



The perceived value of management information systems in a South African public institution

**Authors:**

Bongekile I. Stuurman¹ 
Kagiso Mabe¹ 

Affiliations:

¹Department of Information and Knowledge Management, College of Business Economics, University of Johannesburg, Johannesburg, South Africa

Corresponding author:

Bongekile Stuurman,
bongekilestuurman@gmail.com

Dates:

Received: 07 Aug. 2024

Accepted: 30 Oct. 2024

Published: 04 Mar. 2025

How to cite this article:

Stuurman, B.I. & Mabe, K., 2025, 'The perceived value of management information systems in a South African public institution', *South African Journal of Information Management* 27(1), a1922.
<https://doi.org/10.4102/sajim.v27i1.1922>

Copyright:

© 2025. The Authors.
Licensee: AOSIS. This work is licensed under the Creative Commons Attribution License.

Read online:

Scan this QR code with your smart phone or mobile device to read online.

Background: Management Information Systems (MISs) act as support units that store, process, and organise information for organisations. However, poorly maintained MISs can adversely affect an organisation's success or survival due to the inability to make quality decisions. Many public institutions face challenges in implementing MISs, making it essential to investigate the value derived from using MISs and the challenges associated with their implementation and use.

Objectives: The objectives of the study were to determine the benefits of adopting a MIS in a public institution, identify the challenges of MIS utilisation, and address the difficulties experienced by the institution when using the MIS.

Method: The objectives were addressed through a literature review and semi-structured interviews with 25 interviewees in the institution.

Results: The MIS employed contributes positively to information sharing among managers, provides accurate data and helps with routine tasks. The challenges included that the MIS did not have all the desired features, such as filtering and the MIS is not always accessible and tends to break down when most managers simultaneously login to obtain information. Recommendations to address these issues were also provided.

Conclusion: Although various challenges are experienced when using the MIS, it plays a vital role in enhancing the managers' roles in the institution.

Contribution: The study contributes to the information management body of knowledge by clarifying the challenges and benefits of implementing MISs in public institutions. Furthermore, it provides recommendations for overcoming these challenges, offering insights for other public institutions to consider before implementing an MIS.

Keywords: management information systems; MIS; information management; public institutions; decision-making.

Introduction

A management information system (MIS) is a computerised system that gathers, processes and analyses data to provide decision-makers with the information they need to manage an organisation efficiently (Taylor 2024). Management information systems incorporate numerous business operations such as data management, system development and information technology (IT) support, which aid in decision-making, strategic planning and enhancing operational requirements (Woolley 2024).

The mandate of the MISs is to make sure that accurate information is available to the management for decision-making while performing other management functions such as data processing, analysis, communication and connectivity behind the scenes (Hasan, Shamsuddin & Aziati 2013). Management information systems function as supporting units that store, process and analyse information for organisations (Mutwiri 2020). Management information systems improve the quality of decisions made in organisations by providing managers with appropriate information to support decision-making (Hanna & Wigmore 2022).

Irrespective of these benefits, public institutions tend to lag behind (because of budget constraints, resistance to change, legacy systems and data integration issues) when it comes to the optimal use of MISs (Taylor 2024), which informed the purpose of this study – to determine the benefits and challenges of implementing MIS experienced in a public institution (an organisation that is established, funded and operated by the government to provide services or functions for the benefit of the public) (Elhadi and Quanxiu 2013).

The importance of MISs has been recognised through the ability to produce regular reports on operations for every level of management in organisations (Daniel & Eyraud 2019). Management information systems narrow the information available to increase organisations' productivity by providing management with well-processed information (Hosseini 2019). Management information systems supply a wide range of business operations and allow communication between an organisation's customers, suppliers and service providers (Laudon & Laudon 2020). Management information systems aim to serve an organisation's management with complete information, while ensuring flexibility in data storage and retrieval (Goyal 2020).

To operate efficiently, MISs need newly updated technology (Internet of Things, cloud computing and business intelligence tools), processes and people to handle data (Myers 2014). Newly updated technologies enable MISs to perform at optimum levels, from data processing to producing completed information (Xiangsheng & Tan 2020). According to Kumar (2019), MISs provide historical and current data and help with trends analysis to allow managers to improve organisational performance in the long and short term. Management information systems enhance operational flexibility and the flow of information within organisations by providing well-processed information that is urgently needed to enable the continuance of operational activities without any delays (Goyal 2020).

Management information systems optimise data use and information management by supporting collaboration among different departments by sharing access to data and reports, which fosters teamwork and decision-making (Laudon & Laudon 2020). Matekenya and Moyo (2022) stated that many organisations have utilised MISs to enhance their information management and improve organisational decision-making.

Because of budget constraints, public institutions are slow to adjust to the use of MISs, thus slowing down processes involved in the management of information and ultimately, decision-making (Bretschneider 2013). Public institutions fall behind in keeping up with technological advancements compared to private sector organisations (Mustapha & Ralphs 2021), which can lead to problems with MISs functionality and, therefore, institutions' performance. The challenges organisations may encounter with using an MIS include functionality and difficulty with administration, especially in large organisations (Liem & Ntim 2019). Management information systems that are not well managed may lead to poor information management, which may harm organisational operations (Babaei & Beikzad 2013).

This study aimed to make insightful recommendations on how public institutions can avoid or deal with potential MIS difficulties, as well as identify reasons for employing an MIS. A singular case study and semi-structured interviews were deemed the most suitable for this study as the tools would lead to an in-depth analysis of the phenomenon being studied.

Literature review

This section will discuss the following topics: The value and importance of MISs, the essential role of MISs in the decision-making process, the challenges of implementing MISs in institutions and the use of MISs in both public and private sector organisations.

The value and importance of management information systems

Management information systems play a pivotal role in modern institutions by enhancing efficiency and assisting in overall strategic planning (Muller & Urbach 2021). Management information systems help streamline business processes by automating routine tasks and facilitating efficient information flows, which reduces manual effort, minimises errors and increases productivity (Gambhir & Kumbhar 2017). Management information systems provide information resources timely and monitor performance, all of which contribute to a more productive and efficient institution (Bhandari 2023). Management information systems help in planning, scheduling and allocating resources more effectively and optimising resource management to ensure that human, financial and material resources are utilised efficiently (Affum 2022).

According to Kumar (2019), MISs provide background and current data and trends analysis that managers can use to improve organisational performance in the long and short term. Management information systems enhance operational flexibility and the flow of information within organisations by providing well-processed information that is urgently needed to enable the continuance of operational activities without any problems, for example, being unable to analyse information because of incomplete reports (Goyal 2020).

Management information systems enhance information accessibility within organisations by ensuring that data is consolidated from various sources and is centralised in an accessible system (Adamovic 2020). Management information systems facilitate information sharing through creating collaborative platforms across departments, which improve communication and collaboration and lead to coordinated efforts. Management information systems reduce the duplication of work and foster a unified approach to achieving organisational goals (Fashima 2021). The fact that MISs can be accessible on mobile phones provides employees with the flexibility to access information from anywhere, at any time, supporting remote work and ensuring continuity of operations (Gaurav 2020).

The value of MISs has long been recognised, as MISs provide managers with valuable information (analytical information) and allow employees to access information remotely (Mahmood, Ahmed & Fadhil 2020). Management information systems assist managers in strategic planning, which involves redefining the organisation's direction by allocating resources to attain strategic goals.

Management information systems continually provide reports to all management levels, for their analysis, set performance standards and alert other departments of deviations from the standards timeously to correct issues such as the shortage of material in the operations business unit (Gaurav 2020). Management information systems act as information generators, the systems facilitate communication and problem identification and help in the process of decision-making (Fashima 2021).

The value and importance of MISs in modern organisations are undeniable, as the systems significantly enhance organisational efficiency and strategic planning (Asemi, Safari & Zavareh 2011). However, its effectiveness is highly dependent on proper implementation, data quality, user training and ongoing maintenance (Rainer & Prince 2021). Organisations must weigh the benefits against the costs and challenges to ensure that MISs contribute positively to their overall goals and objectives (Zheng 2022).

The essential role of management information systems in the decision-making process

Effective MISs offer management the power to make bold decisions in the organisation as managers receive high-quality information (Islam & Aldaihani 2022). According to Hasan et al. (2013), through data validation and regular audits and updates, MISs are able to provide accurate information and thus assist managers with quality decision-making. The adaptability of MISs enables organisations to fulfil changing needs and requirements that are critical when making decisions (Adebayo et al. 2018), for example, the implementation of a customer relationship management system (CRMS) that integrates MISs to stay agile in continuously changing markets and improve customer relationships (Noviarini 2020). Additionally, MISs provide information to assist managers in making wise decisions in a corporate environment that is changing rapidly because of technological advancements such as blockchain, the Internet of things, 5G networks and cloud computing (El-Ebiary et al. 2020).

According to Zheng (2022), MISs improve managers' organisational functions, increase decision-making turnaround (time taken to make decisions) and improve organisational operations. Management information systems allow different types of data processing and the conversion of data into valuable information, which supports the decision-making process (Verna & Trivedi 2020). Management information systems support managers in making decisions through delivering information applicable to solving organisational issues (Zheng 2022).

Management information systems produce information according to managers' specifications, which increases managers' effectiveness and efficiency when making a decision (Al-Ghonmein, Al-Moghrabi & Talhouni 2020). Management information systems act as information administrators, allowing managers to be competent in leadership roles and make decisions that positively impact the organisation

(Tantua & Godwil-Biragbara 2020). Management information systems provide highly processed information and enable managers to be effective and ready to make quality decisions on the foundations of quality information (Markgraf 2019).

Management can achieve their planned targets and control other business functions that need valuable information to operate efficiently through employing an MIS (Memon et al. 2021). Furthermore, MISs help management in goal setting, strategic planning and the implementation of organisational objectives, as well as converting these objectives into operational activities (O'Brien & Marakas 2021).

Management information systems help managers with long-term planning, target setting and controlling essential business functions (Jamil, Soares & Pessoa 2017). In that regard, MISs support managers in ensuring that operational functions are aligned with the goals and strategies of organisations. The South African Department of Government Communication and Information Systems (SADGCIS 2020) agree with O'Brien and Marakas (2021) stating that management utilises information provided by MISs to set organisational goals, perform strategic planning and align business processes with the business plan.

Challenges of management information systems in institutions

The literature identified several challenges regarding MISs, which are: the cost of implementing an MIS is high, and maintenance and storage improvements are costly, as well as the challenges institutions face, such as limited staffing or resources. A management information system is unreliable when offline.

Management information system implementation is quite expensive for organisations because of the need for continuous maintenance (Amaravadi 2022). Another common reason for implementation expenses is a lack of awareness of the business environment, as some organisations may construct an MIS without first conducting business analysis and therefore may not efficiently implement the MIS (Amaravadi 2022). Public institutions are also faced with significant challenges, including being short-staffed and under-resourced, which impacts their ability to deliver services effectively (Schnell & Gerard 2023) and implement MISs (Ilankoon, Tretten & Singh 2019).

According to Jana et al. (2021), developing and implementing an MIS requires financial investment, which some organisations may not afford because of financial constraints. Decision support systems (DSS), a type of MIS, require regular storage upgrades to retain substantial amounts of data, which has a direct impact on operational costs (Ilankoon et al. 2019). In addition, Candido et al. (2021) found that DSS software and electronic distribution networks are expensive to develop and maintain, requiring massive amounts of time and financial investments.

An offline MIS (a system that manages information and processes information without requiring a connection to a network or the Internet) can be used in environments where Internet connectivity is limited or unreliable (Babaei & Beikzad 2013). However, in the event that an MIS does not have offline capabilities, the result may be the loss of data as the data are not backed up to cloud storage tools immediately (Affum 2022). Working in the offline transaction processing system (TPS) makes it difficult for managers to access real-time information immediately as the latest versions of documents experience upload delays (Wang 2023).

Management information systems in public and private sector organisations

The lack of funds is a challenge in both sectors; however, public organisations mostly experience a lack of funds to process the maintenance of the MIS, while in the private sector, the issue is not as prevalent (Ijeoma 2018). Organisations operating in both sectors invest in MIS; however, private organisations go the extra mile to ensure the maintenance of MISs is included in organisational budgets (Nelwamondo & Njenga 2021).

Implementing an MIS is challenging for public institutions because these institutions rely on government funds (which can be limited because of statutory requirements, political considerations, the need for transparency and adjustments to expenditure often require formal approvals) to develop an MIS and deliver services for the welfare of the public (Baker et al. 2023). In contrast, private organisations have greater flexibility to reallocate funds, adjust strategies and respond quickly to immediate changes without needing extensive external approvals (Salman 2022).

The nature of public institutions can make developing and implementing an MIS challenging, as public institutions have many stakeholders (unions, service users, regulators and oversight bodies) to consult before implementing such systems (Matin 2019). In comparison, private organisations have a flat structure with directors who can quickly reach a consensus to develop and implement an MIS within the organisation (Krogstie 2012).

According to Elhadi and Quanxiu (2013), the following are the top four main obstacles to effective MISs use in public sectors:

1. Lack of maintenance of MISs application software.
2. Lack of management support.
3. Lack of well-trained employees to deal with new technologies.
4. Lack of planning and activities related to the use of information.

According to Podger (2020), private sector organisations (such as Research Triangle Institute International – a private nonprofit organisation, specialising in innovative and multidisciplinary research) have MIS specialists within the organisation. In contrast, public sector organisations tend to

rely on outsourcing MIS specialists to monitor MISs, which shows that public institutions are not fully prepared for MISs (Sharma, Rana & Nunkoo 2021), from a skills perspective, not to mention that outsourcing can be more expensive than insourcing (Ijeoma 2018). Because of outsourcing MISs development, public institution MISs are often reviewed and monitored by external MIS specialists who may have diverse perspectives on MIS setup and thus delay the deployment of MISs (Averweg & Roldan 2004).

Above all, there are organisations such as Massaweir Egypt, Bidvest Group and Discovery Ltd that have successfully implemented MISs, leading to key outcomes such as improved service delivery, better decision-making, increased operational efficiency and enhanced transparency (Laudon & Laudon 2020). Thus, the successful implementation of MISs can significantly transform organisational effectiveness at all levels of operations.

Research problem

It is important for institutions to manage their MISs for better access to information and to make quality decisions (Daniel & Eynaud 2019). When MISs are not well maintained, institutions may be unable to make the best decisions (Sahoo, Patel & Misra 2019). Public institutions utilise MISs to ensure efficiency in service delivery. However, public institutions take time to adjust to the use of MISs because of bureaucratic processes that need to be followed in the public sector (Bretschneider 2013). Public institutions often rely on outsourced MIS experts to manage their MISs, which indicates that these institutions are not fully prepared to handle MISs internally (Sharma et al. 2021).

Thus, the research aim of this study was to determine the perceived value of the MIS employed in a public institution in South Africa. The researchers believed that once public institutions are explicitly aware of the benefits of employing MISs, increased investments and uptake will be realised. To satisfy the research question and objectives, 20 managers and 5 information and communications technology (ICT) employees were identified to gather data on the effectiveness of the MIS employed in managing information for decision-making, using a selected public institution. The researchers utilised semi-structured interviews.

The research question addressed was:

How effective is the MIS employed in a public institution in South Africa?

Objectives of the study

1. To determine the benefits of adopting an MIS in a public institution.
2. To determine the challenges of MIS utilisation in a public institution.
3. To address MIS challenges experienced within a public institution.

4. To provide recommendations on how the institution can address challenges.

Research methods and design

Purposive sampling was used in this study because the technique allowed for the purposeful selection of participants, based on their relevance to the study's objectives (Pace 2021). The researchers purposively identified 20 managers of disparate business units in the institution and five ICT employees working closely with their MIS. The managers of the business units were selected based on the fact that they directly rely on the MIS to make decisions. The five supporting employees of the ICT and records management department were selected because the employees are responsible for implementing and setting up the MIS in the institution.

This study obtained data through semi-structured interviews to enable the researchers to use different themes, questions and processes to answer the research objectives (Galletta & Cross 2013). The study used semi-structured interviews to facilitate the understanding of participants' points of view by allowing the participants to expand on their responses through asking relevant follow-up questions.

The semi-structured interviews were recorded using a voice recorder, through the Microsoft Teams app and were then transcribed. The transcribed responses were loaded into ATLAS.ti (a qualitative data analysis tool designed to analyse and interpret qualitative data) for coding and theme identification. Codes were created based on the different topics covered during interviews. The study adopted thematic analysis, which is a technique applied to process data and includes searching for patterns or themes through the data set (Saunders, Lewis & Thornhill 2023).

Ethical considerations

The ethical clearance was granted by the College of Business and Economics Research Ethics Committee (CBEREC) of the University of Johannesburg (Ref. no. Code 01-2022SCiiS036) to conduct the research because of the study adhering to the university's ethical standards also indicating that the study was confirmed not to have a potential to damage, humiliate or harm the party being researched (Resosudarmo 2022).

The selected institution notified the researchers to ensure that the data collected be treated with utmost confidentiality and should not compromise the institution's reputation. The researchers complied with this request from the institution and stored the data collected on a protected storage device to which only the researchers have access. Additionally, the researchers kept the data collected confidential through applying codes. The researchers also explicitly explained the processes to be followed during the research by providing participants with informed consent letters explaining their roles and rights prior to participating. Credibility and confirmability were maintained to ensure the integrity of the

study. The researchers continuously contacted the participants to ensure their inputs were kept the same and to confirm and approve that transcribed data had kept the meaning of the intended message.

Results and discussion

This section will discuss the following topics: the benefits of the MIS used in the institution, prevalent challenges experienced when using the MIS in the institution and recommendations on how the institution can address challenges.

The benefits of the management information system used in the institution

All (100%) participants agreed that the MIS enhanced their roles, especially in multitasking, to ensure that all management functions are completed timeously, and reports are submitted on time. One participant from the operations unit stated, 'I get notifications on the data submitted, indicating which inspector submitted and at what time, which makes it easy to find the information already processed to write monthly reports'. Lydon (2020) supports the participants' views, stating that MISs ensure accurate information is available to management timeously while performing other management functions (generating different reports) that seek immediate attention.

One (4%) participant in the research business unit stated that the MIS makes it easier to access some of the older reports that retired employees used to work on and pick up where they left off. The same participant also stated that the MIS helps with accessing some of the research conducted in the organisation. Khando et al. (2022) concur with the participant, stating that MISs provide managers with reports on the institution's historical performance. Thakur et al. (2020) add that MISs store information, including all organisational decisions made in the past for management to access whenever the information is needed. Retrieving historical data supports managers in tracking an organisation's performance to understand how the organisation performed in the previous years, which is beneficial to newly appointed managers when they create business strategies (Hanna & Wigmore 2022).

One (4%) participant in the communications and marketing business unit indicated that the MIS improves communication with clients and assists managers in analysing the communities that do not know about the mandate of the organisation when doing rural community engagement. Ramírez and Tejada (2022) explain that MISs increase the level of customer interactions, which assists organisations in improving customer services and the organisation's daily functions, thus proving the participant's statement. The same participant went further, stating that the system helps send important communication to all business units at once rather than releasing communications multiple times. The importance of MISs in organisations is to improve communication capabilities between organisational departments as information is sent once to MISs for other

employees to view the information in the internal publication tab of the MIS (Khando et al. 2022).

Four (16%) participants from operations mentioned that the MIS improved the speed of decision-making in the organisation by centralising information access, especially in management committee (Manco) meetings, where a good amount of information from the system is needed. This finding contrasts the view of nine (36%) other participants, which is discussed in the section (Prevalent challenges experienced when using the management information system in the institution). According to Shaqiri (2014), managers may make better decisions, create more successful strategies and accomplish organisational objectives quicker when they have access to information through the MIS.

One (4%) participant from the strategy and risk business unit stated that the MIS improved organisational reporting as managers are submitting more accurate reports compared to the past years. The same participant stated that organisational reports are then forwarded to the executive board of directors at the requested time. Bhandari (2023) also clarified that MIS are utilised to generate reports that can be accessed when requested.

Prevalent challenges experienced when using the management information system in the institution

Even though participants understood the importance of the MIS, all (100%) participants stated that there were challenges affecting the MIS in the institution. One participant stated that the system is not complete and accurate at times, as some information recorded tends to disappear with no knowledge of where the information ended up. Tummers, Kassahun and Tekinerdogan (2019) stated that poorly designed MISs may not capture all necessary data or may lack essential features for data validation and error checking.

One (4%) participant from the ICT business unit stated that the MIS does not have all the desired features, such as filtering detailed reports and the use of a variety of internal data sources that may help users perform better. Wijekoon, Manewa and Ross (2020) provide that MISs may suffer from a lack of features, including specialised features that can automate the MISs operations, which could assist the systems to perform better.

Four (16%) participants stated that the MIS lacks administration and control, which may cause the system to be cumbersome when submitting papers. One participant from ICT indicated that 'it is difficult to integrate the MIS with other operating systems and processes, which leads to fragmentation and a lack of control of the MIS as a whole'. Ampofo (2020) asserts that MISs might consistently deliver subpar service and result in subpar organisational outcomes because of a lack of monitoring within organisations. Monitoring involves continual observation and analysis of systems' performance, health and security to ensure that the

system functions efficiently, securely and within the required limitations.

Nine (36%) participants expressed concerns regarding the system's ability to retrieve data in times of emergency because of network or server failure. One participant from ICT indicated that 'the institution is dependent on an external network (Internet service provider), which can be down at times and sometimes delays resolving network issues, especially during emergencies'. Berdik et al. (2021) also point out that the operation of MISs can be poor because of inadequate network servers and the availability of network suppliers, which disables the timely and effective delivery of information.

Recommendations on how the institution can address challenges

Every (100%) participant suggested employing an integrated MIS that will be more user-friendly and be able to provide a checklist for possible critical errors in data analysis and reporting. Participant 5 (4%) from the operations unit requested for the 'institution to have an integrated MIS that can be used to measure the effectiveness of the MIS in supporting the mandate of the institution'. Affum (2022) provided that integrated MISs are now widely acknowledged as one of the major influences on service level quality and in producing well-processed reports for business operations. Integrating systems refers to the process of joining software and hardware modules into one cohesive infrastructure, enabling all pieces to work as a whole (Madonsela 2020). Integrated MISs aid organisations in streamlining the workflow of information, increasing productivity, and improving accessibility to real-time information. Integrated MISs enhance collaboration and communication with managers at all levels, reduce the number of or completely eliminate manual tasks performed, improve system accuracy and create opportunities for managers' development in terms of making immediate decisions (Aramide et al. 2022).

One (4%) participant suggested seeing a system that allows managers to work offline so that information can be accessed even when one is not connected to the Internet. Lydon (2020) agrees that MISs must support online and offline functionality across all platforms to ensure that the daily activities are achieved without interruption.

Five (20%) participants from ICT proposed getting evidence of proven experience from a service provider prior to employing the service provider. One of the participants added that having a prototype of the specific system and knowing how it works before the system could be introduced is essential. Lauff, Kotys-Schwartz and Rentcheler (2018) agree with the participant, stating that a prototype enables the teams or users of the system to visualise, evaluate and refine their ideas before systems can be fully implemented.

One (4%) participant proposed that the organisation performs rigorous background checks on the service provider that

may be hired to implement the MIS in the organisation, checking the provider's accreditation and successful projects completed. According to Lydon (2020), the hiring panel must make sure that the service provider of the preferred system has a proven record of success, is knowledgeable about the market in which the product or service is provided and understands the organisation's primary focus.

One (4%) participant from the ICT unit indicated that 'currently, the institution is busy with modernisation, aiming to phase out the old systems that are not serving their purpose anymore'. Goyal (2020) argued that changing outdated systems improves the management of information. According to Berndt et al. (2016), MIS users and managers should be an integral part of the development and implementation of MISs. However, one (4%) participant mentioned that the system is developed by a service provider who is appointed by the organisation. The same participant went further, stating that managers and users only attended the training provided by the service provider before the system could go live within the organisation. To maximise the full use of the system, users of the system must focus on agile development (iterative system development through collaboration and increased flexibility to adapt to changing requirements) (Lauff et al. 2018). The researchers agree with Lauff et al. (2018) and believe that involving end-users in the development of MISs is crucial to enable a seamless transition from old to new systems.

The researchers suggest that the institution looks into employing tools that have machine learning (ML) capabilities to perform advanced data analytics and predictive analytics, which assist in providing insights autonomously (Jamil et al. 2017). The researchers further suggest that the institution add a self-service or real simple syndication (RSS) feature, enabling managers to access information without needing to log into the system. All the benefits aforementioned will assist the institutions in ensuring that the correct information is easily accessible, increasing responsiveness to issues that may require immediate action and to be able to predict future institutional needs.

Conclusion

The study focussed on the perceived value and importance of an MIS employed in a South African public institution and the key benefits identified included the ability to produce reports on operations for every level in the institution and providing essential support for decision-making. The key challenges were that the MIS did not have all the desired features, such as data integration, real-time data processing and data accuracy. Recommendations were made that adding a self-service or RSS feature to the system would allow managers to access information through a self-service option without needing to log into the system.

In comparing MISs in the public and private sector institutions, literature indicated that public institutions still fall behind in utilising MISs compared to private

sector institutions. It is recommended that further research be conducted to broaden the study on the perceived value of MISs across multiple public and private sector institutions to understand the similarities and differences of the various types of MISs being used and how these MISs have assisted organisations in managing information for decision making.

Acknowledgements

This article is partially based on B.I.S.'s master's entitled 'Perceived value of Management Information Systems in a South African public institution' towards the degree of MPhil in Information Management in the Department of Information and Knowledge Management, University of Johannesburg, South Africa, on 30 October 2024 with supervisor Mr. Kagiso Mabe.

Competing interests

The authors declare that they have no financial or personal relationships that may have inappropriately influenced them in writing this article.

Authors' contributions

B.I.S. and K.M. contributed equally to the writing of this research article.

Funding information

This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

Data availability

The data that support the findings of this study are available from the corresponding author, B.I.S., upon reasonable request.

Disclaimer

The views and opinions expressed in this article are those of the authors and are the product of professional research. It does not necessarily reflect the official policy or position of any affiliated institution, funder, agency or that of the publisher. The authors are responsible for this article's results, findings and content.

References

- Adamovic, D., 2020, *Investigating perceived competitive edge gained through information system use*, University of Johannesburg, Johannesburg, viewed 22 August 2017, from <https://ujcontent.uj.ac.za/esploro/outputs/graduate/Investigating-perceived-competitive-edge-gained-through/9912702707691/filesAndLinks?index=0>.
- Adebayo, S., Ogunti, E.O., Akingbade, F.K. & Oladimeji, O., 2018, 'A review of decision support system using mobile applications in the provision of day-to-day information about farm status for improved crop yield', *Journal of Natural Science* 2(6), 89–99. <https://doi.org/10.21533/pen.v6i2.183>
- Affum, M.Q., 2022, 'Effect of integrated management information systems on service of private organisations in Takoradi Ghana', *Library Philosophy and Practice* 6(10), 1–40.
- Al-Ghonmein, A.M., Al-Moghrabi, K.G. & Talhouni, A.H., 2020, 'Exploring the relationship between MIS and decision-making process at Al-Hussein Bin Talal University', *International Journal of Engineering and Management Research* 10(2), 39–48. <https://doi.org/10.31033/ijemr.10.2.6>

- Amaravadi, C., 2022, 'The grand challenges in information systems', *Journal of Software Engineering and Applications* 15(10), 103–115. <https://doi.org/10.4236/jsea.2022.154005>
- Ampofo, A.J., 2020, 'Challenges of student management information system (MIS) in Ghana: A case study of university for development studies, wa-campus', *International Journal of Management and Entrepreneurship Research* 2(5), 332–343. <https://doi.org/10.51594/ijmer.v2i5.167>
- Aramide, O.K., Ajibola, R.A., Alarape, A.A. & Oyinade, T., 2022, 'Achieving organisation objectives through management information systems in Organisations', *Journal of Library Philosophy and Practice* 5(12), 02–17.
- Asemi, A., Safari, A. & Zavareh, A.A., 2011, 'The role of management information systems (MIS) and decision support systems (DSS) for managers decision making process', *International Journal of Business and Management* 6(7), 165–166.
- Averweg, U.R. & Roldan, J.L., 2004, 'A comparative analysis of executive information systems in organisations in South Africa and Spain', *Journal of Information System Committee* 01(04), 557–558.
- Babaei, M. & Beikzad, J., 2013, 'Management information system, challenges and solutions', *Journal of Natural and Social Science* 2(3), 374–381.
- Baker, E.E., Yousef, A., Hetamleh, A., Moaiad, A., Yazeed, A., Taher, K. et al., 2023, 'A review of the effectiveness of management information system in decision making', *Journal of Pharmaceutical Negative* 6(14), 1281–1288.
- Berdik, D., Otoum, S., Schmidt, N., Porter, D. & Jararweh, Y., 2021, 'A survey on blockchain for information systems management and security', *Information Processing and Management* 58(1), 102–397. <https://doi.org/10.1016/j.ipm.2020.102397>
- Berndt, A., Bronkhorst, S., Groenewald, D., Kloppe, H.B., Oosthuizen, T.F.J. & Van Der Linde, W., 2016, *Business management – A functional focus*, 3rd edn., FDC Future Dreams Consultants, Johannesburg.
- Bhandari, H.P.D., 2023, 'Effect of management information systems on decision-making in the academic sector', *The OCEM Journal of Management, Technology, and Social Sciences* 2(4), 126–142. <https://doi.org/10.3126/ocemjmtss.v2i2.54249>
- Bretschneider, S., 2013, 'Management information system in public and private organisations: An empirical test', *Public Administration Review* 50(2), 537–542.
- Candido, L.A., Coelho, G.A.G., De Moraes, M.M.G.A. & Florencio, L., 2021, 'Review of decision support systems and allocation models for integrated water resource management focusing on joint Water quality', *Journal of Water Resource Planning and Management* 148(2), 2–19. [https://doi.org/10.1061/\(ASCE\)WR.1943-5452.0001496](https://doi.org/10.1061/(ASCE)WR.1943-5452.0001496)
- Daniel, A. & Eynaud, P., 2019, *Information system management: Governance, urbanization, and alignment*, Sage, New York, NY.
- El-Ebiary, Y.A., Mjlae, S.A., Abu-Ulbeh, W., Hassan, A.H., Bamansoor, S. & Saany, S.I., 2020, 'The effects of management information systems in decision making', *Journal of Mechanics of Continua and Mathematical Science* 15(7), 316–327.
- Elhadi, O.A. & Quanxiu, L., 2013, 'Public sector employees' views of obstacles facing the development of management information systems in the river Nile state-Sudan', *African Journal of Business Management* 7(24), 2376–2380.
- Fashima, O.T., 2021, *The role of management information systems in enhancing interoperability in e-governance in Nigeria: A case study of galaxy backbone*, Linnaeus University, Växjö.
- Galletta, A. & Cross, W.E., 2013, *Mastering the semi-structured interview and beyond: From research to analysis and publication*, NYU Press, New York City.
- Gambhir, S.N. & Kumbhar R.D., 2017, 'The role of management information systems in the decision-making process', *International Journal of Management, IT, and Engineering* 6(8), 230–234.
- Gaurav, S., 2020, 'Management information systems aka MIS: A versatile degree in a growing field', *School of Management* 17(2), 2–10.
- Goyal, K.K., 2020, *Computer concepts and management information systems*, Mercury Learning and Information, Herndon, VA.
- Hanna, K.T. & Wigmore, I., 2022, *Historical data and why it is important?*, viewed 30 November 2022, from <https://www.techtarget.com/whatis/definition/historical-data?vgnextfmt=print>.
- Hasan, Y., Shamsuddin, A. & Aziati, H.N., 2013, 'The impact of management information systems adoption in managerial decision making: A review', *International Journal of Research* 8(4), 10–17.
- Hossein, B., 2019, *MIS nine: Management of information systems*, Cengage Publishers, California
- Ijeoma, M.M., 2018, 'Importance of management information system in service delivery and paperwork in Nigeria university', *Journal of Business and Management* 20(9), 30–38.
- Ilankoon, P., Tretten, P. & Singh, S., 2019, 'Decision support system for flight maintenance technicians: Issues and challenges', *International Journal of Industrial Economics* 27(3), 88–91.
- Islam, M.D.A. & Aldaihani, F.M.F., 2022, 'Justification for adopting qualitative research method, research approaches, sampling strategy, sample size, interview method, saturation, and data analysis', *Journal of Information Business and Management* 5(1), 01–11.
- Jamil, G.L., Soares, A.L. & Pessoa, C.R., 2017, *Handbook of research on information management for effective logistics and supply chains*, IGI Global, London.
- Jana, S., Majumder, R., Menon, P.P. & Ghose, D., 2021, 'Decision support system (DSS) for hierarchical allocation of resources and tasks for disaster management', *Journal of Operations Research Forum* 37(2), 3–62. <https://doi.org/10.1007/s43069-022-00148-6>
- Khando, K., Gao, S., Islam, S.M. & Salman, A., 2022, 'Enhancing employees' information security awareness in private and public organisations: A systematic literature review', *Computers and Security* 10(6), 102–267.
- Krogstie, J., 2012, 'Comparison of private and public sector on information systems development and maintenance efficiency', *International Conference on Electronic Government* 4(3), 222–233. https://doi.org/10.1007/978-3-642-33489-4_19
- Kumar, M., 2019, *Management information system, challenges and solutions*, RIMT University Mandi Gobindgarh, Fatehgarh Sahib in India.
- Laudon, K.C. & Laudon, J.P., 2020, *Management information systems: Managing the digital firm*, 16th edn., Pearson Education Limited, New York, NY.
- Lauff, C.A., Kotys-Schwartz, D. & Rentschler, M.E., 2018, 'What is a prototype? What are the roles of prototypes in companies?', *Journal of Mechanical Design* 140(6), 02–30. <https://doi.org/10.1115/1.4039340>
- Liem, T.V. & Ntim, G.C., 2019, 'The impact of education background on cost management information Systems', *Cogent Business and Management* 8(1), 500–670. <https://doi.org/10.1080/23311975.2021.1944011>
- Lydon, J., 2020, *The best technology for your project management information system*, viewed 24 September 2020, from <https://lydonsolutions.com/2020/09/24/best-technology-for-project-management-information-system/>.
- Madonsela, N.S., 2020, 'Integration of the management information system for competitive positioning', *Procedia Manufacturing* 4(3), 375–382. <https://doi.org/10.1016/j.promfg.2020.02.176>
- Mahmood, N.H., Ahmed, N. & Fadhil, S.N., 2020, 'The significance of management information systems in improving organisation performance and effectiveness', *Journal of Garmian University* 7(4), 196–200. <https://doi.org/10.24271/garmian.207017>
- Markgraf, B., 2019, *The role of management information systems in decision-making*, viewed 30 August 2022, from <https://smallbusiness.chron.com/role-management-information-systems-decisionmaking-63454.html>.
- Matekenya, W. & Moyo, C., 2022, 'Innovation as a driver of SMME performance in South Africa: A quantile regression approach', *African Journal of Economic and Management Studies* 13(3), 452–467. <https://doi.org/10.1108/AJEMS-06-2021-0306>
- Matin, M.A., 2019, *Managing information systems in business, government and society*, Cambridge University Press, New York, NY.
- Memon, M., Shaikh, S.S., Shaikh, S. & Rind, Z.K., 2021, 'Analysis of management information systems on strategic decision making', *International Journal of Advanced Research in Engineering and Technology* 12(4), 85–95.
- Muller, B. & Urbach, N., 2021, 'Understanding strategic assessment IS management', *Information Systems and e-Business Management* 1(9), 1245–1273. <https://doi.org/10.1007/s10257-021-00540-5>
- Mustapha, N. & Ralphs, P., 2021, 'Effectiveness of technology transfer in public research institutions in South Africa: A critical review of national indicators and implications for future measurement', *Africa Journal of Science, Technology, Innovation, and Development* 14(4), 75–863. <https://doi.org/10.1080/20421338.2021.1893467>
- Mutwiri, W., 2020, *Amazon business information systems: Data acquisition and management in its Value Chain*, GRIN Verlag Publishers, Munich.
- Myers, M., 2014, *Qualitative research in information systems*, viewed 13 March 2014, from <http://www.qual.auckland.ac.nz/>.
- Nelwamondo, M. & Njenga, J.K., 2021, 'Approaches for enhancing information sharing between government and communities of Western Cape', *South African Journal of Information Management* 23(1), 1–9. <https://doi.org/10.4102/sajim.v23i1.1414>
- Noviari, D., 2020, *Management information systems current trends 5.0 and 6.0*, Deepublish Limited, Yogyakarta.
- O'Brien, J.A. & Marakas, G.M., 2021, *Management information systems*, 10th edn., McGraw-Hill Professional, New York.
- Pace, D.S., 2021, 'Probability and non-probability sampling – An entry point for undergraduate researchers', *International Journal of Quantitative and Qualitative Research Methods* 9(2), 2–15.
- Podger, A., 2020, 'Public sector use of new technology: Opportunities and challenges', *Asia Pacific Journal of Public Administration* 42(4), 207–208. <https://doi.org/10.1080/23276665.2020.1822193>
- Rainer, R.K. & Prince, B., 2021, *Introduction to information systems*, John Wiley & Sons, New York, NY.
- Ramírez, Y. & Tejada, A., 2022, 'University stakeholders' perceptions of the impact and benefits of, and barriers to, human resource information systems in Spanish universities', *International Review of Administrative Science* 88(1), 171–188. <https://doi.org/10.1177/0020852319890646>
- Resosudarmo, B., 2022, 'Ethics in social research in Indonesia, bulletin of Indonesian economic studies', *Journal of Ethics* 5(2), 233–235. <https://doi.org/10.1080/00074918.2022.2105806>
- Sahoo, R.C., Patel, S.N. & Misra, S., 2019, 'Management information systems – Computer science engineering', *Journal of Computer Science and Technology* 5(36), 741–761.
- Salman, M., 2022, 'Total quality management in private and public sectors in Bahrain: An exploratory study', *Journal of Service Science and Management* 15(4), 452–475. <https://doi.org/10.4236/jssm.2022.154027>
- Saunders, M.N.L., Lewis, P. & Thornhill, A., 2023, *Research methods for business students*, 9th edn., Pearson Harlow, Harlow Essex.
- Schnell, S. & Gerard, C., 2023, 'From bureaucrats to entrepreneurs to networkers, advocates, and empaths: Reappraising human resources management ideals and practices in public administration', *Review of Public Personnel Administration* 43(4), 652–676. <https://doi.org/10.1177/0734371X221117283>
- Sharma, A., Rana, N. & Nunkoo, R., 2021, 'Fifty years of information management research: A conceptual structure analysis using structural topic modelling', *International Journal of Information Management* 58(2), 340–350. <https://doi.org/10.1016/j.ijinfomgt.2021.102316>
- Shaqiri, A.B., 2014, 'Management information system and decision-making', *Academic Journal of Interdisciplinary Studies* 5(3), 24–55.

- South African Department of Government Communication and Information Systems (GCIS), 2020, *2020/21 annual report: The pulse of communication excellence in government*, viewed from https://www.gcis.gov.za/sites/default/files/docs/gcis/GCIS_Annual%20Report%202021.pdf.
- Tantua, E. & Godwin-Biragbara, F., 2020, 'Management information system and office productivity of the print media in rivers state', *International Journal of Business and Law Research* 8(1), 74–84.
- Taylor, E., 2024, *What is management information systems? A complete insight to MIS*, The knowledge academy, viewed 19 August 2014, from <https://www.theknowledgeacademy.com/blog/what-is-management-information-systems/>.
- Thakur, V., Doja, M.N., Dwivedi, Y.K., Ahmad, T. & Khadanga, G., 2020, 'Land records on blockchain for implementation of land titling in India', *International Journal of Information Management* 5(2), 101–940. <https://doi.org/10.1016/j.ijinfomgt.2019.04.013>
- Tummers, J., Kassahun, A. & Tekinerdogan, B., 2019, 'Obstacles and features of farm management information systems: A systematic literature review', *Computers and Electronics in Agriculture* 15(7), 189–204. <https://doi.org/10.1016/j.compag.2018.12.044>
- Verna, D. & Trivedi, A., 2020, 'Enhancing strategic and tactical planning with the support of management information systems', *International Journal of Recent Technology and Engineering* 5(8), 553–554. <https://doi.org/10.35940/ijrte.D7829.018520>
- Wang, T., 2023, 'Research on the impact of e-commerce on offline retail industry', *Frontiers in Business, Economics and Management* 10(1), 169–173. <https://doi.org/10.54097/fbem.v10i1.10237>
- Wijekoon, C., Manewa, A. & Ross, A.D., 2020, 'Enhancing the value of facilities information management (FIM) through BIM integration', *Engineering, Construction, and Architectural Management* 27(4), 809–824. <https://doi.org/10.1108/ECAM-02-2016-0041>
- Woolley, D., 2024, 'South African organisations are embracing genAI as a catalyst for innovation', *IT industry news*, viewed 01 April 2024, from <https://it-online.co.za/2024/04/25/south-african-organisations-are-embracing-genai-as-a-catalyst-for-innovation/>.
- Xiangsheng, D. & Tan, W.K., 2020, 'Big data and smart aviation information management system', *Cogent Business and Management* 7(1), 10–30. <https://doi.org/10.1080/23311975.2020.1766736>
- Zheng, N., 2022, *Management information system: Benefits & examples of its application*, viewed 03 November 2022, from <https://www.hashmicro.com/blog/management-information-system-benefits-examples-of-its-application>.