.1	4.37	0.61	0.828	0.859
	Y.2	4.23	0.68	0.667	
	Y.3	4.33	0.61	0.716	

http://dx.doi.org/10.21511/ppm.24(4).2026.22

in sufficient detail to facilitate replication. Data were analyzed using SmartPLS 4 following established PLS-SEM procedures, including assessment of the measurement model and structural model. Researchers may reproduce the analytical procedures using the information provided in this article.

3. RESULTS

Based on Table 6, all research variables demonstrate relatively high average values close to the maximum score (15), with low to moderate standard deviations, indicating generally positive respondent perceptions and relatively homogeneous data. The high mean scores for talent management and knowledge management suggest that talent and knowledge management practices in the private sector are being implemented effectively. Similarly, the high engagement and retention scores indicate strong employee attachment and a high tendency to remain within the organization. In this study, these descriptive findings provide preliminary evidence that strategic HR management practices may positively correlate with employee engagement and retention, thereby conceptually supporting the proposed mediation model tested in this research.

Based on Table 7, all indicators have their highest outer loadings on the respective constructs, ranging from 0.773 to 0.953, exceeding the recommended threshold of 0.70. Talent management (X1) shows loadings of 0.821–0.931, knowledge management (X2) 0.861–0.953, employee retention (Y) 0.773–0.858, and employee engagement (Z) 0.883–0.922. The cross-loadings are lower than the primary loadings, indicating adequate convergent and discriminant validity. Thus, all indicators are considered valid for subsequent SEM-PLS analysis.

Table 6. Descriptive statistics

Variable	N	Min	Max	Mean	Std. Dev
Talent Management (X1)	543	11	15	13.9853	1.28853
Knowledge Management (X2)	543	9	15	13.2878	1.7491
Employee Engagement (Z)	543	9	15	13.671	1.51623
Employee Retention (Y)	543	9	15	13.4407	1.56913

Table 7. Outer loading / loading factor results

Indicator	Talent Management (X1)	Knowledge Management (X2)	Employee Retention (Y)	Employee Engagement (Z)
X1.1	0.821	0.485	0.566	0.694
X1.2	0.931	0.679	0.658	0.753
X1.3	0.890	0.526	0.647	0.663
X2.1	0.575	0.861	0.638	0.620
X2.2	0.578	0.953	0.665	0.705
X2.3	0.599	0.910	0.619	0.678
Y.1	0.681	0.624	0.845	0.634
Y.2	0.468	0.469	0.773	0.518
Y.3	0.587	0.635	0.858	0.670
Z.1	0.648	0.718	0.652	0.883
Z.2	0.794	0.678	0.677	0.919
Z.3	0.729	0.610	0.691	0.922

Table 8. Heterotrait-monotrait ratio (HTMT)

	X1	X2	Y	Z
X1				
X2	0.732			
Y	0.863	0.841		
Z	0.911	0.823	0.887	

Note: X1 = Talent Management; X2 = Knowledge Management; Z = Employee Engagement; Y = Employee Retention.

Based on Table 8, most HTMT values are below the 0.90 threshold, indicating adequate discriminant validity. The values range from 0.732 to 0.887, except for the relationship between talent management (X1) and employee engagement (Z), which is 0.911. This slightly exceeds the recommended threshold and suggests potential conceptual overlap between the two constructs. Therefore, discriminant validity is generally supported, although the X1–Z relationship should be acknowledged as a measurement-model limitation.

Table 9. Heterotrait-monotrait ratio (HTMT) bootstrapping

Construct Pair	Original Sample	Sample Mean	2.5% CI	97.5% CI
X2 → X1	0.732	0.733	0.672	0.790
Y → X1	0.863	0.863	0.797	0.924
Y → X2	0.841	0.841	0.748	0.923
Z → X1	0.911	0.911	0.866	0.952
Z → X2	0.823	0.824	0.780	0.863
Z → Y	0.887	0.887	0.826	0.943

Note: X1 = Talent Management; X2 = Knowledge Management; Z = Employee Engagement; Y = Employee Retention.

Based on Table 9, all bootstrapped HTMT confidence intervals remain below 1.00, supporting discriminant validity among the constructs. The HTMT values range from 0.732 to 0.911, with the highest value observed for the X1–Z pair (0.911; 95% CI: 0.866–0.952). Although this value exceeds the conservative 0.90 threshold, its confidence interval remains below 1.00. Thus, discriminant validity is supported based on the HTMT bootstrap criterion, while the X1–Z pair represents a borderline result that should be acknowledged as a measurement-model limitation.

Based on Table 10, the square roots of AVE on the diagonal (0.826–0.909) are higher than the correlations with other constructs. Thus, the Fornell–Larcker criterion is satisfied, indicating adequate discriminant validity and confirming that the four constructs are empirically distinct.

Based on the reliability test results presented in Table 11, all research variables (X1, X2, Y, and Z) demonstrate Cronbach's Alpha values above 0.70, indicating good internal consistency. The rho_A and Composite Reliability values also exceed the minimum threshold of 0.70, suggesting that the constructs possess strong and stable reliability. Furthermore, the Average Variance Extracted (AVE) values for all variables are above 0.50, confirming that each construct satisfies the criteria for convergent validity. Therefore, the measurement model can be considered both reliable and valid for further analysis.

Based on Table 12, the collinearity assessment results show that all outer VIF values are below the recommended threshold of 5.00, ranging from 1.484 to 4.901, indicating no problematic multicollinearity among the indicators representing their respective constructs. Likewise, all inner VIF values range from 1.703 to 3.589, remaining well below the 5.00 threshold and indicating that multicollinearity among the predictor constructs in the structural model is not a concern. Therefore, the collinearity assumption is satisfied for both the measurement and structural models, allow-

Table 10. Fornell–Larcker criterion

Construct	Talent Management (X1)	Knowledge Management (X2)	Employee Retention (Y)	Employee Engagement (Z)
Talent Management (X1)	0.882			
Knowledge Management (X2)	0.642	0.909		
Employee Retention (Y)	0.709	0.705	0.826	
Employee Engagement (Z)	0.798	0.736	0.741	0.908

Table 11. Reliability and convergent validity test results

Construct	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Talent Management (X1)	0.855	0.861	0.913	0.778
Knowledge Management (X2)	0.894	0.897	0.934	0.826
Employee Retention (Y)	0.769	0.784	0.866	0.683
Employee Engagement (Z)	0.894	0.896	0.934	0.825

http://dx.doi.org/10.21511/ppm.24(4).2026.22

Table 12. Collinearity assessment (Outer and inner VIF)

Construct/Indicator	Outer VIF	Predictor Construct	Endogenous Construct	Inner VIF
X1.1	1.716	X1	Y	2.805
X1.2	3.373	X2	Y	2.220
X1.3	2.806	X1	Z	1.703
X2.1	2.182	X2	Z	1.703
X2.2	4.901	Z	Y	3.589
X2.3	3.662	–	–	–
Y.1	1.586	–	–	–
Y.2	1.484	–	–	–
Y.3	1.684	–	–	–
Z.1	2.289	–	–	–
Z.2	2.965	–	–	–
Z.3	3.170	–	–	–

Note: X1 = Talent Management; X2 = Knowledge Management; Z = Employee Engagement; Y = Employee Retention.

ing the estimated path coefficients to be interpreted without concern about distortion caused by multicollinearity.

Table 13 summarizes the structural model evaluation. The R^2 values of 0.632 for employee retention and 0.721 for employee engagement indicate substantial explanatory power. The Q^2 values of 0.423 and 0.590, respectively, are greater than zero, confirming predictive relevance. Regarding effect sizes, talent management has a large effect on employee engagement ($f^2 = 0.647$), while knowledge management shows a moderate-to-large effect ($f^2 = 0.303$). Their effects on employee retention, together with the effect of employee engagement, are relatively small ($f^2 = 0.064–0.122$). Overall, the model demonstrates good explanatory and predictive capability.

Based on Table 14, the SRMR value of 0.071 for both the Saturated and Estimated Models is below the 0.08 threshold, indicating acceptable model fit. The NFI value of 0.793 suggests that the model fit is not optimal, while the d_ULS and d_G values should be interpreted against their respective HI95 and HI99 reference values. Overall, the model demonstrates an acceptable level of fit based on SRMR and can proceed to structural model assessment.

Based on Table 15, all hypotheses (H1–H7) are supported, with positive path coefficients, t-statistics above 1.96 (Figure 2), and p-values below 0.001. Talent management and knowledge management significantly affect employee engagement and employee retention, while employee engagement significantly affects employee retention. The indirect effects of talent management ($\beta = 0.161$) and knowledge management ($\beta = 0.110$) on employee retention through employee engagement are also significant, confirming its mediating role. Since both the direct and indirect effects are positive and significant, employee engagement acts as a complementary partial mediator.

Table 13. R-squared results

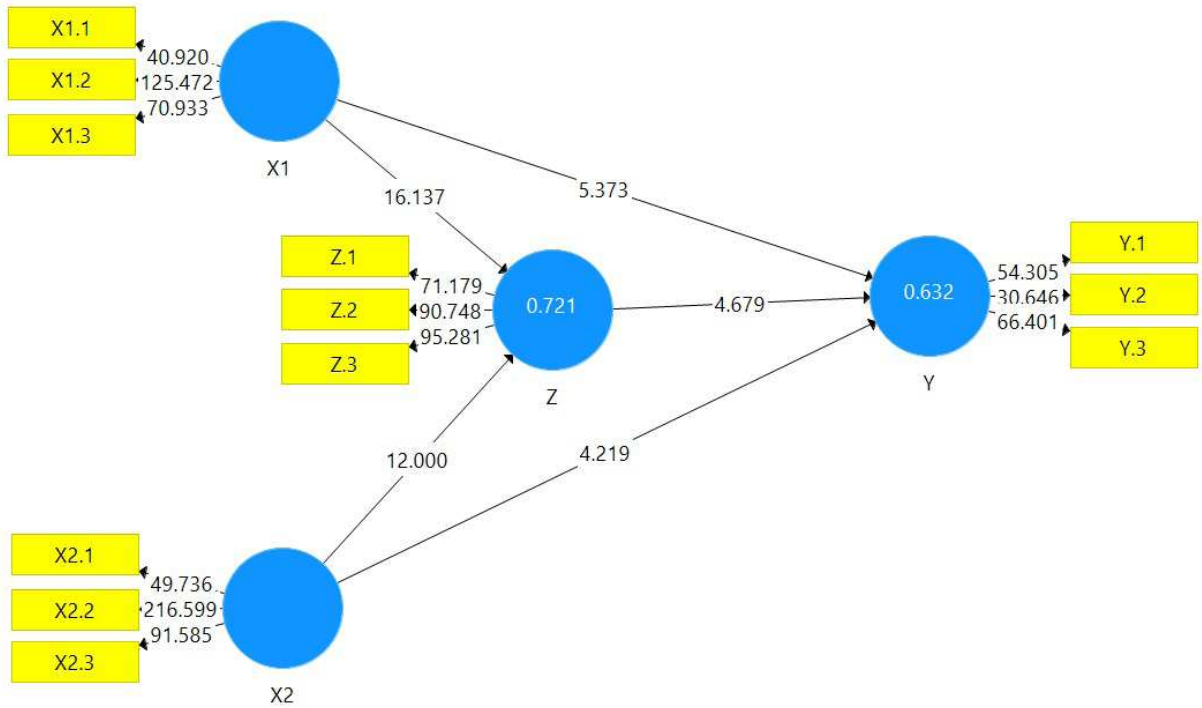
Endogenous Variable	R^2	Adjusted R^2	Q^2	f^2 Predictors
Employee Retention (Y)	0.632	0.630	0.423	X1 = 0.074; X2 = 0.122; Z = 0.064
Employee Engagement (Z)	0.721	0.720	0.590	X1 = 0.647; X2 = 0.303

Table 14. Model fit results

	Saturated Model	Estimated Model	95%	99%
SRMR	0.071	0.071	0.041	0.041
d_ULS	0.397	0.397	0.133	0.133
d_G	0.353	0.353	0.133	0.133
Chi-Square	1.150.848	1.150.848		
NFI	0.793	0.793		

Table 15. Hypothesis testing

Hypothesis	Variables	Original Sample	STDEV	T-Statistics	CI 2.5%	CI 97.5%	P-Value	Result
Direct Effect								
H1	Talent Management → Employee Engagement	0.554	0.034	16.137	0.485	0.619	< 0.001	Sig.
H2	Knowledge Management → Employee Engagement	0.379	0.032	12.000	0.320	0.444	< 0.001	Sig.
H3	Talent Management → Employee Retention	0.275	0.051	5.373	0.177	0.377	< 0.001	Sig.
H4	Knowledge Management → Employee Retention	0.315	0.075	4.219	0.168	0.461	< 0.001	Sig.
H5	Employee Engagement → Employee Retention	0.290	0.062	4.679	0.171	0.411	< 0.001	Sig.
Indirect Effect								
H6	Talent Management → Employee Retention through Employee Engagement	0.161	0.035	4.642	0.094	0.229	< 0.001	Sig.
H7	Knowledge Management → Employee Retention through Employee Engagement	0.110	0.027	4.134	0.062	0.166	< 0.001	Sig.
Total Effect								
X1 → Y	Talent Management → Employee Retention	0.436	0.051	8.491	0.339	0.536	< 0.001	Sig.
X1 → Z	Talent Management → Employee Engagement	0.554	0.034	16.137	0.485	0.619	< 0.001	Sig.
X2 → Y	Knowledge Management → Employee Retention	0.425	0.061	6.983	0.305	0.542	< 0.001	Sig.
X2 → Z	Knowledge Management → Employee Engagement	0.379	0.032	12.000	0.320	0.444	< 0.001	Sig.
Z → Y	Employee Engagement → Employee Retention	0.290	0.062	4.679	0.171	0.411	< 0.001	Sig.



Note: X1 = Talent Management; X2 = Knowledge Management; Z = Employee Engagement; Y = Employee Retention.

Figure 2. SmartPLS test

http://dx.doi.org/10.21511/ppm.24(4).2026.22

Table 16. Indirect effect contribution (VAF)

Hypothesis	Relationship	Indirect Effect	Total Effect	VAF (%)
H6	Talent Management → Employee Retention through Employee Engagement	0.161	0.436	36.93%
H7	Knowledge Management → Employee Retention through Employee Engagement	0.110	0.425	25.88%

Based on Table 16, the VAF values indicate that employee engagement mediates the relationships between talent management and employee retention (36.93%) and between knowledge management and employee retention (25.88%). Both values indicate partial mediation, with a stronger mediating contribution for talent management. Since the direct and indirect effects are both significant and positive, employee engagement functions as a complementary partial mediator.

Based on Table 17, the PLSpredict results show that all employee retention (Y.1–Y.3) and employee engagement (Z.1–Z.3) indicators have positive Q^2_predict values, ranging from 0.254 to 0.670, indicating that the model has predictive relevance for the observed data. However, the PLS-RMSE and PLS-MAE values are consistently higher than the corresponding LM-RMSE and LM-MAE values across all indicators, indicating that the PLS model does not achieve lower prediction errors than the Linear Model (LM) benchmark. Therefore, although the model demonstrates predictive relevance based on the positive Q^2_predict values, its out-of-sample predictive performance remains limited and does not outperform the linear benchmark.

Table 18 presents the robustness check results after incorporating demographic control variables into the structural model. The effects of talent management, knowledge management, and employee engagement remain positive and statistically significant ($p < 0.001$). In contrast, all demographic control variables, including age, gender, education, tenure, job level, and employment status, exhibit non-significant effects ($p > 0.05$) on employee engagement and employee retention. These findings

Table 17. PLS predict

	PLS				LM			
	RMSE	MAE	MAPE	Q^2_predict	RMSE	MAE	MAPE	Q^2_predict
Y.1	0.385	0.264	6.191	0.509	0.382	0.245	5.789	0.516
Y.2	0.596	0.436	11.152	0.254	0.577	0.423	10.759	0.299
Y.3	0.490	0.352	8.788	0.448	0.461	0.317	7.851	0.511
Z.1	0.383	0.230	5.628	0.550	0.372	0.230	5.631	0.574
Z.2	0.323	0.197	4.711	0.670	0.316	0.193	4.648	0.686
Z.3	0.358	0.231	5.410	0.555	0.341	0.229	5.389	0.598

Note: X1 = Talent Management; X2 = Knowledge Management; Z = Employee Engagement; Y = Employee Retention.

Table 18. Robustness check with control variables

Predictor	Employee Engagement (Z)				Employee Retention (Y)			
	β	SE	t	p	β	SE	t	p
Talent Management (X1)	0.555	0.030	18.600	<0.001	0.274	0.044	6.247	<0.001
Knowledge Management (X2)	0.379	0.030	12.675	<0.001	0.314	0.039	8.033	<0.001
Employee Engagement (Z)	–	–	–	–	0.294	0.050	5.919	<0.001
Age	−0.000	0.023	−0.019	0.985	−0.024	0.026	−0.892	0.373
Gender	0.022	0.023	0.940	0.348	−0.025	0.026	−0.934	0.351
Education	−0.002	0.023	−0.090	0.928	0.003	0.026	0.109	0.913
Tenure	−0.003	0.023	−0.134	0.893	0.009	0.026	0.342	0.732
Job level	0.010	0.023	0.457	0.648	−0.045	0.026	−1.696	0.091
Employment status	0.016	0.023	0.712	0.477	−0.005	0.026	−0.183	0.855

Note: β = standardized path coefficient; SE = standard error; t = t-statistic; p = p-value. Estimates are reported from the structural model including demographic control variables.

Table 19. Multi-group analysis: Permanent vs Contract

Path	Permanent (n=368)	Contract (n=175)	Difference (Permanent – Contract)	*p* (permutation)
X1 → Z	0.557	0.549	0.008	0.896
X2 → Z	0.364	0.414	−0.050	0.444
X1 → Y	0.225	0.376	−0.151	0.178
X2 → Y	0.352	0.246	0.105	0.488
Z → Y	0.312	0.247	0.065	0.660

Note: Differences were evaluated using the permutation test. A p-value < 0.05 indicates a significant difference between permanent and contract employees. X1 = Talent Management; X2 = Knowledge Management; Z = Employee Engagement; Y = Employee Retention.

indicate that the proposed structural relationships remain stable and robust after controlling for respondents' demographic characteristics.

Table 19 presents the results of the multi-group analysis (MGA) comparing permanent and contract employees. All permutation *p*-values exceed 0.05, indicating that none of the structural path coefficients differ significantly between the two employment groups. These findings suggest that the effects of talent management, knowledge management, and employee engagement on employee retention are consistent regardless of employment status. Therefore, the proposed structural model demonstrates satisfactory generalizability across both employee groups.

Table 20 presents the results of MICOM Step 2 for assessing compositional invariance across the five industrial sectors. Compositional invariance is established for most construct–sector comparisons, as the correlation coefficients equal or exceed the corresponding 5% cut-off values. Only talent management in the banking sector and employee retention in the service sector do not satisfy the compositional invariance criterion. Overall, the results indicate that compositional invariance is largely supported across the examined sectors.

Table 21 presents the results of MICOM Step 3, which evaluates the equality of composite means and variances across the five industrial sectors. Most original differences and variance ratios fall

Table 20. MICOM Step 2 – Compositional invariance

Construct	Sector (vs. pooled remaining sectors)	c (correlation)	5% Cut-off
X1	Manufacturing	0.9999	0.9993
X1	Banking	0.9990	0.9994
X1	Retail	0.9998	0.9991
X1	Service	0.9998	0.9995
X1	Logistics	0.9996	0.9979
X2	Manufacturing	0.9999	0.9994
X2	Banking	0.9996	0.9992
X2	Retail	0.9999	0.9991
X2	Service	1.0000	0.9990
X2	Logistics	0.9998	0.9980
Z	Manufacturing	0.9998	0.9997
Z	Banking	0.9997	0.9996
Z	Retail	0.9998	0.9993
Z	Service	0.9999	0.9995
Z	Logistics	0.9995	0.9992
Y	Manufacturing	0.9982	0.9978
Y	Banking	0.9996	0.9972
Y	Retail	0.9999	0.9968
Y	Service	0.9967	0.9984
Y	Logistics	0.9988	0.9945

Note: Compositional invariance is established when the correlation (c) equals or exceeds the 5% permutation cut-off value. X1 = Talent Management; X2 = Knowledge Management; Z = Employee Engagement; Y = Employee Retention.

http://dx.doi.org/10.21511/ppm.24(4).2026.22

Table 21. MICOM Step 3 – Equality of means & variances

Construct	Sector	Composite Mean Values				Composite Variances			
		Orig. Diff.	Perm. Mean	2.5%	97.5%	Orig. Ratio	Perm. Mean	2.5%	97.5%
X1	Manufacturing	−0.017	0.000	−0.187	0.181	1.039	1.003	0.842	1.173
X1	Banking	−0.279	−0.001	−0.217	0.202	1.083	1.002	0.819	1.179
X1	Retail	0.015	−0.002	−0.228	0.226	1.019	1.002	0.793	1.194
X1	Service	0.189	0.002	−0.202	0.206	0.876	1.001	0.819	1.185
X1	Logistics	0.155	−0.002	−0.276	0.269	0.894	0.999	0.728	1.240
X2	Manufacturing	0.015	−0.003	−0.175	0.172	0.941	1.005	0.809	1.220
X2	Banking	−0.154	0.001	−0.213	0.201	0.917	1.004	0.778	1.251
X2	Retail	0.027	−0.001	−0.208	0.219	1.046	1.003	0.766	1.265
X2	Service	0.058	−0.001	−0.206	0.200	1.170	1.001	0.788	1.244
X2	Logistics	0.086	−0.003	−0.279	0.262	0.929	1.007	0.705	1.355
Z	Manufacturing	−0.093	−0.002	−0.186	0.177	1.245	1.005	0.807	1.241
Z	Banking	−0.125	0.001	−0.209	0.206	1.000	1.002	0.774	1.282
Z	Retail	0.036	0.002	−0.219	0.216	0.901	1.004	0.775	1.295
Z	Service	0.095	0.003	−0.203	0.206	0.886	1.001	0.789	1.248
Z	Logistics	0.200	0.001	−0.275	0.271	0.849	1.004	0.715	1.371
Y	Manufacturing	0.028	0.004	−0.183	0.183	1.049	0.999	0.830	1.184
Y	Banking	−0.222	−0.003	−0.212	0.206	1.013	1.001	0.807	1.228
Y	Retail	0.049	−0.002	−0.218	0.213	1.029	1.001	0.807	1.238
Y	Service	0.104	0.000	−0.195	0.203	0.933	1.004	0.810	1.227
Y	Logistics	0.052	−0.000	−0.289	0.284	0.938	1.002	0.739	1.321

Note: Equality of composite means or variances is supported when the original difference (or variance ratio) falls within the corresponding 95% permutation confidence interval. X1 = Talent Management; X2 = Knowledge Management; Z = Employee Engagement; Y = Employee Retention.

within their respective 95% permutation confidence intervals, indicating that equality of composite means and variances is generally supported. Only talent management in the banking sector does not satisfy the equality of means criterion, while employee engagement in the manufacturing sector does not satisfy the equality of variances criterion. Overall, the results provide substantial evidence of measurement invariance across sectors.

Because the 543 respondents were nested within 97 companies (3–12 respondents per company, $\bar{n} = 5.59$; Table 1), ICC(1), ICC(2), and design ef-

Table 22. Cluster dependence diagnostics and robustness check

Panel A. ICC & Design Effect by Construct				
Construct	ICC(1)	ICC(2)	DEFF	Note
Talent Management (X1)	0.010	0.053	1.045	Negligible
Knowledge Management (X2)	−0.024	−0.149	0.891	Negligible
Employee Engagement (Z)	0.001	0.005	1.005	Negligible
Employee Retention (Y)	−0.033	−0.220	0.847	Negligible
Overall (12 items)	−0.009	–	0.959	Negligible
Panel B. Cluster-Robust Sensitivity Check (Structural Paths)				
Path	b	SE (OLS)	SE (Cluster)	p (Cluster)
X1 → Z	0.644	0.035	0.038	< 0.001
X2 → Z	0.336	0.026	0.030	< 0.001
X1 → Y	0.307	0.055	0.065	< 0.001
X2 → Y	0.270	0.036	0.073	< 0.001
Z → Y	0.319	0.053	0.063	< 0.001

Note: $\bar{n}$ = average cluster size (5.59; 97 companies). Panel A: one-way random-effects ANOVA, DEFF = 1 + ($\bar{n}$ − 1) × ICC(1). Panel B: composite-score OLS with CR1 cluster-robust SE (company-clustered, 97 clusters).

fects (DEFF) were estimated for each construct via one-way random-effects ANOVA, and cluster-robust standard errors (company-clustered) were estimated for the composite-score structural paths as a robustness check. Table 22 presents these results.

ICC(1) values are near zero (−0.033 to 0.010) and ICC(2) values fall well below the 0.70 aggregation threshold, indicating negligible between-company variance; DEFF values (0.85–1.05) remain far below the 2.0 concern threshold (Table 22). Cluster-robust SEs are only marginally larger than conventional OLS SEs, and every structural path remains significant at $p < 0.001$. Organization-level dependence therefore does not materially affect the results in Table 15; multilevel/cluster-robust modeling is nonetheless recommended as routine practice in future studies with respondent-level company identifiers.

4. DISCUSSION

The findings indicate that talent management, knowledge management, employee engagement, and employee retention are positively associated within the proposed framework. Talent management is more strongly associated with employee engagement (β = 0.554) than knowledge management (β = 0.379), suggesting that employees respond more strongly to practices directly tied to career progression, competency development, and recognition than to organizational knowledge processes alone. This is consistent with prior findings (Alves et al., 2025; Axiak et al., 2024; Banerjee & Sharma, 2025; Karim et al., 2025; Khalil & Samhan, 2025) and, from a social exchange theory perspective, reflects employees reciprocating perceived organizational investment in their professional growth with stronger engagement.

Talent management (β = 0.275) and knowledge management (β = 0.315) also show significant direct associations with employee retention, of broadly similar magnitude, suggesting both practices are associated with employees' decisions to remain with their organizations by offering tangible professional benefits, expanded competencies, career opportunities, and improved organizational learning. These results support previous studies (Abid, 2025; De Clercq & Pereira, 2025; Kmieciak, 2024; Montero Guerra & Danvila-Del Valle, 2024; Nassani et al., 2024) and align with the resource-based view, in which talented employees and organizational knowledge represent valuable strategic resources whose contribution to competitive advantage depends on organizations' ability to retain and develop human capital.

Employee engagement is also positively associated with employee retention (β = 0.290) and, importantly, functions as a meaningful partial mediator of the talent management–retention and knowledge management–retention relationships, accounting for 36.9% (H6) and 25.9% (H7) of their respective total effects (Table 16). This represents a stronger mediating role than a purely modest or marginal mechanism: while the direct effects of talent management and knowledge management remain the larger component of their total association with retention, over a third of talent management's total effect and about a quarter of knowledge management's total effect operate through employee engagement. This is consistent with studies identifying employee engagement as an important predictor of retention (Ahmad et al., 2024; Azila-Gbettor et al., 2025; Iram et al., 2024; Srivastava et al., 2025; Wang et al., 2024) and with social exchange theory's reciprocity logic, whereby favorable organizational treatment is associated with stronger attachment and willingness to remain. Alongside direct investments in career development and organizational knowledge processes, cultivating engagement therefore represents a genuine complementary pathway to retention. Other mechanisms such as organizational commitment, job satisfaction, perceived organizational support, and leadership quality also contribute and warrant further investigation (Aftab et al., 2025; Ahmed et al., 2025; Butler, 2025; Divya et al., 2025; Hooi, 2025; Mayfield & O'Donnell, 2025).

Several methodological considerations warrant attention. Because all variables were measured via self-reported questionnaires from the same respondents at a single point in time, common method bias cannot be fully ruled out, although the differentiated pattern of direct and indirect effects suggests the relationships are unlikely to be explained by common method variance alone. Future research employing longitudinal designs,

http://dx.doi.org/10.21511/ppm.24(4).2026.22

multi-source data, or supervisor assessments would help establish the temporal ordering of these relationships. The knowledge management findings should also be interpreted as reflecting employees' perceptions of organizational knowledge creation, sharing, and application processes rather than individual competencies alone.

Overall, the findings are consistent with social exchange theory and the resource-based view: talent management and knowledge management are associated with employee retention through both direct organizational investment and, to a meaningful extent, employees' psychological engagement. These results extend existing evidence to Indonesian private companies operating in the manufacturing, banking, retail, service, and logistics sectors, highlighting engagement as a genuine – not merely nominal – mechanism linking organizational practices to employee retention.

CONCLUSION

This study examined the relationships among talent management, knowledge management, employee engagement, and employee retention among employees in 97 private companies operating in the manufacturing, banking, retail, service, and logistics sectors in Indonesia. Because the sample was obtained through non-probability (purposive and snowball) sampling from a cross-sectional survey, these conclusions apply to employees within the sampled companies and should not be generalized to the Indonesian private sector as a whole.

Talent management and knowledge management are positively associated with both employee engagement and employee retention, with somewhat larger direct associations with retention than the effect of employee engagement alone. Employee engagement also functions as a significant partial mediator of both relationships, accounting for a meaningful share of their total effects on retention (VAF of 36.9% for talent management and 25.9% for knowledge management). This indicates that employees' willingness to remain with their organization reflects both direct organizational investment and psychological engagement, rather than organizational practices alone.

These findings underscore the value of investing in structured talent management and organizational knowledge management – alongside efforts to cultivate employee engagement – to support long-term workforce stability. For managers, the results suggest prioritizing career development, knowledge creation, sharing, and application practices, while also attending to the engagement-building conditions through which these practices translate into stronger retention. The findings reinforce the relevance of social exchange theory and the resource-based view in explaining how organizational investment in human capital and knowledge resources relates to retention through both direct and psychological pathways. Future research is encouraged to employ longitudinal designs, incorporate multi-source data, and examine additional variables, such as organizational commitment, job satisfaction, and leadership quality, that may further explain employee retention.

AUTHOR CONTRIBUTIONS

Conceptualization: Nursaid.
Data curation: Trias Setyowati, Wenny Murtalining Tyas.
Formal analysis: Nursaid.
Funding acquisition: Wenny Murtalining Tyas.
Investigation: Nursaid.
Methodology: Nursaid.
Project administration: Trias Setyowati, Wenny Murtalining Tyas.
Resources: Trias Setyowati, Wenny Murtalining Tyas.

Software: Nursaid.
Supervision: Trias Setyowati, Wenny Murtalining Tyas.
Validation: Trias Setyowati, Wenny Murtalining Tyas.
Visualization: Trias Setyowati, Wenny Murtalining Tyas.
Writing – original draft: Nursaid.
Writing – review & editing: Trias Setyowati, Wenny Murtalining Tyas.

ACKNOWLEDGMENTS

Thanks to the lecturers of the Faculty of Economics and Business, Universitas Muhammadiyah Jember, for their support of this research.

REFERENCES

1. Abid, K. (2025). Talent philosophies and institutional factors as determinants of talent management in SMEs: A French country-specific empirical investigation. *Personnel Review, 54*(1), 309-333. https://doi.org/10.1108/PR-08-2023-0700
2. Aftab, J., Sarwar, H., Abid, N., Ishaq, M. I., & Aftab, F. (2025). Examining the roles of shared responsibility, perceived identifiability, workplace spirituality and work engagement in employee performance. *International Journal of Emerging Markets, 20*(12), 5161-5192. https://doi.org/10.1108/IJOEM-11-2023-1848
3. Ahmad, N., Samad, S., & Han, H. (2024). Charting new terrains: How CSR initiatives shape employee creativity and contribute to UN-SDGs in a knowledge-driven world. *Journal of Innovation and Knowledge, 9*(4). https://doi.org/10.1016/j.jik.2024.100557
4. Ahmed, S., Ashrafi, D. M., Ahmed, R., Ahmed, E., & Azim, M. (2025). How employee engagement mediates the training and development and work–life balance towards job performance of the private banks? *TQM Journal, 37*(7), 2015-2040. https://doi.org/10.1108/TQM-10-2023-0316
5. Aljbour, A., French, E., & Ali, M. (2022). An evidence-based multilevel framework of talent management: A systematic review. *International Journal of Productivity and Performance Management, 71*(8), 3348-3376. https://doi.org/10.1108/IJPPM-02-2020-0065
6. Alves, I. R., Mesquita, E., Canepele, N. R., & Martins, F. S. (2025). Beyond practicing: Understanding the influence of ESG perceptions on employee retention. *Management Research, 23*(3), 260-282. https://doi.org/10.1108/MRJI-AM-06-2024-1562
7. Aripah, F. D. I., & Azzuhri, M. (2025). Employee engagement as mediator between talent management, employer branding, and employee retention. *Jurnal Riset Manajemen Dan Bisnis, 5*(1), 27-34. https://doi.org/10.29313/jrmb.v5i1.7007
8. Axiak, I. S., Packer, P. A., & Ghio, S. (2024). Integrating soft skill development with recruitment and retention strategies: The case of a small island state. *Strategic HR Review, 23*(6), 225-229. https://doi.org/10.1108/shr-07-2024-0048
9. Axiak, I. S., Packer, P. A., & Ghio, S. (2025). Talent management in small and micro businesses: Can soft skills be trained? *Development and Learning in Organizations, 39*(4), 27-40. https://doi.org/10.1108/DLO-07-2024-0210
10. Azila-Gbettor, E. M., Novixoxo, J. D., & Honyenuga, B. Q. (2025). Navigating the nexus of citizenship fatigue and knowledge sharing: The influence of employee vitality and tenure among university lecturers. *Journal of Workplace Learning, 37*(2), 114-134. https://doi.org/10.1108/JWL-03-2024-0057
11. Banerjee, P., & Sharma, N. (2025). Digital transformation and talent management in industry 4.0: A systematic literature review and the future directions. *The Learning Organization, 32*(4), 620-640. https://doi.org/10.1108/TLO-10-2023-0183
12. Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99-120. https://doi.org/10.1177/014920639101700108
13. Blau, P. M. (1964). *Exchange & power in social life*. John Wiley & Sons. Retrieved from https://repository.stiaamuntai.ac.id/id/eprint/678/
14. BPS. (2025). *Keadaan Ketenagakerjaan Indonesia Agustus 2025 [Labour Situation in Indonesia, August 2025]*. Badan Pusat Statistik. (In Indonesian). Retrieved from https://www.bps.go.id/id/infographic?id=1184
15. Butler, S. (2025). Pensions are boring: Employee engagement with pensions, using the trans-theoretical model of behavioural change. *Strategic HR Review, 24*(3), 106-109. https://doi.org/10.1108/shr-10-2024-0084
16. Cammann, C., Fichman, M., Jenkins, D., & Klesh, J. (2008). Michigan Organizational Assessment Questionnaire--Job Satisfaction Subscale (MOAQ-JSS). https://doi.org/10.1037/t09214-000
17. Cheah, J.-H., Sarstedt, M., Ringle, C. M., Ramayah, T., & Ting, H. (2018). Convergent validity assessment of formatively measured constructs in PLS-SEM: On using single-item versus

http://dx.doi.org/10.21511/ppm.24(4).2026.22

multi-item measures in redundancy analyses. *International Journal of Contemporary Hospitality Management, 30*(11), 3192-3210. https://doi.org/10.1108/IJCHM-10-2017-0649

18. Claus, L. (2019). HR disruption – Time already to reinvent talent management. *BRQ Business Research Quarterly, 22*(3), 207-215. https://doi.org/10.1016/j.brq.2019.04.002
19. Collings, D. G., & Mellahi, K. (2009). Strategic talent management: A review and research agenda. *Human Resource Management Review, 19*(4), 304-313. https://doi.org/10.1016/j.hrmr.2009.04.001
20. Coltman, T., Devinney, T. M., Midgley, D. F., & Venaik, S. (2008). Formative versus reflective measurement models: Two applications of formative measurement. *Journal of Business Research, 61*(12), 1250-1262. https://doi.org/10.1016/j.jbusres.2008.01.013
21. Creswell, J. W., & Creswell, J. D. (2022). *Research design: Qualitative, quantitative, and mixed methods approaches* (6th ed.). SAGE Publications. Retrieved from https://www.sagepub.com/shop/buy-a-book/research-design-6-270550
22. De Clercq, D., & Pereira, R. (2025). How overloaded employees can use resilience and forgiveness resources to overcome dissatisfaction and maintain their knowledge-sharing efforts. *International Journal of Organizational Analysis, 33*(2), 390-415. https://doi.org/10.1108/IJOA-10-2023-4056
23. Deloitte. (2025). *2025 Global Human Capital Trends report*. Retrieved from https://www.deloitte.com/content/dam/insights/articles/2025/glob187692_global-human-capital-trends/DI_2025-Global-Human-Capital-Trends.pdf
24. Di Prima, C., Hussain, W. M. H. W., & Ferraris, A. (2024). No more war (for talent): The impact of HR analytics on talent management activities. *Management Decision, 62*(10), 3109-3131. https://doi.org/10.1108/MD-07-2023-1198
25. Divya, D., Jain, R., Chetty, P., Siwach, V., & Mathur, A. (2025). The mediating effect of leadership in artificial intelligence success for employee-engagement. *Management Decision, 63*(10), 3676-3699. https://doi.org/10.1108/MD-01-2024-0213
26. Dzimbiri, G. L., & Alex Molefi, M. (2022). Model of talent management for registered nurses in Malawian public hospitals. *SA Journal of Industrial Psychology, 48*(1), 1-10. https://doi.org/10.4102/sajip.v48i0.1953
27. Gallup. (2023). *State of the Global Workplace 2023 Report*. Retrieved from https://opis-cdn.tinkoffjournal.ru/mercury/rabota-volk-doc-2.tnoup7j7e7mp..pdf
28. Gelencsér, M., Kőmüves, Z. S., Hollósy-Vadász, G., & Szabó-Szentgróti, G. (2025). Modelling employee retention in small and medium-sized enterprises and large enterprises in a dynamically changing business environment. *International Journal of Organizational Analysis, 33*(5), 1006-1038. https://doi.org/10.1108/IJOA-09-2023-3961
29. Ghozali, I. (2021). *Aplikasi Analisis Multivariate Dengan Program IBM SPSS 26 [Multivariate Analysis Application Using IBM SPSS 26 Software]* (10th ed.). Badan Penerbit Universitas Diponegoro. (In Indonesian). Retrieved from https://www.scribd.com/document/785893656/Ghozali-2021
30. Glaser, K., Roberts, J., Coleman, M. K., Payton, M., Wilke, S., Linton, M., & Waller, J. (2024). Evaluating perspectives, knowledge and behaviors of osteopathic medicine in a United States osteopathic medical school: A study in employee education and changes in understanding. *International Journal of Osteopathic Medicine, 54*. https://doi.org/10.1016/j.ijosm.2024.100739
31. Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review, 31*(1), 2-24. https://doi.org/10.1108/EBR-11-2018-0203
32. Hamdallah, M. E., Al-Okaily, M., Srouji, A. F., & Al-Okaily, A. (2025). How does COVID-19 affect employee innovation performance and environmental responsibility engagement in the banking sector? A moderated-mediated perspective. *Asia-Pacific Journal of Business Administration, 17*(4), 1048-1074. https://doi.org/10.1108/APJBA-11-2023-0585
33. Hartley, M. (2025). Enhancing employee engagement and retention: The critical role of psychological safety in the onboarding process. *Strategic HR Review, 24*(3), 100-105. https://doi.org/10.1108/shr-10-2024-0080
34. Hooi, L. W. (2025). The dynamics of crisis home office and employee engagement. *Evidence-Based HRM, 13*(3), 484-500. https://doi.org/10.1108/EBHRM-08-2023-0225
35. Iram, T., Bilal, A. R., Khan, R., Mehmood, S., & Kumar, H. (2024). From awareness to action: Unraveling the interplay of employee AI awareness and change leadership in fostering knowledge hiding. *Kybernetes, 55*(2), 698-717. https://doi.org/10.1108/K-01-2024-0222
36. Jarvis, C. B., MacKenzie, S. B., & Podsakoff, P. M. (2003). A critical review of construct indicators and measurement model misspecification in marketing and consumer research. *Journal of Consumer Research, 30*(2), 199-218. https://doi.org/10.1086/376806
37. Karim, R. Al, Rabiul, M. K., Munira, S., Karim, D. N., & Kawser, S. (2025). Fostering employee retention intention through talent development practices, employee empowerment and organisational learning in the private banking sector. *Learning Organization, 32*(4), 641-659. https://doi.org/10.1108/TLO-11-2024-0359
38. Khalil, S., & Samhan, B. (2025). The impact of cloud adoption on talent management: An exploratory study from the "learning organization" perspective. *Learning Organization, 32*(4), 601-619. https://doi.org/10.1108/TLO-06-2023-0095

39. Kmieciak, R. (2024). Do employees with high human capital hide knowledge? Exploring mediation and moderation mechanisms. *Journal of Intellectual Capital, 25*(5-6), 1042-1061. https://doi.org/10.1108/JIC-04-2024-0127

40. Koh, A. S., & Abdul Razak, A. Z. (2024). Teachers' talent management and personal quality ensure a better tomorrow in education. *International Journal of Educational Management, 38*(5), 1540-1557. https://doi.org/10.1108/IJEM-10-2023-0523

41. Latukha, M., Alon, I., Kuleshov, N., & Vaiman, V. (2024). The effect of sanctions on macro talent management: The case of Russia. *Journal of World Business, 59*(5). https://doi.org/10.1016/j.jwb.2024.101570

42. Le, C. T., Phan, T. K. L., & Nguyen, T. Y. N. (2024). Online knowledge sharing and employee innovation: The role of job self-efficacy and innovative climate. *Journal of Workplace Learning, 36*(4), 253-266. https://doi.org/10.1108/JWL-09-2023-0153

43. Li, X., Zhang, Y., Qi, F., & Tang, Y. (2024). The lagged effect of university-based entrepreneurship education on employees' retention at entrepreneurial startups. *International Journal of Management Education, 22*(3). https://doi.org/10.1016/j.ijme.2024.101016

44. Mansour, S. (2025). Promoting employees' retention and functional presenteeism through well-being oriented human resource management practices: The mediating role of work meaningfulness. *Evidence-Based HRM, 13*(3), 553-572. https://doi.org/10.1108/EBHRM-02-2024-0047

45. Mayfield, C. O., & O'Donnell, M. (2025). Proactive influence tactics that increase work engagement for remote employees. *Management Research Review, 48*(3), 383-400. https://doi.org/10.1108/MRR-01-2024-0066

46. Mobley, W. H., Horner, S. O., & Hollingsworth, A. T. (1978). An evaluation of precursors of hospital employee turnover. *Journal of Applied Psychology, 63*(4), 408-414. https://doi.org/10.1037/0021-9010.63.4.408

47. Montero Guerra, J. M., & Danvila-Del Valle, I. (2024). Exploring organizational change in the age of digital transformation and its impact on talent management: Trends and challenges. *Journal of Organizational Change Management, 37*(6), 1273-1294. https://doi.org/10.1108/JOCM-10-2023-0419

48. Nasruddin, & Putri, S. A. (2023). Pengaruh talent management dan knowledge management terhadap employee retention pada millennials workforce yang di moderasi oleh employee engagement [The Influence of Talent Management and Knowledge Management on Employee Retention Among the Millennial Workforce, Moderated by Employee Engagement]. *Jurnal Ekonomi Dan Manajemen Teknologi (EMT), 7*(4), 974-984. (In Indonesian). https://doi.org/10.35870/emt.v7i4.1559

49. Nassani, A. A., Al-Aiban, K. M., Rosak-Szyrocka, J., Yousaf, Z., Isac, N., & Badshah, W. (2024). Knowledge management infrastructure capabilities towards innovative work behavior: Employee's resilience and role of functional flexibility. *Heliyon, 10*(20). https://doi.org/10.1016/j.heliyon.2024.e38742

50. Nonaka, I., & Takeuchi, H. (1995). *The Knowledge Creating Company: How Japanese Companies Create the Dynamics of Innovation*. Oxford University Press. Retrieved from https://books.google.co.id/books?id=B-qxrPaU1-MC&printsec=frontcover&hl=id#v=onepage&q&f=false

51. Popa, I., & Ştefan, S. C. (2019). Modeling the pathways of knowledge management towards social and economic outcomes of health organizations. *International Journal of Environmental Research and Public Health, 16*(7), Article 1114. https://doi.org/10.3390/ijerph16071114

52. PwC. (2024). *Asia Pacific Workforce Hopes and Fears Survey 2024*. Retrieved from https://www.pwc.com/gx/en/about/pwc-asia-pacific/hopes-and-fears.html

53. Ramanan, H., Shensa, A., Guth, V., Rhoads, C., & Linkov, F. (2024). Attitudes and preferences about retention: A survey study of nursing home employees. *Geriatric Nursing, 60,* 186-190. https://doi.org/10.1016/j.gerinurse.2024.08.044

54. Santoso, W., Sitorus, P. M., Batunanggar, S., Krisanti, F. T., Anggadwita, G., & Alamsyah, A. (2021). Talent mapping: A strategic approach toward digitalization initiatives in the banking and financial technology (FinTech) industry in Indonesia. *Journal of Science and Technology Policy Management, 12*(3), 399-420. https://doi.org/10.1108/JSTPM-04-2020-0075

55. Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2006). The measurement of work engagement with a short questionnaire: A cross-national study. *Educational and Psychological Measurement, 66*(4), 701-716. https://doi.org/10.1177/0013164405282471

56. Schaufeli, W. B., Shimazu, A., Hakanen, J., Salanova, M., & De Witte, H. (2019). An ultra-short measure for work engagement: The UWES-3 validation across five countries. *European Journal of Psychological Assessment*, *35*(4), 577-591. https://doi.org/10.1027/1015-5759/a000430

57. Shah, N., Bano, S., Saraih, U. N., Abdelwaheed, N. A. A., & Soomro, B. A. (2024). Developing organizational performance through talent management practices: Employee satisfaction's mediating role in learning organizations. *Business Process Management Journal, 30*(3), 641-670. https://doi.org/10.1108/BPMJ-03-2023-0208

58. Smith, G. T., McCarthy, D. M., & Anderson, K. G. (2000). On the sins of short-form development. *Psychological Assessment, 12*(1), 102-111. https://doi.org/10.1037/1040-3590.12.1.102

59. Srivastava, S., Singh, A., & Bali, S. (2025). Does psychological empowerment transmit the effects of organizational justice on employees' knowledge sharing? A study on the Indian hospitality industry. *Benchmarking, 32*(7), 2578-2601.

http://dx.doi.org/10.21511/ppm.24(4).2026.22

https://doi.org/10.1108/BIJ-03-2023-0157

60. Treuren, G. J. M. (2025). Why do aged care employees leave? Two explanations compared. *Journal of Health Organization and Management, 39*(1), 98-113. https://doi.org/10.1108/JHOM-01-2023-0005

61. Tusquellas, N., Palau, R., & Santiago, R. (2024). Analysis of the potential of artificial intelligence for professional development and talent management: A systematic literature review. *International Journal of Information Management Data Insights, 4*(2). https://doi.org/10.1016/j.jjimei.2024.100288

62. Wang, C., Chen, K., Feng, J., & Chen, J. (2024). Donating or collecting? Differential impact mechanisms of knowledge sharing through enterprise social media on employees' innovative work behavior. *Information Technology and People, 39*(1), 34-64. https://doi.org/10.1108/ITP-01-2024-0003

63. Yildiz, R. O., & Esmer, S. (2023). Talent management strategies and functions: A systematic review. *Industrial and Commercial Training, 55*(1), 93-111. https://doi.org/10.1108/ICT-01-2022-0007

APPENDIX A

Table A1. Questionnaire

A. Introduction and Informed Consent	
Dear Respondent, thank you for taking the time to participate in this research. This questionnaire is part of an academic study examining the relationships among talent management, knowledge management, employee engagement, and employee retention among private-sector employees in Indonesia. Your responses will be kept confidential and used solely for academic purposes. Please answer all questions honestly based on your actual experience.	
I confirm that I am currently employed as a permanent or contract employee in a private company in Indonesia.	☐ I agree to participate ☐ I do not wish to participate
I confirm that I have at least one (1) year of work experience in my current company.	☐ I agree to participate ☐ I do not wish to participate
I voluntarily agree to participate in this study.	☐ I agree to participate ☐ I do not wish to participate

B. Respondent Characteristics		
No.	**Question**	**Response Options**
1	Age	☐ 21–30 years ☐ 31–40 years ☐ 41–50 years
2	Gender	☐ Male ☐ Female
3	Education Level	☐ High School ☐ Diploma ☐ Bachelor's Degree ☐ Master's Degree
4	Work Experience (in current company)	☐ 1–3 years ☐ 4–7 years ☐ > 7 years
5	Company Sector	☐ Manufacturing ☐ Banking ☐ Retail ☐ Service ☐ Logistics
6	Job Position	☐ Operational Staff ☐ Customer Service Officer ☐ Supervisor ☐ Unit Head ☐ Manager ☐ Branch Manager
7	Employment Status	☐ Permanent Employee ☐ Contract Employee

Code	Dimension	Statement	1	2	3	4	5
C. Main Questionnaire							
Please indicate your level of agreement with each of the following statements. *Response scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree.*							
C1. Talent Management (X1)							
X1.1	Talent Acquisition	My organization is effective in attracting and recruiting employees who have the right skills and competencies for the job.					
X1.2	Talent Development	My organization provides adequate training and development programs to enhance my knowledge and skills.					
X1.3	Talent Deployment	My organization places employees in positions that match their skills, competencies, and career interests.					
C2. Knowledge Management (X2)							
X2.1	Knowledge Creation	My organization encourages employees to generate new ideas and knowledge relevant to their work.					
X2.2	Knowledge Sharing	Employees in my organization are encouraged to share knowledge and work-related information with colleagues.					
X2.3	Knowledge Application	My organization facilitates the application of knowledge and lessons learned to improve work performance.					
C3. Employee Engagement (Z)							
Z.1	Vigor	At work, I feel full of energy and mental resilience.					
Z.2	Dedication	I feel enthusiastic and proud of the work that I do.					
Z.3	Absorption	I am fully focused and deeply immersed when doing my work.					
C4. Employee Retention (Y) – Intention to Stay							
Y.1	Longevity Intention	I intend to keep working for this organization for a long time.					
Y.2	Job-Search Avoidance	I have no intention of looking for a job with another organization in the near future.					
Y.3	Preference to Remain	Even if I had another job opportunity, I would prefer to stay with this organization.					
D. Closing							
Thank you for your participation and for completing this questionnaire in full							

Note: Respondents who selected "I do not wish to participate" for any of the answers in Section A were directed to end the survey. Items Z.1–Z.3 are Indonesian translations of the three items comprising the validated ultra-short UWES-3 measure – one item representing each of the Vigor, Dedication, and Absorption subscales of the original UWES-9 (Schaufeli et al., 2006) – produced using the forward-translation and back-translation procedure described in the Method section. The published UWES-3 item set is proprietary and is therefore not reproduced verbatim here; for the exact source wording and validation evidence, see Schaufeli et al. (2019). C4 items were adapted from validated intention-to-stay / turnover-intention scales (Cammann et al., 2008; Mobley et al., 1978). / Adapted from a validated stay/leave intention scale (Cammann et al., 2008; Mobley et al., 1978).

http://dx.doi.org/10.21511/ppm.24(4).2026.22