RESEARCH ARTICLE

ANTECEDENTS AND MODERATORS OF PERFORMANCE IMPACT OF MANAGEMENT INFORMATION SYSTEMS IN MAKERERE UNIVERSITY: A STUDY BASED ON THE TASK-TECHNOLOGY FIT MODEL

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ABSTRACT

The performance impact of management information systems (MISs) in higher education institutions particularly in Africa remains insufficiently examined. Although Makerere University has invested in MISs such as the ACMIS, IFMIS, HURIS and MakLIBIS, limited evidence exists on how the systems enhance the performance of their users. Prior studies have largely focused on adoption and user satisfaction, overlooking key antecedents such as task characteristics, technology characteristics, moderators like system utilization and task-MIS alignment. Guided by Goodhue and Thompson's (1995) task–technology fit (TTF) theory, this study seeks to investigate how task characteristics, technology characteristics, task–MIS fit, and utilization interact to influence performance outcomes among MIS users at Makerere University. We will use a mixed methods design to examine predictors of performance impact and the relationships MIS utilization, among task–MIS fit, task characteristics, and technology characteristics. The findings are expected to provide context-specific evidence to guide MIS investments, improve institutional efficiency and extend TTF theory within higher education institutions.

INTRODUCTION

Historical Perspective: Significant scholarly effort has been directed towards assessing the impact of information and communication technology (ICT) on individual and/or organizational performance. A number of literature reviews have been undertaken to this effect. For instance, Andersen et al. (2010) reviewed the impacts of e-government as reported in 55 first-hand empirical peer-reviewed journals published between 2003–2009. Their review "used a conceptual framework to identify ICT impacts on four domains within the public sector: capabilities, interactions, orientations and value distribution" (p.564). They noted that "the majority of impacts from ICT are reported within the domain of capabilities, which is also the domain that features the most balanced mix of positive and negative findings" (p. 564) and that the "research on e-government is yet to demonstrate a substantial shift in the nature and directions of impacts in comparison to earlier studies" (p. 564). They also highlighted gaps on the studies reviewed that included: (i) "The concept of impact has received little conceptual scrutiny in e-government research" (p. 567); and that (ii) "the period of research studied is relatively short and could be subject to certain features of a particular period of technological developments" (p. 567). Furneaux (2012) conducted a literature review aimed at providing "a comprehensive understanding of the breadth and depth of research that has sought to either develop or apply TTF theory" (p. 90). He found out that"most definitions of TTF tend to suggest that it represents the degree of matching or

alignment between the capabilities of an information system and the demands of the tasks that must be performed" (p. 91). Secondly, "survey-based TTF research has been conducted in a wide range of organizational contexts" (p. 97). Furneaux highlighted limitations of the studies they reviewednamely that "relatively limited attention has thus far been directed toward fully exploring this aspect [individual, group, and organizational levelTTF]…the notion of organizational level TTF having been essentially unexplored" (p. 101). Secondly, "the literature has, thus far, tended to rely on user perceptions of performance such as perceptions of whether a technology improves productivity" (p. 101). Hidayat et al. (2021)reviewed the "the application of the TTF theory by exploring the scope and range of the available literature that applies the specific elements of the theory and summarizing and disseminating the research findings, specifically the environments where TTF has been applied" (p. 309). They found out that "education field is the most researched topic in TTF for the last three years [2019-2021], followed by social media, business, and management fields" (p. 309); and that (ii) "task characteristics and technology characteristics are the most common antecedent variables that affect TTF, while perceived usefulness, performance, and satisfaction often become the variables affected by TTF" (p. 312). Hidayat et al. highlighted limitations to the studies reviewed namely that "most of the researches done in the past was done in Asia, although there are also several pieces of researches done in North America, Africa, and Europe" (p. 310). Overall, the reviewed literature reveals several gaps that provide a clear justification for the

present study. First, only a limited number of e-government studies have explicitly examined the actual impacts of ICT within public-sector contexts (Andersen et al., 2010), while the concept of organizational-level task–technology fit remains largely unexplored (Furneaux, 2012). Second, although recent work shows a growing application of the TTF framework, much of the research has been geographically concentrated in Asia, with relatively few studies conducted in African contexts (Hidayat et al., 2021). This aligns with broader evidence that Africa contributes only a small fraction of information systems research globally (Qureshi et al., 2017), reflecting a significant empirical gap. These observations collectively indicate the need for more context-specific, African-based investigations into the performance impacts of information systems. Accordingly, the present study will address these gaps by examining the performance impact of MISs within Makerere University, using both quantitative and qualitative data to generate evidence on how task–technology alignment influences actual performance outcomes. Guided by Goodhue and Thompson's (1995) task-technology fit theorywhich posits that performance benefits arise when technology is well aligned with user tasks. The study will contribute new insights into ICT impact and TTF research within an under-studied organizational and geographical context.

Theoretical Perspective: In accordance with the objective of this study to establish how performance impacts of a given MIS is affected by the utilization of the MIS and task-MIS fit which is turn affected by the characteristics of tasks undertaken by the user of IS and the characteristics of the system itself. The study by Goodhue and Thompson (1995) concluded that TTF and utilization act as a significant predictor of performance impactsas reflected in Figure 1.
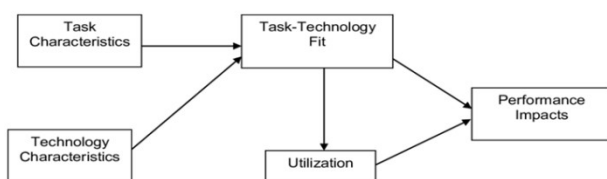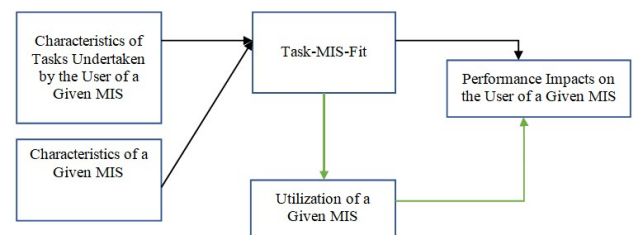

Note. Sourced from Goodhue and Thompson 1995, p. 220, Figure 3

**Figure 1. Goodhue and Thompson (1995)
Task-technology Fit Model**

Figure 1 illustrates the five constructs of the Task-Technology Fit (TTF) theory: performance impacts (the dependent variable and central focus of this study), task-technology fit, utilization, technology characteristics, and task characteristics. Prior literature demonstrates that performance impacts are greatest when the effects of TTF and utilization are combined in technology implementations (Goodhue & Thompson, 1995). Performance impacts refer to "the accomplishment of a portfolio of tasks by an individual" (Goodhue & Thompson, 1995, p. 218), where higher performance reflects improved efficiency, effectiveness, and/or quality, and results from the joint influence of TTF and utilization. TTF itself is defined as "the degree to which a technology assists an individual in performing his or her portfolio of tasks" (Goodhue & Thompson, 1995, p. 217), and is shaped by the interaction between task characteristics and technology characteristics. High TTF not only increases the likelihood of utilization but also enhances performance impacts. Utilization, defined as "the behavior of employing the technology in completing tasks" (Goodhue & Thompson, 1995, p. 218), is influenced by TTF and in turn affects performance impacts, with systems exhibiting higher TTF yielding better performance at any level of use. Technology characteristics describe the attributes of the device or system used to perform tasks within specific environments and directly influence the degree of task-technology fit. Conversely, task characteristics encompass the properties of the tasks that may drive users to depend more heavily on particular technological features, with positive performance outcomes occurring when technology capabilities complement task requirements (Goodhue & Thompson, 1995). Together, these constructs demonstrate how alignment between tasks and technology, combined with effective utilization, determines the extent of performance benefits achieved.

Conceptual Perspective: This study adopts its conceptual framework from Goodhue and Thompson's 1995 task technology fit model (Figure 2).

Note. Adopted from Goodhue and Thompson's 1995 TTF Model (figure 1)

Figure 2. The Conceptual Framework of the Performance of Users of the ACMIS

This research adopts the concepts of TTF with slight modifications as presented in Figure 1.2 above. Although the structural composition of Goodhueand Thompson's 1995 TTF model has been maintained, the constructs therein have been modified in line with the purpose of the study purpose which is to establish the fitness for purpose of Makerere University's ACMIS. The variables therein have thus been substituted such that: (i) the main variable which is *Performance Impacts* has been substituted by *Performance Impact on the User of a Given MIS*; (ii)*Utilization* has been substituted by *Utilization of a Given MIS*; (iii) *Task-Technology Fit* has been substituted by *Task-MIS Fit*; (iv) *Technology Characteristics* has been substituted by *Characteristics of a Given MIS*"; and (v) *Task Characteristics* has been substituted by "*Characteristics of Tasks Undertaken by the User of a Given MIS*".

Contextual Perspective: This study will be conducted in Makerere Universitybeing one of the pioneer institutions that have used ICT for business process management. This is confirmed by the Monitor Online News Friday, March 12, 2010 — updated on January 24, 2021, which stated that Makerere imported Uganda's secondmodern computer in 1968 [the first was imported in 1967 by the Uganda Government under the Uganda Computer Services in the Ministry of Finance]. In the mid-1980s Makerere purchased the first desktop Apple that was used to handle the payroll.To date, Makerere continues to promote the use of technology in the management (Nakanyike&Nansozi, 2003) due to its ability to make administration processes effective and efficient (Mugizi&Amwine, 2020; Muweesi et al., 2021; Tusubira, 2005; Tusubira&Mulira, 2004). In the early 2000s, "the integration of ICT in all the functions of Makerere University was identified as a priority strategic objective if the institution was to deliver its mission and fulfill its vision" (Tusubira, 2005, p. 89).

To underline the importance of ICT, Makerere has been guided by a set of four ICT policies andmaster plans [2001- 2004; 2005-2009; 2010-2014 and 2016 – 2020] aimed at increasing ICT capacity and utilization within a university-wide-system so as to effectively support the core business functions (Tusubira, 2005; Tusubira&Mulira, 2004). ICT was embraced to the extent that the university established the Faculty of Computer Science not only to ensure that the system was properly working but also offer ICT education as well. In 2021 Makerere [and all public universities in Uganda] adopted the Academic Management Information System (ACMIS) toalleviate the challenges experienced with previous systems i.e., the Academic Information Management System [2018-2020] and the Academic Records Information System [2007-2017]. Such challenges included failed attempt to transfer exam results, inaccessibility, frequent shutdowns and being extremely slow resulting to inaccuracies in students' academic records and late issuance of transcripts. From the aforementioned, it can be observed that Makerere hasan established record in the development andutilization of ICT to support its core business functions. However, despite the continued investment in and use of management information systems and particularly ACMIS which is currently in use, no attempt has yet been made to establish its impact on the user hence justifying the necessity to undertake this study. The studywill therefore seek to establish whether the ACMIS is

actually improving user performance. In that regard, the Task-Technology Fit theory (Figure 1) that contends that performance impact of an information system depends on the combined effects of the TTF and utilization.

Statement of the Problem: For administrators and policy makers to make informed decisions about investing in MISs in universities, understanding the factors driving their performance impact is essential (Goodhue & Thompson, 1995). Despite substantial investments MISs at Makerere University, the extent to which these systems enhance user performance remains unclear. Prior research in higher education (Bervell et al., 2025; Granić, 2022; Müller & Wulf, 2020; Rahim, 2022) has focused on learning effectiveness, technology adoption, system readiness, and user satisfaction. While these studies provide insights into technology use, they leave the antecedents and moderators of MIS performance underexplored. Reviews (Ceipek et al., 2019; Petter et al., 2013) show that although determinants of MIS success have been identified, antecedents related to information and service quality, as well as moderating effects, remain underexamined. Other studies (Mikalef et al., 2021; Nour, 2023; Sultan & Wong, 2019) indicate that contextual and organizational factors such as IT flexibility, governance, PMS design, ERP alignment, service quality, and human relations significantly influence outcomes, though their effects are shaped by mediators and moderators like external environment, feedback mechanisms, and industry. These findings suggest that while MISs can enhance performance, the mechanisms through which antecedents and moderators interact remain poorly understood, especially in higher education. Consequently, administrators and policy makers at Makerere risk making partially informed MIS investment decisions, potentially leading to suboptimal utilization and limited performance gains. This study examines the antecedents (task and technology characteristics) and moderators (system utilization and task–MIS fit) of MIS performance impact at Makerere. Grounded in task–technology fit (TTF) theory (Goodhue & Thompson, 1995), it focuses on ACMIS, FINIS, HURIS, and MakLIBIS to provide a nuanced, context-sensitive understanding of how these systems can optimize administrative efficiency, decision-making, and user productivity.

Objectives

The general objective of the study was to establish how performance impact of a given MIS is affected by task-MIS fit and utilization of a given MIS which is turn affected by the characteristics of tasks undertaken by the user of IS and the characteristics of the system itself (Figure 1.2). The following specific objectives were used to test the three study hypotheses;

- To determine whether the performance impacts on the user of a given MIS is affected by task-MIS fit and utilization of the MIS.
- To determine whether the utilization of a given MIS is affected by the task-MIS fit.
- To determine whether the task-MIS fit is affected by characteristics of tasks undertaken by the user of the MIS and characteristics of a given MIS.

Hypotheses: The study hypotheses to be tested were drawn from the study theoretical/conceptual framework (Figure 1.2). These are:

H1: Performance impacts on the user of a given MIS is positively influenced by both task-MIS fit and utilization of the MIS.

**H2:** Utilization of a given MIS is positively influenced by task-MIS fit.

H3: Task-MIS fit is positively influenced by both characteristics of tasks undertaken by the user of a given MIS and characteristics of the MIS.

Research Questions: The research questions examined were:
(i)What are the user perspectives on the performance impact of a given MIS?

- What are the user perspectives on how a given MIS fits the task it is meant to execute?
- What are the user experiences in the utilization of a given MIS?
- What are the user perspectives on the characteristics of a given MIS?
- What are the user perspectives on the characteristics of tasks undertaken by a user of a given MIS?

Conceptual Framework: Figure 2 is the theoretical/conceptual framework that will guide this study as adopted from Figure 1:
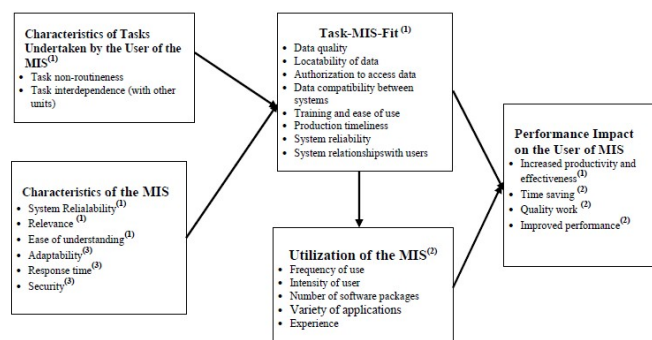
Notes:[1]Concepts adapted from Goodhue and Thompson (1995); [2] Concepts adapted fromThompson et al. (1994); [3]Concepts adapted from Lyoubi and Yamin (2019);

Figure 2. Theoretical/Conceptual Framework Showing the Constructs for Measuring the Antecedents of Both the Performance Impact on the User of the MIS and the Task-MIS Fit

Figure 2 operationalizes the theoretical/conceptual framework as depicted in Figure 1.2. First it depicts performance impact on the user of the MIS (PI) measured in terms of: increased productivity and effectiveness; time saving, quality work, and improved performance (Thompson et al. (1994). Second, it depicts task-MIS-fit (TMF) measured by: data quality, data locatability, production timeliness, data compatibility, authorization, reliability; training and ease of use, and information systems relationships with users (Goodhue & Thompson, 1995). Third, it depicts: frequency of use; intensity of use, number of software packages, variety of applications; and experience (Thompson et al., 1994). Fourth, it indicates the characteristics of tasks undertaken by the user of an information system is measured by: task equivocality; task interdependence with other units (Goodhue & Thompson, 1995). Finally, it indicates the characteristics of the information systems are measured by: availability; response time; relevance; ease of understanding adaptability (Goodhue & Thompson, 1995); response time, and security (Lyoubi& Yamin, 2019).

RELATED LITERATURE

Literature Reviews on the Performance Impact of a Given MIS: The increasing integration of management information systems (MISs) in organizational operations has prompted a growing body of literature focused on evaluating their impact on institutional performance.Appiahene et al. (2018) conducted a systematic review aimed at surveying existing research within the domain of information technology (IT) and its impact on productivity, particularly exploring areas such as the IT productivity paradox, the influence of ICT on the economy, and organizational productivity. They established a regional disparity in scholarly contributions, with Europe accounting for the highest proportion of studies at 36.88%, while Africa represented a mere 8.51%, highlighting a significant gap in literature regarding IT's impact on productivity in the African context. Additionally, they found that the peak year for publications in this area was 2013, whereas the period between 1990 and 1992 saw the fewest studies. Apriliyanti et al. (2021) conducted a systematic literature review to explore the relationship between information technology (IT) enablers, organizational learning, and organizational performance. They hence established a significant positive effect of IT enablers and

organizational learning on organizational performance. Additionally, they identified a mediating role of organizational learning in the relationship between IT capabilities and performance, suggesting that IT investments yield better performance outcomes when coupled with robust learning processes. However, they also noted critical gaps in the literature, including a lack of studies examining the contextual factors that influence these relationships. They also highlighted a scarcity of research focused on specific industries or geographic regions. Ilham et al. (2021) conducted a systematic literature review to examine how information technology (IT) capital contributes to organizational performance. They found a significant positive effect of IT capital on organizational performance. However, they emphasized that a mediated model where organizational capabilities act as a mediator offers a more comprehensive understanding of the value derived from IT investments than a direct-effects model. Specifically, they found that technological resources enhance operational efficiency, but not necessarily financial outcomes. Furthermore, internal capabilities were shown to influence overall organizational performance, while external capabilities were more closely tied to financial performance. Despite these insights, they acknowledged several gaps in the literature, including limitations related to contextual variability, the lack of industry-specific insights, and the need for further research to refine the understanding of mediating and moderating factors that affect the IT-performance relationship.

Twizeyimana and Andersson (2019) conducted a systematic literature review aimed at organizing and synthesizing existing research on the public value of e-government, with a focus on identifying the current state of scholarship and the values e-government is expected to deliver. They found that the overlapping dimensions of public value, including improved public services, enhanced administrative efficiency, open government (OG) capabilities, ethical conduct and professionalism, trust and confidence in government, and improved social value and well-being. They identified three core and interconnected dimensions improved public services, administration, and social value that form the foundation of public value in e-government. Notably, they noted that improved public services emerged as the central dimension, influencing administrative processes and societal outcomes. However, they also uncovered a significant gap in the literature: limited research attention on the public value of e-government in developing countries, and an absence of such research in the least developed countries.

Conceptual Review Papers on the Performance Impact of a Given MIS: Several conceptual studies have examined the performance impact of MIS and ICT. Bullen et al. (2011) conducted a systematic literature review that explored the social and organizational factors influencing technology-enhanced learning and its effects on performance of university staff. They hence found limited evidence of consistent performance improvement among university staff despite substantial investments in ICT. Additionally, they identified usability issues and insufficient training as significant impediments to achieving positive outcomes. They further noted that whenever performance gains were observed, they were more strongly associated with organizational changes than with technology adoption alone. They recommended that institutions need to strengthen support systems, provide targeted training, and ensure alignment between ICT initiatives and organizational readiness. Selwyn and Henderson (2019) investigated the role of digital technologies in university staff work and their impact on staff productivity and performance. They found that digital technologies influence staff performance indirectly by reshaping workflows, fostering new forms of collaboration, and embedding practices within evolving institutional norms. However, they noted that disentangling the effects of technology from broader organizational reforms presents significant methodological challenges. They hence concluded that the relationship between technology and performance is complex and highly context-dependent, emphasizing the need for more contextually sensitive research capable of distinguishing technological impacts from cultural and organizational influences. In summary, the two conceptual review studies (Bullen et al., 2011; Selwyn & Henderson, 2019) revealed methodological and conceptual gaps that justify the present study. Bullen et al. (2011)

identified a methodological gap by highlighting the lack of robust and longitudinal evidence capable of demonstrating consistent performance improvements resulting from ICT use among university staff. They emphasized that performance outcomes were often constrained by usability challenges, limited training, and weak institutional support systems. Selwyn and Henderson (2019) pointed to a conceptual gap, noting the difficulty of disentangling the specific effects of digital technologies from broader organizational and institutional reforms. They stressed that technology's influence on performance is indirect, context-dependent, and embedded within evolving institutional practices, thereby requiring more nuanced and context-sensitive research approaches. Collectively, these methodological and conceptual gaps provide the rationale for the present study, which seeks to quantitatively assess MIS effectiveness using the task–technology fit (TTF) theory within a Ugandan public higher education setting.

Empirical Papers on the Performance Impact of a Given MIS: This subsection explores the empirical evidence on how the utilization of information systems affects performance of the users. Alshubiri et al. (2019) investigated the impact of information and communication technology (ICT) electronic financial applications on the financial development index of six Gulf Cooperation Council (GCC) countries over the period from 2000 to 2016. They established that increases in fixed broadband have a statistically significant and positive effect on both proxies of financial development. They highlighted that ICT has increasingly emerged across industrial, service, and financial sectors, enhancing the efficiency of electronic transactions and thereby improving overall performance. They found out that ICT's role in financial management contributed to the efficient execution of operations related to financial transactions, resulting in significantly reliable productivity gains. The limitation of their study was that the research sample comprised the six GCC countries, representing the full scope of the study population.

Bright and Asare (2019) conducted a study that aimed to identify the impact of the management information system (MIS) at the University of Education, Winneba, Kumasi Campus. They found out that MIS improved teaching and learning, enhanced administrative processes, and made research activities more flexible and faster. Additionally, they noted that large class presentations were positively impacted, with sound audibility improved across classrooms. However, they also highlighted inadequate equipment for MIS operations, noting that available electronic resources were insufficient to meet the needs of students, lecturers, and administrative staff at the campus. Megha and Zaware (2019) undertook a study aimed to analyze the impact of information and communication technologies (ICT) on the organizational performance of enterprises. They established that ICT has a significant positive effect on company growth and organizational performance by providing a platform for development and competitive advantage.

They emphasized that the effective implementation and use of ICT in organizations are critical to enhancing their performance and sustaining growth within the competitive business environment. In summary, Alshubiri et al. (2019), Bright and Asare (2019), and Megha and Zaware (2019) collectively demonstrate that ICT and MIS play a significant role in enhancing performance across financial, educational, and business sectors. Alshubiri et al. (2019) found that ICT—particularly fixed broadband—positively influences financial development in GCC countries by improving the efficiency and reliability of electronic transactions, although their study was limited to six countries. Bright and Asare (2019) showed that MIS improved teaching, learning, administrative efficiency, and research processes at a Ghanaian university, though they highlighted challenges such as inadequate equipment and limited electronic resources. Megha and Zaware (2019) concluded that ICT has a strong positive impact on organizational performance and competitiveness, stressing that effective implementation is essential for sustained growth. Together, these studies underscore ICT's potential to enhance productivity and performance while also revealing the need for adequate infrastructure and strategic integration to fully realize these benefits.

Empirical Papers on the Utilization of a GivenMIS: Several empirical studies have examined the utilization construct within the task-technology fit (TTF) framework, focusing on how the use of a given MIS influences individual and organizational outcomes. Basri et al. (2018) conducted a study that investigated and explored the adoption of information and communication technology (ICT) in Saudi universities and assess its impact on students' academic performance. They found that "there exists a relationship between ICT adoption and academic performance in a conservative environment" (p.1). In addition, "ICT adoption resulted in the improvement of the performance of female students more than the male" (p.1). They also found out that "that over fifty percent of respondents consider ICT applications very useful, while very few participants (4%) indicated that they use ICT application all the time to do their homework" (p. 7). However, they acknowledged that their study was limited by its geographical, temporal, and institutional scope, which prevented a broader exploration of other relevant variables such as ICT use in career development, university-industry collaboration programs, and field-based training.

Edoru and Adebayo (2019) investigated the use of information and communication technology (ICT) as a strategy for delivering effective management of educational services in Makerere University. They established that "ICT enables division of labour in activities like posting receipts, posting expenditure, and reconciliation through financial information system (FINIS)" (p. 29). They also noted that "Makerere University has installed and provided access to ICT tools that are important in the management of educational services" (p. 31).

One key limitation noted was the study's confinement to Makerere University, which may limit the generalizability of the findings to other higher education institutions within or outside Uganda. Hailegebreal et al. (2022) conducted a cross-sectional study to examine how undergraduate students at the College of Medicine and Health Science, Arba Minch University in Ethiopia used information and communication technology (ICT) and what factors influenced that use. They hence established that ICT was used by 55.77% of students [95% CI: 0.50–0.60], while 44.23% did not use it [95% CI: 0.39–0.49]. Secondly, Students with ICT knowledge, formal ICT training, IT integrated into coursework, and strong IT skills were more likely to use ICT. They also noted that poor infrastructure such as limited computer labs and malfunctioning equipment contributed to low ICT usage. However, they acknowledged that their study was limited by its cross-sectional design that could prevent any conclusions about causality. In addition, they did not explore students' attitudes toward ICT, which could influence both usage and knowledge.

In summary, Basri et al. (2018), Edoru and Adebayo (2019), and Hailegebreal et al. (2022) collectively demonstrate the varied but significant influence of ICT adoption and usage within higher education institutions across different contexts. Basri et al. (2018) found that ICT adoption in Saudi universities positively influenced students' academic performance, with female students benefiting more than males, though actual usage of ICT tools—such as for homework—remained relatively low. Their study was limited by geographical and institutional scope, restricting broader generalization.

Edoru and Adebayo (2019) established that ICT significantly enhances the management of educational services at Makerere University by improving processes such as financial posting, reconciliation, and access to essential ICT tools. However, their findings may not generalize beyond the single institutional setting. Hailegebreal et al. (2022) showed that ICT use among Ethiopian university students was moderate, with usage strongly associated with ICT knowledge, formal training, integrated coursework, and IT skills, while poor infrastructure impeded adoption. Their cross-sectional design limited causal inferences, and the study did not examine students' attitudes toward ICT. Together, these studies highlight that while ICT adoption can improve academic and administrative performance, its effectiveness is shaped by contextual factors such as gender, institutional readiness, infrastructure, and training.

Literature Reviews on the Task Characteristics of a Given MIS: Several reviews have been undertaken on task characteristics of a given MIS, focusing on their role in shaping performance and user outcomes. Gaardboe et al. (2018) investigated the relationship between task characteristics, business intelligence (BI) quality, and task compatibility to better understand how these factors influence individual user outcomes in BI environments. They found that task difficulty had a positive and significant relationship with task compatibility, and that users perceived more specific tasks as a better fit with BI systems. They also observed no significant relationship between system quality and either task significance or task compatibility. They argued that task compatibility enhances users' perception of BI effectiveness, particularly when information quality is high and tasks are complex yet well-defined. However, they acknowledged the limitation of their study being exploratory in nature, citing its relatively small sample size and restricted generalizability. They called for further empirical research to investigate how various task characteristics influence system use, user satisfaction, and individual performance.

In summary, the study by Gaardboe et al. (2018), which examined task characteristics of a given MIS, indicated gaps that raised the need for this current study. Specifically, they highlighted a methodological gap due to the relatively small sample of 104 business intelligence end users, which limited the generalizability of their findings. They also pointed to a conceptual gap, noting a scarcity of studies exploring the interplay among task characteristics, system use, user satisfaction, and individual impact. Additionally, their study emphasized contextual limitations, as the research focused on corporate BI environments rather than academic or public sector institutions. It was in view of these gaps that this study was therefore conducted at Makerere University to evaluate the effectiveness of MIS through the lens of task-technology fit (TTF) theory. By addressing similar methodological, conceptual, and contextual gaps within a higher education setting, this research contributes to a deeper understanding of how task characteristics influence MIS effectiveness in Sub-Saharan African universities.

Empirical Papers on the Task Characteristics of a Given MIS: Empirical studies have been undertaken to investigate the task characteristics of a given MIS, emphasizing their influence on performance and user outcomes. Choi et al. (2020) investigated the effects of task complexity on users' interaction with different types of task-related information, using a cognitive complexity perspective that emphasizes the variety of mental processes required by tasks. They found that task complexity significantly shaped the type of information users found useful. Basic factual information was more relevant for simple tasks, while complex tasks demanded more nuanced inputs such as concepts, opinions, and insights. Complexity also affected observable search behaviors, which could be tracked by information systems. They observed that complex tasks carried greater uncertainty regarding solution format, required inputs, and task processes. Despite using only four tasks one per complexity level and the potential behavioral influence of think-aloud protocols, they extracted valuable insight from qualitative analyses into user motivations, perceived benefits, and interaction patterns with the InfoBox tool. Gaardboe et al. (2018) investigated the relationship between task characteristics, business intelligence (BI) quality, and task compatibility to better understand how these factors influence individual user outcomes in BI environments. They found that task difficulty positively influenced task compatibility, and that specific tasks were seen as a better fit for BI systems. They also found that system quality had no significant relationship with task significance or task compatibility. Further, they found that task compatibility increases how effective users perceive BI systems to be, especially when tasks are clearly defined and the information quality is high. They acknowledged limitations due to the exploratory nature of the study, small sample size, and limited generalizability, and called for further empirical research to explore how task characteristics relate to system use, user satisfaction, and individual performance. In summary, Choi et al. (2020) and Gaardboe et al. (2018) both showed that task characteristics strongly influence how users interact with information

systems and the performance outcomes achieved. Choi et al. (2020) found that simple tasks require basic factual information, whereas complex tasks demand richer inputs and produce more varied search behaviors, offering useful insights despite a small task sample and think-aloud limitations. Similarly, Gaardboe et al. (2018) established that task difficulty increases task compatibility in business intelligence settings, with clearly defined tasks and high-quality information leading users to perceive BI systems as more effective, although system quality alone showed no significant effect. Overall, both studies demonstrate that aligning system features with task demands is essential for improving user support and performance.

Literature Review Papers on the Characteristics of the MIS: Literature reviews have been conducted on the MIS characteristics. Zuhru et al. (2025) conducted a comprehensive literature review to examine the main characteristics, roles, and emerging trends of management information systems (MIS). They highlighted MIS's transformation from basic data-processing systems to intelligent, strategic platforms that are increasingly shaped by artificial intelligence (AI), the internet of things (IoT), big data, and cloud computing, culminating in the rise of smart MIS (SMIS). They further noted that the success of MIS relies not only on advanced technology but also on an organization's readiness to foster digital culture, invest in infrastructure, and implement effective change management strategies. They concluded that MIS now serves not merely as a support tool but as a fundamental pillar in building innovative, competitive, and sustainable organizations in the digital era. However, the study is limited by its reliance on secondary data, with no inclusion of empirical testing or case studies.

Empirical Papers on the Characteristics of the MIS: Empirical papers have examined the characteristics of the management information systems (MIS) construct across different contexts and sectors. Abdullah et al. (2023) conducted a quantitative study to examine the complex relationships among three critical dimensions of information system quality (i.e., system quality (SQ), information quality (IQ), and service quality (SerQ)) and how they collectively impact key organizational performance indicators such as customer satisfaction and operational efficiency. The found strong interdependencies among system quality (SQ), information quality (IQ), and service quality (SerQ)" (p. 2). Specifically, they found that high SQ contributes to enhanced IQ, which subsequently improves SerQ and overall user satisfaction. They further found that, among the three dimensions, service quality was identified as the most significant indicator of system performance, as it encapsulates broader aspects of system quality. They recommend that future studies explore the effects of quality improvements on measurable organizational outcomes, particularly financial performance and customer retention. Additionally, they suggested that future research could investigate how emerging technologies such as artificial intelligence and machine learning can enhance information system quality. Ighomereh et al. (2022) conducted a study aimed at identifying the most relevant dimensions of e-service quality for evaluating electronic service channels (e-channels). They found that reliability, security, fulfilment, ease of use, and responsiveness were the most influential dimensions impacting overall e-service quality. Interestingly, they found that responsiveness, although significant, had a negative influence on perceived e-service quality. They also reinforced that service quality is multidimensional, and traditional SERVQUAL dimensions are insufficient to capture the nuances of e-service environments. Overall, their study offers practical insights for service managers and system designers aiming to optimize the quality of digital service platforms. Knauer et al. (2020) conducted a study to examine the influence of information systems (IS) quality on data quality in management accounting (MA) and to identify the determinants affecting IS quality in MA. They found that higher IS quality in MA positively impacts management accounting data quality (MADQ). Furthermore, IT investments, internal and external IT knowledge, and the use of innovative technologies were found to enhance IS quality in MA. They also identified IS quality as a mediating factor between these determinants and MADQ. Despite these insights, they acknowledged limitations, including potential response bias due to the self-reported

nature of the survey, the static snapshot of the ever-evolving IT landscape, and the regional focus on German firms, which may affect the generalizability of the findings. In summary, Abdullah et al. (2023), Ighomereh et al. (2022), and Knauer et al. (2020) collectively highlight the critical role of information system (IS) and service quality in shaping user satisfaction, operational efficiency, and data reliability. Abdullah et al. (2023) found strong interdependencies among system quality, information quality, and service quality, with service quality emerging as the most influential factor for overall performance, and recommended exploring IS enhancements through emerging technologies. Ighomereh et al. (2022) emphasized that e-service quality is multidimensional, with reliability, security, fulfillment, ease of use, and responsiveness as key factors, noting that responsiveness could negatively affect perceived quality. Knauer et al. (2020) demonstrated that high IS quality improves management accounting data quality, with IT investments, knowledge, and innovative technologies as key enablers, while acknowledging limitations in generalizability and potential response bias. Overall, these studies underscore that achieving high-quality IS and services requires attention to multiple interrelated dimensions, which collectively drive performance outcomes.

Hypotheses: The study hypotheses to be tested are drawn from the study theoretical/conceptual framework (Figure 1.2). These are:

H1: Performance impacts on the user of a given MIS is positively influenced by both task-MIS fit and utilization of the MIS.

H2: Utilization of a given MIS is positively influenced by task-MIS fit.

H3: Task-MIS fit is positively influenced by both characteristics of tasks undertaken by the user of a given MIS and characteristics of the MIS.

METHODOLOGY

In this study I will adopt a multi method paradigm using both the positivist and interpretive paradigms to make the study stronger than using only either of the paradigms. However, the study will be predominantly positivist with the interpretive approach helping to complement findings from the positivist approach.Conducting quantitative research will involve a systematic and structured processinvolving testing the research hypotheses derived from the research objectives to enable understand the relationships among the variables in Figure 1. I will thus collect quantitative data from senior administrative staff, the primary users of the various management information systems (MISs) in Makerere University, using a questionnaire. Qualitative data will be collected from select administrative staff from all administrative units to capture the multiple opinions.

Research Designs: In this study I will employ a mixed methods approach with a largely quantitative orientation beginning with the collection and analysis of quantitative data to obtain abroad understanding of the research problem and test the hypotheses. This will be followed by collection and analysis of qualitative data to obtain insights and explanations for patters observed in the quantitative results and to answer the research questions. The integration of methods will occur during the interpretation phase, where findings from both strands will be compared and merged to identify convergencies, divergencies, and to strengthen the validity and depth of the conclusions thereby using qualitative evidence to supplement and contextualize quantitative results within a multi-method strategy. For the quantitative strand, numerical data will be collected to test hypotheses and examine correlations relationships between key variables, such as the relationship between the utilization of MISs and task-technology fit. For the qualitative strand, an exploratory design as defined by Creswell & Poth (2018), will be used to investigate a relatively under studied issue in Uganda namely the antecedents and moderators of performance impact of MISs within the

task technology fit framework, allowing for rich insights into diverse user perspectives and experiences and enabling identification of opportunities for improving the MIS under the study; to this end, and an open ended non-directive inquiry approaches will be adopted to give participants the freedom to express their views in their own words without being constrained by predetermined questions.

Population: The study population will comprise select senior administrative staff of Makerere University since they directlyinteract with the various management information systems at Makerere University. Consistent with Casteel and Bridier's (2021) definition of a target population as "a group of potential participants to whom the researcher may have access that represents the nature of the population of interest" (p. 344), the target population are the senior administrative staff being the primary users of the MISs. For the quantitative strand, the population will comprise the 299 senior administrative staff from across the various administrative units as reported in the Makerere University Factbook 2022/23. For the qualitative strand, I will draw participants from among senior administrative staff who by virtue of their positions are able to provide authoritative perspectives and rich experiential insights in response to the study's research questions on the impact of MISs on individual and/or organizations.

Sample: In this study I will employ separate sampling strategies for the quantitative and qualitative strands, with the quantitative component drawing from senior administrative staff across the relevant administrative cluster units namely the Academic Registrar (AR), Directorate of Human Resources (DHR), Dean of Students (DOS), Directorate of Research and Graduate Training (DRGT), Finance, and the combined cluster of Library, Quality Assurance, and the Directorate of ICT Support (DICTS) which together comprise 255 of the total 299 senior administrative staff, while the remaining clusters (Estates, Gender Mainstreaming Directorate, and Office of the Vice Chancellor), totaling 44 staff, will be excluded because they fall outside the scope of MIS usage under investigation; the inclusion of all 255 eligible staff makes a census approach feasible and allows for adequate buffer against non-responses, ensuring the final dataset remains sufficiently large for meaningful quantitative analysis. For the qualitative strand, the sample will consist of administrative staff purposively selected from the same six relevant clusters, and stratified sampling will be used to identify one knowledgeable participant from each cluster, resulting in a total of six respondents whose insights will ensure balanced representation and enrich the depth and contextual understanding of MIS utilization and performance dynamics across administrative units.

Data Collection Methods: Data collection for the study will involve both quantitative and qualitative approaches, with the quantitative strand relying on a survey administered through a self-administered questionnaire (SAQ) to gather information from the entire eligible population of 255 administrative staff, making a census both feasible and cost-effective since data will be collected at a single point in time using a cross-sectional design. For the qualitative strand, data will be collected through semi-structured, one-on-one interviews that will allow the researcher to explore issues in depth while still following a guiding set of questions, and the small number of targeted participants will make it possible to conduct the interviews efficiently and within a short timeframe.

Data Collection Instruments: Data for the study will be collected using two instruments tailored to the quantitative and qualitative strands. For the quantitative strand, a self-administered questionnaire (SAQ) (Appendixes A–D) will be used, adapted from earlier validated studies and structured into six sections capturing different dimensions of the research variables. Section 1 will gather respondents' background characteristicssuch as gender, age group, education level, duration of MIS use, and prior MIS trainingwhile sections 2 to 6 will solicit responses on user performance impacts, task–MIS fit, MIS utilization, task or job characteristics, and MIS characteristics, respectively, all measured on a five-point Likert scale ranging from "strongly agree" to "strongly disagree." For the qualitative strand, data will be collected using semi-structured interview guides (Appendixes

F–I) designed to obtain in-depth insights from selected senior administrative staff regarding their perceptions related to research questions 1, 2, 4, and 5, as well as their experiences relevant to research question 3. These interview guides will be derived directly from the research questions to ensure focus, consistency, and the inclusion of a standardized core set of questions for all participants.

Data Analyses: Quantitative and qualitative data will be analyzed using appropriate statistical and interpretive procedures. For the quantitative strand, data will be analyzed using IBM SPSS Statistics, beginning with descriptive statisticssuch as frequencies, measures of central tendency, and dispersionto summarize respondents' background characteristics. Inferential statistics will then be employed to test the study's three hypotheses by expressing the variables mathematically, where performance impacts on the user (PI), task–MIS fit (TF), MIS utilization (UM), task characteristics (XT), and MIS characteristics (XM) will be modeled as shown in equations (3.1)–(3.3). Accordingly, Hypothesis 1 (H1) will be tested using multiple linear regression with PI regressed on TF and UM; Hypothesis 2 (H2) will be tested using simple linear regression with UM regressed on TF; and Hypothesis 3 (H3) will be tested using multiple linear regression with TF regressed on XT and XM. For the qualitative strand, data will be analyzed using six stages of the framework method (Gale et al., 2013). First, all interview responses will be transcribed verbatim. Second, the transcripts will be repeatedly read to achieve immersion and deepen understanding. Third, initial codes will be generated from the transcripts based on the study constructs, which will serve as predefined themes, while the indicators of each construct will form subthemes. Fourth, the coded data will be grouped into categories to develop analytical frameworks. Fifth, analytical notes will be written to capture interpretive insights. Finally, these analytical notes will be used to analyze, interpret, and derive meaning from the qualitative findings.

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