

ELEVATING USER EXPERIENCE AND SERVICE EXCELLENCE IN SPORTS FACILITIES VIA INTEGRATED MANAGEMENT INFORMATION SYSTEMS: A SYSTEMATIC REVIEW

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Abstract: With the growing public interest in sports, sports facility management is facing increasing demands to improve the quality of its services and enhance the user experience. To address these challenges, this paper comprehensively discusses the development of an integrated management information system (MIS). This discussion is based on existing literature and aims to contribute to the advancement of sports facility management. This study investigates the development of an Integrated Management Information System (IMIS) to improve user experience and service quality in sports facilities. Employing a systematic review (2018-2023) of 7 articles from Scopus, Google Scholar, and Semantic Scholar, the research explores how IMIS can address evolving industry needs. The system facilitates user access to information, online transactions, and feedback mechanisms, while enabling personalization and recommendations. Implementation involves evaluating facility needs, staff training, and user introduction. Data security and privacy are crucial. Future integration of AI, IoT, and mobile applications holds promise for further enhancing IMIS effectiveness. Overall, IMIS implementation has demonstrably improved user experience and service quality. By prioritizing user experience and adapting to technological advancements, sports facilities can remain competitive in a digital age.

Keywords: Management Information System, user experience, service quality, sports facilities.

INTRODUCTION

Effective and efficient sports facilities are crucial in meeting the users' needs and providing a satisfying experience during sports activities (Alkhateeb, S. *et al.*, 2019). However, managing sports facilities well is not an easy task. Challenges such as lack of coordination, difficulties in monitoring inventory, and limited access to relevant information can hinder efforts to improve the user experience and service quality in sports facilities.

In recent years, integrated management information systems have emerged as a proManagement Information Systems ing solution to address the challenges in managing sports facilities. Integrated management information systems take a holistic approach, integrating various management aspects, including inventory management, facility reservations, cleanliness supervision, and performance reporting (Vitliemov, 2019). By implementing integrated management information systems, it is expected that sports facilities can enhance operational efficiency, improve service quality, and provide a better experience for users.

Several previous studies have revealed the benefits of implementing integrated management information systems in enhancing user experience and service quality in various sectors, including sports facilities. For example, research by V. Zaloga (2019) shows that the implementation of integrated management information systems in fitness centers resulted in a significant improvement in user experience and operational efficiency (Zaloga, 2019). Similarly, research by Zhang (2019) found that integrated management information systems can enhance information accessibility and optimize resource utilization in sports facilities, thereby improving their sports offerings (Zhang, 2019).

Although several studies have been conducted, there is no systematic review that comprehensively gathers and analyzes the studies and literature related to the implementation of integrated management information systems in the context of sports facilities and their impact on user experience and service quality. Therefore, the aim of this research is to conduct an in-depth systematic review to gain a better understanding of how integrated management information systems can enhance user experience and service quality in sports facilities.

In this research, we will analyze various previous studies and literature regarding the implementation of inte-

grated management information systems in sports facilities. We will identify the strengths and weaknesses of integrated management information system implementations and analyze their impact on user experience and service quality. The results of this systematic review are expected to provide valuable insights for stakeholders in developing and improving existing sports facilities.

METHODS

The selection and screening process for articles used the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) method in 2020. This method also helps minimize selection bias based on research variables and research protocols. The article selection process that aligns with the research objectives went through the following steps: a search process using the keywords “Integrated Management Information System” AND “User Experience” OR “Quality of Service” OR “Sports Facilities” on Scopus, Google Scholar, and Semantic Scholar databases, including articles published from 2018 to 2023.

The article selection was performed through analysis and synthesis based on inclusion and exclusion criteria. Inclusion criteria for article selection encompass research reports, experimental studies, systematic reviews, and literature reviews related to the development of integrated management information systems. Exclusion criteria applied included articles not in English and publications that were not full-text articles or non-academic journals. The article search was conducted in July 2023.

Based on the initial search from the databases, a total of 6,705 articles were retrieved, and duplicate articles were removed, resulting in 6,363 articles. These articles were further screened based on the suitability of their titles and abstracts, resulting in a total of 1,910 articles. The number of articles used in this research, meeting the feasibility study criteria, amounted to 7 articles. The search process sequence is presented in the following figure.

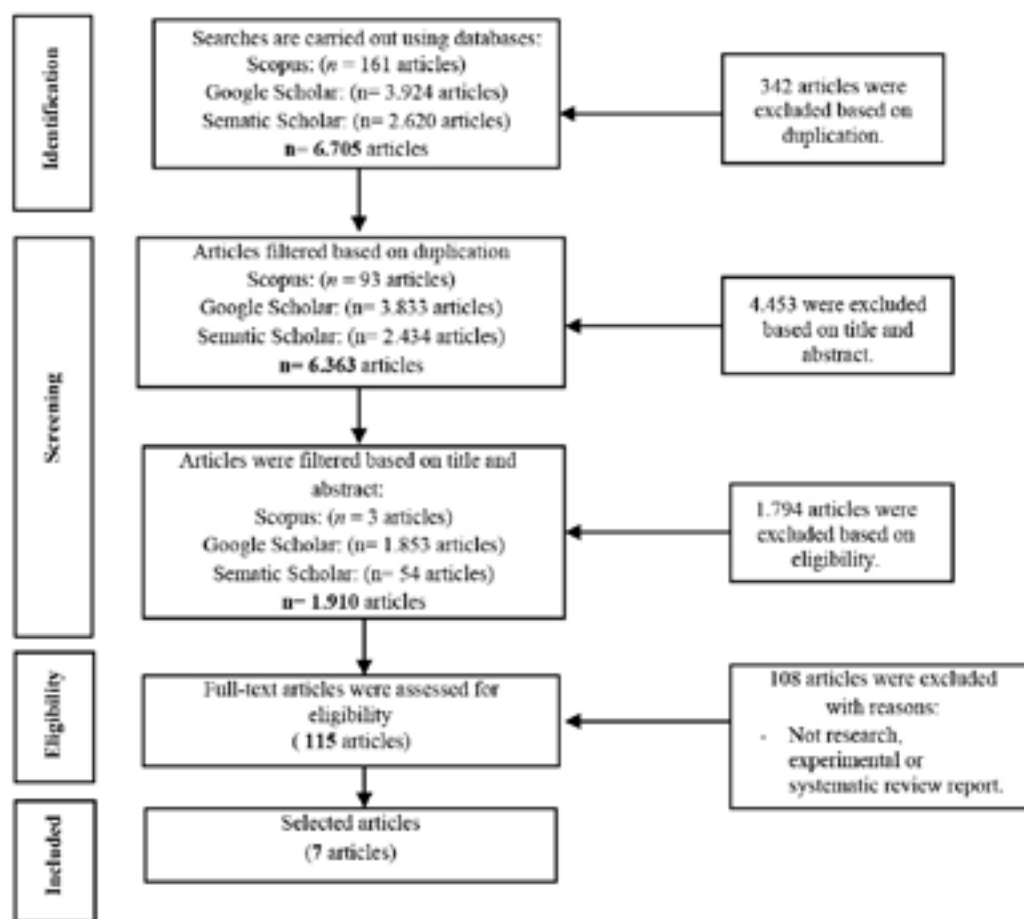


Figure 1. Process flow diagram for the identification, screening, eligibility, and included selection of articles

RESULTS

The results of the review of articles from several research studies that meet the criteria are presented in the following table:

Table 1. Article Characteristics

Author	Title, Publisher	Study Design and Methods	Results
Puspitasari et al., 2019	<i>An application of the UTAUT model for analysis of adoption of integrated license service information system.</i> Procedia Computer Science, 161, pp. 57–65. doi: 10.1016/j.procs.2019.11.099.	The method used is the Unified Theory of Acceptance and Use of Technology (UTAUT), which has been modified to include variables such as performance expectations, business expectations, social influence, facilitating conditions, technology utilization, usage behavior, gender, and age.	One factor that has a big impact on how well information systems are accepted and used is performance expectations. Especially when it comes to allowing services, an Integrated Permit Service Information System might improve the standard of public services. This system is now a necessary necessity to support the efficacy and efficiency of work.
Masri et al., 2020	<i>Assessing the effects of information system quality and relationship quality on continuance intention in e-tourism.</i> International Journal of Environmental Research and Public Health, 17(1). doi: 10.3390/ijerph17010174.	The survey study was designed with reference to previous studies on information system success and Information Technology (IT) development in the context of e-commerce. The focus of this study includes the evaluation of service quality, system quality, perceived quality, trust, user satisfaction, and the continuity of information system usage.	Customers' inclination to stick around is positively impacted by the quality of their customer relationships. consumer happiness, however, also plays a role in the relationship between maintained intention and consumer trust. Furthermore, there is a strong correlation between consumer happiness, trust, perceived value, and continued intention and the quality of the information system. Additionally, there is a strong correlation between customer happiness and trust and customer-perceived value.
Fiaz, Ikram and Ilyas, 2018	<i>Enterprise resource planning systems: Digitization of healthcare service quality.</i> Administrative Sciences, 8(3). doi: 10.3390/admsci8030038	In improving the quality of services at community health centers (puskesmas), healthcare personnel's perceptions are evaluated using an Enterprise Resource Planning (ERP) platform. The overall impact of the integrated planning system on healthcare service quality is assessed through individual attributes, organizational impressions, information, and ERP system quality. A mixed-method approach is employed to gather and examine data through triangulation.	The research results indicate a positive impact of using Enterprise Resource Planning (ERP) on service quality in the healthcare sector. All dimensions related to ERP consistently provide a positive contribution to healthcare service quality. The use of enterprise planning systems has a positive impact on individuals, organizational information quality, and system quality in the context of healthcare services.

Kurniawan, 2018	<i>Integrated Information System for Radio Frequency Identification Based AdMinistration and Academic Activities on Higher Education.</i> IOP Conference Series: Materials Science and Engineering, 407(1). doi: 10.1088/1757-899X/407/1/012097	The waterfall method was chosen because it involves a step-by-step approach, where each phase must be completed before moving on to the next phase in sequence. The research methodology in this study includes steps such as problem identification, research objective formulation, data collection and processing, system design, system development, testing, and improvement.	The use of an RFID-based integrated information system at the University will help users and officials in managing and monitoring every student activity, both academically and administratively, in a structured and centralized manner. Furthermore, data processing and services in the University's academic administration application that utilizes RFID will become more efficient and effective through the adoption of an integrated RFID-based information system. With this system in place, management can process data through a single system, thereby automatically updating data on the server, reducing unnecessary data redundancy.
Hermanto and Supangat, 2018	<i>Integration of EA and IT service to improve performance at higher education organizations.</i> MATEC Web of Conferences, 154, pp. 8–11. doi: 10.1051/mateconf/201815403008	The information technology architecture used in this project references TOGAF, and subsequently, integration and mapping of that architecture with ITIL are carried out.	Polytechnic XYZ may align services and accomplish business goals and technology alignment by integrating ITIL with TOGAF. This is made feasible by the fact that TOGAF offers a methodology and structure that helps business and IT stakeholders change IT across the enterprise, while ITIL offers a framework that helps businesses deliver IT services.
Yu, 2018	<i>Platform Design of Sports Meeting Management System for Regular Colleges and Universities Based on B / S.</i> Wireless Personal Communications. 102(2), DOI: 10.1007/s11277-017-5178-z.	Modular design is a method in the system design process that prioritizes the design of modules before the overall system design. Modular design involves the classification and design of a series of functional modules based on the functional analysis of the product, with each module having different functions or similar functions but different performance or specifications within a certain range. By using this approach, various products can be created by selecting and combining suitable modules to meet various market demands.	A web-based sports game management system was designed and developed in three phases: interface design, functional module design, and database design. Automatically collecting training results and managing training and competition information, this system safeguards and enhances the efficiency of personal data storage. Through a wireless network, system administrators and users can easily search for and access data. Furthermore, the system features an attractive and user-friendly interface, saving energy and material resources and allowing the use of electronic equipment at game locations for data entry.

Yu <i>et al.</i> , 2022	<i>Research on the Construction of Intelligent Sports Health Management System Based on Internet of Things and Cloud Computing Technology.</i> Wireless Communications and Mobile Computing, 2022(1):1-12, DOI: 10.1155/2022/7133810.	The Internet of Things (IoT) technology in the smart grid primarily involves three main components, namely the application layer, the network layer, and the perception layer.	This study develops an intelligent sports health management system that considers a wide range of student health-related variables. The system enables course scheduling, course selection, and interactive teacher-student contact. It is built on the Internet of Things (IoT) and cloud computing technologies. Additionally, the system integrates sustainable health management for students and enables sports health information management.
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The initial literature search yielded a total of 6,705 articles (161 from Scopus, 3,924 from Google Scholar, and 2,620 from Semantic Scholar). After reviewing the abstracts for relevance and matching with the inclusion criteria, 115 articles were selected for full-text review, and ultimately, 7 articles were chosen for further examination.

DISCUSSION

The Role of Integrated Management Information Systems in Enhancing User Experience

The primary goal of an Integrated Management Information System is to improve the accessibility of sports facilities for users. A computer-based integrated management system, capable of combining internet resources, enables users to access the latest and comprehensive sports information. The integrated management information system allows students to view the most accurate standard sports displays, enabling them to grasp the essential points of each item and improve their sports skills (Zhang, 2019). Easier access allows visitors to plan and organize their sports activities more effectively, resulting in a better on-site experience (Shan and Han, 2021).

Furthermore, integrated management information systems can also enhance the services provided by sports facilities to their users (Ndayisenga and Tomoliyus, 2019; Yu *et al.*, 2022). Through interactive platforms or online surveys, facility management can collect and analyze real-time user feedback to assess user satisfaction, identify areas for improvement, and take necessary actions. This information can be used to evaluate user satisfaction, identify areas for improvement, and take appropriate measures. In addition, integrated management information systems can integrate monitoring and security systems to ensure safe and comfortable use of sports facilities for all users (Zhang, 2019; García-Pascual *et al.*, 2021).

Integrated management information systems can also be used to personalize the user experience at sports facilities. They can create user profiles with their interests and preferences for specific sports, which can be used to make recommendations and offers that better align with user interests, increasing engagement and satisfaction. Additionally, integrated management information systems can track user usage history and performance in sports, providing better monitoring and support in achieving their sports goals (Yu, 2018).

Moreover, integrated management information systems help sports facility management efficiently manage resources, inventory, and maintenance. Integrated information within the integrated management information system allows facility management to schedule, monitor availability, and optimize facility usage (Yu *et al.*, 2022). This helps avoid overlapping and scheduling conflicts, enabling users to easily access facilities as per their needs. Furthermore, integrated management information systems can also integrate maintenance and repair systems, ensuring that sports facilities remain in good and safe conditions (Talapatra, Uddin and Rahman, 2018).

Impact of Integrated Management Information Systems on Service Quality in Sports Facilities

Integrated management information systems improve the accessibility of sports facilities. Online booking systems and integration with information systems allow customers to reserve facilities, view availability schedules, and

make quick payments (Kurniawan, 2018; Yu *et al.*, 2022). This reduces waiting times and enhances the user experience.

Integrated Management Information Systems enhances the operational efficiency of sports facilities by simplifying administrative and management processes (Zhang, 2019). For example, integrated membership management systems can manage user databases, including payment records, schedules, and membership data (Zhang, 2019). Integrated management information systems enable employees to quickly access relevant information and perform administrative tasks more efficiently. This reduces the workload of employees and gives them more time to serve customers (Fiaz, Ikram and Ilyas, 2018).

Moreover, improved service quality can be achieved through the use of integrated management information systems (Fiaz, Ikram and Ilyas, 2018; Puspitasari *et al.*, 2019; Masri *et al.*, 2020). Integrated customer management systems enable facilities to track customer preferences and needs, allowing for customized services based on individual preferences, such as recommendations for relevant classes or sports programs. Integrated Management Information Systems also allows user feedback through evaluation and review features, which can be used to continually enhance services.

In this digital era, Integrated Management Information Systems have been proven to have a positive impact on the quality of services at sports facilities. By enhancing accessibility, operational efficiency, and personalized services, integrated management information systems enable sports facilities to provide users with a better experience. However, it is important to note that the successful implementation of integrated management information systems requires strong support from management, adequate investment in technology infrastructure, and proper training for the involved staff.

Challenges and Barriers in the Implementation of an Integrated Management Information System

The Implementation of Integrated Management Information Systems in sports facilities aims to enhance user experience and service quality. However, there are several challenges and obstacles that must be addressed in the process of implementing Integrated Management Information Systems. Here are some of the main challenges identified based on recent literature:

- a. **Resource Limitations:** Implementing integrated management information systems requires adequate resources, such as budget, personnel, and technology infrastructure (Yu *et al.*, 2022). The challenge lies in the limitation of resources that can impact the comprehensive implementation of integrated management information systems. Lack of budget for hardware, software, and human resource training can hinder the successful implementation of integrated management information systems.
- b. **Need for Organizational Culture Change:** Implementing integrated management information systems often involves a change in organizational culture (Puspitasari *et al.*, 2019). Using integrated information systems requires a change in how the organization operates and manages data and information. This challenge can arise due to resistance to change, entrenched old habits, or lack of support and awareness from management and staff. Building awareness, effective communication, and employee engagement can help overcome these barriers.
- c. **System Integration Complexity:** Integrated management information systems involve integrating various different systems and modules, such as membership management, facility booking, inventory, and finance (Widiastuti, 2020). Challenges occur when there are difficulties in integrating existing systems with the new system due to differences in data structure, communication protocols, or the specificity of existing systems. Significant efforts are required to ensure compatibility and compatibility among the various systems involved.
- d. **Data Security and Privacy:** Implementing integrated management information systems can lead to increased risks related to data security and privacy (Yu, 2018). Sensitive data, such as membership information or financial data, must be adequately protected to prevent unauthorized access or Management Information Systems use. Challenges in this regard include protection against cyber threats, compliance with privacy regulations, and safeguarding against data loss or breaches.
- e. **Knowledge and Skill Limitations:** Implementing integrated management information systems requires a good understanding of information technology and management systems (Fiaz, Ikram and Ilyas, 2018; Trunina *et al.*, 2018). The challenge that arises is the limited knowledge and skills of the staff involved in the implementation of integrated management information systems. Effective training and adequate technical support are required to strengthen the staff's capabilities in managing and utilizing integrated management information systems effectively.

In addressing these challenges, sports facilities need to consider key factors such as proper resource allocation, effective management support and communication, staff training, and the selection of appropriate technology to ensure the successful implementation of integrated management information systems. The successful implementation of integrated management information systems can have a positive impact on user experience and service quality in sports facilities, thereby adding value to the entire organization.

Recommendations and Implementation of Integrated Management Information Systems in Future Sports Facilities

Sports facilities will face challenges and opportunities to enhance customer experience and service quality in the future. Implementing an Integrated Management Information System is a great way to achieve these goals. Sports facilities can optimize user experiences by incorporating the latest technologies such as the Internet of Things (IoT), mobile-based applications, and Artificial Intelligence (AI) (Yu *et al.*, 2022). By implementing an AI-based integrated management information system, sports facilities can learn user preferences and make recommendations for them. Additionally, IoT integration allows real-time facility condition monitoring, improving operational efficiency and user convenience (Yu *et al.*, 2022).

Mobile-based applications serve as a means to provide easy and quick access for users to find information, make reservations, and provide feedback (Hermanto and Supangat, 2018). However, amid technological advancements, data security and user privacy must be prioritized. Implementing integrated management information systems in the future should ensure the security and protection of user data to build trust and enhance user satisfaction. By following technology trends and focusing on a better user experience, sports facilities can continue to evolve and provide superior services in an increasingly advanced digital era.

CONCLUSION

The implementation of an Integrated Management Information System in sports facilities has been proven to play a significant role in enhancing user experience and service quality. Through the integrated management information system, users can easily access information, make online reservations and payments, and provide feedback to improve services. Furthermore, the integrated management information system also allows for user experience personalization and tailored recommendations. The process of implementing the integrated management information system requires an evaluation of facility needs and objectives, staff training, and user system introduction. Data security and privacy are also crucial factors in the use of integrated management information systems. Looking to the future, the adoption of the latest technologies such as Artificial Intelligence (AI), Internet of Things (IoT) integration, and mobile-based applications will be key to enhancing the effectiveness of the integrated management information system. However, awareness of user data protection and privacy must be maintained. By focusing on user experience and adapting to technological advancements, sports facilities can continue to evolve and provide superior services in an increasingly advanced digital era.

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Conflicts of interest

– No conflicts of interest are disclosed by the writers.

Future investigations

From the results of these studies, practical implications can be applied in future research on marketing strategies that focus on service quality to create customer satisfaction and create loyal customers.

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