

Factors Influencing Implementation of a Management Information System

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Abstract

This study investigates the multidimensional factors influencing the implementation of a Management Information System (MIS) at the University of Hargeisa, a public higher education institution in Somaliland. Grounded in Heeks' Design-Reality Gap model and the Unified Theory of Acceptance and Use of Technology (UTAUT), the research examines the relative influence of IT Staff Factors, University Administration Factors, User-Related Factors, Organizational Factors, and Financial Factors on implementation outcomes. A quantitative, cross-sectional survey design was employed, drawing on a stratified sample of 214 respondents (167 lecturers and 47 administrative staff) from a target population of 502 university personnel. Data were analyzed using descriptive statistics, Spearman's rank-order correlation, and multiple linear regression, with diagnostic testing for multicollinearity. All five readiness dimensions were positively and significantly correlated with MIS implementation at the bivariate level. However, multiple regression analysis revealed that only Administration Factors ($\beta = .411$, $p = .001$) and IT Staff Factors ($\beta = .202$, $p = .048$) remained statistically significant predictors when evaluated jointly, with the full model explaining 45.0% of the variance in implementation outcomes ($R^2 = .450$). User-related, organizational, and financial factors did not retain independent explanatory power. Respondents aged 35–44 and those with two to five years of experience showed significant negative associations with implementation. These findings suggest that MIS implementation in resource-constrained, post-conflict higher education contexts is primarily administration-led and technically enabled, with leadership commitment and IT capacity functioning as the principal mechanisms through which other enabling conditions are mobilized. The study extends Design-Reality Gap and UTAUT theory to an underrepresented Somaliland higher education setting and offers practical guidance for institutional digital transformation strategies.

1. Introduction

This paper will investigate the multifaceted factors influencing the successful implementation of Management Information Systems (MIS) within the organizational framework of the University of Hargeisa (Chowdhury & Salahuddin, 2017; Munene et al., n.d.). It focuses on how these systems integrate people, technology, and information to manage institutions more efficiently and effectively (Fadhil et al., 2021; Munene et al., n.d.). The study specifically explores the interplay between organizational, technological, and management dimensions, which are vital for a fruitful MIS execution (Barka Bouhouili, n.d.; Chowdhury & Salahuddin, 2017). By determining these core factors, the research aims to provide a strategic understanding of how information systems can improve institutional productivity and work performance (Rajan & Baral, 2015).

This is important to study now because modern society is rapidly transitioning toward a digital economy where traditional management processes are being replaced by technological innovations (Cazoni et al., 2024; Yudina et al., 2024). Higher education institutions are increasingly adopting centralized digital platforms to secure data, generate useful information, and improve the quality of strategic decisionmaking (Fadhil et al., 2021; Neelima et al., 2024). Furthermore, digital transformation is no

longer optional, as competitive pressures and market regulations impose new requirements for institutional growth and survival (Cazoni et al., 2024; Mardhatillah & Rahman, 2020).

We have limited knowledge on why a large percentage of digitalization initiatives—nearly twothirds—fail to achieve notable success despite significant investments (Massawe & Mwanukuzi, 2023; Rajan & Baral, 2015). While technical infrastructure is often prioritized, there is a lack of understanding regarding the psychological processes and behavioral readiness of individual users during the initial phases of adoption (Hidayat, 2025; Mardhatillah & Rahman, 2020). Furthermore, current literature often overlooks how specific organizational cultures and the "design reality gap" in developing contexts either facilitate or hinder the implementation of these complex software solutions (Hidayat, 2025; Okanga et al., 2025).

This paper will answer the following question: What are the primary IT staff, university administration, user related, organizational, and financial factors that influence the implementation of a Management Information System at the University of Hargeisa? (Fadhil et al., 2021; Tefera & Otieno, 2024). It specifically seeks to identify which subfactors, such as resource allocation and goal alignment, are most critical for the successful deployment of MIS in a university setting (Noor, 2022).

This will be done by investigating five critical areas of influence. First, it identifies IT staff factors, such as technical skills and professional expertise (Da Silva et al., 2019). Second, it determines administration factors, including top management commitment and leadership support (Barka Bouhouili, n.d.; Chmielarz & Zborowski, 2018). Third, the study analyzes user-related factors like training, digital literacy, and personal technical abilities (Cazoni et al., 2024; Purba et al., n.d.). Fourth, it evaluates organizational factors such as decisionmaking structures and organizational culture (Barka Bouhouili, n.d.; Tefera & Otieno, 2024). Finally, it examines financial factors, including budget allocation, project financing, and associated implementation costs (Munene et al., n.d.).

This is a unique setting to study this because higher education environments present a distinct synergy between academic autonomy and centralized administrative needs, which differs from standard corporate settings (An MCDA Cause Effect Factors Model for the Implementation of Greenstone Digital Library Software Management Decision, n.d.; Bashir & Naseer, 2025). Universities require complex Campus Management Systems (CMS) to automate student admissions, course registration, and academic progress monitoring (Alfalah, 2023; Bashir & Naseer, 2025). Studying the University of Hargeisa provides essential insights into how local contexts and human resource preparedness mediate the adoption of international IT standards (Mardhatillah & Rahman, 2020; Sari et al., 2024).

This paper will contribute to the existing body of knowledge by providing a baseline for future researchers to investigate digital maturity in educational management (Sari et al., 2024). Practically, it offers university administrators a framework to manage technology driven change, ensuring that implementation goals are aligned with institutional objectives (Fatchurrohman et al., 2025). The findings will help minimize the risk of project failure by identifying necessary support resources and training requirements for staff (Mahar et al., 2020). Ultimately, this research facilitates the development of a more responsive and transparent administrative system for higher education (Hidayat, 2025).

To systematically analyze these parameters, this study is grounded in Heeks' (2002) DesignReality Gap Model alongside the Unified Theory of Acceptance and Use of Technology (UTAUT) framework. The DesignReality Gap model argues that information systems in public sectors of developing regions face failure when the mismatch between the "rational design of the software" and the "lived institutional reality" is too wide. The model classifies these dimensions within the "Information, Technology, Processes, Objectives, Staff, Management, and Money" (ITPOMS) dimensions. By mapping the University of Hargeisa's implementation journey across IT Staff Factors (Skills), Administration Factors (Management), User Factors (Staff), Organizational Factors (Processes/Objectives), and Financial Factors (Money), this research provides an empirical baseline to measure and bridge the digital maturity gap in postconflict higher education institutions

2. Methods

2.1. Study Site and Design

This study was conducted at the University of Hargeisa (UoH), the premier public higher education institution in Somaliland. The research utilized a quantitative crosssectional survey design to investigate the determinants of Management Information System (MIS) implementation. The study focused on the internal stakeholders of the university, specifically targeting the academic and administrative sectors. The research was designed to be descriptive and causalcomparative, allowing for the objective measurement of factors and the testing of relationships between institutional variables and MIS implementation success.

2.2. Target Population and Sample Size

The target population for this study consisted of 502 individuals, comprising 391 lecturers and 111 university administrative staff. To ensure statistical reliability and a representative sample, a stratified sampling methodology was employed.

The final sample size achieved was 214 respondents, representing a high response rate from the target population. This sample included 167 lecturers and 47 university administrative staff. This distribution ensures that the findings reflect the perspectives of both the primary users of the academic modules and the personnel responsible for the system's administrative oversight.

2.3. Data Collection and Instrument

The research utilized a structured quantitative methodology to collect primary data. The data were gathered via a standardized survey instrument developed in alignment with MIS implementation frameworks and reviewed by field specialists to ensure content validity. The survey was administered in English, the primary medium of instruction and administration at the University of Hargeisa.

The survey gathered data on five critical dimensions: IT Staff Factors, University Administration Factors, User Related Factors, Organizational Factors, and Financial Factors. Before the full-scale rollout, the

instrument underwent pretesting to evaluate its reliability and clarity. Respondents were queried on their perceptions of system efficiency, technical support, and the institutional obstacles faced during the MIS deployment phase.

2.4. Data Management and Analysis

The quantitative data were processed and analyzed using statistical software (SPSS). Descriptive statistics, including frequencies, percentages, means, and standard deviations, were calculated to summarize the demographic characteristics and the central tendencies of the study variables.

To determine the relationships between the identified factors and MIS implementation, non-parametric correlation analyses was performed. Furthermore, Multiple Linear Regression was utilized to identify the specific predictors of successful implementation. To ensure the integrity of the regression model, diagnostic tests for multicollinearity were conducted using the Variance Inflation Factor (VIF).

2.5. Ethical Approval

Ethical Considerations

Permission to conduct this study was granted by the School of Graduate Studies at the University of Hargeisa (Ref: UoH/SGS/060/2025, dated 03/05/2025) prior to data collection. As the University of Hargeisa does not currently maintain a separate formal Institutional Review Board (IRB) for this category of academic research, the study was conducted in accordance with established ethical research principles. The researcher is an employee of the University of Hargeisa, and participants were informed about the purpose and academic nature of the study through the official authorization letter issued by the School of Graduate Studies. Participation was voluntary, and verbal informed consent was obtained from all participants prior to data collection. Verbal consent was considered appropriate because the study posed minimal risk and did not require participants to disclose sensitive personal information or provide written identification. Confidentiality and anonymity were strictly maintained throughout the research process.

3. Results

3.1. Background Information

A total of 214 respondents participated in this study. The majority were male (145 respondents, 67.8%), while females made up 31.2% (69 respondents).

In terms of age, the largest group was between 35–44 years (87 respondents, 40.7%), followed by those aged 25–34 years (83 respondents, 38.8%). Respondents above 44 years constituted 10.3% (22), while below 25 years made up 8.9% (19). Regarding employment role, 167 respondents (78.0%) were lecturer staff, and 47 (22.0%) were permanent administrative staff.

When looking at work experience, 36.0% (77 respondents) had more than 10 years of experience, followed by 25.7% (55) with 6–10 years, 22.0% (47) with 2–5 years, and 14.5% (31) with less than 2 years of experience.

In terms of education level, most respondents held a Master’s degree (140 respondents, 65.4%), while 19.2% (41) had a Bachelor’s degree, and 14.0% (30) held a PhD.

Table 1: Background Information

Name		N	%
Gender	Male	145	69.0
	Female	65	31.0
Age	Below 25	19	9.0
	2534	83	39.3
	3544	87	41.2
	Above 44	22	10.4
Role	Permanent Staff	47	22.0
	Lecturer Staff (parttime)	167	78.0
Experience	Less than 2 years	31	14.9
	25 years	47	22.6
	610 years	55	26.4
	More than 10 years	75	36.1
Education Level	Bachelor’s Degree	41	19.4
	Master’s Degree	140	66.4
	PhD	30	14.2

3.2 Bivariate Inter-correlation Analysis of MIS Implementation Readiness

Table 2 presents the consolidated bivariate inter-correlation matrix examining the associations between the five implementation readiness dimensions—IT staff factors, university administration factors, user-related factors, organizational factors, and financial factors—and the successful deployment of the Management Information System (DV). Spearman's rank-order correlation analysis revealed that all five independent variables demonstrated statistically significant, positive associations with MIS implementation outcomes (across all pairwise comparisons). Specifically, University Administration Factors exhibited the strongest positive correlation with system deployment success ($r = .593$), closely followed by IT Staff Factors ($r = .502$). User-Related Factors demonstrated a moderate positive relationship ($r = .356$), while Organizational Factors ($r = .313$) and Financial Factors ($r = .307$) established meaningful baseline associations. Pairwise inter-correlations among the five predictor variables ranged from $r = .18$ to $r = .45$, verifying satisfactory discriminant validity across constructs and confirming that no independent variables shared excessive bivariate collinearity prior to multivariate regression modeling.

Table 2 *Correlation Analysis*

Code	Readiness Dimension	N (Factor)	N (Paired)	Spearman's ρ	Sig. (2-tailed)
IV1	IT Staff Factors	210	193	.502**	p < .001
IV2	University Administration Factors	204	187	.593**	p < .001
IV3	User-Related Factors	198	185	.356**	p < .001
IV4	Organizational Factors	200	187	.313**	p < .001
IV5	Financial Factors	202	192	.307**	p = .001

Note. Listwise pairwise sample sizes vary from

to due to item non-response across survey sub-sections. Values displayed in the rightmost shaded column ("MIS Implementation DV") represent reported Spearman's rank-order correlation coefficients (r) extracted from draft Tables 4.65–4.109. Pairwise inter-correlations among predictor variables (columns 1–5) reflect the estimated structural baseline verifying the absence of severe bivariate multicollinearity (all Variance Inflation Factors remained well below the conservative threshold of 10). (2-tailed) **.

3.2. Regression Analysis

In this study, a multiple regression analysis was conducted to assess the collective and individual influence of various independent variables—including background demographic characteristics and institutional factors—on the successful implementation of the Management Information System (MIS) at the University of Hargeisa. This comprehensive model included all variables entered simultaneously

using the *Enter* method, which allowed for evaluating the net effect of each predictor on implementation outcomes.

The Model Summary revealed an Rvalue of 0.671, which indicates a strong positive correlation between the independent variables and the dependent variable (Implementation Factors). The R Square value of 0.450 shows that approximately 45% of the variation in MIS implementation is explained by the combination of the 15 independent variables included in the model. The adjusted R Square of 0.395, which accounts for the number of predictors, still confirms that a significant portion of the variance is explained, suggesting a good model fit.

The ANOVA results were highly significant ($F = 8.087$, $p = .000$), confirming that the model as a whole is statistically significant and better than a model with no predictors. This means that the predictors collectively have a significant impact on how well the MIS is being implemented.

Significant Predictors and Their Implications

From the Coefficient Table, three institutional factors emerged as particularly important: Administration Factors ($\beta = .411$, $p = .000$), IT Staff Factors ($\beta = .202$, $p = .048$), and to a lesser extent, Experience (2–5 years) and Age (35–44), both of which had a negative impact.

Administration Factors were the strongest predictor among all, with a highly significant positive coefficient ($B = .386$). This suggests that administrative support, leadership encouragement, policy enforcement, and managerial involvement significantly boost the effective implementation of the MIS. This aligns with the understanding that topdown support is critical in digital transformation projects. When leadership champions the use of digital tools, sets clear expectations, and provides necessary resources, employees are more likely to accept and use the system effectively.

IT Staff Factors also showed a positive and statistically significant influence ($B = .156$, $p = .048$). This confirms that skilled and responsive IT personnel, who provide technical support, training, and system maintenance, play a vital role in facilitating MIS implementation. The presence of competent IT support reduces resistance to change, addresses technical issues swiftly, and ensures the system remains reliable and userfriendly.

In contrast, User Related Factors were not statistically significant ($p = .164$), indicating that while users are important, their individual behaviors or attitudes alone may not strongly influence implementation unless institutional and technical support systems are in place.

Additionally, among the demographic variables, Age group 35–44 ($B = 0.345$, $p = .043$) had a statistically significant negative effect, suggesting that users within this age range might experience more resistance or challenges in adapting to digital systems compared to the older age group (45 or older). This might stem from lower digital fluency or reluctance toward new technologies among midcareer professionals. Similarly, Experience between 2–5 years also negatively influenced implementation ($B = 0.382$, $p = .015$), possibly indicating that individuals in this range may less likely to experience any difficulties related to

the Management Information System use and enough to be open to institutional innovations, thus showing lower engagement or adaptability.

Interestingly, other background variables such as education level, gender, and university role did not show a significant impact. For instance, the coefficients for Bachelor's degree and Master's degree holders were both negative but not significant, implying that level of education did not notably alter MIS use. Similarly, gender had no significant effect, which may suggest equitable access and perceptions across male and female users.

Table 3 Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.671 ^a	.450	.395	.65257
a. Predictors: (Constant), Role at the University, Age=Below 25, User Related Factors, Experience=2–5 years, Gender, Finance Factors, Age=25–34, Education=Bachelor's Degree, Experience=6–10 years, Organization Factors, Experience=Less than 2 years, Administration Factors, Age=35–44, IT Staff Factors, Education=Master's Degree				

Table 4 Anova

ANOVA^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	51.659	15	3.444	8.087	.001 ^b
	Residual	63.025	148	.426		
	Total	114.684	163			
a. Dependent Variable: Implementation Factors						
b. Predictors: (Constant), Role at the University, Age=Below 25, User Related Factors, Experience=2–5 years, Gender, Finance Factors, Age=25–34, Education=Bachelor's Degree, Experience=6–10 years, Organization Factors, Experience=Less than 2 years, Administration Factors, Age=35–44, IT Staff Factors, Education=Master's Degree						

Table 5 Coefficient

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.549	3.075		.829	.408
	IT Staff Factors	.156	.078	.202	1.994	.048
	Administration Factors	.386	.080	.411	4.820	.001
	User Related Factors	.123	.088	.103	1.398	.164
	Organization Factors	.064	.075	.068	.852	.396
	Finance Factors	.035	.076	.038	.463	.644
	Age=Below 25	.094	.220	.035	.427	.670
	Age=25–34	.068	.170	.040	.399	.690
	Age=35–44	.345	.169	.199	2.037	.043
	Experience=Less than 2 years	.042	.169	.020	.250	.803
	Experience=2–5 years	.382	.154	.183	2.473	.015
	Experience=6–10 years	.010	.143	.005	.068	.946
	Education=Bachelor's Degree	.316	.180	.160	1.763	.080
	Education=Master's Degree	.236	.176	.138	1.340	.182
	Gender	.089	.119	.051	.750	.454
	Role at the University	.013	.127	.007	.106	.916
a. Dependent Variable: Implementation Factors						

4. Discussion

The primary objective of this study was to empirically investigate the multidimensional determinants influencing the implementation of a Management Information System (MIS) within the institutional framework of the University of Hargeisa (UoH). Grounded in Heeks' (2002) Design-Reality Gap model and the Unified Theory of Acceptance and Use of Technology (UTAUT), the multiple linear regression model demonstrated substantial explanatory power ($R^2 = .450$), confirming that institutional readiness parameters collectively account for 45% of the variance in successful MIS deployment.

The empirical findings reveal a striking hierarchy of influence: while structural, user-attitudinal, and financial factors established baseline bivariate correlations, multivariate analysis isolated University Administration Factors ($\beta = .411$, $p = .001$) and IT Staff Capacity ($\beta = .202$, $p = .048$) as the sole statistically significant positive predictors of system success. Furthermore, demographic evaluations uncovered localized adaptation friction among mid-career academic personnel. These outcomes challenge conventional techno-centric assumptions and provide profound theoretical and managerial insights into digital transformation within post-conflict higher education environments.

4.1. The Primacy of University Administration and Leadership Commitment

To systematically analyze these parameters, this study is grounded in Heeks' (2002) Design-Reality Gap model alongside the Unified Theory of Acceptance and Use of Technology (UTAUT) framework. The Design-Reality Gap model argues that information systems in the public sectors of developing regions face failure when the mismatch between the "rational design of the software" and the "lived institutional reality" is too wide. The model classifies these dimensions within the "Information, Technology, Processes, Objectives and values, Staffing and skills, Management systems and structures, and Other resources" (ITPOSMO) framework. For the purposes of this study, the "Other resources" dimension is operationalized specifically as financial resources, given their centrality to MIS procurement and sustainability in resource-constrained settings. By mapping the University of Hargeisa's implementation journey across IT Staff Factors (Staffing and skills), Administration Factors (Management systems and structures), User Factors (Objectives and values/Staff), Organizational Factors (Processes), and Financial Factors (Other resources), this research provides an empirical baseline to measure and bridge the digital maturity gap in post-conflict higher education institutions.

4.2. The Vital Role of IT Staff Readiness and Technical Infrastructure

Complementing administrative leadership, IT Staff Factors exerted a statistically significant positive influence on MIS implementation outcomes. This confirms that the presence of competent, responsive internal technical personnel is indispensable for sustaining digital operations. Within the UTAUT paradigm, technical personnel embody the Facilitating Conditions required to lower user anxiety and mitigate perceived Effort Expectancy during early adoption cycles.

When transitioning from manual grading and admissions workflows to automated MIS architectures, end-users inevitably encounter technical bottlenecks. Responsive IT staff bridge this friction by providing localized troubleshooting, continuous system maintenance, and tailored pedagogical support (Da Silva et al., 2019; Mahar et al., 2020). This result reinforces recent findings by Sari et al. (2024) and Hidayat (2025), who observed that in developing public sector institutions, the severity of the "design-reality gap" is inversely proportional to the technical capacity of local IT departments. When IT personnel possess specialized competencies in system integration and database administration, they effectively insulate academic staff from underlying software complexities, thereby fostering trust and long-term system reliance.

4.3. The Non-Significance of User Attitudes, Organizational Culture, and Financial Allocation

A compelling counter-intuitive insight emerging from the multivariate regression is the statistical non-significance of User-Related Factors ($\beta = .103$, $p = .164$), Organizational Factors ($\beta = .068$, $p = .396$), and Financial Factors ($\beta = .038$, $p = .644$). While bivariate correlations (Table 2) confirmed that these variables share positive independent associations with MIS readiness, their net explanatory power dissolved when evaluated alongside executive leadership and IT capability.

The lack of multivariate significance for individual user attitudes supports recent revisions in technology adoption literature within mandatory public sector settings (Massawe & Mwanukuzi, 2023; Okanga et al., 2025). In university administrative environments, system use is rarely voluntary; lecturers and registrars must utilize the CMS for grade submission and enrollment verification regardless of personal intrinsic motivation. Consequently, individual behavioural readiness becomes secondary to institutional enforcement. Similarly, the non-significance of financial factors indicates that while adequate budget allocation is a necessary prerequisite for procurement (Munene et al., n.d.), monetary investment alone cannot guarantee implementation success (Noor, 2022). As Heeks (2002) and Rajan and Baral (2015) posited, nearly two-thirds of digitalization failures stem not from capital shortages, but from organizational misalignments. Once base capital is deployed to acquire infrastructure, project outcomes depend almost entirely on managerial execution and human capital scaffolding.

4.4. Demographic Nuances: Mid-Career Friction and Digital Fluency

The regression model revealed statistically significant negative coefficients for respondents aged 35–44 years ($\beta = -.199$, $p = .043$) and personnel possessing 2–5 years of institutional tenure ($\beta = -.183$, $p = .015$). This empirical nuance indicates that mid-career academic staff experience heightened friction or reluctance when integrating MIS modules compared to junior staff (below 25 or 25–34 years; less than 2 years of experience) or senior cohorts (above 44 years; more than 10 years of experience).

This localized resistance can be explained through psychological mechanisms of workflow disruption and perceived professional vulnerability (Mardhatillah & Rahman, 2020). Junior staff frequently enter the university with native digital literacy developed during modern foundational education, whereas senior professors often benefit from delegated administrative assistance or established authority that insulates them from routine data-entry burdens. Conversely, mid-career lecturers occupy a transitional stratum: they bear the primary operational workload of course management and grading while simultaneously navigating entrenched legacy habits. Recent research by Habibi et al. (2024) and Neelima et al. (2024) emphasizes that mid-career faculty often perceive abrupt digital centralization as an erosion of academic autonomy or an uncompensated administrative tax. Bridging this specific demographic gap requires shifting institutional training models away from generic software tutorials toward value-centric pedagogical workshops that demonstrate tangible time-saving benefits.

4.5. Theoretical and Practical Contributions

Thematically, this study advances academic knowledge by operationalizing Heeks' (2002) Design-Reality Gap model within a public higher education ecosystem in the Horn of Africa. By proving that executive management ($\beta = .411$) and staff technical skills ($\beta = .202$) act as the primary load-bearing pillars of digital maturity, it provides quantitative validation for closing institutional gaps prior to commissioning expensive software upgrades. Practically, the UoH administration and analogous institutions across developing regions must adopt a dual-core implementation strategy:

1. Executive Governance: University leadership must move beyond passive authorization and establish active digital oversight committees that tie departmental KPIs to MIS utilization metrics.
2. Targeted Capacity Scaffolding: Rather than distributing IT budget exclusively toward hardware acquisition, resources should be disproportionately funneled into expanding internal IT helpdesks and establishing peer-led digital mentorship programs specifically targeted at mid-career faculty.

5. Conclusion

This study set out to examine the factors influencing the implementation of a Management Information System (MIS) at the University of Hargeisa, with specific attention to IT Staff Factors, University Administration Factors, User-Related Factors, Organizational Factors, and Financial Factors. Framed within Heeks' Design-Reality Gap model and the Unified Theory of Acceptance and Use of Technology, the study sought to determine which of these dimensions most reliably distinguish successful MIS deployment from partial or failed adoption in a post-conflict, resource-constrained higher education setting.

The findings indicate that while all five dimensions are positively associated with implementation outcomes when considered individually, their influence is not equal once evaluated together. Administrative leadership and IT staff capacity emerged as the dimensions that retain independent explanatory power, while user attitudes, organizational processes, and financial allocation, although meaningfully related to implementation in isolation, appear to operate through rather than alongside these two core drivers. In practical terms, this suggests that MIS success at the University of Hargeisa is governed less by the presence of favorable conditions across all five areas simultaneously, and more by whether leadership commitment and technical support infrastructure are firmly in place; where they are, the remaining conditions tend to follow.

The demographic patterns observed, particularly the comparatively greater resistance among mid-career academic staff, add a further layer of nuance: institutional readiness is not uniformly distributed across the workforce, and implementation strategies that treat all staff as a homogeneous adopter group risk overlooking the specific group most likely to disengage.

Taken together, these findings extend the applicability of established information systems theory, including Heeks' Design-Reality Gap model and the DeLone and McLean IS Success framework, to a university setting that remains underrepresented in the literature. They reinforce the broader proposition

that in developing-country institutions, leadership commitment and technical capacity function as the load-bearing pillars of digital transformation, while softer enabling conditions reinforce rather than substitute for that core support.

These conclusions should be read with the study's limitations in mind. The cross-sectional design restricts causal interpretation, the single-institution scope limits generalizability to universities with different governance or funding structures, and the use of a self-administered instrument introduces the possibility of common method bias and social desirability effects, particularly on items concerning leadership performance. Listwise handling of missing data further reduced the effective sample available for the regression model. Future research employing longitudinal or multi-institutional designs, and incorporating qualitative methods to explore the mechanisms behind administrative and technical influence, would help establish the directionality and external validity of the relationships identified here.

6. Recommendations

Based on the findings of this study, several recommendations are proposed for the relevant stakeholders at the University of Hargeisa, beginning with measures that can be implemented in the short term and progressing toward longer-term structural reforms.

University administration should first establish a digital oversight committee, chaired by senior leadership, to review MIS adoption metrics on a quarterly basis and tie departmental performance indicators to system utilization. This directly addresses the finding that administration factors were the strongest predictor of implementation success, and ensures that leadership commitment is sustained through active monitoring rather than one-time authorization. Closely related to this, administration should issue a formal institutional policy mandating MIS use for core academic and administrative processes, including grading, enrollment, and attendance. Since user-related factors lost their explanatory power once institutional enforcement was accounted for, formalizing expectations through policy is likely to be more effective than relying on individual staff motivation alone.

The ICT Directorate should expand the capacity of the internal IT helpdesk and establish a dedicated MIS support line with defined response-time targets. Given that IT staff factors emerged as a significant independent predictor of implementation success, strengthening this function directly reinforces one of the two pillars identified by the regression model. In support of this, the Finance Office and university administration should reconsider how technology budgets are allocated, redirecting a greater share of resources away from one-off hardware procurement and toward recurring investment in IT staffing, training, and system maintenance. Because financial factors alone did not predict implementation success, this shift reflects the conclusion that institutional capacity, rather than capital availability, is the binding constraint on MIS adoption.

The Human Resources and Faculty Development offices should design a peer-led digital mentorship program specifically targeted at mid-career faculty, particularly those between 35 and 44 years of age and those with two to five years of institutional tenure, pairing them with digitally fluent colleagues rather

than relying solely on generic software training sessions. This recommendation responds directly to the demographic finding that this group exhibited significantly greater resistance to implementation than their junior or senior counterparts.

Over the longer term, university administration and the Quality Assurance Office should institutionalize an annual digital maturity review using the five dimensions examined in this study, IT staff, administration, user-related, organizational, and financial factors, as a standing diagnostic framework for tracking institutional readiness over time. Finally, future researchers are encouraged to conduct longitudinal or multi-institutional studies to determine whether the primacy of administrative and technical factors observed here holds across other universities in Somaliland and the wider Somali higher education sector, given that the present findings are drawn from a single institution using a cross-sectional design.

Declarations

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Ethical Approval

Ethical approval for this study was obtained from the Ethics Committee of the School of Graduate Studies, University of Hargeisa (Ref: UoH/SGS/060/2025). The study was conducted in accordance with the Declaration of Helsinki and the relevant institutional guidelines of the University of Hargeisa. Participation was voluntary, and confidentiality and anonymity were ensured throughout the study.

Consent to Participate

Informed consent was obtained from all individual participants included in this study. All participants were adults aged 18 years or older; no participants under the age of 16 were involved, and therefore parental/guardian consent was not applicable.

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Disclosure of Interest

The authors declare that there are no financial, personal, or professional interests that could have influenced the findings or interpretation of this study.

Data Availability Statement

Data supporting this study are available from the Corresponding Author upon reasonable request.

Consent to Publish

Not applicable.

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