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Original Research

The Presence of New Technologies Affected on Ticket Sales Management in the World Sport Mega Events

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Abstract

The purpose of this research was to consider and study the presence of new technologies affected on ticket sales management among Sport mega events around the world. Based on the objectives of this research, the research methodology has been applied and it was according to mixed method (qualitative and quantitative). In qualitative part, statistical society was consisting of all countries around the world and statistical sample was: United States of America, England, China, South Korea, Australia, Finland, Canada, Qatar, Germany, Turkey and Iran. In quantitative part, 12 sport elites were selected. Research tools were library study, official websites, and data banks, notes and documents observation records.

In Quantitative part, first of all, an AHP questionnaire designed for dual comparison of criteria and it was distributed among 12 sport marketing elites and it was analyzed by AHP method. Results showed that Digital and multipurpose ticket with 0/138 points was in the first place and ticket sales via ticket-office with 0/02 points was at the last place. Result in qualitative part showed that in the selected countries what new technologies used for managing, distributing of tickets as well as each of these factors have different outcomes such as facilitating in ticketing, preventing of black market, spectator security, control and event security, data security of participants, moneymaking and other benefits which had been mentioned in the research.

Keywords: New Technologies, Sport mega events, Ticket sales management

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Introduction

In our technological world, there are plenty of opportunities to utilize science and engineering to improve exercise performances[1]. Sport is an international goods and service. The most of people throughout the world enjoy from training or watching the matches or events. It would definitely be said few industries in the world can be gathered millions of spectators together from all over the world for an especial event simultaneously. On the other hand, all the spectators need tickets to attend in the sport events. Hence, many experts emphasized on the importance of modern technologies and proper ticket sale management and all of them agree that sport spectators have a key role in the sport industry, so selling tickets is very important for a professional sport organization [2].

Today's, many of the sport events amuse millions of people as a player, spectator or a fan from all over the world. These maximum participations strengthen economical aspect of sport. Despite the sponsors and right to broadcast earning money from ticket sale is far from its peak in the recent years, but nevertheless selling tickets is still the most crucial ways to earn money in the sport events [3]. It is worth mentioning that presence of new technologies is one of the essential factors in the audience's rate and purchasing tickets. Moreover, using new technologies in ticket's price, its payment and the way to get it has a significant impact on ticket sales [4].

Based on Benar research (1395) quoted from Hall (2009) spectator's presence in the sport events causes more revenue for clubs and sport organization and it has economic benefits for cities and countries. Benar quoting from Dehghan Ghahfakhri (1389): "spectators provide parts of the team's expenses by their expansive attendance as well as buying tickets [5] .

Besides, we can mention the number of hosting, spectators and stadiums' capacity as effective factors on earning money from competitions. It means regarding to the new methods of technology, any factor that increases the audience and motivates them to participate in the tournaments, makes selling tickets and finally causes to increase revenue [6]. One of the valuable wealth of the sport stadiums is their spectators [7]. Spectators by purchasing tickets not only directly cause to earn money for stadiums and sport organizations but also they indirectly play a major role to generate revenue through attracting sponsors and subsidiaries [8]. Cultural promotion, technology development, social personality, earning money, political relations and many other elements are as various achievements of holding each event [8]. Various countries' experiences have showed that new methods of selling tickets will cause to respect the rights of spectators and increase the security of the competitions while preserving regularity and peace in the stadiums. On the other hand, the black market will be prevented. Moreover, other services such as lottery ticketing, gift giving, ticketing through electronic devices make ticketing faster and easier [3]. Looking at the economic situation of the Iranian sports industry, we can find the sports industry's share of gross domestic product (GDP) is 1.1% that is significantly less than

global index. While the share in different countries is about 0.75 to 4.4%, hence this economic index can have an effect on ticket price [9].

A ticket sale through the box office, which is a common way of selling ticket in Iran, is a waste of time, creating a black market and somehow destroying economic health.

It is clear that today in every organization achieving the goals with maximum efficiency and effectiveness is the most important organizational mission, thus to achieve this, all the activities of the organization must be carried out according to a specific schedule and all the problems and obstacles must be identified by a broad perception in order to provide solutions to them [10]. In accordance with Article 44 of the Iranian Constitution and government and sport confederations' emphasis on privatization, all the stadiums or clubs have no choice except to make money through the private sectors.

At present, ticket sales in Iran provide a minor source of revenue and since clubs are financed mostly by government agencies it is impossible for them to continue lifetime without government' support [7].

Considering the importance of the above mentioned contents, the present study which is a comparative study tries to identify new technologies affecting on ticketing management in the mega sport events and analyze the current situation by utilizing the findings of this research in order to find suitable solutions for ticket sales in Iran.

Methodology of the research

In the respect of purpose, this study is applied and in methodology point of view it is mixed method. Firstly, qualitative and then the quantitative method was applied.

Qualitative methods allow for different readings of a reality to emerge [11]. The purpose of qualitative studies is depth reviewing of the phenomena and finding the participants' attitude about those phenomena [12]. In the current study, qualitative data are gathered firstly. Carrying out this step led the researcher to describe numerous aspects of the phenomenon. Carrying out this step led the researcher to describe numerous aspects of the phenomenon. Then the researcher prioritized the indicators obtained to influence ticket sales by gathering qualitative data. In the mixed research method, qualitative data is given more importance. Moreover, in the data collection sequence, first qualitative data and then quantitative data are collected [11]. To collect quantitative data, hierarchical analysis and Expert Choice \ \ software were used to prioritize new technologies affecting ticket sales nationwide. Also, according to the data gathering method, the research method is a combination of focus group and comparative modeling and analytical method which is done as a case study and examines the situation in the country and the selected countries. In this research, various websites, databases, books and articles, notebooks and documentary observations were used. In the hierarchical analysis section, a questionnaire was designed for pair wise comparisons and then distributed among 12 persons of sports marketing' elite.

Results

Quantitative findings:

In the hierarchical analysis process, the variables of each criterion are first compared separately and evenly and the relative weight of each criterion is determined relative to its own criterion, then the weight of criteria is also compared with each other and by the final combination of each criterion' weight with each variable' weight in the same criterion, the final weight is determined.

Indicators of new technologies used in this study are:

F1 outsourcing, F2 automatic ticket, F3 support package, F4 marketing research, F5 flexible package, F6 quota control and instant processing, F7 smart and multipurpose ticket, F8 pre-sale of tickets, F9 advertise and sell via mobile, F10 online ticketing, F11 box office

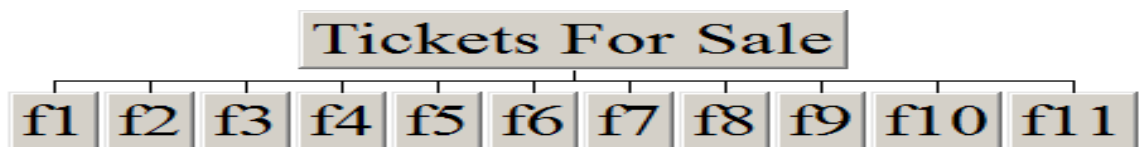


Figure1. Compiling ticketing indices

Paired comparison scale: paired comparison was carried out according to the hierarchical structure, this comparison was made using a scale designed from identical to extremely preferred.

Table 1. Paired Comparison Scale

Preferable (oral judgment)	numerical value
Identical preference	1
Identical to fairly preferred	2
fairly preferred	3
Fairly to strongly preferred	4
Strongly preferred	5
Strong to very strongly preferred	6
Very strongly preferred	7
Strongly to extremely preferred	8
Extremely preferred	9

Calculating geometric mean

After completing the questioners by experts, different opinions were raised for each option, so to solve this problem, the comparative tables were combined. In this method, the geometric mean can be used to combine judgments according to the following formula:

$$a_{ij} = \left(\prod_{k=1}^n a_{ij}^{(k)} \right)^{1/n}$$

Equation 1. Geometric Mean

In which:

a_{ij} : geometric mean of a creation

a: criterion which is compared with options

K: response completion code

n: number of respondents who compared criterion options

Table 2. Matrix of paired comparisons after incorporating experts' opinions

	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11
F1		0.37	0.39	0.72	0.78	0.82	0.21	0.31	0.22	0.18	1.42
F2	2.69		1.58	1.48	1.17	1.53	0.51	1.53	0.36	0.43	5.37
F3	2.52	0.63		2.23	0.55	2.68	0.53	0.60	0.66	0.45	2.52
F4	1.38	0.67	0.44		0.58	1.89	1.09	2.81	2.73	1.98	4.2
F5	1.27	0.85	1.81	1.7		3.52	1.67	2.79	1.6	0.58	4.61
F6	1.21	0.65	0.37	0.53	0.28		1.11	1.6	0.56	0.26	5.65
F7	4.66	1.88	1.86	0.92	0.6	0.90		3.6	1.1	2.56	4.27
F8	3.21	0.65	1.64	0.35	0.36	0.62	0.27		1.12	0.66	5.79
F9	4.53	2.74	1.5	0.36	0.62	1.76	0.9	0.89		1.32	5.8
F10	5.35	2.28	2.18	0.50	1.7	3.8	0.39	1.5	0.75		7.04
F11	0.70	0.18	0.39	0.24	0.21	0.17	0.23	0.17	0.17	0.14	

- Calculate the relative weight of the indices

After preparing hierarchical structure and calculating geometric mean, mathematical operations were performed in the Expert Choice software in order to prioritize ticket sales indices in sport across the country. At this stage, first the relative weight and then the absolute weight are presented.

-Improved incompatibility

For each matrix divided by the incompatibility index into the stochastic matrix incompatibility index is a good criterion for judging incompatibility, which we call the incompatibility rate. If this number is less than or equal to 0.1 the system compatibility is acceptable otherwise judgments should be revised.



Figure 2. The final results of paired comparison of indices in relative weight state

Figure 2 presents the results of the paired comparisons of the indices obtained for ticket sales. According to this diagram smart and multiple ticket index with relative weight 0.138 in the first place, online ticketing with the relative weight 0.132 in the second place, flexible packages with the relative weight 0.13 in the third place, marketing research with the relative place 0.119 in the fourth place, advertisement and sales through mobile with the relative 0.111 weight fifth place, automatic ticket with the relative weight 0.092 in the sixth place, support package with the relative weight 0.085 in the seventh place, pre-sales of tickets with the relative weight 0.072 in the eighth place, quota control and instant processing with relative weight 0.063 in ninth place, outsourcing with a relative weight of 0.038 in tenth position, and ticket box office with the relative weight 0.020 ranked eleventh or the last importance based on experts' point of view.

Also, the incompatibility rate is less than 0.1, so it can be stated that the compatibility rate is optimal. Finally, by combining the weight of the indices, the consolidation is performed, diagram 3 shows the consolidation in absolute weight mode.



Figure 3. The final results of paired comparison of indices in absolute weight mode

Qualitative findings:

Concerning qualitative findings in sporting events and new ticketing technologies in the selected countries, the following results were obtained, these findings described in Table 3.

Table 3. Qualitative data based on ticket sales method

No.	country	Sport event	Ticket sales way (new technology)
1	Iran	Football & volleyball competitions inside the country	Ticketing box office- financial support-online ticketing
2	China	Olympic Games2008 (Beijing)	Smart and multipurpose ticket sales (by using: Ad Hoc- RFID)
3	Australia	Olympic Games 2000(Sydney)	Ticket Marketing Research and Promotional Strategies
4	Canada	Winter Olympic Games 2010	Ticket sale including random lottery in 3 stages (October 13, 2008-June 6, 2009 and November 14, 2009)
5	England	Various sport events	Ticket Pre-sale - Advertisement and sell via mobile
6	South Korea	Inch eon's 17th Asian Games 2014	Outsourcing
7	Germany	Various sport events	Automatic Ticketing (ATM)
8	Finland	Finland football league	Normal ticket sales (average ticket price lower than other countries) - Pre-ticket sales
9	United State	4 major league: Baseball, Basketball, Hockey and Football	Differential Pricing-Flexible Season Ticket Pricing - Money Back Guarantees & Ticketing through the Website
10	Turkey	25 th Winter Universidad	Ticket sales system based on quota control and instant processing
11	Qatar	Asian Cup 2011	Ticket sales directly from official website of the AFC

- On qualitative findings from the study of new ticketing methods in selected countries about **smart and multipurpose digital ticketing using the ADHOC Network** at the 2008 Beijing Olympics, since anti-counterfeiting security plans have been prepared by the Bank of China Bank Printing Department, hence any fraudulent act has been prevented , then following this success in securing spectators and athletes and other participants using the RFID system, the technique was also used at the Shanghai World Expo and 70 million tickets were sold for this important event. For many marketers, the Beijing Olympics were of great interest because they were a good opportunity to influence the world's minds and a way to penetrate China's multi-billion-dollar market. During the Games, China hosted 28000000 athletes, referees, reporters from more than 200 countries, about 5 million tourists and over 120 million domestic passengers and 7 million spectators who watched the tournament live [13].

-At the 2000 Sydney Olympics, a total of 9.6 million tickets were issued. According to the organizing committee of the tournament ticket sales was one of the most important program of the Games and it had high revenue for the organizing committee. Sydney's goal was to raise \$ 600 million from ticket sales and it would definitely be said that ticket sales have an impact on financial success or failure. But following the failure of ticket sales in the fall of 1991, the organizing committee carried out a **promotional strategy** with the help of private companies such as: George Peterson Bates, Wool Cut Research Company and Medias cape Research and Analysis Company. Sydney has implemented a six-step strategy aimed at transforming the effective ticketing process, combining advertising and direct marketing and creating excitement in the community about the importance of attending the Olympics. These six stages were: Influence on thoughts, to inform, background for the stage, release, mental liberation and last moment fever. After this marketing activity, the organizing committee witnessed more than one million tickets sold during the four weeks before the games and during the games (almost 90 percent of the tickets were available to the public). And that was the beginning of a new record in Olympic ticketing history. Finally 7208376 tickets were sold out of 7644175 tickets .The Organizing Committee not only reached its goal of 600 million Australian dollars, but also set a new record for ticket sales at the Olympics, reaching 87.9% of ticket sales [14].

- Regarding the Winter Olympics 2010 Vancouver – Canada, after three stages of ticket sales with the help of partners such as **Jetsetsport and Visa Dot Ticket**, that season's tickets went on sale. Half the tickets were less than 100 Canadian Dollars, one hundred thousands of tickets was sold for 25 Canadian dollars. The Canadian Olympic Committee's goal was to earn 258 million dollars, indicating that 96% of the tickets were sold.

- In terms of **outsourcing** in the 2014 Asian Games in South Korea, we saw intangible economic revenue such as improved service quality, proper ticket distribution, and greater competitive advantage.

- In terms of **ticket sales through automated machines** in Germany, we observed save the capital due to the need for no sales staff at the sales terminals.

-It can be said about the **pre-sale** method in the Finland Football League: As in Finland, the financial situation of the National Football League is relatively weak, but it is Finland's most attractive sport. According to the research in two areas of finance and sports marketing in Finland, there are always factors that affect the scale of spectators' attendance. These factors are as follows:

- Customer tastes

- Economic factors such as ticket prices, fan revenue, unemployment level

-Qualitative factors such as stadium facilities, weather factors, ticket pre-sale

- Event features like competition quality, revenue uncertainty (uncertain income), Derby importance.

- Logistics facilities such as stadium capacity

In the present study, officials in the Finnish Football League try to raise revenue through ticket pre-sale. However, ticket sales are still low compared to other European countries and Scandinavia.

-United State of America, due to the economic downturn, there was a large drop in attendance and consequently a decline in income for sports organizations. Hence, the four proposed methods mean: **differential ticketing, the flexible seasonal package, Money Back Guarantee and online ticketing** were applied to the four major leagues of, Football, Baseball, Basketball and Handball and consequently they were able to sell well due to the different people's tastes and different income levels. In addition to the tangible economic revenue, they achieved intangible income such as reduced costs associated with travel time, waiting time and research.

- Turkey used new ticketing technology at the 25th Winter Universidad, titled **Quota Control and Instant Processing**. This type of ticketing can be applied to art festivals running simultaneously in multiple disciplines and in more than one day. Especially at mega sporting events that probably have multiple competitions in one day. The purpose of the system is to increase the number of attendees at the event. This system is very good at encouraging people to attend events in places with low socioeconomic status. This method allows event management to sell more than one ticket for the same seat at the same event. This system makes to sell more ticket and introduces a new perspective to the sport management and economics. The total number of tickets sold at the event was 168907.

- And Qatar's making revenue was not due to the specific way of ticketing but because of infrastructure investments and hosting of the most prestigious and money-making international events. Doha has spent 225 billion dollars on infrastructure projects. Part of that money will be spent on World Cup games. It will spend 3 billion dollars on stadiums and 17 billion dollars on hotels in the country, so Qatar will gain a lot of economic revenue with these investments in the future.

Discussion, Conclusion and Suggestions:

Regarding to the qualitative and quantitative data obtained from this study, smart and multipurpose ticketing system with the highest statistics in economic revenue and weight of 0.138 ranks in the first level in hierarchical analysis so this item has the highest importance degree in technological evaluations and sport managers and presidents in Federations should pay more attention to this item and in offering tickets they should consider it as the most important method for revenue making, security and other benefits of this method. And it shows that by

using this approach, event organizers can take good achievements on security and advertising. Darabi in his essay mentioned that advertisement increase the amount of analytic and focused thing as well as arousal and can play a significant role into decision making [15]. The online ticket with a weight of 0.132 is in the second place, and according to the qualitative data, the events that have used the online ticket sales have a relatively good income and sport clubs can use this item for their competitions ticketing and reach high achievements. Flexible packages with a relative weight of 0.13 are in third place and it indicates that depending on different tastes and different economic levels of people's income, different groups of people can get their ticket and by using this method more spectators will participate in our events and therefore we will have more money and more attendances. Marketing research with a relative weight of 0.29 is in fourth place, which was a factor in the success of the 2000 Sydney Olympics and as Darabi said advertisement and propaganda will play a significant role in money making as well as decision making. Advertise and sell via mobile with a relative weight of 0.111 ranks fifth and as a result, ticket sales have not been so profitable in this way. Automatic ticket with a relative weight of 0.092 is in sixth place, in fact, it provides easy shopping facilities but it has not been very profitable economically although it is a new technology in sport ticket sales but many people are not very familiar with this method and it takes time to be one of the best method for revenue making. Support package with a relative weight of 0.085 in the seventh position, and a pre-sale of a relative weight of 0.072 in the eighth position are among the low-income selling methods. These 2 items back to the spectators confidence to the sport managers and officials in the clubs and if we attract their confidence by some simple ways such as money return assurance or something like that , they will trust and pre-sale and support package tickets will be welcome more than now. And Quota control and immediate processing with a relative weight of 0.03 in the ninth place is just suitable for places with low socioeconomic status and it may make it possible for low-income people to buy tickets but in terms of making revenue, it cannot be an effective indicator. Outsourcing with a relative weight of 0.038 is in tenth position has involved most of the intangible economic revenue. It seems that in developed countries, outsourcing is a good way to do many works like ticket sales and in developing countries like Iran we should work on it and in near future this method will be executed. And the ticket box office with a relative weight of 0.020 is in the eleventh and the last place according to the experts in this survey and it showed that this way of ticketing always has the least revenue, long queues, and creation of black market and somehow destroys the economic health of the community.

Therefore, it is recommended that sport authorities, federations and events' organizers try to choose the most appropriate ticketing method according to the new technologies, and the current situation in the country as well as using the findings of this study, items 1 to 3 of the achieved results. This will allow them both to have high ticket sales and to increase the number of spectators for sporting events and monetization for the sports industry.

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