



## How Can the Elite Sports in Iran Lead to the Promotion of the Sports Industry Businesses? An ISM-MICMAC Approach

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### ABSTRACT

**Purpose:** This study examines what makes elite sports and how it affects Iran's sports business and industry. An integrated approach was used to achieve this goal.

**Methodology:** We segmented the data analysis procedure into three stages. For the fuzzy Delphi method, experts and academics were asked for their opinions on what was most important. After that, we used interpretative structural modeling (ISM) to classify the components and create a hierarchical model. The MICMAC analysis was also used to determine how the factors drive and depend on each other.

**Findings:** This study has identified 14 factors related to ES in Iran. The model that was developed has six levels. Also, the MICMAC analysis found that three variables were independent, two were dependent, three were linked, and one was found to be autonomous.

**Originality:** According to our knowledge, the research design presented in this article represents the first attempt to hierarchically analyze these factors and develop a model for ES in Iran, which can lead to the promotion of the sports business industry. Using the model that was made for the future of Iran's ES, preparations will need to be made, such as the following: Active diplomacy in sports (with a focus on championships and professional sports) by those who are involved and responsible for the problem; redesigning the country's sports structure for excellence and success in international arenas; There is a need to modify the goals and policies of ES to make them more coordinated with the specific goals and programs that correspond to the different scenarios that could occur: alterations to budget allocation and distribution to medal-rich and medal-prone sports; A talent search system that is built in and can be used to look for talents is also needed.

### Keywords

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## 1. Introduction

At the global level, gaining credit through sports is of great importance, especially for developing countries, which makes these countries known to the world. According to some authors, [Freeman \(2012\)](#) and [Santos \(2021\)](#), sports can be used in various ways to gain soft power. Success in sports gives people a unique identity and makes people feel more connected to each other. In addition, it will strengthen national pride ([Tashbaeva, 2022](#)) and economic prosperity ([Khoshbakht Ahmadi et al., 2022](#); [Pedauga et al., 2022](#)). Sports are essentially economic, political, and social pillars in developed countries ([Ganjkanloo et al., 2021](#)). For example, the financial success of sports in Germany ([Kwiatkowski et al., 2017](#)) makes up a big part of their gross national product. The increase in competition for success among countries has caused them to be able to make themselves look different from their competitors ([Allen et al., 2018](#)).

On the other hand, the success of countries in international sports events can be a symbol of those countries' stability and comprehensive capabilities, in addition to their social and economic effects ([Elahi et al., 2021](#)). One reason for countries' high investment in sports is to address the issue of elite sports (ES) ([Hosseini et al., 2013](#)). A platform that causes the names of victorious nations to be raised on the world level ([Monkaresi et al., 2015](#)) and is considered one of the essential pillars of sports development in a general and comprehensive sense in countries ([Keshavarz et al., 2017](#)).

Indeed, the competition between countries to succeed in sports competitions at the international level has led to an increase in government investment in elite sports. Evidence shows that some countries have doubled their elite sports spending over the past decade ([De Bosscher et al., 2019](#)). In addition, governments and institutions related to them spend vast sums of money to invest in sports for their elites and heroes to achieve optimal performance in international competitions ([McLeod et al., 2022](#)). Winning medals in sports events has been the basis for comparing international success among countries ([De Bosscher et al., 2006](#)). In a way that can be achieved by winning titles in major and international sports events, this country is at the center of attention, the result of which will be the influence of the economic, cultural, and social conditions of society ([Alidoust Ghahfarokhi et al., 2014](#)). Nevertheless, it is essential to remember that the success of a country's top sports teams depends on many things.

For example, as [Hoffmann et al. \(2004\)](#) stated, a country's population size and wealth are the main factors determining success and winning medals in the international arena. [Lindfelt \(2010\)](#) also acknowledged that political (internal and external), economic, legal, and environmental factors could affect elite sports. [De Bosscher et al. \(2013\)](#) also showed in their research that financial support, increasing the participation of athletes in national and international competitions, the growth of scientific research in sports fields, and supporting and guaranteeing the careers of champions are among the most critical factors for the success of international sports. In this regard, many other indicators have been identified by different researchers. These indicators include economic indicators and the amount of gross domestic product ([Čustonja & Škorić, 2011](#)), economic, social, and cultural factors, weather conditions ([Luiz & Fadal, 2011](#)), population size, territorial extent, and non-specific domestic production ([Shabani & Moradi, 2019](#)). They are also

discovering gifted people (De Bosscher et al., 2008), demographic factors and socioeconomic status (Storm & Eske, 2022), cultural factors (Gorczyński et al., 2021; Sotiriadou et al., 2014), educational, academic, and facility issues (Humphreys et al., 2018) as well as psychological well-being (Silva et al., 2020). The diversity of these factors can be considered one of the challenges that researchers will face in identifying the factors affecting the success of elite sports and developing a plan to achieve this goal. On the other hand, in Iran, despite the passing of more than a decade since the presentation of the SPLISS model (the model based on the current research), unfortunately, this issue has not been addressed in a detailed and comprehensive manner as it should and perhaps will be. Because of how it works, researchers and people in charge of making plans have missed a few opportunities to use it. Although domestic researchers have focused on championship sports and their effects in some research, as far as we know, none of these studies has considered the existing trends, drivers, and uncertainties, and only descriptive studies have identified several influential factors. Therefore, this study seeks to fill this research gap. For this reason, this study aims to answer the first and most important question: What factors affect elite sports in Iran? In addition, what will be the dependence and interrelationships among the factors? Also, what elements make up a model with a hierarchical structure? Lastly, what role does each identified essential factor play in the growth of elite sports in Iran? So, the main goal of this study is to find and evaluate the things that affect elite sports (ES) in Iran. It also gives a structured model that shows how these factors relate to each other. Making a structured model that shows how these factors interact and affect ES in Iran is vital. It helps the stakeholders of Iranian sport (elite level) assess its strengths and weaknesses, highlight its growth potential, and develop strategies to mitigate threats.

## 2. Literature review

### 2.1. SPLISS model<sup>1</sup>

De Bosscher et al. (2006) presented this model as one of the most thorough studies of the factors that affect elite sports policy. It has also been used as a coherent theoretical model that empirically tests the relationship between championship sports policies (at the elite level) and athletic success (McLean et al., 2021; Shilbury et al., 2008). This model consists of nine pillars. Two versions of this model have been presented so far. Its first version was published in 2006 by De Boscher and was first tested experimentally in six countries; After this model was evaluated and tested by various researchers, in 2015, the second version of this model was evaluated and tested in 15 countries (De Bosscher et al., 2015). The nine pillars in this model include (1) financial support, (2) governance, organization, and structure, (3) sports participation, (4) identification and development of talent, (5) support after a sports career (support during a sports retirement), (6) facilities for practice, (7)

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<sup>1</sup> The SPLISS model consists of 9 PILLARS and approximately 100 Critical Success Factors (CSF) that have been identified as key drivers of successful elite sport policies at the overall national policy level.

coaching and training, (8) competition at the national level, and (9) scientific research and innovation. The SPLISS model consists of a multi-dimensional approach to investigate the influencing factors in the international success of countries in elite sports in the form of nine pillars and consists of three processes: "inputs," "capacities," and "outputs." Entries are referred to as financial support for sports and elite sports. Capacities are political actions (like looking at what to use and why) that might help a country do better in international sports competitions. However, in sports, this stage is called "policy efficiency" because it gives the best inputs to get the best outputs. The last step is the work output, which [De Bosscher et al. \(2015\)](#) state is a measure of international success in elite sports.

### 3. Methodology

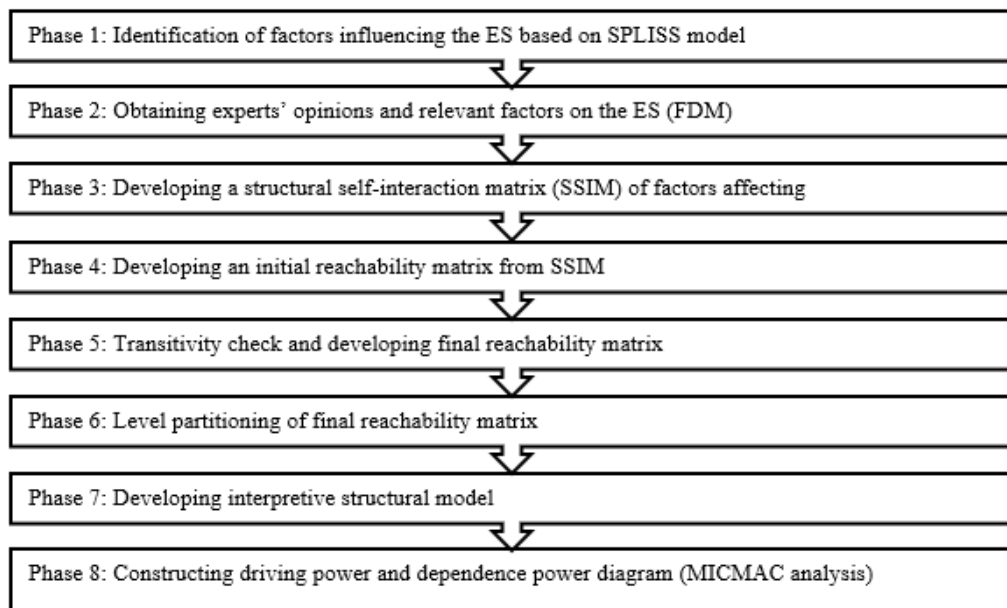
The main determinants impacting ES in Iran are identified, and those factors are modeled in this research. We used various ways to collect and analyze data for our studies, such as fuzzy Delphi, ISM, and MICMAC. The emphasis of this study is on ES in Iran (as the unit of analysis). For this study, experts were chosen based on a set of criteria that had already been set (level of education, field of expertise, experience, and type of activity). This ensures that experts in their fields are reliable and respected (see [Table 1](#)). [Novakowski and Wellar \(2008\)](#) stated that a sample size of 5 to 15 experts would be best because the panel has a wide range of skills. In this research, seventeen experts were considered a suitable sample size. Purposive sampling, which is not based on chance, was also used to choose experts for the study ([Mohamed Yusoff et al., 2021](#)).

#### 3.1. Fuzzy Delphi method (FDM)

The traditional Delphi decision-making method was associated with significant ambiguity and uncertainty. Therefore, [Ishikawa et al. \(1993\)](#) developed a fuzzy-based Delphi technique to address this issue. This technique uses verbal expressions to gauge participants' opinions ([Habibi et al., 2015](#)). In other words, FDM is a combination of the Delphi method and fuzzy set theory and consists of the following steps: Selecting experts and explaining the topic to them is the first step. [Khalilzadeh et al. \(2021\)](#) state that this method involves putting together and sending a survey to experts and collecting and judging their answers.

#### 3.2. Interpretive structural modeling (ISM)

ISM is a method that relies on the opinions and decisions of a collective group of people. [Warfield \(1974\)](#) is credited as the inventor of this method. [Attri et al. \(2013\)](#) describe it to learn how the factors that make up a complex system are linked. The ISM technique is interpretive because the relationship between variables depends on the judgment of experts. It is called "structural" because it is possible to build a clear framework that shows how the variables relate to each other ([Moradi et al., 2022](#)). Using the ISM method to look at factors that affect elite sports in Iran, the following steps are taken (see [Figure 1](#)):



**Figure 1.** The steps of using the ISM technique adapted from (Moradi et al., 2022).

### **3.3. MICMAC analysis**

Duprin and Gaudet came up with MICMAC in 1994. It uses a method of grouping variables into four groups to find essential factors that affect each other directly or indirectly. Independent variables are placed in the first group due to having low "driving power" and "dependence power". The second set of variables is made up of "dependent" factors that have a high level of "dependence power" but a low level of "driving power." In the third group, the link variables have high dependence and strong driving forces. The "dependence strength" of "independent" variables is low, but the "dependence strength" of "strong drivers" is high (Moradi et al., 2022).

## **4. Results**

The factors affecting ES in Iran have been evaluated in this section using the fuzzy Delphi technique, the ISM approach, and MICMAC analysis. Below is a detailed analysis of the findings of each step: The steps used to construct the ISM model are as follows:

### **4.1. Identification of factors affecting the ES in Iran**

The influencing factors have been determined via a literature review and expert perspective. A panel of 17 professionals from industry, academia, and other stakeholders has been assembled to conduct the research (see Table 1).

**Table 1.** Demographic information of the experts.

Experts	Field	Position
E1, E2, E3, E4, E5	Faculty member	Academic
E6	Faculty member	Academic and professional
E7	Member of Sports Federation Committee	Professional
E8	Vice President of Sports Federation	Professional
E9, E10	Sports club manager	Professional
E11	Head of Sports Federation	Professional
E12, E13	Member of the National Olympic Committee	Professional
E14	Sports startup manager	Professional
E15	Sports referee	Professional
E16, E17	Coach	Academic and professional

The fuzzy Delphi method was used in this study to look at how experts in Iran agree on ES evaluation criteria and find critical factors. For this reason, a list of things that affect ES in Iran was put together. After including the elements in the questionnaire, the experts were asked if they agreed or disagreed with the criteria. This was done using verbal variables. Table 2 contains a list of linguistic variables and fuzzy triangular numbers.

**Table 2.** Linguistic scale.

Fuzzy number	Triangular fuzzy numbers	Linguistic variables
1~	(0, 0, 0.1)	Very low
2~	(0, 0.1, 0.3)	Low
3~	(0.1, 0.3, 0.5)	Medium-low
4~	(0.3, 0.5, 0.7)	Medium
5~	(0.5, 0.7, 0.9)	Medium-high
6~	(0.7, 0.9, 1.0)	High
7~	(0.9, 1.0, 1.0)	Very high

The experts' answers to the fuzzy Delphi questionnaire were turned into fuzzy triangular numbers. Fuzzy triangle numbers were used to give each alternative criterion a value based on what expert's viewpoint. Klir and Yuan (1995) geometric mean model was used to understand better how expert panels make their decisions and to make decisions less confusing. To determine the final indicators, one selection criterion was applying a threshold value (0.6) to each de-fuzzification number. After de-fuzzification and filtering, Table 3 shows the exact numbers that show the unqualified opinions of the experts.

**Table 3.** Factors affecting ES in Iran.

Criteria		Fuzzy weight			Defuzzification	Result
		L	M	U		
F1	<b>Financial support</b>					
Var1	Appropriate financial facilities (reward)	0.3	0.858	1	0.754	Accepted
Var2	Allocation of appropriate funds to medal-prone sports	0.3	0.871	1	0.760	Accepted
F2	<b>An integrated approach to policy development</b>					
Var3	Adopting a strategic and coordinated approach between organizations and stakeholders	0.3	0.830	1	0.740	Accepted

	Criteria	Fuzzy weight			Defuzzification	Result
		L	M	U		
Var4	Description of specific duties of each department (federations)	0.3	0.794	1	0.722	Accepted
F3	<b>Foundation and participation</b>					
Var5	Attention to sports at basic levels (with an emphasis on school sports)	0.3	0.878	1	0.764	Accepted
Var6	Attention to sports at the club level	0.3	0.889	1	0.770	Accepted
F4	<b>Talent identification and development system</b>					
Var7	Providing a proper identification and monitoring system to discover and cultivate elite sports talents	0.3	0.900	1	0.775	Accepted
F5	<b>Athletic and post-career support</b>					
Var8	Ensuring the job security of athletes	0.3	0.811	1	0.730	Accepted
F6	<b>Training facilities</b>					
Var9	Providing suitable facilities to athletes	0.3	0.840	1	0.745	Accepted
Var10	Using technologies and benefiting from new training methods	0.3	0.855	1	0.752	Accepted
F7	<b>Coaching provision and coach development</b>					
Var11	Employing quality and expert trainers with commitment	0.3	0.858	1	0.754	Accepted
Var12	Provide adequate salaries to the coaches	0.3	0.755	1	0.703	Accepted
F8	<b>(inter)national competition</b>					
Var13	Mental and physical preparation of the athlete in the conditions of simulating competitions	0.3	0.728	1	0.689	Accepted
F9	<b>Scientific research</b>					
Var14	Employing scientific and executive experts	0.3	0.811	1	0.730	Accepted

#### 4.2. Development of Structural Self-Interaction Matrix (SSIM)

The ISM approach uses an expert's point of view to figure out how factors relate to each other in a given situation (Moradi et al., 2022). The experts were well-versed in issues about elite sports. During the meeting, the experts figured out how the factors interact. To explain this, they used a textual connection of the type "influence." A questionnaire was created to determine the relationship between the two variables (i and j). Four different symbols describe how well two parts of a compound (i and j) stick together. If the answer is A, then actor j aids element i. If the answer is X, details I and j aid in accomplishing both objectives, and if the answer is O, there is no relationship between elements I and j. From Table 4, you can see that SSIM is calculated by considering how each of the nine variables is related.

**Table 4.** Structural Self-Interaction Matrix (SSIM).

Variables	F2	F3	F4	F5	F6	F7	F8	F9
F1	A	V	V	V	V	V	V	V
F2		V	V	V	V	V	V	V
F3			V	A	A	O	O	A
F4				A	A	A	O	A
F5					O	O	O	O
F6						X	X	O
F7							O	A
F8								A

#### 4.3. The creation of the Initial Reachability Matrix (IRM)

An IRM is created using the SSIM produced in the previous phase. Table 5 shows how to factor i is related to factor j. The SSIM matrix makes an IRM by turning the matrix into binary (0,1) form. Figure 2 illustrates the principles for converting symbols into binary digits.

**Table 5.** Initial reachability matrix.

Factors	F1	F2	F3	F4	F5	F6	F7	F8	F9
F1	1	0	1	1	1	1	1	1	1
F2	1	1	1	1	1	1	1	1	1
F3	0	0	1	1	0	0	0	0	0
F4	0	0	0	1	0	0	0	0	0
F5	0	0	1	1	1	0	0	0	0
F6	0	0	1	1	0	1	1	1	0
F7	0	0	0	1	0	1	1	0	0
F8	0	0	0	0	0	1	0	1	0
F9	0	0	1	1	0	0	1	1	1



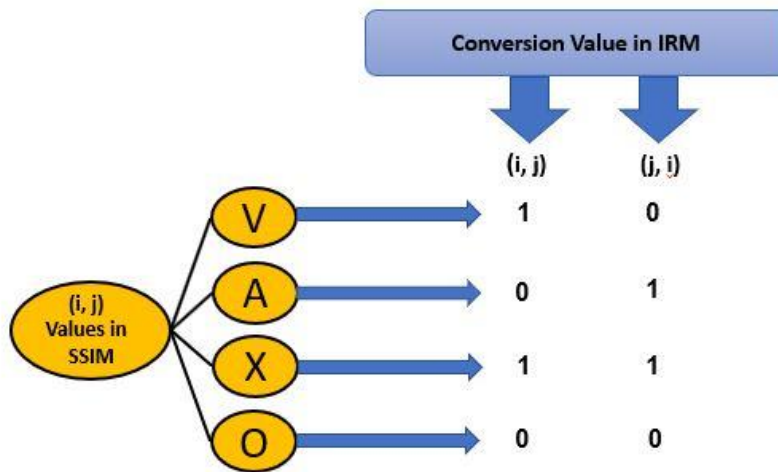


Figure 2. Converting the matrix into binary form (0,1).

#### 4.4. Final Reachability Matrix (FRM)

To create the final reachability matrix, it is necessary to consider transitivity. Transitivity is a critical component of the final reachability matrix. Due to the use of transitivity, some of the IRM cells are filled by inference. Transitivity shows a connection between three things: if A is linked to B and B is connected to C, then A and C must also be attached. As shown in Table 6, adding 1\* to each column or row gives the driving and dependent powers.

Table 6. Final Reachability Matrix (FRM).

Factors	F1	F2	F3	F4	F5	F6	F7	F8	F9	Dri P
F1	1	0	1	1	1	1	1	1	1	8
F2	1	1	1	1	1	1	1	1	1	9
F3	0	0	1	1	0	0	0	0	0	2
F4	0	0	0	1	0	0	0	0	0	1
F5	0	0	1	1	1	0	0	0	0	3
F6	0	0	1	1	0	1	1	1	0	5
F7	0	0	1*	1	0	1	1	1*	0	5
F8	0	0	1*	1*	0	1	1*	1	0	5
F9	0	0	1	1	0	1*	1	1	1	6
Dep P	2	1	8	9	3	6	6	6	3	

#### 4.5. Level partitions

Level partitioning puts different parts in a hierarchy and considers how they connect (Warfield, 1974). The final reachability matrix can determine how many prior sets and

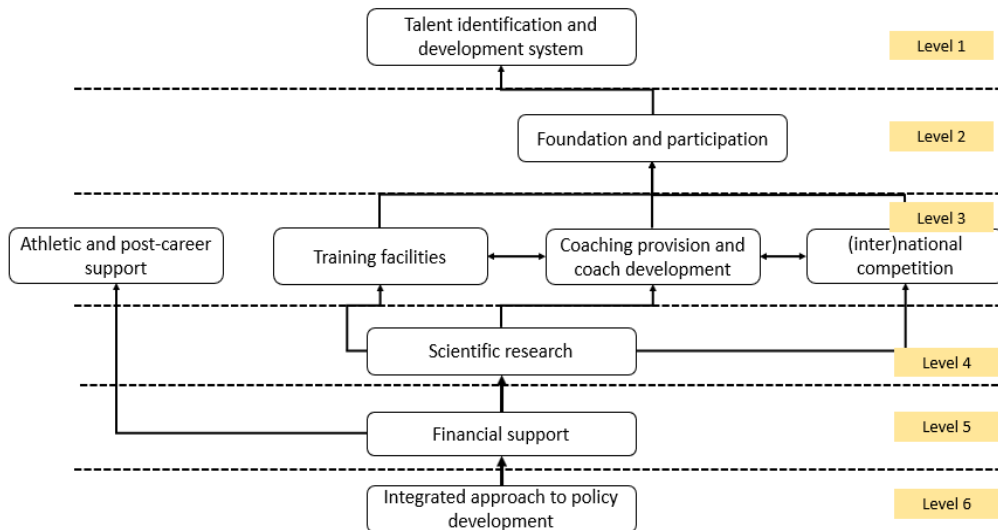
how far each component can reach. Access and intersection factors ensure the top level of the ISM table. The set of attainable factors, the antecedent set, the intersection set, and the initial and final levels of each element are all shown in Table 7. Finally, six iterations were required to complete the surface evaluation process.

**Table 7.** Level partitioning.

Factors	Reachability Set	Antecedent Set	Intersection Set	Level
F1	1	1, 2	1	5
F2	2	2	2	6
F3	3	1, 2, 3, 5, 6, 7, 8, 9	3	2
F4	4	1, 2, 3, 4, 5, 6, 7, 8, 9	4	1
F5	5	1, 2, 5	5	3
F6	6, 7, 8	1, 2, 6, 7, 8, 9	6, 7, 8	3
F7	6, 7, 8	1, 2, 6, 7, 8, 9	6, 7, 8	3
F8	6, 7, 8	1, 2, 6, 7, 8, 9	6, 7, 8	3
F9	9	1, 2, 9	9	4

**4.6. Formation of ISM-based model**

The results of the level partition (see Table 7) are used to make a digraph, and the results of the FRM (see Table 6) show how the factors are linked. Figure 3 shows an ISM model with a hierarchical structure that shows how different parts work together and depend on each other.



**Figure 3.** ISM model of factors affecting the ES in Iran.

Analysis of MICMAC data shows that there are four main groups of variables and that their relative importance depends on how much they depend on each other and how much they drive each other (see Figure 4).

**Autonomous cluster:** The first cluster is independent. These factors have low driving and dependent power, and as a result, they have little influence on the whole system. The element "Athletic and post-career support" (F5) is included in this cluster.

**Dependent cluster:** Variables with a weak driving force but a robust dependence power is included in the dependent factors category. In this cluster, the factors "Foundation and participation" (F3) and "Talent identification and development system" (F4) are included.

**Linkage cluster:** This cluster contains 'linkage' variables with high 'dependency power' and robust 'driving power', indicating that they are highly interconnected. There are three factors in this cluster, which are: Training facilities (F6), Coaching provision and coach development (F7), and (inter)national competition (F8).

**Independent cluster:** The critical factors in this cluster are the ones with high driving power and low dependency power. They are grouped as essential factors." Financial support (F1), An integrated approach to policy development (F2), and Scientific research (F9) are the most important criteria to consider, and it is essential to take each of these elements into account to execute the ES in Iran successfully.

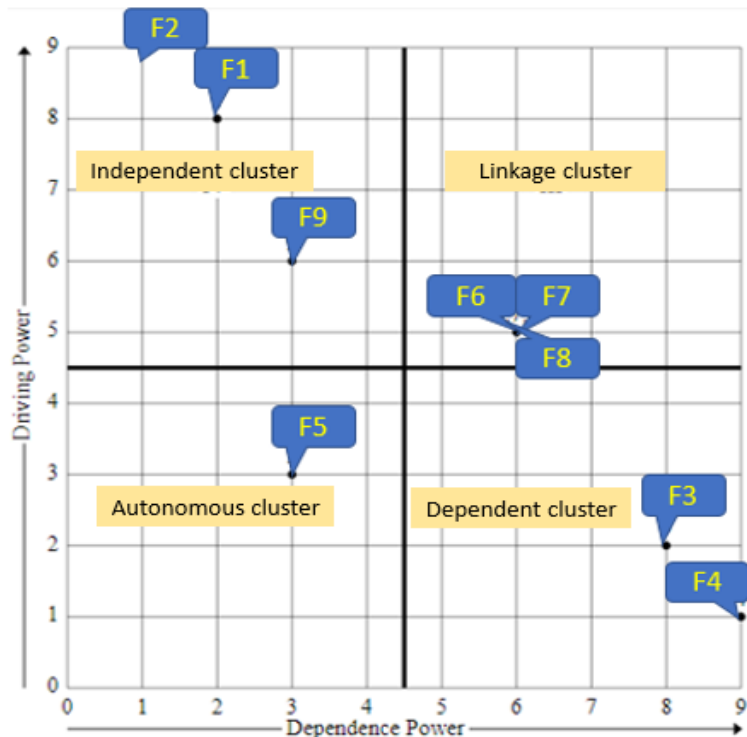


Figure 4. MICMAC analysis results.

## 5. Managerial implications

Taking advantage of the model developed for the future of Iran's ES, it will be necessary to make preparations, including the following: The application of active diplomacy in sports (with an emphasis on championships and professional sports) by those who are involved and responsible for the issue; redesigning the country's sports structure for excellence and success in international arenas; There is a need to modify the goals and policies of ES to make them more coordinated with the specific goals and programs that correspond to the different scenarios that could occur: alterations to budget allocation and distribution to medal-rich and medal-prone sports; Also needed is a talent search system that is integrated and can be used to search for talents.

## 6. Discussion and conclusion

Focusing on ES in Iran allowed us to understand its effects better. An integrated approach allowed us to achieve this goal. Research results are discussed in the following. Using the ISM method, a structured model was made to determine and model the things that affect ES in Iran. The model that was developed has six levels. Level 1 factors are more likely to be impacted by higher-level factors because they are at the top. Depending on how the proposed model is set up, these variables are called "dependent factors." This is because they are affected by other variables. [Figure 4](#) shows the "Talent identification and development system" as the only level 1 factor.

One of the main questions of the research was designed based on this axis: what components does the hierarchical structural model of Iran's elite sports include, and what are the relationships between each one? The interpretive structural modeling approach was used to answer this question. The output of this technique was formed because other variables influence the identification and development of talents at a level 1 variable. On the other hand, governance, policy-making, and structure as last-level variables somehow affect all variables. So, for a system to work well, it needs to pay special attention to these last-level variables that serve as the base. In the following, we will look at and talk in-depth about each of the model's dimensions.

### 6.1. Level 1: Talent identification and development system

When young people decide to play a sport regularly, it is a big part of the planning process for organizations that sponsor the sport to make sure they can find and help young talent. [De Bosscher et al. \(2008\)](#) acknowledges that the "international battle for medals" needs a high-performance system that leads to consistently better performance and lets talented athletes keep improving until they reach the elite level. From the talent search process perspective, this program's influence begins with identifying a talented athlete. Talent monitoring tools, robust talent identification methods that reduce attrition, and well-organized search mechanisms are all required for this goal ([Ronkainen et al., 2022](#)). Talent identification (i.e., monitoring systems are based on criteria identifying young talents).

Talent search (i.e., the processes to attract young talents). The process of choosing young talent for things like competitions and educational activities should work well and be part of an integrated system. So, if the best sport in the country is to grow and get better, it seems essential and necessary to make a system for finding and developing talent that works together.

### ***6.2. Level 2: Foundation and participation***

Sivrikaya et al. (2018) state that all over the world, development organizations and non-governmental organizations are using sports more and more to achieve their goals in social, cultural, physical, educational, and economic development. Public participation in sports is also associated with increased social connections, reduced involvement in risky behaviors, and better mental health (Edwards & Rowe, 2019). These issues have made sports, in general, a tool for policies, although the ever-increasing costs of public participation in sports, lack of access to equipment, and unequal access to sports activities can help improve people's health. They have created obstacles in the way of popularising sports to enhance the health of society. Obstacles have made many researchers realize that this goal can only be reached through management and strategic planning (Berg et al., 2015; Eggleston et al., 2020; Eime et al., 2014).

Because of the importance of making sports the most popular and recreational activity for leisure in societies, especially among teenagers and young adults, the United Nations, the International Olympic Committee, the International Association of General Sports, and the World Health Organisation all advocate sports participation as a method of enhancing community health. For instance, the International Olympic Committee has said the following about the value of sports for youth: "Sports, in today's world, play a more important role in solving crises related to global health and reducing deaths caused by diseases and physical inactivity of teenagers and young adults" (Vella et al., 2019).

### ***6.3. Level 3: Athletic and post-career support***

Many young athletes have visions of becoming professional athletes, but the chances of turning these visions into reality are meagre (Coakley, 2020). In addition, elite sports are very short-lived. This means that after an athlete's championship career is over, they have a long way to go. At each stage of their careers, athletes face different challenges. These challenges must be understood from a "start-to-finish" or life-span perspective and must consider the changes that athletes face in other areas of development (Wylleman & Lavallee, 2004). Athletes must deal with the mental challenges of growing up, like forming and losing identity and getting smarter. Psychosocial development, however, is linked to changes in social networks, such as the relationships and roles of parents, athletes, coaches, and peers. Lastly, the academic or professional level is linked to the move to higher education, a professional career, or graduate school. Knights et al. (2019) acknowledge that when athletes are in this stage, they often work harder to ensure they are safe and have enough money.

Elite-level athletes must make many physical, mental, emotional, financial, and social commitments. Because of this, they do not have much time to work on self-development and self-efficacy, which are important for making good decisions outside of sports (Gordon & Lavallee, 2004). So, athletes may not be ready for life after winning a championship and may have upsetting reactions after leaving sports (Lally, 2007; Lavallee & Robinson, 2007). In this regard, Taylor and Ogilvie (1994), in their overview of research related to retired athletes, identified four main reasons that lead to the end of a sports career in the form of (a) injury, (b) age, (c) retirement and (d) stated voluntarily. According to Wylleman and Lavallee (2004) and Eggleston et al. (2020), athletes must plan for life after their sport (retirement) during their sports career to do their best and have the least amount of trouble adjusting to life after a championship sports career. Career development programs provide three main types of services: (a) career management, (b) training management, and (c) training in life skills. These are platforms that managers and sports practitioners of any country can use to benefit from these funds (Henriksen et al., 2010).

#### ***6.4. Level 3: Training facilities***

Another essential part of elite sports is that athletes can access good sports facilities and infrastructure. Past researchers have named this component as one of the significant elements in a country's sports success (Andersen & Ronglan, 2012; Green & Houlihan, 2004; Houlihan & Green, 2008). Ensuring that athletes, especially those competing at the elite level, have suitable facilities and infrastructure can help them do better. On the other hand, athletes who use inadequate or non-standard facilities are more likely to get hurt, and their performance will worsen. Therefore, it is necessary for those involved in the matter to take appropriate steps by using their current knowledge to equip training facilities for the success of the country's ES in the international arena. For example, building sports centers that are good at what they do could be a top priority in this direction.

#### ***6.5. Level 3: Coaching provision and coach development***

There is a common understanding that a coach is a manager or leader in the sporting arena (Newman et al., 2021; Surujlal & Dhurup, 2012). Many sports researchers, like (Kent & Chelladurai, 2001) and (Surujlal & Dhurup, 2012), use the words "coach" and "leader" interchangeably. This "reinforces the assumption that coaches are leaders," says (Loughead & Hardy, 2005). As Loughead et al. (2006) state, the coach makes important decisions, like choosing the team, making game plans, putting strategies and tactics into place, and overseeing other team members. Even though the coach must deal with the organization's administration, the governing body of the sport, sports federations, and the media, their relationship with the players they teach is likely the most mentally challenging. Chelladurai and Saleh (1980) note that the coach's leadership significantly affects how well the athletes and teams do. In addition to helping overall sports performance, the coach also plays a vital role in athletes' physical and mental development (Gould et al., 2002). Coaches play an undeniable role in athletes' success in the international arena; this claim is also supported by

evidence. [Mozaffari et al. \(2012\)](#) stated that creating a new coaching system is one way to improve Iran's championship sports system. This key point was also stressed in this research. Therefore, those in charge must pay special attention to this matter. However, it should also be noted that trainers are chosen based on their qualifications and skills, which gives them an advantage over others.

### ***6.6. Level 3: (inter)national competition***

[Crespo et al. \(2003\)](#); [Green and Houlihan \(2004\)](#), and [Oakley and Green \(2001\)](#) all state that competition is an integral part of how athletes grow and improve. This lets athletes and teams see how they stack up against their competitors and encourages them to participate in events that are seen as the pinnacle of achievement, like the Olympic Games. Athletes' success and performance at the championship level can be improved by allowing them to participate in international preparatory competitions ([Bernard & Busse, 2004](#); [Crespo et al., 2003](#); [Reid et al., 2007](#)). In addition, it also helps to improve his skills. Therefore, those involved in ES should consider the necessary fields to implement these measures with coherent and written planning if they seek to gain a favorable position in the international arena.

### ***6.7. Level 4: Scientific research***

Over the past few decades, scientific research has become essential for elite sports development systems to gain a competitive edge. In this way, countries have come up with long-term plans to do well in sports on the international stage. A sharkskin swimsuit or an aerodynamic board in winter sports are good examples of how innovative engineering can make a difference. Countries that invest structurally in these activities have the edge over others. These are the only examples that show how creative scientific research can be used in high-level sports and how it can help the winners. [De Bosscher et al. \(2015\)](#) agree that countries that make good decisions about the value of scientific research and back these decisions with the right amount of funding over time are likely to do better than countries that rely on static macroeconomic variables like population. If they rely on national wealth, they will have a competitive advantage.

Over time, society's attention and interest in sports have increased, and technology plays a valuable role in sports activities and the sciences ([Kos et al., 2018](#)). New sciences and technologies have contributed significantly to sports development to promote and expand their influence and maintain sports justice ([Ross & Sharpless, 1999](#)). Unsurprisingly, people who care about sports are often involved in making, putting in place, and using technology. For this reason, there are many challenges and discussions regarding technology and innovation in sports. For example, did the Fastkin suit change the nature of swimming by reducing the contact of the skin with the water or, according to his argument, improve the swimmer's performance level? Is it possible to accept video refereeing in football, or will this technology reduce the human effect and entertainment of sports and make them machine-made? Also, one of the critical challenges in boxing is whether professional boxers should fight with a (safety) helmet like beginners ([Loland, 2002](#)). In 2015, ([Karimi Kasvai & Hashemzadeh Khorasgani, 2015](#)) looked at 50 Iranian



martial arts coaches and athletes as part of a study called *The Role of Modern Technologies in Elite Sports (Case Study: Martial Arts)*. They concluded that using new technologies and preparation improves sports judgment and decision-making. In general, they found that using new technologies made judges more motivated, gave them more self-confidence, helped them prepare better, made practice more fun, and helped them come to better conclusions and decisions.

### **6.8. Level 5: Financial support**

Financial support is key to national sports policy (De Bosscher et al., 2006; De Bosscher et al., 2015). It means that the government or the private sector gives money to develop (elite) sports and puts money into them. This is why this element (financial support) is considered one of the most important influential factors in success at the national and international levels from the point of view of athletes, coaches, and other stakeholders active in the field of sports (Peake, 2019). In this way, De Bosscher et al. (2019) stressed how important it is for the success of a country to pay attention to the financial support for elite sports. They proved their point by giving examples of some countries that are doing well in sports on an international level. Also, some other researchers have considered the provision and use of targeted funds in the distribution of the elite sports budget as one of the pillars of success (De Bosscher et al., 2008; Green & Houlihan, 2004; Houlihan et al., 2010). Shibli et al. (2013) looked at an approach that works well for developing elite sports.

By examining the contending countries in elite sports, it is possible to realize a significant increase in the budget allocated to this part of the country's sports compared to the past. Because of this, the overall performance of athletes at international games has gotten a lot better. Spain, for instance, has increased the budget share for some of its sports to 28.6% to stay competitive. As a result of the dramatic uptick in investment, Japan's situation is looking better than it did before. The country's strategic planning between 2002 and 2010 led to a significant increase in its medal haul at the winter games. Another example is the United Kingdom, which during the Olympic periods (2008 and 2012), increased its position from thirteenth to fourth place in the Olympic Games by investing significantly in the championship and professional sports (Houlihan & Zheng, 2013). In addition to allocating a performance-based budget, Britain has given additional funding to some specific sports with significant potential for success in the international arena.

According to De Bosscher et al. (2015), countries with elite sports spend a disproportionately large percentage of their GDP on those sports. Studying relevant statistics and information in this area proves this claim. As a percentage of the total budget for top sports, Australia spends 14.9% on swimming, 12.1% on judo, 16% on athletics in Estonia, and 13.9% on handball in Denmark. Also, in Great Britain, the four sports that receive 44.2% of the championship budget account for 59% of the country's success, and in Australia, 65.9% comes from the top three performances of four sports, which is a total of 44.6 percent of elite sport funding (De Bosscher et al., 2019). However, as Patatas et al. (2018) also said, there should be enough oversight of the budgeting process to prevent wasted resources. So, the best athletes in the country can improve their chances of winning



a medal by looking at how special funds are given to sports with the potential to do well on the international stage.

### ***6.9. Level 6: An integrated approach to policy development***

The elite sport needs to receive a significant amount of funding. However, how sports are organized and structured and how they work with the community makes it possible to use these resources to improve the chances of success at the championship level. Organizational success or failure is directly related to the quality of management and policies in place, including but not limited to cross-departmental coordination, planning, stakeholder participation, employee management and leadership, communication, decision-making, and cooperation with business partners. Even though there is research, professional sports administrators and academics have different ideas about the best way to make and enforce rules and policies for professional sports. In their discussion of the elite sport system, [Andersen and Ronglan \(2012\)](#) contrast the centralized approach taken by the Danish cycling organization with the decentralized approach taken by Sweden's tennis and golf federations. The authors believe both are viable options for constructing a championship sports system, each best suited to a different organizational context and period. However, according to various researchers, no single formula, approach, or strategy has provided a coherent and integrated structure. And policies for the success of elite sports ([De Bosscher et al., 2008](#); [Houlihan & Green, 2008](#)) because the adoption of procedures depends on the structure and various factors within the organization.

Trustees ought to be the ones to take the lead strategically when it comes to creating policies and organizational frameworks. The question of whether authority over coordination, guidance, and leadership should be centralized remains an important one. A well-integrated and comprehensive framework is necessary for effective resource management. In this regard, [Oakley and Green \(2001\)](#) state that determining the responsibilities of different sports organizations is particularly important. For this reason, any country that seeks success in the international arena must pay special attention to good governance, integrated policy, and an agile organizational structure. This is an essential point that those involved in ES in Iran should consider.

This study aimed to fill the research gap in the field of ES in Iran. A list of questions will need to be made for this goal. This study sought to answer the first and most important question: "Which variables influence ES in Iran?" The FDM was used to resolve this issue and determine the critical components. Using the FDM, we have discussed and analyzed the criteria that were found in the literature review to determine whether they are relevant and whether or not they are complete. A group of 17 industry and academic experts agreed on 14 of the 25 primary criteria using a set of standards that had been defined (degree of education, area of competence, experience, and kind of activity). The ISM approach was used to determine how the components depend on each other and how they work together. Based on the results obtained using this method, one can construct a model made up of a collection of components discovered in the first stage of the study (FDM). The 14 components were separated into six discrete levels using the ISM approach. The

conclusion that can be reached using this method is based on the idea that the identification and development of talents at level 1 are affected by other factors.

On the other hand, governance, policy-making, and structure are considered last-level factors because they affect all other variables in some way. So, for a system to work well, it needs to pay special attention to the final-level variables that serve as its foundation. In conclusion, we used the MICMAC analysis to show all the driving factors and dependencies linked to the essential variables (the function of the criterion). The MICMAC study found that three variables were independent, two were dependent, three were linked, and one was found to be autonomous.

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## چگونه ورزش نخبگی در ایران می‌تواند به ارتقای کسب و کارهای صنعت ورزش منجر شود؟ یک رویکرد ISM-MICMAC

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### کلیدواژه

ورزش نخبگی  
دلفی فازی  
مدل ساختاری تفسیری  
صنعت ورزش  
کسب و کار

### نوع مقاله

پژوهشی اصیل

### چکیده

**هدف:** پژوهش حاضر به بررسی عوامل تعیین کننده ورزش نخبگی و تأثیرگذاری این عوامل بر صنعت و کسب و کارهای ورزش ایران پرداخته است. تحقق این امر با استفاده از یک رویکرد یکپارچه دنبال شد.  
**روش:** بدین منظور تجزیه و تحلیل داده‌ها این مطالعه در سه مرحله انجام شد. از روش دلفی فازی، به منظور دریافت خبرگان (اجرایی و علمی) و از مدل‌سازی ساختاری تفسیری برای طبقه بندی مولفه‌ها و ایجاد یک مدل سلسله مراتبی استفاده شد. تجزیه و تحلیل MICMAC نیز به منظور تعیین نفوذ و وابستگی هر یک از عوامل بکار گرفته شد.

**یافته‌ها:** ۱۴ عامل کلیدی مرتبط با ورزش نخبگی در ایران شدند. مدلی که توسعه داده شد دارای شش سطح است. همچنین، تجزیه و تحلیل MICMAC نشان داد که در هر یک از خوشه‌های مستقل، وابسته، پیوندی و خودمختار به ترتیب ۳، ۲، ۳ و ۱ متغیر جای گرفتند.

**اصالت و ابتکار مقاله:** طرح تحقیق ارائه شده در این مقاله اولین تلاش برای تحلیل سلسله مراتبی این عوامل و ایجاد مدلی چند سطحی برای ورزش نخبگی در ایران است که می‌تواند منجر به ارتقای صنعت کسب و کارهای ورزشی شود. دست‌اندرکاران و متولیان ورزش ایران لازم است بر مبنای آن اقداماتی را انجام دهند تا بتوان شاهد تعالی صنعت کسب و کارهای ورزشی ایران در عرصه‌های بین‌المللی بود؛ این موارد عبارت‌اند از: دیپلماسی فعال در ورزش (با تمرکز بر قهرمانی و ورزش حرفه‌ای)؛ بازطراحی ساختار ورزش کشور در جهت تعالی و موفقیت در عرصه‌های بین‌المللی؛ نیاز به اصلاح اهداف و سیاست‌های ورزش نخبگی؛ اصلاح نظام تخصیص و توزیع بودجه به ورزش‌های مدال‌آور و مستعد مدال و نیز طراحی یک نظام یکپارچه استعدادیابی.

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