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Motivation, Self-Efficacy, and Technology on Employees' Performance Perceptions: The Mediating Role of Knowledge Sharing at PT Brantas Abipraya (Persero)

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Abstract

This study is grounded in the gap that improvements in employees' perceived performance in construction companies have not yet been comprehensively explained through the integrated roles of motivation, self-efficacy, knowledge management system (KMS) use, and knowledge-sharing behavior. Accordingly, this study aims to analyze the effects of intrinsic motivation, extrinsic motivation, self-efficacy, and KMS use on perceived performance, with knowledge-sharing behavior serving as a mediating variable. The study is based on Social Cognitive Theory and Self-Determination Theory, which emphasize the roles of psychological, motivational, and work-environment factors in shaping individual behavior and performance. A quantitative-explanatory approach with a non-experimental cross-sectional survey design was employed. The data were collected from 260 respondents selected through purposive sampling and analyzed using SEM-PLS to examine the hypothesized structural relationships among the variables. The results indicate that intrinsic motivation, extrinsic motivation, self-efficacy, and KMS use have positive and significant effects on both knowledge-sharing behavior and perceived performance. Knowledge-sharing behavior also has a positive and significant effect on perceived performance and partially mediates all of these relationships. The dominant findings show that KMS use strongly promotes knowledge sharing, while knowledge sharing exerts the strongest effect on performance. Theoretically, these findings reinforce the relevance of both theories in the context of construction companies. Future studies are recommended to employ objective performance data, broaden the research setting, and incorporate additional variables to develop a more comprehensive model.

INTRODUCTION

Infrastructure serves as a key driver of national development because it affects the economy, education, social welfare, and regional accessibility. In an archipelagic country such as Indonesia, with a population of 279.58 million people and the fourth-largest population in the world, infrastructure needs continue to increase, while national infrastructure competitiveness remains lagging, as indicated by the Global Competitiveness Index 2017–2018 (Katadata, 2024; Ministry of National Development Planning, 2017). During the 2014–2023 period, the government constructed 42 dams providing irrigation for 1.2 million hectares, 2,143 kilometers of toll roads, and 5,700 kilometers of national roads, making the role of state-owned construction enterprises highly strategic (Helmi, 2023).

Amid this acceleration, the performance of state-owned construction enterprises has not been uniform. Project delays, including toll road projects that may take more than 2–5 years to complete, have placed pressure on companies' financial performance (Nurdianto et al., 2023). PT

Wijaya Karya, which recorded a profit of IDR 2.62 trillion in 2019, reported a loss of IDR 7.82 trillion in 2023. Similarly, PT Waskita Karya, which achieved IDR 4.2 trillion in 2017, suffered losses of IDR 9.28 trillion in 2020 and IDR 4.01 trillion in 2023. In contrast, PT Brantas Abipraya increased its net profit from IDR 131.6 billion in 2015 to IDR 201.9 billion in 2023 (Hakim, 2023).

PT Brantas Abipraya's advantage is also reflected in its efficiency indicators. The company's net profit margin (NPM) remained relatively stable within the range of 3–8% and returned to 4% in 2023, while PT Wijaya Karya declined to -35% and PT Waskita Karya to -46%. Likewise, Brantas Abipraya's return on assets (ROA) recovered from 0.51% in 2020 to 2.18% in 2023, whereas PT Wijaya Karya recorded -4.20% and PT Waskita Karya -0.12%. Its productivity was also maintained, with revenue per employee increasing from 7,525.51 in 2015 to 9,557.94 in 2023. These findings are particularly important in a sector that absorbs 6.21% of the workforce, while only 3.95% of the 8,505,542 workers have been professionally certified (Yuningsih et al., 2023a).

This phenomenon directs attention to internal organizational factors, particularly knowledge-sharing behavior, motivation, self-efficacy, and the use of a Knowledge Management System (KMS). Prior studies have established that motivation, self-efficacy, KMS use, and knowledge-sharing behavior are important predictors of individual and organizational performance. However, the existing literature still shows three important limitations. First, these variables have often been examined separately rather than as an integrated explanatory mechanism. Second, empirical findings suggest that knowledge sharing does not occur automatically through technology or formal systems alone, because it is also shaped by incentives, trust, self-efficacy, and contextual support (Guofeng et al., 2020; Lee et al., 2020; Xu et al., 2022). Third, much of the existing evidence comes from manufacturing, services, banking, public organizations, education, or technology-based sectors, while empirical studies in construction companies remain relatively limited and fragmented (Abdullahi et al., 2023; Pamungkas et al., 2024; C. R. Wati et al., 2025)).

This limitation is theoretically important because construction companies differ from conventional organizational settings. Construction work is typically project-based, temporary, interdependent, contract-driven, and involves multiple actors with different technical specializations. In such a context, knowledge is not only stored in organizational systems but is also embedded in project experience, tacit expertise, field problem-solving, and cross-functional coordination (Siti Aisjah et al., 2025; R. A. K. S. Wati et al., 2023). Previous construction-related studies show that knowledge management and knowledge sharing are critical for project delivery, innovation, and performance improvement, yet they also emphasize that construction knowledge sharing is difficult because projects are fragmented, heterogeneous, and highly dependent on coordination among actors (Guofeng et al., 2020; Soomro et al., 2024; Yap et al., 2022). Therefore, merely stating that prior studies were conducted outside the construction sector is insufficient; the stronger gap lies in the lack of explanation regarding how individual motivational factors, individual capability beliefs, and organizational technological support jointly shape knowledge-sharing behavior and, subsequently, perceived performance in a project-based construction environment.

The novelty of this study lies in testing an integrated mediation model in which knowledge-sharing behavior functions as the internal mechanism linking intrinsic motivation, extrinsic motivation, self-efficacy, and KMS use to perceived performance. This model extends prior studies by positioning knowledge-sharing behavior not only as an outcome of motivation, self-efficacy, or KMS use, but also as a behavioral pathway through which these factors may improve employees'

perceived performance. This is particularly relevant at PT Brantas Abipraya, which in 2024 recorded 92 articles, 41,425 visitors, and an average of 658 visits per article on its Insight Blog, indicating documented organizational knowledge-sharing practices.

PT Brantas Abipraya was selected not merely as a locally successful firm, but as a relevant project-based construction context where temporary teams, cross-functional coordination, geographical dispersion, time pressure, and tacit knowledge transfer make knowledge sharing critical to employee performance. Prior studies show that knowledge-sharing behavior in construction projects is shaped by trust, incentives, organizational culture, coordination mechanisms, and psychological conditions, while weak knowledge sharing may hinder the retention, transfer, and reuse of expertise and lessons learned across projects (Cheng & Yin, 2024; Haq et al., 2023; S. Li et al., 2023). Since construction knowledge is often embedded in individual experience, problem-solving routines, and site-specific technical judgment, effective knowledge-sharing practices and digital knowledge infrastructures such as KMS are essential for capturing, retrieving, and reusing project knowledge (Xu et al., 2022; P. Zhang & Ng, 2012a). Therefore, this context is theoretically appropriate for testing how motivation, self-efficacy, and KMS use influence perceived performance through knowledge-sharing behavior.

Based on the disparity in performance among state-owned construction enterprises, where PT Brantas Abipraya was able to maintain its profit, net profit margin (NPM), return on assets (ROA), and revenue per employee, while PT Wijaya Karya and PT Waskita Karya experienced sharp declines, the research problem extends beyond differences in financial outcomes to the lack of clarity regarding the internal behavioral mechanisms that explain such superiority (Yuningsih et al., 2023b). In the project-based construction sector, which continues to face a low proportion of certified workers, knowledge-sharing behavior is presumed to be a fundamental mechanism for transferring experience, reducing repeated project errors, supporting decision-making, and strengthening perceived performance. However, empirical evidence linking intrinsic motivation, extrinsic motivation, self-efficacy, and KMS use to knowledge-sharing behavior and perceived performance remains limited, fragmented, and more commonly found in sectors other than construction (Abdullahi et al., 2023; Ángeles López-Cabarcos et al., 2022; Pamungkas et al., 2024; R. A. K. S. Wati et al., 2023). Therefore, the research questions of this study are as follows: how do these four factors influence the knowledge-sharing behavior of employees at PT Brantas Abipraya, how does knowledge-sharing behavior affect perceived performance, and does knowledge-sharing behavior mediate the effects of these four variables on perceived performance.

METHODS

This study adopts a positivist paradigm with a quantitative-explanatory approach to examine the hypothesized structural relationships among Extrinsic Motivation (X1), Intrinsic Motivation (X2), Knowledge Management System Use (X3), and Self-efficacy (X4) with Perceived Performance (Y), both directly and indirectly through Knowledge Sharing Behavior (Z) as a mediating variable. The researcher exercised minimal intervention by maintaining the natural conditions of the research setting without manipulating the variables; therefore, this study is classified as a non-experimental field study with a cross-sectional time horizon. Accordingly, the relationships tested in this study should be interpreted as theory-driven associative and predictive

relationships rather than definitive causal effects. The unit of analysis in this study is the employees of PT Brantas Abipraya, with a focus on individual perceived work performance (Sekaran & Bougie, 2016). The data used are primary data collected through a questionnaire survey employing a five-point Likert scale (Sekaran & Bougie, 2016).

The instrument was adapted to ensure clarity and ease of understanding. The questionnaire included the Extrinsic Motivation variable measured by five indicators and Intrinsic Motivation measured by four indicators adopted from (Cruz et al., 2009), Knowledge Management System measured by five indicators from Mohammed (2024), Self-efficacy measured by eight indicators from Schwarzer and Jerusalem (1995) as cited in Abun (2021), Knowledge Sharing Behavior measured by four indicators from (P. Zhang & Ng, 2012b), and Perceived Performance measured by six indicators from Abramis (1994) as cited in Bayona et al. (2015). The study population comprised all employees of Operations Divisions I, II, and III at PT Brantas Abipraya (Persero), totaling 812 employees in 2023 (PT Brantas Abipraya, 2023), and was therefore categorized as a definite population (Sekaran & Bougie, 2016a). The sampling technique employed was purposive sampling based on several specific criteria. According to the guideline proposed by Hair et al. (2022), the minimum sample size required for this study ranged from 90 to 155 respondents.

This study employed SmartPLS 4 with the PLS-SEM approach because it is capable of handling complex models, non-parametric data, small sample sizes, and multicollinearity (Hair et al., 2022). The first stage involved the assessment of the reflective measurement model, which included tests of indicator reliability (outer loading ≥ 0.708), internal consistency reliability (CA, rho_c, rho_a ≥ 0.70; ≥ 0.60 for exploratory research), convergent validity (AVE ≥ 0.50), and discriminant validity using the HTMT criterion ≤ 0.85 (Hair et al., 2022). Furthermore, Hair et al. (2022) explain that the structural model assessment aims to evaluate collinearity (VIF), the contribution of variables (f^2: 0.02 = small, 0.15 = medium, 0.35 = large), and explanatory power (R^2: ≥ 0.25 = weak, ≥ 0.50 = moderate, ≥ 0.75 = substantial). Hypothesis testing was conducted using bootstrapping procedures (Percentile, Studentized, and BCa), with p-values considered significant at < 0.05, to assess the strength and significance of the relationships among variables (Hair et al., 2022).

Given the cross-sectional and non-experimental nature of the study, SEM-PLS was used to assess the strength, direction, and statistical significance of the hypothesized structural paths rather than to establish causality in a strict temporal or experimental sense. The direction of the relationships was specified based on theoretical reasoning from Social Cognitive Theory and Self-Determination Theory, as well as prior empirical findings. Therefore, the interpretation of the results is limited to theoretically grounded predictive associations among the constructs.

RESULTS AND DISCUSSION

Respondents' Demographic

A total of 260 respondents were collected through Google Forms, and this number exceeded the minimum required sample size. The demographic analysis indicates that all respondents were employees of PT Brantas Abipraya, the majority of whom came from Division I, totaling 103 individuals (39.6%). Most respondents held the position of SEM, totaling 51 individuals (19.6%), had 11–15 years of work experience, totaling 132 individuals (50.8%), and were predominantly in the 31–40 age group, totaling 144 individuals (55.4%).

Measurement Model Analysis

The researcher adopted the sequence of measurement model assessment procedures recommended by Hair et al. (2022), which consists of analyses of indicator reliability, internal consistency reliability, convergent validity, and discriminant validity.

Table 1. Results of Indicator Reliability and Internal Consistency Tests

Variable	Indicator	*Indicator reliability*	*Internal consistency reliability*		
		Outer loading	*Cronbach's Alpha*	*Composite Reliability*	
				Rho_A	Rho_C
Extrinsic Motivation	EM1	0.852	0.890	0.895	0.919
	EM2	0.822			
	EM3	0.847			
	EM4	0.809			
	EM5	0.831			
Intrinsic Motivation	IM1	0.869	0.856	0.869	0.902
	IM2	0.850			
	IM3	0.848			
	IM4	0.771			
Knowledge Management System	KMS1	0.821	0.894	0.900	0.921
	KMS2	0.839			
	KMS3	0.849			
	KMS4	0.854			
	KMS5	0.822			
Knowledge Sharing Behavior	KSB1	0.864	0.879	0.881	0.917
	KSB2	0.833			
	KSB3	0.871			
	KSB4	0.858			
Perceived performance	PP1	0.835	0.915	0.915	0.934
	PP2	0.817			
	PP3	0.835			
	PP4	0.845			
	PP5	0.854			
	PP6	0.842			
Self-efficacy	SE1	0.825	0.928	0.931	0.941
	SE2	0.821			
	SE3	0.794			
	SE4	0.745			
	SE5	0.843			
	SE6	0.814			
	SE7	0.842			
	SE8	0.839			

Based on the data processing results presented in Table 1, all indicators in the research model show high and consistent outer loading values across constructs. Referring to Hair et al.

(2022), indicator reliability is assessed using loading factor values with a threshold of ≥ 0.708, indicating that an indicator is considered reliable. The test results show that all indicators for the variables of Extrinsic Motivation, Intrinsic Motivation, Knowledge Management System, Knowledge Sharing Behavior, Perceived Performance, and Self-efficacy met this threshold, with the highest values observed for EM1 (0.852), IM1 (0.869), KMS4 (0.854), KSB3 (0.871), PP5 (0.854), and SE5 (0.843), respectively. According to Hair et al. (2022), a construct is considered reliable if Cronbach's Alpha is > 0.70 and Composite Reliability is > 0.70. All constructs demonstrated very good reliability, with Cronbach's Alpha values ranging from 0.856 to 0.928, indicating that all variables are reliable. These results are further supported by Composite Reliability (rho_C) values ranging from 0.902 to 0.941 and rho_A values from 0.869 to 0.931, indicating strong and stable internal consistency among the indicators. Furthermore, to ensure the validity of the measurement model, this study employed two approaches, namely convergent validity based on the Average Variance Extracted (AVE) values and discriminant validity based on the HTMT values, as presented in detail in Table 2 below.

Table 2. Results of Convergent and Discriminant Validity Tests

Variable	*Convergent Validity*	*Discriminant Validity*					
		Heterotrait-Monotrait *Ratio*					
	AVE	**EM**	**IM**	**KMS**	**KSB**	**PP**	**SE**
Extrinsic Motivation	0.693						
Intrinsic Motivation	0.698	0.217					
KMS *Usage*	0.701	0.222	0.297				
Knowledge Sharing Behavior	0.734	0.456	0.442	0.518			
Perceived performance	0.702	0.439	0.419	0.496	0.729		
Self-efficacy	0.666	0.332	0.276	0.283	0.465	0.562	

Convergent validity measures the extent to which items within the same construct are positively correlated, one of which is evaluated through the Average Variance Extracted (AVE) value, with a criterion of > 0.50 as the minimum acceptable threshold (Hair et al., 2022). Table 2 shows that all constructs have AVE values ranging from 0.666 to 0.734. The construct with the highest AVE value is Knowledge Sharing Behavior (0.734), while the lowest value is found in Self-efficacy (0.666); however, both still indicate very good convergent validity. Furthermore, based on the test results in Table 2, all Heterotrait-Monotrait Ratio (HTMT) values among the variables are also below the threshold recommended by Hair et al. (2022), namely below 0.90, indicating that each construct has clear conceptual distinctiveness and that no measurement overlap occurs.

Structural Model Analysis

The next step is the assessment of the inner model, which the researcher will also conduct in accordance with the sequence recommended by Hair et al. (2022).

Table 3. Model Fit

Variable Endogen	R-square	R-square Adjusted	Description
Knowledge Sharing Behavior	0.412	0.403	Moderate
Perceived performance	0.542	0.533	Strong

Table 3 shows that the R^2 value for Knowledge Sharing Behavior is 0.412, meaning that 41.2% of its variance is explained by Extrinsic Motivation, Intrinsic Motivation, KMS Usage, and Self-efficacy. This value falls into the moderate category, while the remaining 58.8% is explained

by other factors outside the research model. Meanwhile, the R^2 value for Perceived Performance is 0.542, indicating that 54.2% of its variance is explained by Extrinsic Motivation, Intrinsic Motivation, KMS Usage, Self-efficacy, and Knowledge Sharing Behavior. This value is classified as substantial (strong) because it exceeds the threshold of 0.50.

Table 4. Results of Hypothesis Testing, Collinearity Statistics, and Effect Size

Hypotheses	(O)	(M)	STDEV	T Stats	P *values*	VIF	F^2	Desc
Direct Path								
H1 ***Intrinsic Motivation → Knowledge Sharing Behavior***	0.204	0.206	0.049	4.180	0.000	1.128	0.063	Accepted
H2 ***Extrinsic Motivation → Knowledge Sharing Behavior***	0.241	0.242	0.049	4.960	0.000	1.134	0.087	Accepted
H3 KMS ***Usage → Knowledge Sharing Behavior***	0.308	0.308	0.048	6.382	0.000	1.136	0.142	Accepted
H4 ***Self Efficacy → Knowledge Sharing Behavior***	0.217	0.218	0.048	4.505	0.000	1.188	0.067	Accepted
H5 ***Knowledge Sharing Behavior → Perceived performance***	0.391	0.389	0.051	7.621	0.000	1.701	0.196	Accepted
H6 ***Intrinsic Motivation → Perceived performance***	0.102	0.103	0.048	2.141	0.016	1.199	0.019	Accepted
H7 ***Extrinsic Motivation → Perceived performance***	0.111	0.111	0.047	2.381	0.009	1.233	0.022	Accepted
H8 KMS ***Usage → Perceived performance***	0.154	0.155	0.048	3.229	0.001	1.298	0.040	Accepted
H9 ***Self Efficacy → Perceived performance***	0.255	0.257	0.050	5.154	0.000	1.268	0.112	Accepted
Indirect Path								
H10 ***Intrinsic Motivation → Knowledge Sharing Behavior → Perceived performance***	0,080	0,080	0,022	3,552	0,000	-	-	Accepted
H11 ***Extrinsic Motivation → Knowledge Sharing Behavior → Perceived performance***	0,094	0,094	0,023	4,103	0,000	-	-	Accepted
H12 KMS ***Usage → Knowledge Sharing Behavior → Perceived performance***	0,120	0,119	0,023	5,128	0,000	-	-	Accepted
H13 ***Self Efficacy → Knowledge Sharing Behavior → Perceived performance***	0,085	0,085	0,021	3,946	0,000	-	-	Accepted

Table 4 presents the results of the collinearity test, showing that the Variance Inflation Factor (VIF) values among the constructs in the inner model range from 1.128 to 1.701. All values are below the threshold of 5, indicating that there is no collinearity problem (Hair et al., 2022). Furthermore, Table 4 also reports the effect size values. Extrinsic Motivation has a small effect on Knowledge Sharing Behavior ($f^2 = 0.087$) and Perceived Performance ($f^2 = 0.022$). Similarly, Intrinsic Motivation also has a small effect on Knowledge Sharing Behavior ($f^2 = 0.063$) and Perceived Performance ($f^2 = 0.019$). In contrast, KMS Usage has a greater contribution to Knowledge Sharing Behavior ($f^2 = 0.142$, approaching a medium effect) but still only a small

effect on Perceived Performance ($f^2 = 0.040$). In addition, Knowledge Sharing Behavior itself has a medium effect on Perceived Performance ($f^2 = 0.196$). Self-efficacy has a small effect on Knowledge Sharing Behavior ($f^2 = 0.067$) and a medium effect on Perceived Performance ($f^2 = 0.112$), indicating a meaningful contribution to shaping performance perceptions. Table 4 also presents the results of hypothesis testing, in which the hypotheses were assessed using the BCa bootstrapping method. All nine direct hypotheses and four mediation hypotheses were supported with p-values < 0.05. In other words, knowledge-sharing behavior in this study acts as a partial mediator.

DISCUSSION

The findings of this study provide a contextual explanation of how employees' perceived performance is shaped in a project-based construction company. PT Brantas Abipraya operates in an environment characterized by temporary project teams, geographically dispersed sites, technical complexity, strict deadlines, and strong dependence on experiential knowledge. Almeida & Soares (2014) explain that project-based organizations often face difficulties in transferring knowledge across projects, while (Ren et al., 2018) emphasize that the temporary and fragmented nature of project work affects inter-project knowledge transfer. In this context, perceived performance is not determined only by individual motivation, self-confidence, or technology use, but also by employees' ability to access, exchange, and apply relevant knowledge in solving project-related problems. Therefore, knowledge-sharing behavior becomes a critical mechanism that connects intrinsic motivation, extrinsic motivation, self-efficacy, and KMS usage with perceived performance. This argument is also consistent with (X. Li et al., 2023), who show that knowledge sharing in construction project work involves the interaction of various knowledge domains and skills across project phases. Although all hypothesized relationships are statistically significant, the interpretation of the findings should also consider the magnitude of the effect sizes. The results indicate that not all significant relationships have the same practical strength. Therefore, the discussion distinguishes between variables that are statistically significant and variables that provide stronger substantive contributions to perceived performance. This distinction is important to avoid overstating the role of motivation, self-efficacy, or technology use when their direct effects are relatively small.

The positive effect of intrinsic motivation on knowledge-sharing behavior indicates that employees who are internally motivated are more willing to share knowledge voluntarily because they perceive knowledge sharing as meaningful, not merely as a formal work obligation. Assegaff et al. (2016), Anna Gustina Zainal et al. (2022), and Sun et al. (2022) similarly show that intrinsic motivation encourages individuals to participate in knowledge exchange. From the perspective of Self-Determination Theory, Deci (1975) explains that individuals are more likely to engage in activities that provide internal satisfaction, while Wang & Hou (2015) argue that self-determined motivation strengthens participation in knowledge-sharing activities. Intrinsic motivation also has a positive effect on perceived performance, supporting Gagné & Deci, (2005), Zhen et al. (2021), Sulistamtama et al. (2024), Lestari (2022), and Rachman and Ali (2023). However, the relatively small effect size of intrinsic motivation on perceived performance suggests that motivation alone may not be sufficient to create stronger performance perceptions unless it is translated into concrete work behavior. More specifically, the direct effect of intrinsic motivation on perceived performance should be interpreted cautiously because its effect size is very small. This means that although intrinsically motivated employees may perceive themselves as more engaged and

proactive, intrinsic motivation does not appear to be the main direct driver of perceived performance in this context. Its contribution becomes more meaningful when it stimulates knowledge-sharing behavior, through which employees can transform personal enthusiasm into useful work-related exchanges, learning, and problem solving.This explains why knowledge-sharing behavior partially mediates the relationship between intrinsic motivation and perceived performance. As Hsu et al. (2007); Kim & Lee (2010); Nonaka & Takeuchi (1995); Ryan & Deci (2000) explain, individual motivation becomes more valuable when it encourages knowledge exchange, learning, and the conversion of individual knowledge into collective knowledge.

The positive effect of extrinsic motivation on knowledge-sharing behavior and perceived performance indicates that rewards, recognition, promotion opportunities, and career development can encourage employees to share knowledge and evaluate their performance more positively. Kankanhalli et al. (2005) explain that extrinsic rewards can motivate individuals to contribute knowledge to electronic knowledge repositories, while Lin (2007) shows that both intrinsic and extrinsic motivation influence knowledge-sharing intention. Nguyen et al. (2019), Lee and Bae (2020), Ong et al. (2021), and Rachman and Ali (2023) also support the view that extrinsic motivation contributes to knowledge sharing and performance-related outcomes. In the context of construction projects, external recognition is particularly important because employees often work under high pressure, tight schedules, and complex coordination demands. Nevertheless, the small effect size of extrinsic motivation on perceived performance indicates that rewards and recognition should not be interpreted as dominant direct determinants of performance perception. Their practical contribution appears to be limited when they operate alone. In other words, external incentives may encourage employees, but their impact on perceived performance becomes more relevant when such incentives are connected to knowledge-sharing practices, such as contributing project experience, documenting lessons learned, and helping colleagues solve technical problems. The mediation effect of knowledge-sharing behavior further indicates that extrinsic motivation does not only influence perceived performance directly, but also operates through knowledge exchange. Chen & Huang (2009) show that human resource practices can improve performance through knowledge management capacity, while X. Zhang & Bartol (2010) highlight the role of motivational mechanisms in encouraging knowledge-related behavior. From Bandura's (1997) Social Cognitive Theory, external reinforcement can shape behavior by influencing expectations and perceived outcomes; therefore, rewards and recognition may function as organizational signals that knowledge contribution is valued.

The use of Knowledge Management System has a positive and significant effect on both knowledge-sharing behavior and perceived performance. Importantly, KMS usage shows the strongest effect on knowledge-sharing behavior compared with other antecedent variables. However, the effect-size pattern suggests that the main practical contribution of KMS lies more in enabling knowledge-sharing behavior than in directly shaping perceived performance. While KMS usage has a relatively stronger effect on knowledge-sharing behavior, its direct effect on perceived performance remains small. This implies that technology infrastructure alone is insufficient to improve employees' performance perceptions unless it is actively used as a medium for exchanging, retrieving, and applying project knowledge. This finding indicates that technological infrastructure plays a central role in facilitating knowledge flows within PT Brantas Abipraya. Alavi & Leidner (2001) explain that knowledge management systems support the creation, storage, transfer, and application of organizational knowledge, the role of knowledge

management in supporting performance-related outcomes (Chen & Huang, 2009; Ranjan & Bhatnagar, 2011; Razouk et al., 2009; Usman et al., 2021; Wang & Hou, 2015). In project-based construction companies, knowledge is often dispersed across divisions, project locations, and temporary teams. Therefore, KMS helps employees document, retrieve, distribute, and reuse knowledge more systematically. This explains why KMS is not merely an administrative tool, but a strategic platform for transforming dispersed individual knowledge into accessible organizational knowledge.

The mediating role of knowledge-sharing behavior between KMS usage and perceived performance shows that KMS improves performance perceptions not simply because the system exists, but because employees use it to exchange and apply knowledge. Pelealu (2022) supports this interpretation by showing that knowledge sharing can mediate the effect of KMS use on employee performance. Dabbas & Daud (2024), citing Almanac (2023), also emphasize that knowledge management systems can enhance organizational performance when they support knowledge processes within the organization, while Gates (2024) discusses KMS as an important support mechanism for organizational performance. In construction work, employees often face non-routine field problems, changing project conditions, and coordination challenges that require timely access to previous project experience. Thus, when KMS enables employees to access lessons learned, avoid repeated mistakes, and support decision-making, it becomes a meaningful driver of perceived performance. This is also consistent with Li et al. (2023), who explain that knowledge sharing in construction project work depends on the interaction of knowledge domains, skills, and project phases.

Self-efficacy has a positive and significant effect on both knowledge-sharing behavior and perceived performance. (Bandura, 1977) explains that self-efficacy shapes individuals' confidence, effort, and persistence when facing challenges. This finding is consistent with Mustofa and Nugroho (2022), Raharso (2022), Yunita (2021), Olowodunoye (2015), Lestari (2022), Juliana et al. (2022), Nasution and Saragih (2023), Najlaputri and Wahyuningtyas (2024), Annisa and Ginarti (2023), and Hidayat and Panjaitan (2023), who found that self-efficacy contributes to knowledge sharing and performance-related outcomes. In construction work, self-efficacy is particularly relevant because employees need confidence to express technical opinions, propose solutions, and share field experiences. Compared with intrinsic and extrinsic motivation, self-efficacy provides a more meaningful direct contribution to perceived performance, although its effect should still be interpreted as moderate rather than dominant. This suggests that employees' confidence in their own competence is more directly related to how they evaluate their work performance, especially in project environments that require independent judgment, technical problem solving, and persistence under pressure. The mediation effect of knowledge-sharing behavior indicates that employees' belief in their competence contributes to perceived performance partly because it encourages them to share ideas, experiences, and solutions. Na-Nan et al. (2019), Safdar (2020), and Kim and Yun (2015) similarly show that self-efficacy and coworker knowledge sharing can strengthen performance through psychological and collaborative mechanisms.

Overall, the findings show that knowledge-sharing behavior is the central mechanism in the research model. This conclusion is supported not only by statistical significance but also by the relative magnitude of the effect sizes. Knowledge-sharing behavior has the strongest direct effect on perceived performance compared with the other direct predictors, indicating that it has the most substantial practical relevance in the model. By contrast, the direct effects of intrinsic

motivation, extrinsic motivation, and KMS usage on perceived performance are relatively small, suggesting that these factors should be understood primarily as enabling conditions rather than dominant direct determinants of perceived performance. Although intrinsic motivation, extrinsic motivation, self-efficacy, and KMS usage all have significant effects on perceived performance, knowledge-sharing behavior shows the strongest direct effect. This means that improving perceived performance in a construction company requires more than increasing motivation, confidence, or technology use separately. Soomro et al. (2024) show that knowledge sharing is important for improving innovation in construction projects, while Li et al. (2023) emphasize that construction project work depends on knowledge exchange across roles and project phases. Theoretically, these findings extend Self-Determination Theory and Social Cognitive Theory by showing that individual psychological factors become more meaningful when they are connected to knowledge-sharing practices. Practically, PT Brantas Abipraya needs to strengthen a knowledge-sharing culture through accessible KMS, managerial recognition, collaborative project routines, and opportunities for employees to document, exchange, and reuse project knowledge.

The mediation findings indicate that knowledge-sharing behavior functions as a behavioral conversion mechanism rather than merely a statistical intermediary. Intrinsic motivation leads to perceived performance through voluntary and learning-oriented knowledge sharing; extrinsic motivation operates through recognition- and reward-based sharing; self-efficacy works through employees' confidence to contribute valuable knowledge; and KMS usage facilitates performance perceptions by reducing barriers to knowledge access, documentation, and distribution. Thus, each mediation pathway reflects a distinct psychological or organizational process through which motivation, confidence, and technology use are transformed into perceived work effectiveness.

CONCLUSION

This study concludes that Intrinsic Motivation, Extrinsic Motivation, Self-efficacy, and the use of a Knowledge Management System (KMS) have positive and significant effects on both Knowledge Sharing Behavior and the Perceived Performance of employees at PT Brantas Abipraya (Persero). In addition, Knowledge Sharing Behavior has been shown to play an important mediating role in linking psychological and technological factors to Perceived Performance. These findings indicate that employees' perceived performance can be enhanced through a combination of individual motivation, self-confidence, the effective use of knowledge management systems, and active knowledge-sharing behavior. Thus, Knowledge Sharing Behavior emerges as a central mechanism in strengthening work effectiveness and employees' contributions to the organization.

From an implication standpoint, this study provides empirical support for Social Cognitive Theory and Self-Determination Theory, particularly in explaining that individual psychological factors, technological support, and interaction with the work environment play important roles in shaping Perceived Performance. From a managerial perspective, the findings indicate that organizations need to make a knowledge-sharing culture a strategic priority, given that Knowledge Sharing Behavior is the most dominant factor influencing Perceived Performance. Such efforts may be undertaken through the provision of discussion forums, collaborative learning activities, the development of communities of practice, the optimization of KMS that is easily accessible and relevant to work needs, as well as the provision of rewards, recognition, and training to strengthen employees' motivation and self-efficacy.

This study has several limitations, as all data were obtained from employees' perceptions; therefore, the findings are subjective, depend on individual assessments, and do not fully represent the organization's objective performance. In addition, the testing of relationships among variables, including the mediating variable, was based solely on a perceptual approach, while the measurement of Perceived Performance relied on a self-report method that may give rise to self-enhancement bias and social desirability bias. Therefore, future studies are recommended to combine perceptual data with objective company data, such as performance reports, key performance indicators (KPIs), or productivity data, as well as to develop measurement instruments that involve multiple sources of assessment so that the findings become more comprehensive, representative, and capable of providing a stronger picture of the factors influencing Perceived Performance.

Another limitation concerns the cross-sectional and non-experimental design of this study. Although the proposed model was developed based on established theories and tested using SEM-PLS, the data were collected at a single point in time and without experimental manipulation. Therefore, the findings should not be interpreted as conclusive evidence of causality. Instead, they indicate statistically significant, theory-driven structural relationships among the variables. Future studies are encouraged to employ longitudinal, experimental, or quasi-experimental designs to provide stronger evidence regarding the temporal and causal ordering among motivation, self-efficacy, KMS use, knowledge-sharing behavior, and perceived performance. More specifically, future studies should include objective project-level performance indicators, such as project completion timeliness, cost variance, productivity, rework or defect rates, safety performance, and supervisor-rated performance. A multilevel design is also recommended to link individual-level factors with team, project, and organizational-level outcomes. Comparative studies involving several state-owned or private construction companies would further strengthen the generalizability of the findings.

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