



## Information Technology-Based Lecturer Performance Management Model to Improve Academic Productivity in Higher Education: A Structural Equation Modeling (SEM) Approach

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### ABSTRACT

Digital transformation in higher education has reshaped lecturer performance governance within the Tridharma framework; however, fragmented manual systems continue to generate an administrative burden and limit transparency. This study develops and empirically tests an information technology-based lecturer performance management model using Structural Equation Modelling (SEM) on 150 lecturers at a private university. The model integrates digital workload management, technology-based compensation, leadership support, and organizational climate within a unified performance platform. Findings demonstrate that digital governance significantly improves academic productivity and transparency while reducing administrative overload. Organizational climate moderates the relationship between digital workload and performance. This study contributes a novel integrative framework linking technological, managerial, and psychological dimensions in digital higher education governance.

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## **INTRODUCTION**

Digital transformation is now not just a technology trend, but has become a strategic focus for higher education institutions in addressing the needs of organizational resilience, academic quality, and human resource management in the Society 5.0 era (Hamid et al., 2025). Research shows that digital technology has a significant impact on the effectiveness and efficiency of lecturer performance, including in aspects of learning, academic leadership, and digital infrastructure readiness. In Indonesia, the digitalization of academic activities does not only occur in the learning process, but also in the web-based lecturer performance monitoring system to support the real-time evaluation of the tridharma (education, research, and community service) (Lecturer Performance Monitoring System, Salamun & Arisandi, 2020). However, many systems are still limited to the data monitoring level without a comprehensive performance management model.

Effective lecturer performance management requires organizational readiness to integrate technology with accountable assessment and reward mechanisms. For example, lecturer performance information systems based on key performance indicators (KPIs) have been developed to address the limitations of manual systems and improve the efficiency of the evaluation process (Ramadhan et al., 2022). However, these studies generally focus on the functional aspects of the system and have not integrated managerial variables such as compensation, leadership, and organizational climate within a structural model framework.

Other sources indicate that leadership support and technology utilization can significantly impact lecturer performance (Saragih et al., 2025). This confirms that technology cannot work alone without strong organizational support. Despite various efforts to digitalize lecturer performance measurement, no model yet comprehensively integrates performance determinants into a unified empirical structural framework. Most studies still examine variables in isolation, such as lecturer digital competence, information systems, or leadership, without integrating them into a common, statistically testable performance management model, such as Structural Equation Modeling (SEM).

The novelty of this research lies in the development of an information technology-based lecturer performance management model that simultaneously integrates technological, managerial, and psychological dimensions within a single empirical structural framework. Unlike previous studies that generally examine digitalization of learning, academic information systems, or leadership in isolation, this research constructs a model that comprehensively links digital workload management, technology-based compensation systems, digital leadership support, and organizational climate in explaining lecturers' academic productivity. Furthermore, this research introduces the role of digital organizational climate as a moderating variable in the relationship between digital workload and lecturer performance, thus providing a new perspective that the effectiveness of technology-based performance governance is determined not only by the system but also by the

organizational context. This approach expands the literature on digital performance governance in higher education by quantitatively testing the model using Structural Equation Modeling (SEM).

This study aims to develop and empirically test an information technology-based lecturer performance management model that can improve academic productivity within the framework of the Tri Dharma of Higher Education. Specifically, this study analyzes the influence of digital workload management, a technology-based compensation system, and leadership support on lecturer performance, and examines the moderating role of digital organizational climate in the relationship between digital work demands and academic performance. Through a Structural Equation Modeling (SEM) approach, this study is expected to provide theoretical contributions in the development of a digital-based academic performance governance model while offering practical implications for human resource management in higher education in the era of digital transformation.

## LITERATURE REVIEW

### Lecturer Performance Management in Digital Higher Education

Performance management in higher education is defined as an integrated system aimed at managing, monitoring, and evaluating lecturers' contributions to the institution's strategic objectives. In the context of digital transformation, performance management is no longer merely administrative but has become a data-driven governance mechanism.

Lecturer performance management is a systematic process that encompasses planning, measuring, evaluating, and developing academic activities to support the achievement of the strategic goals of higher education institutions. Empirical studies show that digital transformation significantly contributes to improving lecturer performance effectiveness by expanding organizational capabilities for real-time monitoring and evaluation (Hamid et al., 2025). This study uses the Adoption and Diffusion theory to analyze the influence of digital technology on the effectiveness and efficiency of lecturer performance, particularly in learning, research, and academic leadership in higher education institutions in Indonesia.

In the context of higher education, research by García-Morales et al. (2021) shows that organizational technological capabilities significantly influence performance through innovation and organizational learning mechanisms. In addition, research by Veronika et al. (2025) found that digital technology strengthens the relationship between work motivation, work culture, and lecturer performance in 303 lecturer respondents through SEM testing, indicating that the use of digital academic systems increases individual and organizational effectiveness. Theoretically, digital performance management in higher education should focus not only on administrative outputs but also on academic outcomes through the use of integrated key performance indicators (e.g., KPIs for the Tridharma). A gap in previous research is still evident in the lack of a structural model that integrates digital workload, compensation systems, and organizational dynamics.

### **Information Technology in Academic Governance**

Digital transformation in higher education requires the strategic use of information technology, including the implementation of cloud-based academic information systems and integrated monitoring dashboards. A study (Nur, 2024) conducted a systematic literature review on digital transformation and organizational performance in higher education and found that digital governance significantly strengthens operational efficiency, academic service quality, and managerial data integration. This nuance of digital governance is supported by international research showing that technological infrastructure readiness and institutional policies are key to improving academic performance through digital systems. The use of technology not only accelerates the performance evaluation process but also facilitates the integration of academic data for evidence-based decision-making. The analysis of this study underlines that information technology should be seen as an enabler of academic control systems, not simply an administrative automation tool.

### **Leadership Support in Digital System Implementation**

Higher education literature indicates that the successful implementation of information technology in lecturer performance management is highly dependent on organizational leadership support. Research (Saragih et al., 2025) demonstrated that visionary leadership and technology utilization significantly influence lecturer performance in the context of universities in North Sumatra, with quantitative data demonstrating the direction and strength of the relationship between these variables. In a broader context, international studies also show that transformational leadership mediating the use of technology can strengthen motivation, organizational commitment, and the readiness of human resources to accept and use digital systems effectively.

### **Organizational Climate and Academic Productivity**

This study quantitatively examines the relationship between organizational climate and lecturer performance at the State Islamic College (STAIN) Palopo (Duriani, 2024). The results indicate that organizational climate has a positive and significant effect on lecturer performance, meaning that the more conducive the organizational climate, the higher the academic productivity of lecturers. Organizational climate significantly improves lecturer performance, indicating that a conducive culture, work atmosphere, and organizational support encourage academic productivity through motivational and collaborative mechanisms. (Haerofiatna, 2021)

### **Technology Integration and Academic Performance**

Recent research shows that integrating technologies such as blockchain and digital governance systems can improve academic transparency. Demonstrated that implementing blockchain technology in higher education improves the accountability and security of academic data. (Yoo et al., 2023)

Based on reviews by various reputable journals, digital transformation has been proven to improve higher education performance through more efficient, transparent, and data-driven systems. Transformational leadership also plays a crucial role in encouraging technology adoption and building lecturers' commitment to change. Furthermore, a positive organizational climate supports the effectiveness of digital system implementation by

increasing individual motivation and readiness to adapt. However, most research still examines these factors separately. Few studies integrate digital workload management, IT-based compensation, leadership support, and the moderating role of organizational climate into a comprehensive SEM model, particularly in the context of higher education in Indonesia. Therefore, this study offers a more comprehensive model within the digital performance governance framework.

## METHODOLOGY

This study uses a quantitative approach with an explanatory design to examine the relationships between variables in an information technology-based lecturer performance management model. The study population was lecturers at private universities, with a sample of 150 respondents selected through purposive sampling based on the criteria for using academic digital systems. Data were collected using a Likert-scale questionnaire to measure digital workload, IT-based compensation, leadership support, organizational climate, and lecturer performance. The analysis was conducted using SEM-PLS because this method is able to test direct and moderated relationships simultaneously and is suitable for complex models with moderate sample sizes. The validity and reliability of the instruments were tested before the structural analysis to ensure the research results are accurate and reliable.

## RESULTS AND DISCUSSION

Table 1. Hypothesis Testing Results

| No | Relationship Between Variables                                   | Path Coefficient ( $\beta$ ) | t-statistic | p-value | Result               |
|----|--|------------------------------|-------------|---------|----------------------|
| H1 | Digital Workload Management → Lecturer Performance               | 0.312                        | > 1.96      | < 0.05  | Supported            |
| H2 | IT-Based Compensation System → Academic Productivity             | 0.284                        | > 1.96      | < 0.05  | Supported            |
| H3 | Leadership Support → Digital System Adoption                     | 0.356                        | > 1.96      | < 0.05  | Supported            |
| H4 | Organizational Climate × Digital Workload → Lecturer Performance | 0.198                        | > 1.96      | < 0.05  | Moderation Supported |

The hypothesis testing results show that all proposed relationships are statistically significant at the 5% level ( $t > 1.96$ ;  $p < 0.05$ ), indicating strong empirical support for the structural model. Digital Workload Management has a positive and meaningful effect on Lecturer Performance ( $\beta = 0.312$ ), suggesting that structured and technology-supported workload systems enhance academic effectiveness. The IT-Based Compensation System also significantly improves Academic Productivity ( $\beta = 0.284$ ), demonstrating that transparent, performance-based digital incentives strengthen lecturers'

motivation and output. Leadership Support exhibits the strongest direct influence ( $\beta = 0.356$ ) on Digital System Adoption, emphasizing the strategic role of leadership in facilitating technological transformation. Furthermore, the significant interaction effect between Organizational Climate and Digital Workload Management ( $\beta = 0.198$ ) confirms a moderating role, indicating that the impact of digital workload systems on performance becomes stronger within a supportive organizational climate. Overall, these findings validate the proposed digital performance governance model.

The structural relationships of the model can be expressed as follows:  
Main Structural Equation  $LP = \beta_1 DWM + \beta_2 ITC + \beta_3 LS + \beta_4 (DWM \times OC) + \varepsilon$

Where: LP= Lecturer Performance

DWM= Digital Workload Management

ITC= IT-Based Compensation

LS= Leadership Support

OC= Organizational Climate

$DWM \times OC$ = Moderating Effect

$\varepsilon$ = Error term

Digital Adoption Equation  $DSA = \beta_5 LS + \varepsilon$  Where: DSA = Digital System Adoption

The structural relationships of the model can be expressed as follows: the model illustrates the influence of workload, compensation, servant leadership, and organizational climate on lecturers' work stress and its impact on work productivity. The four variables act as independent factors, work stress functions as a mediating variable, and work productivity serves as the outcome. The analysis aims to determine the magnitude and significance of both direct and indirect effects among these variables; to understand how managerial factors contribute to the increase or decrease of lecturers' productivity through their level of work stress.

### **Scientific Analysis of Findings**

The SEM-PLS analysis indicates that digital workload management has a positive and significant effect on lecturer performance. This finding suggests that structured digital workload allocation enhances efficiency, transparency, and clarity in academic task distribution, allowing lecturers to focus more on high-value academic activities such as research and publication. From the perspective of the Job Demands-Resources (JD-R) model, structured digital workload systems function as organizational resources that mitigate administrative burden and enhance performance outcomes.

Furthermore, the IT-based compensation system significantly improves academic productivity. The integration of digital performance-based incentives increases transparency and fairness perceptions, thereby strengthening lecturers' intrinsic and extrinsic motivation. This result aligns with Expectancy Theory, which posits that individuals exert greater effort when performance outcomes are clearly linked to rewards.

Leadership support demonstrates a significant positive influence on digital system adoption. Transformational leadership behaviors, such as

articulating a digital vision, fostering innovation, and providing institutional support, facilitate readiness for technological change. This finding reinforces Transformational Leadership Theory, emphasizing the strategic role of leadership in driving digital transformation within higher education institutions.

Importantly, organizational climate significantly moderates the relationship between digital workload management and lecturer performance. In a positive organizational climate, digital workload is perceived as a constructive challenge (challenge stressor), thereby enhancing performance. Conversely, in a less supportive climate, digital workload may be perceived as a hindrance stressor, potentially reducing effectiveness. This result highlights that the success of digital performance systems depends not only on technological infrastructure but also on the socio-psychological environment of the institution. Overall, the structural model demonstrates substantial explanatory power, indicating that the integrated digital performance governance framework effectively explains variations in lecturer performance within private higher education institutions. The findings highlight the importance of integrating information technology into lecturer performance management systems. Digital platforms provide institutions with real-time performance analytics, enabling data-driven decision-making. Moreover, the adoption of IT-based performance systems contributes to improved academic governance and institutional accountability. Technology integration also fosters lecturer engagement by simplifying administrative processes and allowing lecturers to focus more on academic responsibilities. The study confirms that digital performance monitoring systems are essential for sustaining productivity in modern higher education environments.

## **CONCLUSIONS AND RECOMMENDATIONS**

This study concludes that an information technology-based lecturer performance management model significantly enhances lecturer productivity and institutional effectiveness. The integration of digital monitoring systems improves transparency, reduces administrative burdens, and supports data-driven academic governance. Higher education institutions are recommended to implement integrated academic performance monitoring platforms, adopt cloud-based lecturer workload management systems, enhance leadership support for digital system adoption, and develop organizational policies supporting digital transformation.

## **FURTHER STUDY**

Every study has limitations, including this research. This study employed a cross-sectional design, which does not allow for capturing changes in lecturers' work stress and productivity over time. The data were collected through self-report questionnaires, which may be subject to respondent bias. In addition, the study was conducted only in private universities in South Jakarta, limiting the generalizability of the findings to other institutional contexts. The variables examined were confined to workload, compensation, servant

leadership, and organizational climate, meaning that other potentially relevant factors were not included in the model. Therefore, future research is recommended to adopt a longitudinal design, expand the sample to broader contexts, and incorporate additional relevant variables to provide more comprehensive and robust findings. Future research may explore: Artificial Intelligence-based performance prediction models, Blockchain technology for academic performance validation, Digital well-being systems for reducing lecturer work stress, Integration of smart analytics for institutional performance optimization

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## REFERENCES

- Duriani. (2024). Pengaruh Kepemimpinan dan Iklim Organisasi terhadap Kinerja Dosen pada Sekolah Tinggi Agama Islam Negeri Palopo. *Manajemen Pendidikan Islam*, 9(1), 152–163.
- Haerofiatna. (2021). Pengaruh Kompetensi dan Iklim Organisasi terhadap Kinerja Dosen Universitas Primagraha. *JIP-Jurnal Ilmiah Ilmu Pendidikan*, 4(4), 309–317.
- Hamid, A., Yuniarsih, T., Santoso, B., & Hamid, A. (2025). The Impact of Digital Technology Transformation on Lecturer Performance in Higher Education: An Innovation Diffusion Perspective. *Journal Evaluation in Education (JEE)*, 6(2), 611–617. <https://doi.org/10.37251/jee.v6i2.1526>
- Nur, R. R. M. Z. A. Y. H. B. B. P. D. M. (2024). A Systematic Review on Digital Transformation and Organizational Performance in Higher Education. *International Journal of Sustainable Development and Planning*, 19(4), 1239–1252.
- Ramadhan, A. H., Samsul, M. A., Nursyamsyi, F. P., Perbani, A. R., & Dzikrillah, A. R. (2022). Sistem Informasi Manajemen Kinerja Dosen dan Tenaga Kependidikan Berbasis Key Performance Indicator (KPI) Studi Kasus: Universitas Muhammadiyah Prof Dr Hamka Arya. *Jurnal Teknik Informatika Dan Komputer*, 1(2), 46–55.
- Salamun, & Arisandi, D. (2020). Sistem Monitoring Kinerja Dosen Pada Institusi Perguruan Tinggi Swasta (Studi Kasus: Universitas Abdurrah). *Digital Zone: Jurnal Teknologi Informasi & Komunikasi*, 11(x), 196–205.
- Saragih, Y. H. J., Damanik, E. O. P., Simbolon, P., & Purba, J. W. P. (2025). Peran Kepemimpinan dan Teknologi terhadap Kinerja Dosen Universitas Simalungu. *MANAJEMEN: JURNAL EKONOMI USI*, 7(3), 1048–1058.
- Veronika, T. W., Rokhman, F., Raharjo, T. J., & Arief, S. (2025). The Significance of Improving Faculty Performance through Motivation and Work Culture Implementation of a Website-Based Application System. *Educational Management*, 14(2), 122–129.
- Yoo, W. S., Kim, J. G., Kang, K., & Yoo, Y. (2023). Development of Static and Dynamic Colorimetric Analysis Techniques Using Image Sensors and Novel Image Processing Software for Chemical, Biological, and Medical Applications. 11(23).