Journal of Applied Engineering and Technological Science
Vol 7(1) 2025:321-336

LEVERAGING INTRANET QUALITY FOR UNIVERSITY FINANCIAL SUSTAINABILITY: THE MEDIATING ROLE OF ENTERPRISE RISK MANAGEMENT

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Received: 09 July 2025, Revised: 30 November 2025, Accepted: 03 December 2025
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ABSTRACT
This study examines how intranet quality affects the financial performance of Malaysian public universities, filling a crucial gap in understanding how internal digital infrastructure supports institutional sustainability. It highlights Enterprise Risk Management (ERM) as a mediating factor translating intranet quality into measurable performance results. A cross-sectional survey was conducted with 210 participants, including risk committees, internal auditors, and top management from 20 public universities in Malaysia. This study used purposive, stratified, and census sampling methods. Intranet quality was evaluated across six key areas: collaboration tools, risk management application, access to proper risk data, interaction in risk problem-solving, communication among the risk committee, and risk management controls. ERM implementation was measured using ISO 31000-aligned standards, while university financial performance was assessed through five income sources: research projects, consultancies, public and private funding, commercialisation, and program offerings. Covariance-based structural equation modelling (CB-SEM) was employed for analysis. Findings reveal that intranet quality significantly improves ERM implementation, positively impacting financial performance. ERM partially mediates this relationship, with more substantial indirect effects than direct ones. This study emphasises the strategic importance of digital infrastructure and risk governance in boosting institutional effectiveness. It proposes a socio-technical model that helps university leaders leverage intranet systems to enhance risk resilience and long-term financial sustainability.
Keywords: *Intranet Quality, Enterprise Risk Management, University Performance, Digital Infrastructure, Socio-Technical Systems*

1. Introduction

The public higher education sector in Malaysia has been substantially adapting to these challenges as universities grapple with a globalized, increasingly cash-strapped, and highly competitive environment. Although public universities are increasingly involved in globalisation and increasing research visibility (Amzat et al., 2023; Yee & Hassan, 2024), they still face the challenge of decreasing government funding, inflexible tuition structures, and increasing operational costs that result from digital transformation (Mamat et al., 2021; Said et al., 2023). These pressures place universities at greater financial risk, affecting their long-term sustainability, making governance and risk management even more crucial. Despite these recent reforms, many institutions continue to experience chronic shortfalls and difficulties in meeting their income-generation targets (Ahmad et al., 2023; Tham & Chong, 2023). Such a continued imbalance indicates a more significant systemic issue: the limited use of internal digital infrastructure for risk-based financial decisions.

The intranet is a core, but relatively underexamined segment of digital infrastructure. Rather than static document repositories, intranets have evolved into socio-technical platforms that provide communication, collaboration, data access, and workflow integration across organisational units. A foundation in Socio-Technical Systems Theory (STS), intranet quality aligns technology capabilities with processes that shape how institutions interpret risk signals and organise decisions. Prior research has established that effective intranet systems foster better

knowledge sharing, operational efficiency, and organisational resilience (Bensi, 2024; Lukhanda & Kakanda-Sinkala, 2024; Rauf et al., 2024). However, most relevant research only involves corporate or private colleges, not public universities. There is a gap in our learning about how intranet quality contributes to risk management within these organisations.

On the one hand, enterprise risk management (ERM) offers an organisation a strategic approach to improving institutional performance by incorporating various risks into planning processes, budgetary measures, and production decisions. The resource-based view (RBV) presents ERM as an organic organisational resource, and this capability transforms organisational resources such as digital infrastructure into the firm's strengths. Empirical research shows that ERM can enhance financial performance by reducing uncertainty, improving compliance, and enhancing the efficiency of risk management systems, thereby improving resource utilisation (Yin et al., 2023; Chairani & Siregar, 2021). However, studies have not yet adequately clarified the role of technological infrastructures, including intranets, in supporting ERM deployment, especially in public universities operating in bureaucratic silos and often not risk-integration-prone.

Furthermore, the literature on the association between intranet infrastructure, ERM, and university performance remains mixed. Studies on intranet quality emphasize its role in communication and data sharing, but rarely connect these functions to risk governance or financial performance. Similarly, ERM studies in higher education focus on governance, culture, and compliance. However, they very rarely consider the digital infrastructure necessary for ERM to work effectively (Rauf, Jabar & Mansor, 2021). No empirical research has synthesized these studies into a single model explaining how intranet quality affects a university's financial performance through ERM. This was a significant theoretical and empirical gap that has restricted our understanding of how digital transformation affects institutional sustainability in the public higher education sector.

This gap can be approached through a relevant, instructive context in Malaysia. The public universities in the country operate under a strict regulatory regime, are often heavily dependent on government revenue, and seek to generate income through research, consultancy, commercialisation, and programme offerings. In an era of evolving financial self-sufficiency, the potential to use intranet systems for risk-based decision-making is becoming more critical. Lessons from Malaysia are also transferable to other developing countries where public universities experience comparable economic stressors, digitalisation challenges, and governance changes.

With this in mind, the current research offers a socio-technical view of how intranet quality positively impacts university financial performance by informing and determining the ERM implementation. Integrating Socio-Technical Systems Theory, Resource-Based View, and Organisational Information Processing Theory, the study conceptualizes intranet quality as a digital resource that improves organisational information processing, supports ERM maturity, and promotes financial performance. Thus, this study meets three research objectives, namely: (a) to examine the relationship between intranet quality and the financial performance of Malaysian public universities, (b) to analyse the relationship among intranet quality, Enterprise Risk Management (ERM), and financial performance in Malaysian public universities, and (c) to determine whether ERM mediates the relationship between intranet quality and financial performance in Malaysian public universities.

The findings in this study will be helpful to academic research agendas as it will be one of the earliest empirical work to integrate intranet quality, ERM practices and financial performance in public higher education; that will also contribute to the theoretical basis of a socio-technical picture and data that will provide a frame of reference to inform public policy reforms and digital transformation approaches which should be deployed for universities in Malaysia and similar educational systems in the region.

2. Literature Review

2.1 Intranet Quality

The intranet quality (IQ) measure reflects the functionality, availability, reliability, and integration capabilities of a company's intranet (Lukhanda & Kakanda-Sinkala, 2024).

Contemporary intrapreneurial systems have evolved from passive information storage to live socio-technical systems of collaboration, automated work, and instant decision support. Research indicates that quality intranet systems lead to better communication efficiency, organisational coordination, and knowledge sharing, resulting in higher overall performance (Fernández et al., 2023; Bensi, 2024). According to the Socio-Technical Systems (STS) Theory, intranets act like a "technical subsystem" which interfaces with organisational structures to produce outputs.

However, although there is strong evidence on the issue in corporate settings, scholarship on the quality of intranets in higher education, particularly in public universities, is relatively scarce. Traditional research may conceptualise intranet use as serving administrative or pedagogical purposes, but it does not directly connect intranet quality with financial or strategic impacts (Antonopoulou et al., 2023). Even fewer studies examine intranet quality as a risk governance facilitator or an ERM maturity enabler. For example, Rauf et al. (2023) identify intranet systems as instruments for risk reporting. Nonetheless, no empirical research has documented significant effects of intranet quality on ERM implementation or financial performance in universities.

Moreover, there is limited empirical data on the role of intranet quality in driving strategic governance functions, including ERM, in public higher education settings. What the literature does not offer is the critical question of how intranet quality ensures a safe, risk-informed decision-making process and overall viability.

2.2 Enterprise Risk Management in Higher Education

Enterprise Risk Management (ERM) is a system for managing risks and risk exposure that affect the institution's strategic goals and mission (COSO, 2004; ISO 31000, 2018). The studies conducted by Abdullah et al. (2024) and Setapa et al. (2020) confirm that ERM adoption improves strategic direction, internal control, and resilience in institutions of higher education. ERM in public universities promotes financial transparency, helps compliance, and optimizes resource disposition (Chairani & Siregar, 2021; Yin et al., 2023; Rauf et al., 2020).

Based on the Resource-Based View (RBV), ERM is a dynamic organisational capability that converts internal information resources into sustainable operational benefits. For ERM to operate efficiently, institutions need high-quality digital infrastructure that enables risk reporting, data integration, and efficient communication. Studies indicate that digital systems, such as intranets, risk dashboards, and analytics platforms, are necessary for ERM maturity (Fernández et al., 2023).

Nevertheless, few higher education studies explore the digital enhancers of ERM implementation. Most ERM studies focus on governance, culture, or compliance, but never consider the technology infrastructure for ERM processes. For example, Yin et al. (2023) identify ERM as a predictor of financial resilience in Malaysian private institutions. Still, the relevance of intranet systems is less well established in the theoretical literature, and the role of this research has not been tested in practice.

Moreover, there is very little evidence on how intranet quality contributes to ERM implementation in universities. There is a presumption of effectiveness of consideration regarding the underlying technological environment for risk reporting and communication.

2.3 University Financial Performance

Public universities' financial performance also includes income diversification, income generation, cost efficiency, and sustainability measures that support long-term financial sustainability. The findings of research add to the call for Malaysia's public universities to improve financial independence in the wake of shrinking government investment and mounting pressure on the government to ensure accountability (Mamat et al., 2021; Said et al., 2023). Income from research projects, consultancies, public and private funding, commercialisation, and program offerings has been identified as an essential proxy for institutional resilience (Jaafar et al., 2021; Kimathi & Irungu, 2024).

Effective ERM implementation facilitates financial outcomes by enabling better resource allocation, reducing risk, and increasing stakeholders' confidence (Chairani & Siregar, 2021; Quang et al., 2024). However, the association between intranet quality and financial performance

has received little attention. The existing research on digitalisation in general treats it as something taught and practiced in teaching and administration, but overlooks its financial consequences.

Besides, no research has examined how digital infrastructure (intranet quality), risk governance (ERM), and financial sustainability in public universities are connected, and how these digital systems contribute to financial development through risk-control mechanisms.

2.4 Integrating Intranet Quality, Enterprise Risk Management, and Financial Performance: A Theoretical Model

Implementing such systems based upon Organisational Information Processing Theory (OIPT) means institutions need digital systems that address uncertainty by improving information flow (Galbraith, 1973). Intranets that are good value not only increase an organisation's information processing capacity but also provide (a) real-time access to risk data, (b) collaborative communication, (c) integrated reporting, and (d) faster decision cycles, which are aspects of the digital transformation in higher education (Benavides et al., 2020; Fernández et al., 2023). This aligns directly with ERM's requirements for accurate, timely, and organisation-wide risk information, as addressed in ERM frameworks such as COSO (2004) and ISO 31000 (2018).

According to the Resource-Based View (RBV), intranet quality is a valuable internal resource while ERM is a capability that converts digital resources into enhanced performance impacts (Barney, 1991; Rodriguez & Edwards, 2014). Simultaneously, socio-technical systems (STS) theory emphasises the necessity for technology systems, such as intranet infrastructure, to align with organisational structures, governance mechanisms, and decision-making processes (Trist & Emery, 1960). Collectively, these theories suggest that high-quality intranet systems are associated with more effective ERM, which in turn improves institutional financial performance (Chairani & Siregar, 2021; Yin et al., 2023).

Although theoretically well-founded, no model has tested ERM as a mediating mechanism between intranet quality and university financial performance. Several reports have either examined ERM in a disconnected fashion (Bamber & Elezi, 2024), regarding intranet as primarily operational tools for administrative (rather than strategic) functionality (Bensi, 2024), or in the private sector, or in non-ASEAN higher education contexts (Kimathi & Irungu, 2024). In this regard, although ERM as a mediating actor remains theoretically feasible, its empirical application is underexplored.

In conclusion, the existing literature lacks a unified framework that combines socio-technical, information-processing, and RBV conceptualizations to elucidate the impact of intranet quality on financial performance through ERM, specifically in Malaysian public universities.

2.5 Hypotheses Development

2.5.1 Intranet Quality towards Financial Performance

Digital systems are often associated with organisational efficiency, but their impact on universities' financial performance remains uncertain. Some studies suggest only possible benefits, such as streamlined coordination and faster information flow.

H1: Intranet quality positively influences the financial performance of Malaysian public universities.

2.5.2 Intranet Quality towards Enterprise Risk Management Implementation

High-quality intranets are essential for advancing ERM maturity and enabling more intelligent enterprise risk reporting.

H2: Intranet quality positively influences Enterprise Risk Management implementation.

2.5.3 Enterprise Risk Management Implementation towards Financial Performance

The more mature the enterprise risk management, the more diversified the revenue and risk, and stakeholder trust is reflected in universities.

H3: Enterprise Risk Management implementation positively influences financial performance.

2.5.4 Enterprise Risk Management as a Mediator

With RBV and OIPT, ERM acts as the capability that turns intranet-facilitated information flows into strategic financial outcomes.

H4: ERM mediates the relationship between intranet quality and financial performance in Malaysian public universities.

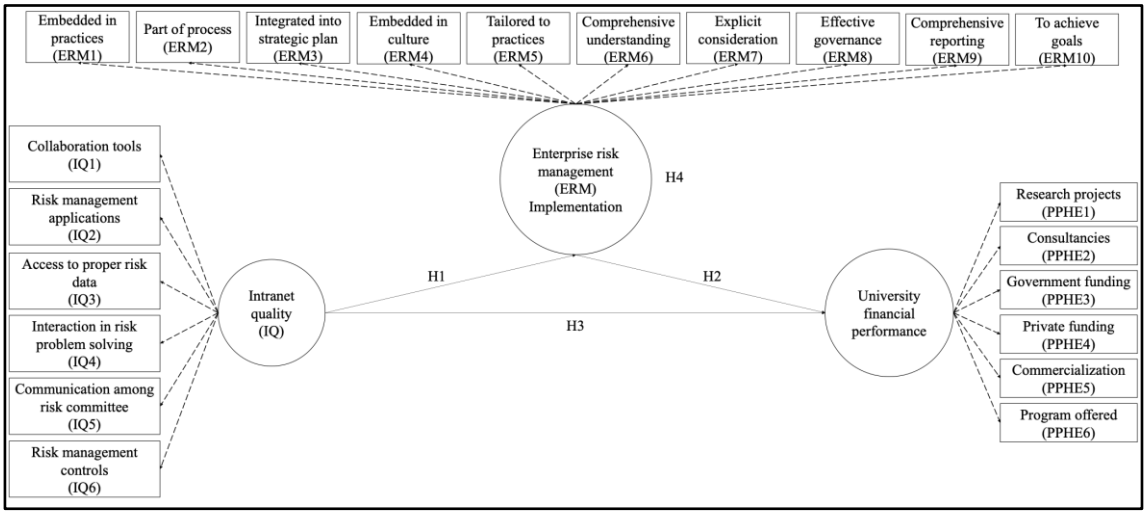

Fig. 1. Research framework

3. Methodology

3.1 Research Design

A cross-sectional quantitative survey design was used in this study to examine the linkages among intranet quality, Enterprise Risk Management (ERM), and the financial performance of public universities in Malaysia. In short, a quantitative approach is chosen for validity because it can systematically test theoretically developed hypotheses using test statistics. The cross-sectional design captures institutional risk and digital governance practices at a single point in time and is well-suited to modeling structural relationships, but it limits causal inference.

3.2 Population and Sampling Procedures

3.2.1 Target Population

The target population comprises the risk committee, internal auditors, and top management of all 20 public universities in Malaysia under the Ministry of Higher Education (MoHE). These individuals were chosen because they handle institutional governance processes, digital systems, risk reporting, and financial decision-making daily. The network frame was constructed using publicly available datasets, including official university websites and organisational charts, to identify individuals with knowledge or experience in risk governance. 350 eligible respondents were found from the universities.

3.2.2 Sampling Strategy

This study used multistage sampling, including purposive, stratified, and census sampling. Abowitz and Toole (2009) suggest multistage sampling to overcome the limitations of single-stage sampling, thereby yielding more reliable results (Shan et al., 2014). Purposive sampling was used to identify three appropriate respondent categories for intranet utilization, ERM implementation, and financial management. By using stratified sampling, this study ensured proportional representation of risk committees, internal auditors, and top management within the institutions, reducing sampling error and enhancing representativeness. Census sampling was performed within a risk committee stratum (n = 60) to address the small sample size, allowing all eligible members to be included. Using Krejcie and Morgan's (1970) guidelines, the final required sample size was determined to be 265 respondents, comprising 60 risk committees, 75 internal auditors, and 130 top management representatives from all Malaysian public universities. Table 1 shows the distribution of respondents by university, supporting the analysis.

Table 1 - Distribution of respondents by university

No.	University Name	Target Respondents			Total	Sample Size			Total
		RCs	IAs	TMs		RCs	IAs	TMs	
1.	Universiti Teknologi Malaysia	3	6	15	24	3	5	10	18
2.	Universiti Malaya	3	8	7	18	3	6	5	14
3.	Universiti Kebangsaan Malaysia	3	5	13	21	3	4	9	16
4.	Universiti Sains Malaysia	3	6	12	21	3	5	8	16
5.	Universiti Putra Malaysia	3	7	9	19	3	6	6	15
6.	Univeristi Utara Malaysia	3	4	14	21	3	3	9	15
7.	Univesiti Islam Antarabangsa Malaysia	3	4	11	18	3	3	7	13
8.	Universiti Malaysia Sarawak	3	3	9	15	3	2	6	11
9.	Universiti Sains Islam Malaysia	3	3	12	18	3	2	8	13
10.	Universiti Teknikal Malaysia Melaka	3	5	10	18	3	4	7	14
11.	Universiti Teknologi Mara	3	10	9	22	3	8	6	17
12.	Universiti Malaysia Terengganu	3	5	11	19	3	4	7	14
13.	Universiti Malaysia Pahang	3	3	7	13	3	2	5	10
14.	Universiti Tun Hussein Onn Malaysia	3	4	9	16	3	3	6	12
15.	Universiti Malaysia Perlis	3	3	8	14	3	2	5	11
16.	Universiti Sultan Zainal Abidin	3	4	10	17	3	3	7	13
17.	Universiti Malaysia Kelantan	3	2	7	12	3	2	5	9
18.	Universiti Pertahanan Nasional Malaysia	3	3	9	15	3	2	6	11
19.	Universiti Pendidikan Sultan Idris	3	4	9	16	3	3	6	12
20.	Universiti Malaysia Sabah	3	5	5	13	3	4	3	10
Total		60	94	196	350	60	75	130	265

Note: RC = risk committees; IA = internal auditors; TM = top managements

3.3 Instrumentation and Measurement Scales

Measures validated in previous studies were adopted and applied to higher education, and the data were adapted to real-world settings. Intranet quality was measured on a six-item scale based on Rodriguez and Edwards (2014), revised in light of emerging higher education digital governance literature. Items included collaboration tools, a risk management application, access to proper risk data, interaction in risk problem-solving, communication among the risk committee, and risk management controls. ERM implementation was evaluated using a scale derived from Lundquist (2015) and ISO 31000:2018, while financial performance was gauged against six indicators adapted from Wang (2010), Ariff et al. (2014), and Asif and Searcy (2014) that capture income coming from research projects, consultancies, public and private funding, commercialisation, and program offerings. For the IQ and ERM, the Likert scale ranged from 1 to 5. Financial performance was rated on a percentage scale to reflect patterns of financial development better, following Carton (2004), Casillas et al. (2009), Zhu (2010), and Heng (2012). Financial measures often use percentages for accuracy (Cooper, 1993; Shrader & Simon, 1997; Zahra & Bogner, 2000). A pilot test with 30 respondents across three universities (not included in the final sample) before data collection corroborated the clarity and reliability of the measurement items.

3.4 Data Collection Procedures

Data collection was conducted via an online survey distributed over 12 weeks via institutional email channels. To increase response rates, periodic reminders were sent to encourage participation. Participation was entirely voluntary, respondents were advised of their rights, and anonymity was guaranteed. No personally identifiable or institutional data was collected, ensuring confidentiality.

Furthermore, this study received ethical approval from the Universiti Kebangsaan Malaysia Human Research Ethics Committee (UKM.PNC.500-4/2/5). Participants provided informed consent to participate in the study. The study followed the confidentiality requirements that required the identification of information and its secure storage. The invitation to participate was voluntary, and participants were fully informed that they could withdraw from the study at any time.

3.5 Data Screening and Assumptions Testing

Before model estimation, the data were pre-screened for completeness, normality, multicollinearity, and outliers. Missing values did not exceed 5%, and significant multivariate outliers were excluded using the Mahalanobis distance. Items were normally distributed, meeting SEM normality assumptions, with slight skewness and kurtosis values. The variance inflation factor (VIF) values were below 3, indicating no multicollinearity. Sample adequacy was assessed using the Kaiser-Meyer-Olkin (KMO) measure, which exceeded the recommended value of 0.80, and Bartlett's Test of Sphericity, which was significant at $p < .001$, confirming the appropriateness of the dataset for factor analysis.

3.6 Reliability and Validity Assessment

To examine the reliability and validity of the measurement model, a Confirmatory Factor Analysis (CFA) approach was undertaken. Cronbach's alpha and Composite Reliability (CR) were used to assess internal consistency, with all constructs exceeding 0.70. Convergent validity was ensured by Average Variance Extracted (AVE) > 0.50 and standardised factor loadings > 0.60. Discriminant Validity was assessed using the Discriminant Validity Index Summary. Diagonal values that exceed the others indicate no multicollinearity issues (Awang, 2015).

3.7 Data Analysis and CB-SEM

Covariance-Based Structural Equation Modelling (CB-SEM) via AMOS was utilized to analyze correlations and mediation effects. The selection of CB-SEM as the proposed assessment method over PLS-SEM was made because CB-SEM was appropriate for confirming theory, a comprehensive model fit assessment was needed, and a sufficient sample size for covariance analysis was available. CB-SEM is a well-suited tool for testing mediation effects and for using reflective measurement models. Model fit was assessed using various indices, as shown in Table 2. All fit indices indicated that the measurement and structural models all fit well. Mediation analysis was performed according to the decision criteria outlined by Awang (2015).

Table 2 - Fitness Indices

Name of category	Fitness Indexes	Acceptance level
Absolute fit	Goodness of fit index	GFI > 0.80
	Root mean square error of approximation	RMSEA < 0.08
Incremental fit	Tucker-Lewis indices	TLI > 0.90
	Comparative-fit indices	CFI > 0.90
Parsimonious fit	Chi Square/Degrees of Freedom	Chisq/df < 3.0

4. Results and Discussion

4.1 Descriptive Statistics

Descriptive statistics in Table 3 for intranet quality (IQ), Enterprise Risk Management (ERM), and financial performance (FP) are presented. The mean values of the constructs were above 3.50, indicating that respondents generally have positive views on the digital infrastructure and ERM practices, as well as the financial trends of Malaysian public universities. Low standard deviations (0.54–0.71) indicate relatively low variability in responses, reflecting uniformity across institutions. Nevertheless, the persistently high means may also suggest that central tendency bias, of the type common in self-reported governance data, is present, in which respondents may rate organisational performance more strongly due to social desirability or institutional loyalty. Nevertheless, the distributional tests did not reveal any extreme outliers,

indicating that the data are suitable for SEM analysis. The means pattern also shows that respondents rated ERM implementation as moderately better than financial performance, consistent with recent reports suggesting that Malaysian universities are enhancing internal controls more quickly than diversifying revenue (Said et al., 2023; Jaafar et al., 2023).

Table 3 - Descriptive statistics

Labels	Items	*M*	*SD*
Intranet quality			
iq1	The Intranet provides access to collaboration tools.	3.60	0.82
iq2	The Intranet provides access to all applications used in risk management.	3.62	0.89
iq3	The Intranet provides access to the proper risk data.	3.63	0.90
iq4	The Intranet facilitates interaction in risk problem-solving process.	3.68	0.87
iq5	The Intranet supports communication among risk management committee.	3.58	0.92
iq6	The Intranet supports risk management controls.	3.56	0.83
Enterprise risk management implementation			
erm1	Risk management is embedded in organizations practices and processed in relevant, effective, and efficient way.	3.52	0.76
erm2	Risk management is part of, not separate from, organizational processes.	3.57	0.87
erm3	Risk management plan is integrated into other organizational plans (e.g.: strategic plan).	3.60	0.86
erm4	Risk management is embedded in the culture and practices of the organization.	3.51	0.84
erm5	Risk management is tailored to the business practices of the organization.	3.52	0.80
erm6	The organization has a current, correct, and comprehensive understanding of its risk.	3.51	0.83
erm7	All decision-making within the organization involves the explicit consideration of risks.	3.64	0.84
erm8	Risk management is seen within the organization as providing the basis for effective governance.	3.68	0.89
erm9	Comprehensive and frequent external and internal reporting on significant risks and risk management contributes substantially to effective governance.	3.74	0.86
erm10	Administrators regard effective risk management implementation as an important to achieve the organizational objectives.	3.74	0.90
Financial performance of Malaysian public universities			
fp1	Income generated from research projects.	3.66	0.82
fp2	Income generated from consultancies.	3.51	0.68
fp3	Income from public funding.	3.65	0.75
fp4	Income from private fundin215g.	3.65	0.76
fp5	Income from commercialization.	3.63	0.67
fp6	Income generated from program offered.	3.62	0.98

Note: n = 210

4.2 Measurement Model

The reliability and validity of all measurement constructs were confirmed by confirmatory factor analysis (CFA). This included exogenous, endogenous, and mediating variables. Intranet quality represented the exogenous variables, financial performance of Malaysian public universities represented the endogenous variables, and ERM implementation served as the mediating variable. The internal consistency of the measurement scales was assessed using Cronbach's alpha. Table 4 presents the Cronbach's alpha values for each construct, indicating good internal consistency ($\alpha > 0.7$).

Table 4 - Reliability analysis

Construct	Cronbach's Alpha
Intranet quality (IQ)	0.91
Enterprise risk management (ERM)	0.95
Financial performance (FP)	0.94

However, the CFA results using the complete data set indicated a poor fit. Although Cronbach's alphas are above 0.7 and all standardized factor loadings exceed 0.60, the goodness-of-fit index (GFI) remained low at 0.75, failing to meet the required threshold of 0.80. This issue was caused by redundancy in some items of the measurement model. This study assessed redundancy using the Modification Indexes (MI) generated by the software. Items with an MI over 15.0 suggested redundancy between two items, which needed to be removed or correlated to achieve a suitable model fit (Awang, 2015). After deleting items iq6, iq2, erm5, and erm6 based on their lower loading, the data fit the model well: GFI = 0.81, with other fit indices indicating good model fit: RMSEA = 0.03, TLI = 0.98, CFI = 0.98, and Chisq/df = 1.171. Hence, the model in this research is valid, as only four items were deleted from a total of 22. This is because the deletion of items should not exceed 20% of the total items in a model. Otherwise, the particular construct itself is deemed to be invalid since it failed the 'confirmatory' test (Awang, 2015). Table 5 shows the CFA of the full measurement model, indicating a good model fit.

Table 5 - CFA of full measurement model

Labels	Items	*SFL*	*t-value*
Intranet quality			
iq1	The Intranet provides access to collaboration tools.	0.86	a
iq3	The Intranet provides access to the proper risk data.	0.85	15.92*
iq4	The Intranet facilitates interaction in risk problem-solving process.	0.81	14.82*
iq5	The Intranet supports communication among risk management committee.	0.89	17.37*
Enterprise risk management implementation			
erm1	Risk management is embedded in organizations practices and processed in relevant, effective, and efficient way.	0.80	a
erm2	Risk management is part of, not separate from, organizational processes.	0.84	14.36*
erm3	Risk management plan is integrated into other organizational plans (e.g.: strategic plan).	0.86	14.95*
erm4	Risk management is embedded in the culture and practices of the organization.	0.85	14.54*
erm7	All decision-making within the organization involves the explicit consideration of risks.	0.83	14.15*
erm8	Risk management is seen within the organization as providing the basis for effective governance.	0.84	14.24*
erm9	Comprehensive and frequent external and internal reporting on significant risks and risk management contributes substantially to effective governance.	0.88	15.38*
erm10	Administrators regard effective risk management implementation as an important to achieve the organizational objectives.	0.87	15.21*
Financial performance of Malaysian public universities			
fp1	Income generated from research projects.	0.85	a
fp2	Income generated from consultancies.	0.86	15.76*
fp3	Income from public funding.	0.85	15.49*
fp4	Income from private fundin215g.	0.84	15.22*
fp5	Income from commercialization.	0.84	15.41*
fp6	Income generated from program offered.	0.86	16.01*

GFI = .81 and other fit indices were: RMSEA = .03, TLI = .98, CFI = .98, Chisq/df = 1.171

Note: n = 210; a – loadings are fixed to unity to scale the latent variable; *<p.001; SFL = standardized factor loading

Once the fitness indexes were accepted, this study assessed convergent validity and reliability by examining each construct's Average Variance Extracted (AVE) and Composite Reliability (CR) values. The reliability and validity of all measurement constructs were confirmed by confirmatory factor analysis (CFA). An average variance extracted (AVE) value greater than 0.50, indicating good convergent validity, and a CR value greater than 0.90, indicating the construct was reliable for the study (Awang, 2015). Table 6 shows that each construct's AVE and

CR exceed the threshold. Therefore, this study included all items from the model for further analysis.

Table 6 - Convergent validity

Construct	Composite reliability (CR)	Average Variance Extracted (AVE)
Intranet quality (IQ)	0.92	0.73
Enterprise risk management (ERM)	0.95	0.72
Financial performance (FP)	0.94	0.72

The Discriminant Validity Index Summary was used to test discriminant validity, and the diagonal values in Table 7 exceed the off-diagonal values. This demonstrates that intranet quality, ERM implementation (ERM), and financial performance have no multicollinearity issues (Awang, 2015). Once the measurement model's Unidimensionality, Validity, and Reliability criteria are met, Confirmatory Factor Analysis will be performed to develop the Structural Equation Model.

Table 7 - Discriminant validity

Construct	FP	IQ	ERM
Financial performance (FP)	.85		
Intranet quality (IQ)	.31	.86	
Enterprise risk management (ERM)	.45	.27	.85

Note: The bold numbers in the diagonal row are the square root AVE values

4.3 Structural Model

Structural Equation Modelling (SEM) with AMOS tested the structural model and examined hypothesised relationships. Table 8 presents the standardized path coefficients and significance levels for the direct effects.

Table 8 - Standardized path coefficients

Predictor Variables	Criterion Variables	β	*t*-value	p-value	Result
Intranet quality	Financial performance	.42	3.05	.002***	Significant
Intranet quality	ERM implementation	.53	5.78	***	Significant
ERM implementation	Financial performance	.23	2.06	.039**	Significant

Findings indicate that IQ correlates significantly with FP (H1) and positively with ERM (H2), and that ERM also significantly correlates with FP (H3). The study tested ERM's mediating role following Awang (2015), shown in Table 9 and Figure 2.

Table 9 - Decision criteria for the mediation effect

Decision	X → M	M → Y	X → Y
	p	*p*	*p*
Full Mediation	S	S	NS
Partial Mediation	S	S	S
No Mediation	NS*	NS*	

Note: p = sig. value; S = Significant; NS = Not significant; One or both the paths is/are non-significant

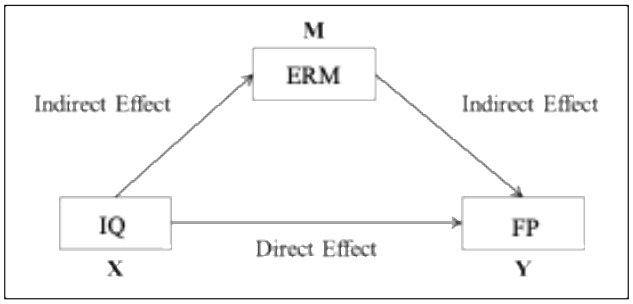

Figure 2 - Indirect and direct effects between IQ, ERM, and FP

Therefore, based on Table 8, all paths IQ → FP, IQ → ERM, and ERM → FP are significant; thus, ERM partially mediates the relationship between IQ and FP (H4). This is because, both directly and indirectly, through ERM, intranet quality improves financial performance.

Table 11 - Objectives and hypothesis testing

Objectives	Hypothesis	Path	Result
RO1: To examine the relationship between intranet quality and the financial performance of Malaysian public universities	H1	IQ → FP	Supported
RO2: To analyse the relationship among intranet quality, Enterprise Risk Management (ERM), and financial performance in Malaysian public universities	H2	IQ → ERM	Supported
	H3	ERM → FP	Supported
RO3: To determine whether ERM mediates the relationship between intranet quality and financial performance in Malaysian public universities	H4	IQ → ERM → FP (Mediation)	Partially supported

Table 11 shows the study's research objectives and the hypotheses considered in the structural equation modelling analysis. Objective 1, which refers to the direct association between intranet quality and financial performance, is consistent with Hypothesis H1 and has a supported relationship from IQ to FP. Objective 2 describes the relationships among intranet quality, ERM, and financial performance and is based on Hypotheses H2 and H3, which are supported, showing strong positive relationships among intranet quality and ERM and ERM and financial performance. Objective 3 explores whether ERM mediates the relationship between intranet quality and financial performance, represented by Hypothesis H4. It has been shown that the mediation (IQ → ERM → FP) pathway is only partially supported, and that even if ERM is not a sufficient explanation, it remains an important one for interpreting the association between intranet quality and financial performance among public universities in Malaysia.

5. Discussion of findings

5.5.1 Direct Effect of Intranet Quality on Financial Performance

The direct positive association between intranet quality and financial performance (H1) can be further interpreted as follows: universities with better-functioning, more reliable, and more integrated intranet systems achieve superior financial performance. This is consistent with Socio-Technical Systems (STS) Theory, which suggests that technological infrastructure improves organisational efficiency when it aligns with workflow processes. Good-quality intranets improve communication, enhance data visibility, reduce administrative lag time, and help make well-informed financial decisions: key components for revenue generation and cost savings in large-scale public universities. The result is echoed in the literature, supporting the positive impact of digital infrastructure on performance and efficiency (Benavides et al., 2020; Fernández et al., 2023). However, this effect was less substantial than that of ERM, suggesting that the intranet system alone might not drive financial improvement unless embedded in structured governance mechanisms.

5.5.2 Intranet Quality as a Driver of ERM Implementation

One of the significant results from the current research is the strong positive influence of intranet quality on ERM (H2). Based on Organisational Information Processing Theory (OIPT), organisations operating in high-uncertainty environments require digital systems that facilitate information processing, accuracy, and responsiveness. Good-quality intranets underpin ERM by enabling consistent risk reporting, facilitating cross-faculty coordination, and encouraging the escalation of risk information. This aligns with Lundquist (2015), who posited that digital tools are key components of institutional risk maturity, and with more recent findings confirming the prevalence of intranet-based dashboards for ERM reporting within universities (Rodriguez & Edwards, 2014). Accordingly, this finding supports the theoretical position that intranet quality is not merely a functionality metric but also a strategic enabler of enterprise risk management.

5.5.3 ERM as a Predictor of Financial Performance

H3 also supports RBV by stating that ERM enhances financial performance and is a resource-based concept, such as dynamic capabilities that enable optimal resource use, improved financial transparency, and reduced performance volatility. Universities with established ERM policies have greater potential to diversify their income sources, anticipate financial disruptions, comply with regulations, and address project-related risks. This is consistent with the findings of Chairani and Siregar (2021) and Yin et al. (2023), who also noted that ERM improves an organisation's sustainability and financial resilience.

5.5.4 Mediation Effect of ERM

The partial mediation evidence (H4) indicates that ERM serves as a transformational mechanism through which the quality of the intranet affects financial performance. This relationship sustains RBV as an indicator that intranet systems, viewed as digital resources, should be incorporated into organisational capabilities (ERM) to produce performance benefits. The indirect effect was larger than the direct effect, suggesting ERM is a more powerful channel for achieving material returns. By providing empirical evidence that digital infrastructure enhances financial outcomes, this finding represents a theoretical contribution, giving proof that digital infrastructure leads to positive financial outcomes only when formalised through risk management frameworks.

In conclusion, the results of this study were consistent with previous studies focusing on the importance of digital infrastructure in enhancing institutional performance (Benavides et al., 2020; Rodríguez & Edwards, 2014). They are consistent with studies demonstrating that ERM improves financial performance (Chairani & Siregar, 2021; Quang et al., 2024). However, the research is beyond studies that indicate, in concrete terms, how intranet quality indirectly affects financial performance through ERM, a relationship that past research in higher education has not empirically tested.

5.5.5 Contradictory Evidence and Bias

While the results suggest all direct paths were statistically significant, effect sizes highlight important nuances that require critical reflection. That is, intranet quality has a clear and significant direct effect on financial performance ($\beta = .42$, $t = 3.05$, $p = .002$). The impact is modestly less than its effect on ERM adoption ($\beta = .53$, $t = 5.78$, $p < .001$). This phenomenon is consistent with what we observed in Antonopoulou et al. (2023), who found that digital systems do not yield effective performance outcomes unless the organisational culture, leadership, and the digital literacy that informs their use are in place. In the case of Malaysian public universities, the much smaller direct effect might be because there are also structural and cultural barriers to access intranet tools being fully unlocked - lack of cohesive governance, a type of operational structure, as well as very little readiness of staff. Finally, the modest effect of ERM on financial performance ($\beta = .23$, $t = 2.06$, $p = .039$) suggests that ERM influences results, albeit with specific consequences that depend on the maturity of risk culture and the institutional consistency in implementing ERM systems. The use of subjective self-report measures is also prone to perceptual bias (respondents may inadvertently exaggerate the perceived quality of intranet

systems or ERM actions) due to social desirability, organisational lock-in, or a lack of insight into the broader organisational process. This will help make the analytical results more understandable and highlight situations in which digital and risk management systems may not be performing optimally.

6. Conclusion and future research

This research aimed to examine the relationship between the quality of an intranet and the financial performance of Malaysian public universities, with Enterprise Risk Management (ERM) as the mediating variable. Results show that intranet quality positively influences ERM adoption, leading to an immediate positive impact on financial performance. While intranet quality is directly positively related to financial performance, its indirect role through ERM is more significant, highlighting that digital infrastructure, by itself, does not yield financial benefits unless it is systematically integrated with risk governance processes. These findings raise several theoretical implications. First, the study contributes to an appreciation of digital governance in higher education by fusing Socio-Technical Systems Theory, Resource-Based View, and Organisational Information Processing Theory into a single model that explains how digital assets enable risk-informed decision-making. The second is that it contributes to the ERM literature by conceiving of ERM as an adaptable capability that transforms intranet-supported information flows to enhance institutional performance. Third, this study empirically demonstrates the power of digital platforms and risk governance in shaping revenue performance at public universities, as documented in the financial sustainability literature.

There are also practical implications for university administrators in the applied domain. Institutions ought not to view intranet systems merely as administrative tools, but rather as strategic investments: assets that help ensure transparent risk communication, integrated reporting, and data-supported decision-making. Utilizing ERM practices in the intranet, for instance, by implementing dashboards, automated risk warnings, and organized reporting templates, may increase visibility and enable organizations to respond to risks. In addition, enhancing staff digital literacy, strengthening data governance, and fostering a culture of cooperative risk exposure would allow universities to make greater use of intranet capacity to support financial sustainability. From a policy perspective, the Ministry of Higher Education (MoHE) may propose a framework for national standards that standardize digital infrastructure readiness and ERM maturity across institutions and integrate them into both quality assurance and performance monitoring frameworks. These recommendations are intended to help universities ensure sustainability in their progress toward implementing digital platforms and aligning them with the goals of risk governance and financial sustainability.

Despite its contribution, this study is, however, faced with some limitations. It is based on a 'cross-sectional' design, which limits the capacity to infer causality and change over time, and relies on self-reported data, which introduces the potential for perceptual bias. Also, the study's focus on public Malaysian universities limits the generalizability of its results to private institutions or universities in other countries with different governance and financial systems. Although appropriate for comparative analysis, assessing financial performance by perceiving percentage changes may fail to capture the complexity of institutional financial ecosystems.

Future work would benefit from overcoming these limitations by using a longitudinal design to address the temporal evolution of digital infrastructure, ERM maturity, and financial outcomes. Cross-sectional or cross-national comparisons between public and private universities would be valuable to examine how institutional arrangements influence the outcomes of digital risk governance. Further, qualitative methodologies such as case studies or expert interviews enhance insights into the internal dimensions of ERM implementation, including leadership processes, leadership styles, and organisational culture. Further research might also investigate other mediators or moderators, such as digital literacy, organisational agility, leadership commitment, or AI–based analytics, to establish a broader model of digital transformation and the financial resilience of higher education.

Acknowledgement

The authors would like to thank the Universiti Kebangsaan Malaysia for sponsoring this study under *Geran Galakan Penyelidik Muda* (GGPM-2023-050) and the Graduate School of Business, Universiti Kebangsaan Malaysia, under the GSB-2025-017.

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