



## The Success of Information Systems in World-Class Sports Organizations: Futures Studies Approach

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### ABSTRACT

**Purpose:** Information systems play a significant role in efficiency management. An information system is a set of components that interact to produce knowledge, which includes hardware, software, data, procedures, and people. So, the great attractiveness of this area makes sports organizations act more carefully and even promote themselves to the world level; Therefore, this research aimed to identify and explain the critical indicators of the success in sports organizations' information systems. This comparison was made in the world-class category with a future studies approach.

**Methodology:** This study is mixed research with an exploratory approach. In the qualitative section, by using the mix method, the selection of original articles with appropriate quality (29 items) and containing the success factors of world-class information systems have been made, and they were analyzed using the content analysis method. In the quantitative section, the researchers reached a consensus on the critical factors by using snowball sampling and selecting the eight members of Experts using the Delphi method in three rounds.

**Findings:** The findings showed that factors such as data security, access levels, integrated communication between internal systems, network, and internet security are among the success factors of world-class organizations, and it was also determined in the Delphi round that the mentioned factors are among the critical factors in sports organizations. Results showed that, concerning the broadness of communication in sports organizations, there are solutions that can improve them at the local to international level in terms of success.

**Originality:** We tried to present the critical success indicators of world-class information systems in sports organizations in an original study with a forward-looking approach.

### Keywords

Communication  
Delphi  
Internet Security  
Management Information  
Systems  
MIS

### Article type

Original Article

Received: 2022/12/23

Accepted: 2023/03/10

### How to cite this article:

Sabetrasekh, M., Salimi, M., & Rahimi Sarshabadrani, G. (2023). The Success of Information Systems in World-Class Sports Organizations: Futures Studies Approach. *Sports Business Journal*, 3(1), 67-84. <https://doi.org/10.22051/sbj.2023.42198.1063>



## 1. Introduction

Information systems play a significant role in data intelligence and organization management (Pouyandekia & Ghafari, 2021). Organizations are pioneers and winners in a world with considerable shifts and uncertainty. They can take a proactive approach and steps with a forward-looking view in this field to enhance their efficiency and effectiveness. An information system is a set of components that interact to produce information, which includes hardware, software, data, procedures, and people (Bright & Asare, 2019). Sports organizations with a wide geographical range of tasks and communications are more exposed to changes. They should be ready to make decisions and react or even prevent the conditions than other organizations. The sports world comprises many individuals of different ages, interests, and health statuses. As a result, it has always been a source of pride for nations and has many fans because of the introduction of sports products and acting special people. Therefore, the great attractiveness of this area makes sports organizations perform more carefully and even promote themselves to the world level.

Information systems can make the management of organizations agile and flexible to make correct decisions as an appropriate infrastructure according to their essential role in the direction of uncertainties. It will occur by aiding continuous assessment, understanding the current situation, providing opportunities and upcoming threats, and identifying competitors and their conditions (Benbya et al., 2020). The impact of information systems on these organizations and related institutes influences their processes, so in this sense, they change the form of communication and the way of actions. Information systems in sports organizations can be converted into a data source for generating information that all stakeholders can use to achieve future success. These organizations can reduce the risk of failure and increase the probability of their success by the mentioned approach since they guide the organization's leaders in achieving strategies that lead to more effective management and entering the competition with a hyperactive approach (Thielsch et al., 2018). Examining these systems will lead to fair competition, growth, and perfection. As a result, the probability of success is increased in any competition. For entering a competitive arena, it should first be examined whether it is possible to enter it, and then the manner of competition must be known in advance. Information systems, with their features such as quality, security, appropriate data, and reports, help strengthen competitiveness, especially at the global level leading to the production of the best choices. In other words, they provide suitable output for a society so that their leaders can draw the right path in the future; thus, appropriate decisions are made. The view that emerges in the world-class clears the way for a comparative method that considers all important challenges and obstacles and provides a way to enter and survive in the global arena and improve potential aspects (Bright & Asare, 2019). It is better to imagine the Iranian sports organizations at this level because the trends show that it is essential to consider a superior existence to learn the path of perfection and take steps to grow and be exalted. In addition, the influence of athletes in some disciplines in the international arena indicates that it is possible to have a helpful

program according to the decisions for this category and keep Iran in the global competition (Sabherwal et al., 2006).

Therefore, it is necessary to examine the Iranian sports organizations due to their diverse tasks, connections, broad geographic scope, and Iran's history and background. Although there is no definition for the best information systems, changes in technology and users' awareness have continuously increased their importance, including the information systems of sports organizations. The presence of human resource processes and an organization's social responsibility are two primary reasons that can be placed in the world-class. In this way, quality, technology, strategy, organizational culture, security, and as a result, the efficient leader can be measured as world-class. According to those mentioned above, it is vital to identify the constituent factors that affect the most suitable information systems of sports organizations leading to the provision of solutions for their improvement, promotion and effectiveness in the world-class that help in making correct and timely decisions (Steininger, 2019). Therefore, the main problem of the current research is to investigate the main features of the information systems of sports organizations as an infrastructure for the placement of Iranian sports organizations in the world-class. Identifying these factors and indicators first and then acting specifically for sports organizations is essential. The main challenge of information systems is sports organizations, whose comparison in the world-class provides the possibility of proposing solutions for improvement that create competitive power. In other words, the path of growth and perfection is clarified in this comparison so that appropriate steps can be taken in this regard. The main goal is to use this path to establish conditions that the scope of tasks, communications, and productions are adequately managed. Information systems lead to improving competition and competitiveness as the primary decision-making tool. Therefore, in this research, critical vital factors in the success of sports organizations are determined using a combined study to identify the characteristics of world-class information systems.

This paper investigates the importance of world-class information systems, especially sports organizations that emphasize the diversity of activities and stakeholder groups. In other words, it is necessary to have accurate, correct, and accessible information for making an appropriate decision at the top of the affairs because sports organizations are considered the primary infrastructure for expanding the culture and state of sports in Iran. For this reason, these organizations should develop and improve their information systems regarding evaluation indicators. This research can help to achieve the desired progress by continuously evaluating these indicators and finally providing improvement solutions for many years.

## **2. Literature Review**

### **2.1. Information systems**

There is a difference between information systems and information management. Information systems serve to manage information to help decision-making. Information systems affect every job. Information systems mean collecting, storing, processing,

disseminating, and using data, and this issue is not limited to software or hardware (Thielsch et al., 2018). However, humans' importance and goals in using technology, values, and criteria are considered. Information management aims to improve the organization's efficiency and consider its internal and external needs in an active and dynamic situation. Information systems play a very influential role, especially in the performance management procedure's implementation, data collection and storage, and monitoring processes. Performance management paves the way for choosing the right and rational decisions that can significantly affect the future (Ibrahim & Abou Naem, 2019). Effective information management leads to the identification of tools and infrastructure to achieve the organization's success. Information systems are a part of these tools and infrastructures. They can be considered a competitive advantage since they reduce costs, enhance the quality level of customer service services, and improve supply chain management. Organizational systems are integrated software, including the architectural redesign of a group of transaction processing applications and an organization's business processes to obtain a combined information flow. The complexity of organizational systems has led to implementing system capabilities with considerable financial and human investment, so they usually have a high risk of failure and lack of success (Shao et al., 2012).

On the other hand, the interconnected nature of companies has stimulated their vigilance towards ensuring that relevant information is shared among partners, which is critical to their business success. In recent decades, information systems have undergone considerable changes, and leading organizations manage their portfolio of activities in addition to working with each department separately (Theorin et al., 2017). In the past, information systems were used in simple cases, such as categorizing and processing similar information. However, requirements have changed nowadays, and more expectations are expected from them (Zhang, 2016).

An information system is an integrated and homogeneous set of information technology using software that supports individual, group, organizational, and social goals (Conrad et al., 2015). The definition of an information system is based on the more general concept of a working system. In these virtual information systems, the data include the physical dimension of the firm (Bērziša et al., 2015). From another perspective, a set of interrelated components, which collect, retrieve, process, store and distribute information and can help managers and employees in analyzing leadership problems in complex issues, is called information systems.

Organizations, as the primary infrastructure for developing and improving affairs, must have a suitable and acceptable infrastructure in terms of information. According to this point of view, proper information systems are a priority for creating information management. However, appropriateness should be evaluated by comprehensive and complete indicators that can be compared at the world-class level. In sports organizations, due to the diversity of the field of activities, they need more studies to determine the dimensions of global competition. For this purpose, it is necessary to talk about world-class for information systems to determine their connection with the current discussion. This topic will be explained in the following.

## 2.2. World Class

Competition has always been a source of growth and perfection. For those who have made efforts in this field by comparing themselves with others in achieving more capabilities, their success has been guaranteed. Therefore, evaluating one's position in the world class helps achieve a higher level of growth. [Alsawaha et al. \(2021\)](#) have defined world-class as achieving or maintaining global competitiveness in producing the best cases. There is no precise, correct, and universal definition of world-class. For this reason, this concept can have different meanings depending on the nature of the organization's work. However, there are ten items introduced by various authors for entering world class as follows: 1- total production maintenance (TPM); 2-lean manufacturing (LM); 3- Six Sigma (SS); 4- modeling (BM); 5- total quality management (TQM); 6- Integrated Information System (IIS); 7- agile manufacturing (AM); 8- manufacturing strategy (MS); 9- supplier relationship management (SRM); 10- cell flow manufacturing (CFM) ([De Felice & Petrillo, 2015](#)).

The reports provide a comprehensive list of world-class manufacturing performance evaluations. In this list, main and vital world-class principles are mentioned as follows: 1) dedicated to quality: absolute focus on consumer satisfaction and increasing responsiveness, reliability, and high quality; 2) employee participation: motivating and stimulating employees such as acknowledging them for their work; 3) measurement: all decisions should be based on objective data and its analysis; 4) continuous improvement: having a culture of continuous improvement by doing more work, removing and reducing wasted time; 5) achieving upward growth: constant innovation in products and services by leading the market and providing end-to-end solutions ([De Felice et al., 2013](#)).

Organizations, as the leaders of affairs, should determine the level of competition and their competitors and set criteria for evaluating their performance. This research investigates competition regarding information systems in organizations limited to sports organizations. To be placed in the world-class, sports organizations require effective and efficient information systems, and in this sense, they must be measured and evaluated. [Benbya et al. \(2020\)](#) have considered the global technological infrastructure for organizations and implementation of the decision-making algorithm to be significantly related to stakeholders, technical artifacts, and processes. They have emphasized their mutual impact on the organization and related factors. They have also developed a new theory about the complexity of social and technical systems and considered information systems as a great aid in solving these complexities.

[Salimi and Tayebi \(2022\)](#) have developed a successful model in information systems in sports organizations. They investigated six variables of system quality, information quality, service quality, usability, user satisfaction, and net profit via the structural equation modeling using Delon and McLean's conceptual model. They proposed an evaluation model for information systems in sports organizations. In the following, the studies done in this field will be reviewed ([Salimi & Tayebi, 2022](#)). [Stair and Reynolds \(2020\)](#) showed that four strategies are essential in automatically identifying the time of collecting information to facilitate real-time decision-making and employee self-improvement access management. In this research, a case has been developed to provide

interoperability between the information systems of the involved employees (Stair & Reynolds, 2020). As a tool for change management, gain-loss analysis can also identify and support the evolution of features from one category to another. By exchanging these features among the interactive employee information systems, it is possible to reduce employees' turn time, increasing their access reliability, accuracy, and flexibility. Finally, two propositions have been proposed from the experimental findings concerning previous studies' results. Peters et al. (2020) investigated how health site information quality, system quality, and service quality lead to user satisfaction and received benefits. The results include theoretical and practical implications for enhancing the effectiveness of online health information sites (Peters et al., 2020).

Steininger (2019) studied monitoring features and contingency analysis in information systems. They indicated that information systems serve as a tool for collecting information related to emergencies and monitoring them. The first case is the National Protection Information System, managed by the Ministry of the Interior. The other is the Information System for the Prevention of Major Industrial Accidents, organized by the Ministry of the Environment (in Slovakia). The main goal of this paper was to analyze emergency cases in the mentioned databases and evaluate the statistical data available in all information systems (Steininger, 2019). In examining the relationships in information management, process management, and operational performance concerning internal and external contexts, Al-Emran et al. (2018) found that internal information management and external information management have a positive relationship with internal process management and external process management. Internal process management positively affects internal and external operational performance; however, external process management only positively impacts external operational performance. Finally, internal, and external operational performance positively impacts business performance (Al-Emran et al., 2018).

Mohammadi et al. (2019) in designing a qualitative model of the economic development of Iran's sports industry with a world-class production approach, depicted a causative and compelling relationship between the economic development of the sports industry. Its factors include institutional development, structure, ownership, media development, scientific-research development, increase in advocates and income from it, development of human resources, facilities, and infrastructure, and legal and export companies growth. Expansion of social networks with world-class production factors includes quality, innovation, cost, and time. Flexibility and service factors in world-class, including sales and after-sales, pave the way for the sports industry's progress in the world-class (Mohammadi et al., 2019). Almasi and Zardoshtian (2018) investigated the design of the sports events management information system in sports and youth departments and showed that the sports event department requires a lot of coordination and decisions due to its nature of holding sports competitions and events at different national and international levels which with the help of a sports event management information system, it can help to keep high-quality competitions and sports events and saving money and time (Almasi & Zardoshtian, 2018). Tahmasebi Poor et al. (2018) in research entitled "Proposing a model of requirements analysis for the management information system for recruitment of sports volunteers," indicated that requirements for the management information system for recruitment of the sports volunteers include: human resources,

planning, registration, admitting, familiarization, finance, and procurement, training and support, evaluation, reward and retention and the beneficiaries of Iran's sports volunteering were identified. Finally, the requirements analysis model was presented (Tahmasebi Poor et al., 2018). Ashrafi et al. (2017) showed that since information is the basis of an organization's activities, there must be systems to produce and manage information. The purpose of such systems is to ensure the provision of correct and reliable information at the required time and in a usable form (Ashrafi et al., 2017).

### 3. Methodology

This study is practical development research since it pursues the knowledge of direction. At the same time, it is reasonable for reality and tries to investigate the competitiveness issue regarding information systems in sports organizations. It is developmental because it presents indicators in the form of a model. It should be noted that this research is exploratory since the extraction of world-class indicators has been considered. To collect information using the mix method, the concepts of library studies of the related articles and books were analyzed. After extracting the components in the studies, the key indicators were investigated by designing a Delphi questionnaire in three courses in this research. As it is evident, Delphi is an expert-based method. For this purpose, the indicators were evaluated and finalized using a group of 25 experts selected by snowball sampling. In this modeling, key indicators were examined by expert opinions in the Delphi team. To implement the Delphi process, first, a set of indicators extracted from the interviews were given to the selected people in the panel without talking to each other. They commented on the items of the questionnaire. A report of the output and results of the questionnaire was presented, and the items in which there was a difference of opinion, or no opinion were delivered more straightforwardly. The second round was repeated, and in the same way, the final stage of implementation and the agreement of the result became. Finally, the last indicators were summarized and concluded with the help of these people. To measure the content validity of the meta-combination section, the formal fact was used and, in both stages, the necessity of that index was evaluated in the model. We used a questionnaire and received experts' opinions considering that the CVR values in both phases were obtained 0.75 and 0.78 respectively and the validity was confirmed. The reliability of the questionnaires was obtained through Cronbach's alpha with values of 0.80 and 0.82.

### 4. Results

First, this part of the research shows the qualitative findings extracted using the meta-combination and inductive content analysis methods. Next, the final indicators were extracted using the Delphi method in three stages. The demographic characteristics of Delphi panel members were based on Table 1.

**Table 1.** The demographic characteristics of Delphi panel members.

Age	Degree of education	Job position	Expertise
38	PhD	University professor	Sport management
51	Master's degree	The expert	Information technology
39	Master's degree	The expert	Information technology
39	PhD	The expert	Information technology
45	PhD	University professor	Sport management
62	PhD	University professor	Sport management
42	PhD	University professor	Sport management
40	PhD	University professor	Information technology

For applying the mix method, 253 articles were selected during extracting articles related to this field. Then, by studying the titles and their abstracts, these articles were reduced to 73. Since the findings were investigated using the mix method, the articles were reviewed and reduced to 29 papers. They were studied in terms of quality and analyzed by content analysis method, and the indicators were extracted as described in Table 2. These indicators are categorized according to Table 1.

**Table 2.** The indicators extracted by the content analysis in the meta-combination stage.

Organizing concepts	Basic concepts extracted from the articles
Possessing required security	Observing the privacy of users
	Compliance with data security
	Ability to verify user qualifications
	Existence of electronic monitoring
	Effective risk management
	Possessing security lines
	Existence of a security system
	Covering system risks
	Existence of information security
	Essential measures regarding data security
	Presence of an information system security structure
	Availability of necessary hardware facilities for computer security
	Security in the identification of end users
	Security in user identification
	Existence of network security
	Existence of security on the Internet
	Presence of security processes and procedures
	Presence of physical, technical, and administrative security support
	Presence of implemented monitoring and controls
	Ability to limit the access of people
Possessing a legal framework for information dissemination	
Legal framework for all data compatible and incompatible with business purpose	
Presence of environmental safety and health	
Reliability in the system and its content	Possessing a high-quality system
	Reliable technology
	Existence of quality in system information
	Retaining the necessary quality in system information support
	Analytical data extraction and synthesis



Organizing concepts	Basic concepts extracted from the articles
	Presence of acceptable content Reliability in the design and data Increasing the quality of the information system Existence of necessary quality for use The reality of the quality required in the system Presence of essential quality in information Data validation capability Problematic data extraction Possessing integrated information Provider of appropriate information Accurate information provider Availability of reliable data Presence of a holistic view Availability of reliable data Ability to collect targeted data Sufficient business-related data Observance of legal cases in the use of data Data verification and monitoring Easy access to data Keeping data up to date Data analysis Optimal data collection Possessing timely and available information
Ability to provide accurate information at the right time	Responsiveness Fast simulation capability Providing information in a short time Maintaining the necessary speed in execution
Compatible with experiences and business	Keeping a project management model fit for the purpose Taking advantage of the commitment of top management Paying attention to the growth of the company in the implementation design and feedback Ability to manage costs Business scale coverage Appropriate design Management approval in terms of the purpose of building the system Ability to plan and manage costs Ability to properly work contracts Ability to adjust and position costs Ability to create and obtain managerial commitment Compatibility of the system with business goals Affordable

Organizing concepts	Basic concepts extracted from the articles
Ability to create intra-system and network communication and appropriate life cycle	Effective communication Taking advantage of the network Possessing a suitable life cycle Life cycle development capability Proper compatibility between system life cycles Utilization of the network Compatible with other systems Network advantage Ability to communicate Inter-system communication capability Ability to communicate between systems and within the network Taking advantage of the network Possessing information and communication technology
Good quality in providing services	Good quality in services Providing the right quality of service Existence of quality in services Effective requirements management Effective customer engagement Effective stakeholder management Effective management of expectations Improving customer satisfaction and service Ability to provide stable services Suitable service delivery function Understandable for the customer Using services acceptability levels Service Integration
Compatible with the latest technologies	Effectiveness of the client's organization Design according to the latest technology Capability for reviewing and updating Effective change management Data communication with business purposes Ability to use innovative technology Existence of flexibility Possessing an optimal business model Process control management Reproducibility Scheduling capability Flexible in design, implementation, and updating Design proportionate to business processes Suitable for business use Business related User-friendly design Ideal for the target technology
Possessing a support system	Possessing the right quality in support Possessing the necessary structure for support Effective support after implementation Appropriate information support Possessing a support system Data analysis Effective software testing

Organizing concepts	Basic concepts extracted from the articles
Specialized, technical, and effective structure	Common data pattern extractions
	Seller management
	Production planning and control
	Possessing a maintenance system
	Need for technical expertise
	Need for experience and skill
	Possessing an effective sales process
	Effective project launch capability
	Effective project planning
	Effectiveness of the project manager
Ability to train and manage employees	An effective development approach
	Ability to manage employees
	Inevitability in application
	Applicable to people involved
	Existence of effective training
	Employing effective teachings
	Possessing a human resources management system
	Containing characteristics of social responsibility
	Individual effects
	Organizational effects
Motivating	
Satisfying users and easy to use	Having experience in registration and knowledge management system
	Strengthening and training employees
	Ability to train employees
	Increasing user satisfaction
	User's willingness to use the system
	Ease of use
	Establishing user satisfaction
	Possessing a structured design according to the user's needs
	User satisfaction
	Adaptable to teamwork
Effective in the project team	

At this stage, the list of essential topics and their categories in the organizing topics were provided to 25 experts to evaluate the indicators. Considering that the average result of the necessity of basic concepts in Table 2 was higher than 3, the organizing concepts were evaluated using the tau coefficient W to measure the title of the organizing ideas. It is necessary to mention that the questionnaire was designed as a Likert scale, collected and summarized electronically with several follow-ups, and sent again. Table 3 shows the first step of Delphi in selecting concepts.

**Table 3.** The first step of Delphi for the selection of organizing concepts along with the tau coefficient W.

Organizing concepts/indicators	tau coefficient W
Processing the necessary security	0.265
Reliability in the system and its content	0.117
Ability to provide accurate information at the right time	0.345
Compatible with experiences and business	0.145

Organizing concepts/indicators	tau coefficient W
Ability to create intra-system and network communication and appropriate life cycle	0.269
Good quality in delivering services	0.147
Compatible with today's technologies	0.357
Possessing a support system	0.126
Specialized, technical, and effective structure	0.168
Ability to train and manage employees	0.274
Satisfying users and easy to use	0.316
Adaptable to teamwork	0.476

According to Table 3 and considering the tau coefficient W values, since the coefficients' value sets were less than 0/5, the concepts were reviewed and sent to the experts. Table 4 summarizes the second round of Delphi.

**Table 4.** The second round of Delphi evaluation of organized concepts.

Organizing concepts/indicators	tau coefficient W
Access levels for users	0.756
Security for data	0.689
Existence of electronic monitoring	0.426
Covering risk through appropriate processes and support	0.865
Possessing a safe and secure physical structure	0.578
Ensuring security in the network and internet platform	0.786
Existence of necessary quality in the information system	0.698
Keeping accessible and correct content and information	0.678
Ability to test the system	0.533
Providing information at the right speed	0.766
Compatible with business goals	0.563
Affordable and able to manage costs	0.640
Covering different dimensions of business	0.354
Ability to create intra-system and network communication	0.962
Possessing a suitable life cycle	0.742
Good quality in providing services	0.695
Effective stakeholder management	0.657
Flexibility in adapting to business changes and updating with the latest technology	0.521
Possessing a coordinated and appropriate support system	0.534
Ability to extract patterns of business management and its development	0.412
Ability to train and manage employees	0.675
User-friendly and user-satisfied system	0.568
Increasing participation of the users	0.573

According to Table 4 and considering the tau coefficient W values, the concepts were reviewed and sent to the experts since the coefficients' value sets were more than 0.5. Table 5 summarizes the third round of Delphi.

**Table 5.** The third round of Delphi evaluation of organized concepts.

Organizing concepts/indicators	tau coefficient W
Access levels for users	0.569
Security for data	0.657
Existence of electronic monitoring	0.698
Covering risk through appropriate processes and support	0.756
Possessing a safe and secure physical structure	0.742
Ensuring security in the network and internet platform	0.712
Existence of necessary quality in the information system	0.625
Possessing accessible and correct content and information	0.532
Ability to test the system	0.569
Providing information at the right speed	0.574
Compatible with business goals	0.532
Affordable and able to manage costs	0.657
Ability to extract patterns of business management and its development and cover different dimensions of business	0.682
Ability to create intra-system and network communication	0.721
Possessing a suitable life cycle	0.521
Good quality in providing services	0.534
Effective stakeholder management	0.632
flexibility in adapting to business changes and updating with the latest technology	0.741
Possessing a coordinated and appropriate support system	0.716
Ability to train and manage employees	0.861
User-friendly and user-satisfied system	0.811
Increasing participation of the users	0.762

Finally, saturation was achieved according to [Table 5](#) while obtaining the appropriate values of the coefficients. Thus, the final organizing concepts and indicators are summarized in [Table 5](#). In other words, the last indicators of a world-class information system should have a suitable score in each of the indicators extracted in [Table 5](#).

## 5. Discussion and Conclusion

The role of information systems in the modern era in data intelligence and organization management is undeniable. Many changes and uncertainties have been considered so diverse that an active approach seems necessary and inevitable for any organization seeking its desired future. In other words, organizations need powerful information management to make timely and appropriate decisions to deal with changes and uncertainties and move toward growth and perfection and their desired future. On the other hand, information management requires strong, correct, and logical information that depends only on information systems with capabilities in different dimensions ([Ashrafi et al., 2017](#)). This path of growth and progress of organizations will be possible only by looking at competitors and comparing themselves with the best and controlling and improving weaknesses by using strengths to realize the desired future and deal with crises and problems. And have new conditions ([Sabherwal et al., 2006](#)).

In this research, the goal of presenting indicators and critical success factors of information systems for sports organizations can only be realized by examining the world-class. For this purpose, by reading all factors and indicators related to information systems, the final characteristics were obtained and used to measure the success of sports organizations in terms of world-class information systems. For this purpose, by studying the valuable articles in this field by meta combination method and extracting the factors by Delphi method, and completing the questionnaire three times, the final characteristics were obtained and used as a measure for the success of the sports organization in terms of information systems. A criterion for comparing all these indicators was examined using the Delphi method. The average was obtained from the Likert scale, and the Kendall coefficient "w" for each of the indicators, and an agreement was reached several times. In the world-class category, the review of these first-class indicators strengthens competitiveness. It makes managers more aware of their current situation so that they can work to improve the situation. According to the results, it is evident that the existence of levels of access, data security, monitoring and control of projects, risk coverage through the definition of processes and appropriate support, structure, security in the network and the Internet, and the quality of information. Systems, content and information, accuracy, ability to test the system, quick access to information, compatibility with business, affordability, ability to manage costs, extraction of business management models, and proper communication of systems internally and are networked. It is one of the essential success factors of information systems. These components in the research of [Alsawaha et al. \(2021\)](#) align with the current research results due to the emphasis on preparing a comprehensive list of performance evaluation indicators and sharing quality, responsiveness, reliability, and continuous improvement ([Alsawaha et al., 2021](#)). It is also consistent with the research of [Benbya et al. \(2020\)](#) in terms of technological infrastructure and the impact of communication processes between systems. [Salimi and Tayebi \(2022\)](#) have also mentioned the discussion of system quality, information, services, usability, user satisfaction, and the dimension of profitability and cost management, which aligns with the present research ([Salimi & Tayebi, 2022](#)).

Along with these factors, defining the appropriate life cycle for good-quality systems in providing services and managing beneficiaries and flexibility following current business and technology changes will be essential. This result is in line with the research results of ([Stair & Reynolds, 2020](#)) in line with the four-time strategies, facilitating decision-making and availability and continuous improvement. In the same way, the research above has been able to agree with the results of this research regarding the coordination of the support system in such a way that employees can quickly learn it and record their experiences in it, and it is user-friendly and increases participation. Power is another feature that helps information systems to be globally comparable that it also provides. To speed up growth and perfection in sports organizations and take advantage of success factors to reach world-class in the field of information systems, practical suggestions for use in organizations are presented below:

- It is suggested that the systems used in sports organizations to be placed in the world-class by defining user restrictions in different display and editing levels should consider the information security of the systems.

- Using online support and experts to fix its bugs is suggested to reduce the risk of hacking processes and information. Also, ensure the security of network and internet platforms.
- It is suggested to observe the life cycle of the software and its update to maintain the desired quality and prevent network and internet risk and hacking.
- It is suggested to take advantage of its flexibility and align with business goals by consulting experts before purchasing and developing the software.
- It is suggested that in addition to choosing user-friendly and user-satisfied systems, sports organizations should try to increase the participation and use of users by training and empowering them.
- It is suggested to ensure the content, necessary information, and quality of the inputs while using experts' opinions regarding the required fields to complete the information. Also, management reports improving decision-making to ensure the correctness of the data periodically. Get expert notifications and check them randomly.

### **Disclosure statement and funding**

The authors declare no potential conflicts of interest. The present study received no financial support from any organization or institution.

### **Acknowledgment**

We would like to give special thanks to all the participants in this study.

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## شاخص‌های موفقیت سیستم‌های اطلاعاتی در سازمان‌های ورزشی در کلاس جهانی: رویکرد آینده‌پژوهی

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### کلیدواژه

ارتباطات  
امنیت اینترنت  
دلفی  
سازمان‌های ورزشی  
مدیریت سیستم‌های اطلاعاتی

### نوع مقاله

پژوهشی اصیل

### چکیده

**هدف:** امروزه سیستم‌های اطلاعاتی نقش بسزایی در کاربرد داده‌ها و مدیریت سازمان ایفا می‌کنند. سیستم اطلاعاتی مجموعه‌ای از اجزایی است که برای تولید اطلاعات در تعامل هستند و شامل سخت افزار، نرم افزار، داده‌ها، رویه‌ها و افراد است. از طرفی جذابیت زیاد حوزه ورزش موجب شده سازمان‌های ورزشی با دقت بیشتری فعالیت نمایند و حتی خود را به سطح جهانی ارتقا دهند؛ بنابراین، هدف از این پژوهش شناسایی و تبیین شاخص‌های کلیدی موفقیت سیستم‌های اطلاعاتی در سازمان‌های ورزشی بود که این مقایسه در رده کلاس جهانی با رویکرد آینده‌پژوهی انجام شد.

**روش:** این پژوهش از نوع پژوهش‌های آمیخته با رویکرد اکتشافی تدوین شده است. در بخش کیفی با استفاده از روش فراترکیب نسبت به انتخاب مقاله‌های معتبر با کیفیت مناسب (۲۹ مورد) و حاوی عوامل موفقیت سیستم‌های اطلاعاتی در کلاس جهانی اقدام شده است و با استفاده از روش تحلیل مضمون مورد بررسی قرار گرفتند. در بخش کمی نیز محقق با استفاده از نمونه‌گیری گلوله برفی و انتخاب اعضای نمونه متشکل از هشت متخصص با استفاده از روش دلفی در سه دور در خصوص عوامل کلیدی به اجماع دست یافت.

**یافته‌ها:** یافته‌ها نشان دادند که عوامل کلیدی شامل: امنیت داده‌ها، سطوح دسترسی، ارتباط یکپارچه بین سیستم‌های درونی، امنیت شبکه و اینترنت از جمله عوامل موفقیت سازمان‌ها در کلاس جهانی هستند، لذا، می‌توان نتیجه گرفت که با توجه گسترده‌ی ارتباطات در سازمان‌های ورزشی راهکارهایی برای ارتقای آنها در سطح محلی تا بین‌المللی مطرح است.

**اصالت و ابتکار مقاله:** در این مطالعه تلاش نمودیم با رویکرد آینده‌نگاری، شاخص‌های کلیدی موفقیت سیستم‌های اطلاعاتی سازمان‌های ورزشی در کلاس جهانی را ارائه دهیم.

تاریخ دریافت: ۱۴۰۱/۱۰/۰۲

تاریخ پذیرش: ۱۴۰۱/۱۲/۱۹