

Artificial Intelligence-Enabled Mobile Business Intelligence for Decision-Making in Higher Education

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How to cite: Lemekwane, P.M.; Twabu, K.; Moloi, A. (2026). Artificial Intelligence-Enabled Mobile Business Intelligence for Decision-Making in Higher Education. In: 12th International Conference on Higher Education Advances (HEAd'26). Valencia, 15-18 June 2026. <https://doi.org/10.4995/HEAd26.2026.21731>

Abstract

The growing complexity of higher education contexts necessitates prompt, evidence-based academic decisions. Mobile Business Intelligence (MBI) powered by Artificial Intelligence (AI) provides a disruptive strategy by merging predictive analytics, machine learning, and real-time data visualisation into mobile platforms that academic leaders can use. This paper examines how AI-enhanced MBI supports higher education institutions in making informed academic decisions. Through a literature review, the study identified major technological, organisational, and human variables influencing the uptake and effective use of AI-enabled MBIs. The findings emphasise the strategic importance of AI-driven insights supplied via mobile interfaces for increasing decision speed, accuracy, and responsiveness. The paper provides a contextualised view on using AI-enabled MBI to improve data-driven academic governance and institutional performance in higher education.

Keywords: *Artificial Intelligence; Mobile Business Intelligence; Decision Making; Emerging technologies.*

1. Introduction

The increasingly dynamic and complex contexts in which higher education institutions (HEIs) operate necessitate rapid, evidence-based decisions to ensure student success and institutional performance. By combining data from many academic and administrative systems, Mobile Business Intelligence (MBI) has become a potent paradigm for decision support, allowing leaders to assess trends and track key performance indicators in support of strategic goals regardless of time and location (Aziz et al., 2026). Despite these advancements, typical Business Intelligence (BI) systems in HEIs often remain desktop-centric and static, lacking real-time

capabilities that align with the fast-paced nature of academic decision-making (Sequeira et al., 2024).

MBI extends BI features to mobile platforms, giving academic leaders access to dashboards, alerts, and analytics at any time and from any location, improving responsiveness and agility. Artificial Intelligence (AI)-driven decision making is associated with improved institutional performance and has a beneficial impact on improved and informed decision making (Giachino et al., 2025). Concurrently, the interpretation of educational data is changing due to AI technologies, particularly machine learning and predictive analytics, which provide predictive insights that can forecast student risk, personalize learning paths, and optimize institutional performance (Mosha et al., 2026).

MBI allows institutions to access essential business data on mobile devices, giving the flexibility and immediacy needed in today's dynamic and ever-changing higher education environment, regardless of time or location (Edirisinghe, 2022). However, empirical research on integrating AI-enabled analytics into mobile decision support systems, specifically MBI, is still in its early stages, with limited frameworks demonstrating how AI-driven insights can be operationalized on mobile platforms for informed decision making and institutional performance (Jaradat et al., 2024; Min & Lea, 2024). Thus, it is critical to explore how AI-enabled MBI aids academic decision-making in HEIs.

2. Literature Review

2.1. Mobility

Mobile devices, such as tablets and smartphones, have quickly acquired popularity due to their portability and functionality (Annarumma et al., 2020; Yang & Yao, 2022). Mobile device usability, functionality, security, and connectivity speed up decision-making, increase productivity, and influence institutional success (Li, 2024). Mobility is no longer just a "nice to have" option for many HEIs. Real-time processing of data enables HEIs to process and analyze data as it is generated, swiftly detecting anomalies and fraudulent activities, increasing alertness, and reducing financial risks (Michael et al., 2024).

Identifying inefficiencies and bottlenecks promptly can help HEIs reduce costs, streamline operations, and increase productivity (Udeh et al., 2024). In today's dynamic education sector environment, the key to success lies in making the right decisions at the right time and place (Michael et al., 2024). The increase in the availability, accessibility, and improved mobile systems enables flexibility of both on-site and off-site data-gathering and analytics (Yang & Yao, 2022). HEIs need to consider critical factors for AI-enabled MBI investments, including the overall technological factors, change management, and organizational factors, amongst

others, so as to enable their mobile workforce to make informed decisions and achieve institutional success.

2.2. Artificial intelligence

The way that institutions access and analyze data while on the go has been profoundly changed by the integration of AI into MBI. MBI platforms are becoming more predictive, responsive, and user-focused due to AI technologies such as natural language processing (NLP), machine learning, and real-time analytics. HEIs can make more proactive decisions by using predictive analytics, which is driven by machine learning, to foresee customer behavior, student experience, market trends, and operational hazards (Bharadiya, 2023). Incorporating NLP also makes data retrieval easier for non-technical users, expanding the use of MBI in HEIs.

AI enables HEIs to extract and analyze meaningful information to solve complex problems, while providing tools for decision-making systems. AI uses algorithms embedded in machines and deep learning applications, enabling improved performance and tasks such as face, handwriting, and speech recognition (Katere et al., 2018). The introduction of AI and data analytics in MBI represents a substantial shift in the education strategy and decision-making processes. The future of mobile technology, such as MBI, coupled with AI, increases the usefulness of the internet and enables communication between mobile devices equipped with touchscreens and unattached objects (Muhammed et al., 2024). This, in turn, provides HEIs with the insights and intelligence needed to make informed decisions while achieving institutional goals and objectives, regardless of time or geographic location, by leveraging AI-enabled MBI solutions.

3. Methodology

The study employed a quantitative research method to provide an in-depth understanding of the current state of AI-enabled MBI systems, particularly in the South African higher education sector. The design provided a deeper understanding of the perceived barriers and enablers to the AI-enabled MBI system for decision-making. This also led to the identification of critical factors, their significance, and their interrelationships with MBI. The study extensively reviewed the literature on MBI. Participants were then informed in writing that participation in the study was voluntary, and informed consent forms and an information leaflet were forwarded to the appropriate authorities. The closed-ended questionnaires were then designed using the gathered information, and a survey was sent to participants. The use of this method assisted in reducing respondent bias by limiting the potential for being too subjective or giving long responses, which may be influenced by personal interpretation

4. Discussions and Findings

It is vital for HEIs to focus on designing and integrating AI-enabled mobile solutions tailored to local needs. AI-enabled MBI solutions must be customized to address the unique issues and challenges that each institution faces, including cultural diversity, varied languages, and industry-specific requirements. HEIs must focus on various initiatives, taking into account organisational, technological, and change-management factors.

4.1. Institutional Factors

4.1.1. Culture

Organisational culture has a significant impact on the uptake and effectiveness of AI-enabled MBI in higher education. Institutions with a data-driven, innovative culture are more likely to use AI-generated insights in decision-making. Such cultures promote evidence-based approaches, an openness to technological change, and the proactive use of mobile analytics to track student performance, curricular efficacy, and institutional outcomes. Trust and ethical awareness are culturally rooted variables that have a substantial impact on the acceptance of AI-powered MBI. Decision-makers place more trust in algorithmic suggestions when there is transparent data governance, accountability, and clear communication about AI models. In contrast, risk-averse or highly hierarchical organisations frequently value intuition and traditional reporting methods, limiting the practical impact of AI-powered mobile analytics, notwithstanding system availability.

Furthermore, institutional culture influences analytics literacy and continual professional growth, both of which are required to translate AI insights into practical decisions. Institutions that focus on skill development and learning cultures help academic leaders to better evaluate and act on MBI results. Overall, institutional culture has an important role, enhancing or restricting the effectiveness of AI-enabled MBI in promoting good academic governance and decision-making. It is, therefore, imperative for institutions to develop cultural comprehension and awareness, so as to measure AI-enabled MBI solutions for meeting their objectives and improving decision-making.

4.1.2. Policies

Policies play a critical role in enabling and regulating the effective use of AI-powered MBI in higher education. Clear institutional norms on data management, analytics use, and decision-making power lay the groundwork for integrating AI-driven insights into academic governance. According to recent research, policy alignment with institutional strategy improves the effectiveness of analytics and BI initiatives by formalising data sharing, standardising processes, and legitimising evidence-based decision-making (Aziz et al., 2026)

Data privacy, security, and ethical-use regulations have a significant impact on building confidence in AI-enabled MBI systems. Data privacy issues, algorithmic bias, and a lack of transparency continue to be important impediments to AI adoption in higher education . Decision makers are more confident in using AI-generated mobile insights for strategic and operational decisions when institutions have clearly established policies that address data governance, accountability, and the explainability of AI models (Mosha et al., 2026). Overall, consistent and up-to-date policy frameworks serve as important enablers for translating AI-enabled MBI capabilities into long-term, ethical, and successful academic decision-making.

4.1.3. People

People-related aspects are crucial in assessing the efficacy of AI-powered MBI for decision-making in higher education. Analytics literacy, digital competency, and user trust in interpreting AI-driven insights have a substantial impact on uptake and use. Leaders and managers with excellent data interpretation skills are more likely to use predictive and prescriptive analytics offered through mobile platforms, resulting in faster and higher-quality decisions (Sequeira et al., 2024). Trust in AI systems has emerged as a critical human factor in shaping decision-making. While AI-enabled MBI offers improved predictive capabilities, concerns about algorithmic accuracy, transparency, and bias may restrict its practical applications. Human trust in AI is highly related to explainability, prior experience, and institutional support systems that clarify how AI-generated insights are obtained (Mosha et al., 2026).

Where such confidence is lacking, decision-makers tend to regard AI results as supplemental rather than authoritative, limiting their impact on academic governance. Furthermore, continual professional growth and change readiness have a substantial impact on the value derived from AI-enabled MBI. Institutions that invest in analytics, AI awareness, and mobile decision-support tools help employees migrate from intuition to evidence-based decision-making (Bond et al., 2020). People-related elements serve as both facilitators and mediators, validating the notion that effective AI-enabled MBI adoption is as much dependent on human capacity and trust as on technological sophistication.

4.2. Technological Factors

Technological factors have a substantial impact on the uptake and usefulness of AI-powered MBI for decision-making. System quality qualities such as data integration capability, scalability, dependability, and real-time processing emerged as essential accelerators of value creation. Institutions with well-integrated data architectures that combine academic, administrative, and learning management system data reported increased success in producing actionable AI-driven insights for decision support (Sequeira et al., 2024). Recent research indicates that mobile-enabled analytics enhance the relevance of BI by providing insights at the

point of decision-making, especially in dynamic and distributed higher education environments (Giachino et al., 2025).

However, poor mobile performance or limited functionality diminished user interest and hindered the usage of AI-generated insights. While advanced machine learning models enhanced forecast accuracy, the lack of transparency in AI outputs lowered decision-makers' confidence. Recent research emphasises the importance of explainable AI and strong data governance procedures for responsible AI deployment in higher education analytics (Mosha et al., 2026). Overall, technological readiness goes beyond infrastructure availability and includes mobile usability, AI transparency, and data quality as critical predictors of AI-enabled MBI success.

4.3. Change Management Factors

Change management factors are critical in determining the successful adoption and integration of AI-enabled MBI in higher education organisations. Structured planning, communication, and stakeholder participation are all required for effective change management to align organisational procedures with new technological efforts. HEIs that employ systematic change management techniques have smoother adoption of analytics technology and greater levels of user acceptance (Sequeira et al., 2024). Without coordinated change initiatives, staff resistance can significantly undermine the effectiveness of AI-enabled MBI systems.

Leadership commitment and stakeholder participation are important components of AI and MBI change management. Top-down deployments, on the other hand, frequently confront suspicion and low involvement, jeopardizing potential value realization. Thus, effective change management necessitates cultivating a participative culture in which users feel empowered to embrace and apply AI-powered mobile analytics in their decision-making processes.

Training, capacity development, and ongoing support are also critical to change management effectiveness. Giving leaders hands-on experience, tutorials, and advice on evaluating AI-generated insights boosts confidence and minimizes reliance on intuition-based decision-making. Furthermore, including change management approaches in institutional rules, communication channels, and performance monitoring ensures that AI-enabled MBI adoption is long-term and consistent with strategic goals. Overall, change management serves as both a facilitator and an enabler, bridging the gap between technology capabilities and human adoption to improve the efficacy of AI-enabled Mobile BI in academic governance.

5. Conclusion

AI-enabled MBI has the potential to change academic decision-making in higher education by providing real-time, predictive, and actionable data. The report emphasises that technology

preparedness, which includes system quality, mobile usability, and AI explainability, is necessary but insufficient on its own. Human variables, such as analytics literacy, trust, and professional development, are critical to preparing academic leaders to effectively evaluate and act on AI-driven findings.

Furthermore, AI-enabled MBI uptake and impact are heavily influenced by institutional culture, policies, and structured change management. Institutions that foster a data-driven culture, establish clear governance policies, and support ongoing training and change activities are more likely to reap the full strategic value of mobile AI analytics. Integrating these socio-technical dimensions ensures that AI-enabled MBI makes a significant contribution to evidence-based academic governance and strategic decision-making.

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