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Management Control Systems and HEI Performance: The Mediation of Knowledge Sharing

Nanda Suryadi[1], Rimet[2], Arie Yusnelly[3], Reni Farwitawati[4*]
[1,2]Universitas Islam Negeri Sultan Syarif Kasim, Indonesia
[3] Universitas Islam Riau, Indonesia
[4] Universitas Lancang Kuning, Indonesia

ABSTRACT

This study aims to analyze the effect of enabling control systems and coercive control systems on higher education institutions (HEI) performance with knowledge sharing as a mediating variable. The research was conducted on 384 respondents from the academic community in various HEI. The analysis method used was Partial Least Square (PLS) with the help of SmartPLS 4 software. The results showed that both enabling control systems and coercive control systems had a positive and significant effect on HEI performance. In addition, both types of control systems were also found to have a positive effect on knowledge sharing. Other findings show that knowledge sharing has a significant positive effect on HEI performance and is able to mediate the relationship between control systems and institutional performance. Theoretically, this study reinforces the Resource-Based View (RBV) concept by emphasizing the important role of knowledge-based capabilities as strategic resources. Practically, the results of this study have implications for HEI managers to balance the application of control systems that are supportive and demand compliance, as well as encourage a culture of knowledge sharing to improve the quality and competitiveness of the institution.

Keywords*: HEI Performance, Management Control System, Knowledge Sharing, Resource Based View.*

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INTRODUCTION

Higher education institutions play an important role in national development, particularly in improving the quality of human resources, research, and innovation, which can have a direct impact on national competitiveness and public welfare. In Indonesia, higher education institutions play a strategic role in supporting the achievement of the Human Development Index (HDI), which is related to the quality of education, poverty levels, and social equity (Vlasceanu et al., 2007). Improvements in the performance of higher education institutions are expected to contribute significantly to national progress, as these institutions are the main centers for the development of science and technology that impact socio-economic welfare.

However, even though Indonesia has more than 4,000 higher education institutions (BPS, 2024), many of them still face challenges in achieving optimal performance, especially those located outside of Java. In Riau Province, for example, there were 119 higher education institutions in 2024, but only two were ranked among the best in Indonesia. Riau University (UR) was ranked 53rd, while Riau Islamic University (UIR) was ranked 98th (Kemendikbudristek, 2024). The performance of higher education institutions can be seen, among other things, from the PT ranking. The ranking assesses the performance of PTs using various measurement indicators (Hermawan et al., 2019)

In addition, around 22% of higher education institutions in Riau are not yet accredited and 14% are accredited as adequate (C) (BPS, 2024), which indicates a major challenge in the quality of teaching and research in the region. This quality gap reflects the need for intervention to improve the academic and operational quality of higher education institutions in Riau. The following is data on the accreditation of higher education institutions in Riau Province in 2024.

Table 1. Higher Education Accreditation Data in Riau Province for 2024

No	HEIs Accreditation Status	Number of HEIs	Percentage
1	Excellent	3	2,5
2	A	3	2,5
3	B	71	59
4	C	16	14
5	Not Yet Accredited	26	22
Jumlah		119	100

Source: *PD-Dikti (2024)*

This data reflects that many HEIs in Riau have not been able to meet the expected educational quality standards. One of the main factors causing the low quality of teaching and research in higher education institutions is suboptimal management, which is related to financial system arrangements, resource allocation, and inefficient decision-making processes. Therefore, an effective system is needed to help higher education institutions manage resources, improve accountability, and ensure the achievement of desired institutional goals.

The implementation of an appropriate Management Control System (MCS) can improve the performance of higher education institutions by managing and optimizing the use of organizational resources, increasing transparency, and facilitating better decision-making in achieving institutional goals (Ismail, 2016). MCS involves various types of controls that help ensure the achievement of set goals, maintain operational efficiency, and improve risk management. In the context of higher education, MCS is essential for improving the quality of teaching, research, and community service, as well as improving financial and human resource management. Considering that HEIs, in general, and private HEIs, in particular, operate in complex and contingent environments requiring both compliance and flexibility (Farwitawati et al., 2025) it is critical to understand this linkage for effective university good governance and performance improvement.

MCS in higher education involves two main types of control: enabling control systems and coercive control systems. Enabling control systems, which emphasize empowerment, flexibility, and transparency, strengthen individual participation, enhance creativity, and encourage innovation. In contrast, coercive control systems focus more on strict supervision and compliance with established standards, which contribute to consistency and discipline within the organization (Radtke & Widener, 2016). Although both controls are important, their application in higher education, especially in Riau, is still limited. Most existing studies examine each control separately (Bernd & Beuren, 2022; Dimes & de Villiers, 2020), leading to different results regarding their influence on organizational performance. Some studies show that enabling control can improve performance by increasing creativity and individual empowerment (Wijethilake et al., 2018), while coercive control is more effective in maintaining discipline and compliance with procedures (Bisbe et al., 2019). Research examining both types of control simultaneously in the context of higher education, particularly in Indonesia, is still very limited and represents a research gap that needs to be filled.

In addition, previous studies have also shown that SPM has a direct influence on organizational performance, with studies such as Gupta & Sharma (2014), Hokayem & Kairouz (2014), and Kardos (2012) proving that MCS has a positive effect on performance. However, there are also other studies that did not find a strong relationship between SPM and performance (Henri, 2006; Moores & Mula, 2000). This ambiguity occurs because many studies do not combine both types of control in one model, even though they can complement each other to achieve better performance (Bisbe et al., 2019). Therefore, this study aims to examine both types of control simultaneously in the context of higher education, adding the role of knowledge sharing as an intervening variable.

Knowledge sharing among lecturers is crucial in creating a culture of collaboration that encourages improvements in teaching, research, and community service. Previous studies have shown that effective knowledge sharing can enhance creativity, innovation, and learning among individuals in higher education, which in turn will improve overall organizational performance (Zhao et al., 2020). Therefore,

understanding how both types of SPM can facilitate productive knowledge sharing is important for improving higher education performance.

The rapid pace of digital transformation and the widespread adoption of remote work models after the pandemic have reshaped the way higher education institutions operate, influencing organizational structures and creating new challenges in human resource management and learning processes (Hershkovitz et al., 2021). In this context, management control systems that integrate both enabling and coercive controls are essential to capture the dynamics of academic governance that increasingly emphasize flexibility and digital collaboration. Prior studies, however, have largely examined these two control systems in isolation, overlooking the importance of their integration within changing organizational cultures, particularly in HEI, to enhance performance in a digital era driven by innovation and accountability (Larsen et al., 2022; Pratolo et al., 2022).

Research on the application of management control systems (MCS) in higher education remains limited compared to the business sector, due to the unique complexity of academic environments that prioritize social and educational objectives rather than mere operational efficiency (Kim, 2008). HEI must also navigate governance challenges involving multiple stakeholders with diverse interests, such as faculty, students, and administrators. This gap is further compounded by the difficulty in measuring academic performance, which extends beyond quantitative metrics to include the quality of education and research outcomes (Asif & Searcy, 2014).

Accordingly, this study aims to fill the literature gap by examining the integrated application of enabling and coercive control systems in higher education institutions, particularly in Indonesia. Beyond testing the relationship between MCS and HEI performance, this study also seeks to provide a deeper understanding of the mediating role of knowledge sharing in improving institutional outcomes. The expected contribution lies not only in enriching theoretical insights into MCS implementation in higher education but also in offering practical guidance for HEI management to design more effective control systems that enhance teaching, research, and community service, while strengthening accountability and financial transparency.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Grand Theory and State of the Art

The resource-based view (RBV) argues that unique and valuable resources, combined with organizational capabilities, are central to sustaining competitiveness (Berg & Madsen, 2020; Santos et al., 2022). Key capabilities include learning, market orientation, and entrepreneurship (Henri, 2020). RBV emphasizes how resources enhance both individual and managerial capacity to create competitive advantage and achieve organizational goals (Endenich et al., 2022).

To optimize these resources, organizations require management control systems (MCS) that direct and allocate them effectively (Dimes & de Villiers, 2020). MCS fosters employee and managerial capabilities that drive performance (Kallunki et al., 2011). This study adopts RBV as the theoretical basis to link MCS with capability development and performance outcomes (N. A. Ahmad & Mohamed, 2018).

MCS functions as a managerial tool to ensure resources are used efficiently (Ismail, 2016; Davila & Ditillo, 2017). By incorporating knowledge sharing as a key capability, MCS provides direction for innovative strategies despite limited resources. A well-designed MCS thus encourages breakthroughs that enhance organizational performance (Kartika & Ellitan, 2022).

MCS and HEI Performance

Higher education competition in Indonesia has intensified, especially in accreditation and rankings. To improve quality, the government adopted the Kaizen method for quality assurance in 2018, reflecting a commitment to TQM principles (Octavianus et al., 2021). All academic and non-academic activities are required to follow standards, performance indicators, and continuous improvement strategies. At the same time, strengthening internal control has become a national priority (Sofyani et al., 2022).

HEI primarily aim for academic quality, efficiency, and accountability rather than profit. Effective MCS supports these objectives by ensuring resources are used optimally, decisions are well-informed, and services meet expected standards (Brown, 2001; Pratolo et al., 2022; Gordon & Kalenzi, 2019).

Research on MCS in HEI remains limited compared to the business sector. Prior studies often overlook the appropriate design of MCS and strategic approaches for higher education contexts (Muktiyanto et al., 2020; Bobe & Taylor, 2010). Yet, internal organizational contexts and MCS are critical in achieving performance outcomes (Kardos, 2012; Gupta & Sharma, 2014).

MCS informs decision-making, planning, and evaluation (Rotzel, 2019). It also builds collaboration toward shared goals (Ong, 2019). Specifically, enabling controls promote empowerment, flexibility, and transparency, fostering collaboration and innovation:
H1: Enabling control system positively affects HEI performance.

Meanwhile, coercive controls emphasize supervision and compliance, enhancing discipline, quality control, and consistency:
H2: Coercive control system positively affects HEI performance.

MCS and Knowledge Sharing

MCS plays a crucial role in higher education administration, with enabling and coercive controls working as complementary mechanisms. Enabling control supports openness, empowerment, and collaboration, while coercive control ensures compliance and alignment with procedures (Radtke & Widener, 2016).

From the RBV perspective, both MCS and knowledge sharing are unique, rare, and difficult to imitate, making them strategic resources. Effective knowledge sharing embedded in academic culture strengthens collective capability and drives innovation in teaching and research (Zhao et al., 2020; Santos et al., 2022).

Thus, both controls jointly shape HEI capabilities: enabling control stimulates creativity, while coercive control maintains discipline and efficiency (Simons, 1995). This leads to the hypotheses:
H3: Enabling control system positively affects knowledge sharing.
H4: Coercive control system positively affects knowledge sharing.

Knowledge Sharing and HEI Performance

Knowledge sharing is an essential capability that enhances learning, employee readiness, and organizational growth (Jamshed & Majeed, 2023; Nezafati et al., 2021). It develops stronger relationships between senior and junior staff and promotes collective capacity (Le & Le, 2023).

In higher education, effective knowledge sharing fosters innovation in teaching and research, strengthens community service, and directly improves institutional performance (Z. Wang & Wang, 2012). Thus:

H5: Knowledge sharing positively affects HEI performance.

Knowledge Sharing as a Mediator Between MCS and HEI Performance

Enabling controls emphasize flexibility and participation, fostering open environments for knowledge sharing (Radtke & Widener, 2016). Knowledge, viewed through RBV, becomes a strategic resource that strengthens competitiveness (Barney, 1991). Studies confirm enabling controls enhance knowledge sharing cultures that improve organizational outcomes (Pratolo et al., 2022; Burney et al., 2009). Thus:

H6: Knowledge sharing mediates the relationship between enabling control system and HEI performance.

Coercive controls emphasize structure and compliance. While sometimes restrictive, they can enforce formal knowledge sharing aligned with institutional standards (Beuren et al., 2019; Zhang et al., 2020). This structured knowledge supports quality assurance and governance in HEIs. Thus:

H7: Knowledge sharing mediates the relationship between coercive control system and HEI *performance.*

Overall, the theoretical model suggests that enabling and coercive controls are complementary: enabling fosters openness and innovation, coercive ensures consistency and accountability. Knowledge sharing bridges the two, enhancing education, research, and service quality, thereby strengthening sustainable competitive advantage.

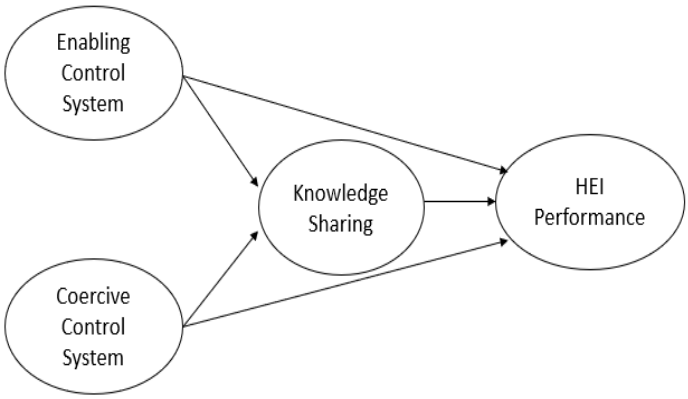

Figure 1. Research Framework

RESEARCH METHOD

This study adopted a quantitative, cross-sectional survey design targeting university lecturers in Riau Province, where the total population in 2025 was 6,839 (PD-Dikti, 2025); using the Slovin formula with a 5% margin of error, a minimum sample of 378 respondents was determined. Measurement instruments were adapted from previously validated scales and refined to fit the study's context, with all variables assessed using a five-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree").

HEIs performance is measured using 3 indicators (Iqbal et al., 2024), namely teaching performance (Dicker et al., 2019; Goos & Salomons, 2017), research performance (Yaakub & Mohamed, 2020), and service performance (Asif & Searcy, 2014; Badri & Abdulla, 2004; Hui et al., 2003; Nedwek & Neal, 1994). Enabling control is measured using 5 indicators (Beuren & Santos, 2019), coercive control is measured using 7 indicators (Beuren & Santos, 2019), and knowledge

sharing is measured by 5 indicators used by Santos et al. (2022). The detailed composition of the research instruments, including the specific indicators used to assess HEIs performance, enabling control, coercive control, and knowledge sharing, is presented in Table 2.

Table 2. Research Instrument

Variable	Item	Indicators
HEI Performance	HP1	My HEI shows strong performance in teaching activities.
	HP2	My HEI shows strong performance in research activities.
	HP3	My HEI shows strong performance in service/community engagement.
Enabling Control System	ECS1	There are incentives to share information and encourage interaction between leaders.
	ECS2	There are opportunities provided to learn and solve problems collaboratively.
	ECS3	I have the freedom to innovate when facing obstacles.
	ECS4	I am given flexibility in achieving goals and carrying out activities.
	ECS5	The system promotes continuous improvement, transparency, and operational flexibility.
Coercive Control System	CCS1	Directing actions according to management standards
	CCS2	Determining activities to be carried out
	CCS3	Specific division of tasks
	CCS4	Reporting on the conformity of actions with the plan
	CCS5	Monitoring compliance with procedures
	CCS6	Communicating expected behavior
	CCS7	Limiting managerial decision-making authority
Knowledge Sharing	KS1	Sharing knowledge from work experience
	KS2	Sharing expertise gained from education and training methods
	KS3	Sharing knowledge gained informally
	KS4	Sharing knowledge from partners
	KS5	Believing that knowledge sharing can improve performance.

Source: Created by Authors

Data analysis was conducted using structural equation modeling (SEM) techniques estimated from partial least squares (PLS) using SmartPLS v.3.3 software. This technique allows estimating a series of separate but interdependent multiple regression equations simultaneously by specifying a structural model (Hair et al., 2014). Validation was conducted using PLS bootstrapping analysis with bias-corrected and accelerated (BCa), and a significance of 0.05 on a two-tailed test.

RESULT AND DISCUSSION

The demographic profile of respondents shows a fairly balanced distribution across sectors, with 49.0% from the public sector and 51.0% from the private sector. Gender is also nearly equal, consisting of 49.7% male and 50.3% female participants. Most respondents hold a doctoral degree (79.4%), while 20.6% have a master's degree. In terms of age, the majority are between 35–50 years old (58.9%), followed by 25–35 years (39.3%), and only 1.8% are above 50 years. Regarding work experience, more than half of the respondents (50.3%) have 6–10 years of experience, 43.8% have 3–5 years, and only 4.4% have more than 10 years. This indicates that the sample is dominated by mid-career professionals with strong academic qualifications, reflecting a well-experienced and balanced group across gender and sectors.

Table 3. Demographic Characteristics

Characteristics	Frequency	%
Sector		
Public Sector	188	49,0
Private Sector	196	51,0

Gender		
Male	191	49,7
Female	193	50,3
Educational background		
Doctoral Degree	305	79,4
Master Degree	79	20,6
Age		
25-35 y.o	151	39,3
35-50 y.o	226	58,9
> 50 y.o	7	1,8
Work experience		
3-5 y	168	43,8
6-10 y	193	50,3
>10 y	17	4,4

Source: Created by Authors

The measurement model (see Figure 2) was assessed as the initial phase in the Partial Least Squares Structural Equation Modeling (PLS-SEM) procedure, focusing on internal consistency reliability, convergent validity, and discriminant validity (Hair et al., 2022). Items with factor loadings below 0.600 were excluded from the model unless the construct's Average Variance Extracted (AVE) remained above the acceptable threshold of 0.500. Reliability was evaluated using Cronbach's alpha, and both reliability and validity indicators surpassed the commonly accepted benchmark of 0.700. Furthermore, all AVE values met or exceeded the minimum criterion of 0.500, in accordance with prior guidelines (Hair et al., 2014; 2019).

To assess discriminant validity an essential component of construct validity the Fornell-Larcker criterion was applied. This method compares the square root of each construct's AVE with the correlation coefficients between that construct and others in the model. Discriminant validity is confirmed when the AVE square root exceeds any of its corresponding inter-construct correlations (Hair et al., 2022). The detailed outcomes of factor loadings, reliability, and validity assessments are illustrated in Figure 2 and summarized in Tables 4.

Table 4. Loading Factor, Reliability, and Convergent Validity Result

Variabel	Indikator	Loading Factor	Alpha	rho_A	CR	AVE
HEI Performance	HP1	0.943	**0.910**	**0.911**	**0.943**	**0.847**
	HP2	0.910				
	HP3	0.908				
Enabling Control System	ECS1	0.865	**0.927**	**0.928**	**0.945**	**0.773**
	ECS2	0.858				
	ECS3	0.876				
	ECS4	0.903				
	ECS5	0.894				
Coercive Control System	CCS1	0.872	**0.938**	**0.939**	**0.950**	**0.730**
	CCS2	0.873				
	CCS3	0.871				
	CCS4	0.863				
	CCS5	0.835				
	CCS6	0.833				
	CCS7	0.834				
Knowledge Sharing	KS1	0.868	**0.923**	**0.924**	**0.942**	**0.765**
	KS2	0.890				
	KS3	0.867				
	KS4	0.885				

KS5	0.864

Source: Created by Authors

The measurement model results indicate that all constructs demonstrate strong reliability and validity. All indicators show high loading factors above 0.83, confirming their suitability to represent each construct. The Cronbach's Alpha values range from 0.910 to 0.938, exceeding the 0.7 threshold, while Composite Reliability (CR) values also range from 0.942 to 0.950, confirming internal consistency. Furthermore, Average Variance Extracted (AVE) values for all constructs are above 0.73, surpassing the 0.5 benchmark, thus ensuring convergent validity. These results suggest that HEI Performance, Enabling Control System, Coercive Control System, and Knowledge Sharing are measured reliably and validly, making the model appropriate for further structural analysis.

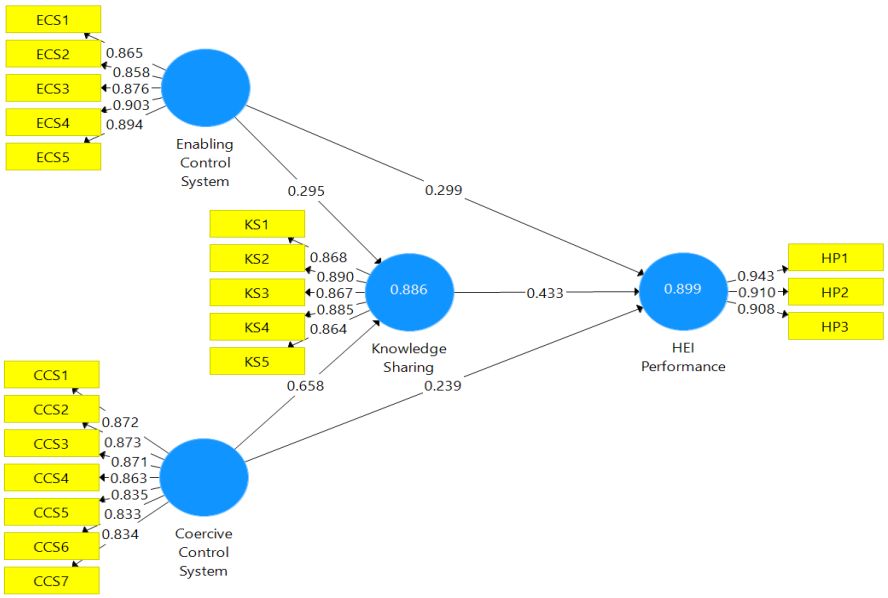

Figure 2. Measurement Model Assessment

The inner model represents the structural relationships among the latent constructs and other variables included in the study. Its evaluation was conducted using a bootstrapping procedure, which generated several key statistical indicators: the coefficient of determination (R^2). The outcomes of the inner model assessment are presented in Table 5.

Table 5. Coefficient of Determinance (R^2) Test Result

	R Square	**R Square Adjusted**
HEI Performance	0.899	0.899
Knowledge Sharing	0.886	0.885

Source: Created by Authors

The R-square results indicate that the model has strong explanatory power. HEI Performance shows an R^2 value of 0.899, meaning that 89.9% of its variance can be explained by the independent variables included in the model. Similarly, Knowledge Sharing has an R^2 value of 0.886, indicating that 88.6% of its variance is also explained by the predictors. The adjusted R^2 values remain almost identical, confirming the robustness and stability of the model. Overall, these results demonstrate that the proposed framework has a very high predictive capability for both HEI Performance and Knowledge Sharing.

Table 6. Hypothesis Testing Result

Hypothesis		Original Sample	Sample Mean	Std. Deviation	T-Statistics	P-Values
Direct Effect Test						
ECS → HP	H_1	0.427	0.429	0.065	6.529	**0.000**
CCS → HP	H_2	0.524	0.521	0.065	8.079	**0.000**
ECS → KS	H_3	0.295	0.296	0.068	4.312	**0.000**
CCS → KS	H_4	0.658	0.658	0.066	9.985	**0.000**
KS → HP	H_5	0.433	0.432	0.049	8.862	**0.000**
Mediation Effect Test						
ECS → KS → HP	H_6	0.128	0.127	0.030	4.242	**0.000**
CCS → KS → HP	H_7	0.285	0.285	0.047	6.056	**0.000**

Note: HP = HEI Performance; ECS = Enabling Control System; CCS = Coercive Control System; KS = Knowledge Sharing

The hypothesis testing results indicate that all direct and mediation effects are statistically significant with p-values of 0.000. For direct effects, both Enabling Control System (ECS → HP, β=0.427, t=6.529) and Coercive Control System (CCS → HP, β=0.524, t=8.079) positively influence HEI Performance. ECS (β=0.295, t=4.312) and CCS (β=0.658, t=9.985) also significantly enhance Knowledge Sharing, which in turn positively impacts HEI Performance (KS → HP, β=0.433, t=8.862). For mediation effects, Knowledge Sharing significantly mediates the relationship between ECS and HEI Performance (β=0.128, t=4.242) as well as between CCS and HEI Performance (β=0.285, t=6.056). These findings suggest that both enabling and coercive controls directly and indirectly improve HEI performance, with Knowledge Sharing playing a crucial mediating role.

Referring to the research findings and analysis of the variables considered to influence HEI performance, the study reveals the magnitude and nature of their effects, as explained below. The results indicate that the enabling control system (ECS) has a significant positive impact on HEI performance. This is consistent with the Resource-Based View (RBV) theory, which emphasizes the importance of unique organizational capabilities, such as flexibility and innovation, in creating competitive advantage (Barney, 1991). ECS, which emphasizes transparency, empowerment, and flexibility, has been shown to encourage faculty to be more creative in teaching and research, thereby improving HEI performance. This finding aligns with Wijethilake et al. (2018), who argue that enabling control strengthens innovation and the achievement of organizational goals.

Meanwhile, the coercive control system (CCS) also has a significant positive effect on HEI performance, even stronger than ECS. This supports Bisbe et al. (2019), who contend that CCS is effective in maintaining discipline, consistency, and procedural compliance, which in the HEI context translates into stronger governance and academic quality. Thus, although CCS is often perceived as limiting flexibility, in practice it plays a critical role in ensuring educational and research quality standards are maintained. Such a relationship has been the focus of extensive research in business organizations; however, it has only received limited investigation in the context of HEIs (Farwitawati et al., 2025).

Furthermore, both ECS and CCS are found to positively influence knowledge sharing (KS). ECS fosters an open and collaborative academic climate, while CCS ensures knowledge is shared consistently according to institutional procedures. This result is consistent with Radtke & Widener (2016) and Zhao et al. (2020), who highlight knowledge sharing as a strategic capability that is difficult to imitate and vital for enhancing higher education performance. In addition, this study confirms that KS has a direct and significant impact on HEI performance, supporting Wang & Wang (2012), who found that knowledge sharing practices enhance innovation and organizational performance.

Moreover, the mediating role of knowledge sharing is also significant in both ECS–performance and CCS–performance relationships. This underscores that knowledge sharing is a key mechanism

linking control systems with academic outcomes. The finding is in line with Burney et al. (2009) and Pratolo et al. (2022), who emphasize the importance of knowledge-based capabilities in mediating the relationship between control systems and organizational results. Thus, this study provides empirical evidence that both control systems operate not only directly but also through processes of collaboration and knowledge exchange among academic members.

CONCLUSION

The conclusion of this study emphasizes that the primary objective of the research is to explain how management control systems, consisting of enabling control systems and coercive control systems, contribute to improving HEI performance by incorporating knowledge sharing as a strategic mechanism. The study successfully demonstrates that both control systems exert significant positive effects, both directly and indirectly through knowledge sharing, thereby providing a more comprehensive understanding of the relationships among variables in the context of higher education. These findings reinforce the Resource-Based View theory, which highlights the importance of unique organizational capabilities, particularly knowledge, as a resource that fosters competitive advantage and contributes to achieving institutional goals. Thus, the study addresses its main objective by illustrating the synergy between control systems and knowledge sharing as a strategic key to achieving superior, accountable, and sustainable HEI performance.

Despite producing important findings, the study is not without limitations. Its scope is restricted to a specific geographic context, which means that generalizing the results to HEI across Indonesia or internationally should be approached with caution. Additionally, the study variables are limited to control systems and knowledge sharing, while other relevant factors such as leadership style, organizational culture, or innovation capabilities were not included in the model. The use of a cross-sectional design also limits the ability to capture the dynamics of variable relationships over time. These limitations highlight that the findings are more indicative and require further testing across different contexts and approaches.

From a practical perspective, the results of this study provide valuable opportunities for application in HEI management, particularly in efforts to enhance the quality of education, research, and governance. HEI leaders can use these findings as a basis for designing balanced control policies that integrate compliance through coercive control systems with participation and flexibility through enabling control systems. Such a combination would create robust governance structures while fostering an academic environment that encourages creativity, innovation, and collaboration. Moreover, cultivating an institutionalized culture of knowledge sharing through academic forums, digital platforms, and incentive mechanisms is essential to ensure effective knowledge management and dissemination, thereby supporting the sustainability of institutional performance. With proper implementation, the findings of this study can serve as practical guidelines for strengthening competitiveness and institutional reputation at both national and international levels.

For future research, it is necessary to develop a more comprehensive model by incorporating additional variables such as organizational culture, leadership style, and innovation capability, which may enrich the analysis of inter-variable relationships. Employing a longitudinal design would also be beneficial in capturing the long-term effects of control systems on performance, providing a more dynamic and continuous perspective. Future studies may also expand the scope by comparing public and private HEI, exploring cross-regional contexts, or adopting mixed-method approaches to achieve a deeper understanding from both qualitative and quantitative perspectives. Furthermore, including additional moderator or mediator variables such as digital literacy, technological readiness, and employee engagement could offer deeper insights into the complexity of these relationships. With these steps, future research will be able to provide broader theoretical and practical contributions while enriching the discourse on management control systems and HEI performance in the digital and competitive era.

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