Obstacles in the use of Tourist Information Systems: A Tourism Sector Workers' perspective

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Abstract

This study aimed at investigating the obstacles of using tourism Information Systems from the point of view of the workers in the Tourism Sector and its relation to some variables in the Northern Governorates in Jordan in the year (2015 / 2017). The descriptive analytical approach and a questionnaire were used to collect data after verifying its validity and stability. The sample of the study consisted of seventy employees from Jarash, Ajloun and Irbid in the tourism sector. The results showed that the obstacles were high on all aspects and, in addition they indicate that there were no statistically significant differences in the main variables of the study such as gender or educational qualification. Differences were found on the variable of experience, especially for the most experienced. The researchers make some recommendations such as the need to take into account the list of obstacles that have been included in the questionnaire and the need to find appropriate solutions to such issues.

Keywords: Obstacles, Tourism Information Systems, Jordan, Geographic Information Systems

Introduction

The impact of technological information is directly or indirectly visible in all aspects of life. No one has not ever heard of the term IT. The majority of the world's people have dealt with this type of technology, and many others are on their way to dealing with it, because it has become the 'lung through which society breathes', and therefore it is found almost everywhere. In addition to that, everyone is in need of IT services, and thus IT has a profound impact in the political, economic and social factors in society. Bakhti and Shoubi (2010) indicate that the use of technology has affected various productive sectors, including the Tourism Sector, which has sought to invest in advanced technology in order to attract and encourage Tourism investment through the use of ICTs to provide basic services to the Tourism industry and to further promote Tourism and hotel services through different open and closed networks, based on the principles of modern technologies.

Geographic Information Systems (GIS) are an important tool in the planning and management of tourist nature reserves and also serve to preserve them from the dangers of pollution and attrition resulting from tourism movements and GIS increases the efficiency of their use. The achievement of sustainable tourism development requires the availability of an integrated Information System such as Geographic Information Systems in the management and development of tourist sites (Bzazu, 2010). Hasoneh, Bazazo and Al qeed (2010) have confirmed that while tourists search for information about all tourism activities, these activities require maps, tables, graphs, lists, graphs or reports, and sometimes it is difficult to collect these sources of information together. But information systems have the ability to provide tourism requirements and therefore the success of

any tourist business cannot effectively happen without the provision of an effective Information System.

Information Systems are defined as "computer-based tools used to collect, store, process and display spatially indicated information and activities or targets that can be identified in the spatial environment, such as points, lines and spaces." (Kumaran& Joseph 2012:40)
Waugh (2002:277) has defined Tourism Information Systems as "a set of electronic tools that have the ability to collect, store, retrieve, transform and display spatial data for a part of the Earth's surface." Selamat , Selamat, Othman and Shamsuddin (2012:28) define Tourism Information Systems as "a computerized system capable of capturing, storing, verifying, merging, manipulating, analyzing and displaying data in digital form relating to a position from the Earth's surface".

The Tourist Information Systems are composed of the material entity hardware and the software, data and user programs, which provide information, time and effort and access to accurate results in a very short period of time and its dependence on aerial and satellite images and topographic maps for tourism, tourist attractions, characteristics, supply and demand, and the use of multi-purpose maps (Amira, 2011).

In spite of the importance of Information Systems in activating the tourism sector, there are many obstacles that are negatively impacting the implementation of this system. Kibarah (2002), has pointed out that the application of Information Systems in the tourism sector faces many obstacles, the lack of standards for applications and maps, the linking and integration of information and finally the lack of specialists in the field of information modeling, applications and information management.

Ibrahim and Kuta (2015) indicate that the barriers to the use of Information Systems are:

1- Lack of qualified employees. The use of Information Systems requires a high level of efficiency, professionalism, academic and practical qualification in order to used technology effectively.
2- Lack of the required data by these Information Systems is one of the biggest problems facing GIS users not only in developing countries, but also in developed countries of the world. Because obtaining the required data in digital format remains a major problem since it relates to security and confidentiality issues.
3- The high cost of using Information Systems: It requires a large amount of money because of the high cost of the technical equipment, which made reliance on modern systems of Information Systems relatively little.
4- Lack of awareness of the decision makers of the importance of Information Systems, as reflected negatively on the development of legislation that encourage the use of Information Systems in different institutions.

Due to the importance of the technical investment in the tourism sector and the technical difficulties, a number of studies have been carried out, which aim to investigate the obstacles of using the Information Systems in the tourism sector. Awad (2010) sought to identify the obstacles to the application of Geographic Information Systems in the municipalities of the Gaza Strip, where the questionnaire was applied to a sample of (136). The results indicated that the obstacles were in the data currently available in the municipalities, and lack of community awareness and culture, a lack of equipment and use in municipalities, poor applications in municipal programs, and a lack of support from senior management.

Bazazu (2010) sought to investigate the effectiveness of electronic marketing using the ARCGIS9.2 software, which has been applied to Medical Tourism sites in Jordan. The results showed the importance of using Geographic Information Systems in rehabilitating the use and management of therapeutic Tourism. This is due to the ability of Geographic Information Systems to solve many problems which are faced by medical Tourism in Jordan.

Walker (2005) aimed to explore the role of Information Systems in stimulating the tourism sector by following the theoretical literature. The study concluded that it was necessary to adopt the term "GIS" by the developers of systems, and by marketing specialists. This development needs to take into account the nature of the marketing system based on this system and the need to convince decision makers of the importance of Information Systems in the tourism sector.

Despite the importance of Tourism Information Systems in activating the tourism sector, as well as the results of many studies (Awad, 2010; Pacey, 2005; Otawa, 2004), there are still many obstacles facing the application of Information Systems in general and the tourism sector in particular. This study resolved to identify the obstacles to the use of Tourism Information Systems from the point of view of workers in the tourism sector.

In reviewing the previous studies, the importance of Geographic Information Systems in activating the tourism sector, as well as the nature of the obstacles facing the application of these systems in the tourism sector was unpacked. This study is a complementary step to previous studies in the context of identifying the difficulties facing the application of information systems in the Tourism Sector.

This study aimed to investigate the obstacles using Tourism Information Systems from the point of view of tourism sector employees, in addition to identifying the differences in the opinions of the sample members according to different variables (gender, qualification and job title).

The study aimed to answer the following questions:

1- What are the obstacles of using the Tourism Information Systems from the point of view of workers in the tourism sector?
2- Are there significant statistical differences ($0.05 \geq \alpha$) in using the Tourism Information Systems from the point of view of workers in the tourism sector due to the following variables: gender variables, educational qualification and job title?

Importance of the Study

This study will hopefully contribute to the following:

1- Provide an information base for decision makers in the Ministry of Tourism that may help those who are aware of the nature of the obstacles that prevent the use of Tourism Information Systems in the tourism sector
2- Provide feedback to the programmer's in-service training in the development of training programs to qualify workers in the Tourism Sector to use the Tourism Information System efficiently.

Definition and clarification of terms used

The study includes the following terms:

Obstacles: Difficulties preventing the use of Information Systems in the tourism sector, and measured by the questionnaire prepared for this purpose.

Tourist Information Systems: A computerized system based on the computer to store, update, manipulate, analyze and display these data relating to tourist places in the form of maps, reports and drawings (Tyler, 2007:23).

Tourism: The set of relationships and services associated with the change of place is temporary and automatic, not for commercial or professional reasons (Obaidat, 2006:17).

GIS: A science for collecting, introducing, processing, analyzing, presenting, and producing geographic and descriptive information for specific purposes (Dr. Mohammed Yacoub Mohamed Said).

Study Limits

Human limits: This study was limited to a sample of workers in the health sector in the Northern Governorates.

Spatial boundaries: The study was applied in the tourist sites of the Northern Governorates of the Hashemite Kingdom of Jordan (Irbid, Jerash and Ajloun).

Time limits: The study was implemented in 2015/2016.
The generalization of the results of the study was limited to the tool used in this study to investigate the obstacles of using Tourist Information Systems from the workers point of view of in the tourism sector.

Methodology

The present study followed an analytical descriptive approach, which is a method that studies a phenomenon, event or issue that is currently available, where the information can be obtained and answers the study questions without the researcher's intervention.

Population of the Study

The study population was be from the health sector in the Governorates of the North for 2015-2016. (90) Employees (males/females) were distributed in three directorates: Ajloun (20) employees (male/female), Jarash (30) employees (males/females), and Irbid (40) employees (males/females). A sample of 77 employees was selected, and the questionnaire was applied to them. After that, 7 questionnaires were excluded because they were not valid for the study. Thus, the sample of the study became 70 employees. Table (1) shows the distribution of the sample members according to their variables.

Table 1: Frequency and Percentages by Study Variables

	Categories	NO	%
Gender	Male	47	0.67
	Female	23	0.33
Educational qualification	Bachelor	51	0.73
	Master or higher	19	0.27
Experience	Less than 5 years	22	0.31
	6-10 years	28	0.40
	More than 10 years	20	0.29
	Total	**70**	**100.0**

Tools of the Study

In order to achieve the objectives of the study, the researcher developed a questionnaire on Obstacles, where the development of the study tool was based on a number of previous studies related to the subject and references to the relevant literature, and taking the views of arbitrators and educators. Thus, 25 articles were formulated in three areas as follows (administrative and physical Obstacles, obstacles related to qualified cadres and obstacles related to the tourism information system) in accordance with the a five point Likert scale.

Validity of the Study

In order to verify the validity of the study tool, the researcher adopted the method of verifying the content. The researcher presented the study tool in its preliminary form to (8) PhD holders in the fields of technology, Tourism and Information Systems in Jordanian public universities. The researcher asked the arbitrators to offer their observations and opinions on the validity of these items of the purpose for which they were prepared, the appropriateness of each item of the field in which they were placed, and the addition or deletion of any items they may have found to be appropriate or inappropriate. The linguistic formulations proposed by the arbitrators were all amended.

Scale Reliability

In order to ensure the reliability of the study instrument, the test-retest was verified by applying the scale and reapplying it after two weeks to a group outside the study sample of (25) employees. Therefore, the Pearson correlation coefficient was calculated between their estimates at both times. (0.84). The reliability coefficient was also calculated in the internal consistency method according to the equation of Cronbach Alpha (0.80). These values were considered appropriate for the purposes of this study.

Statistical Processing

The following statistical analyzes were used to answer the study questions:

1. To answer the first question, the averages and the total of the instrument domain were calculated.
2. To answer the second question, the effect of gender, scientific qualification and experience was calculated by using ANOVA (the standard test) as shown in Table (2).

Table 2.Triple scale

From 1.00-less than 2.33	Low
From 2.33-less than 3.66	Medium
From 3.66-less than 5.00	High

Results of the Study

The aim of this study was to identify the obstacles using the Tourism Information Systems from the point of view of workers in the tourism sector and their relation to the following variables: gender, educational qualification and experience. The following results according to the study questions:

The First Question:

What are the obstacles encountered in using Tourism Information Systems from the point of view of workers in the tourism sector?

To answer this question, the averages and standard deviations of teaching competencies for secondary school teachers were calculated according to the fundamentals of cognitive economics. As shown in table (3).

Table 3:The average of obstacles and standard deviation of using Tourism Information Systems from the workers point of view in the Tourism Sector are ranked in descending order according to averages for the total and each domain.

Rank	No	Domain	Average	Standard deviation	Possession degree
1	1	Obstacles related to administrative and material aspects.	4.02	0.369	High
2	2	Obstacles related to the Tourist Information System.	3.98	0.543	High
3	3	Obstacles related to qualified employees	3.85	0.628	High
		Total	**3.95**	**0.423**	**High**

Table (3) shows that the averages ranged between (3.85-4.02), where the Obstacles related to the administrative and material side ranked first with the highest average of (4.02), while the obstacles related to qualified employees in the last rank with an average of (3.85), And the total average of the instrument (3.95).

The averages and the standard deviations of the estimates of the study sample were calculated separately for each domain, as follows:

The first domain: obstacles related to administrative and material aspects

Table 4:The average of obstacles and standard deviation of Obstacles related to administrative and material aspects are ranked in descending order according to averages for the total and each domain

Rank	No	Domain	Average	Standard deviation	Possession degree
1	6	Some restrictions imposed by security considerations hinder the acquisition of a high-quality image of satellites needed for Tourism Information Systems.	4.18	0.570	High
2	3	Lack of administrative support and legislation related to the application of Information Systems.	4.13	0.739	High

3	1	The difficulty of some officials to understand the role of Tourism Information Systems in the development of the tourism sector.	4.08	0.707	High
4	4	Poor coordination between the operators of the tourism sector impedes the application of tourist Information Systems.	4.05	.785	High
5	7	Weak infrastructure impedes the effective application of Tourist Information Systems.	4.01	0.805	High
6	8	The weak financial resources of the Ministry of Tourism prevent the effective building of the Tourist Information System.	3.98	0.774	High
7	2	Lack of hardware and software required to implement tourist information systems.	3.90	0.846	High
8	9	The lack of maintenance services for electronic devices periodically reduces the opportunities for applying Tourist Information Systems.	3.88	0.829	High
9	5	Lack of a specialized body to supervise Tourist Information Systems.	3.86	0.799	High
		Total	**4.02**	**423**	**High**

Table (4) shows that the averages ranged between (3.86-4.18), where item (6), which states that "some restrictions imposed by security considerations hinder the acquisition of high-quality satellite image necessary for Tourism Information Systems" in the first place with an average of 4.18, while item (5) states that: "There is no specialized body to supervise Tourist Information Systems." With an average of 3.85. The total average for the domain was 4.02.

The second domain: Obstacles related to qualified cadres

Table 5: The average and standard deviation of Obstacles related to qualified employees are ranked in descending order according to averages

Rank	No	Domain	Average	Standard deviation	Possession degree
1	1	Lack of availability of employees specialized in Tourism Information Systems.	4.07	0.577	High
2	4	Weak academic and field qualification to deal with Tourist Information Systems.	4.01	0.674	High
3	7	Poor English language proficiency is an Obstacle to the use of Tourist Information Systems.	3.92	0.796	High
4	8	Lack of incentives to encourage employees to use Tourist Information Systems.	3.86	0.821	High
5	2	Lack of training programs aimed at Tourism professionals to increase their professional competence in the use of Tourist Information Systems.	3.83	0.898	High
6	5	Some employees prefer the use of traditional methods in Tourism work.	3.77	0.840	High
7	6	The large number of businesses assigned to the	3.72	0.791	High

		Tourism Sector prevents the use of Tourist Information Systems.			
8	3	Some employees are concerned about the use of Tourist Information Systems.	3.64	1.134	High
		Total	**3.85**	**0.628**	**High**

Table (5) shows that the averages ranged between (3.64-4.07). Paragraph (1) stated that "Lack of availability of employees specialized in Tourism Information Systems." In the first place with an average of (4.07), while paragraph (3), which states that "the fear of some workers from the use of Tourist Information Systems" at the last rank and an average of (3.64). The average for the whole domain was 3.85.

The third domain: obstacles related to the tourist information system

Table 6:The average and standard deviations of Obstacles related to the Tourist Information system are ranked descending according to averages

Rank	No	Domain	Average	Standard deviation	Possession degree
1	8	Relying on outdated data and maps prevents the system from being used effectively.	4.14	0.525	High
2	5	Weak communication with satellites, which reduces the effectiveness of Tourist Information Systems.	4.10	0.433	High
3	6	Limited to "SOFTWARE" programs, which reduces the chances of activating Tourist Information Systems.	4.07	0.721	High
4	2	Weak electronic archiving of Tourist Information.	4.03	0.652	High
5	4	Lack of a descriptive and spatial Tourism database, which reduces the possibility of benefiting from Tourist Information Systems.	3.98	0.819	High
6	3	Lack of availability of basic data for Tourism Information Systems "topographic, geological and hydrological plans.	3.93	0.841	High
7	1	Difficulty in using Tourist Information Systems technology.	3.84	0.703	High
8	7	The lack of data and Tourist maps in a digital format, which reduces the opportunities of benefiting from Tourist Information Systems.	3.75	1.011	High
		Total	**3.98**	**0.543**	**High**

Table (6) shows that the arithmetic averages ranged from 3.75-4.14. Domain (8) states that "reliance on outdated data and maps prevents effective use of the system." In the first place with an average of (4.14), while domain (7), "The lack of data and tourist maps in digital form of the opportunities of access to Tourist Information Systems" ranked last with an average of 3.75. The arithmetic mean for the field as a whole was 3.98.

The Second Question:

Are there significant statistical differences (0.05≥α) in Using the Tourism Information Systems from the point of view of workers in the tourism sector due to the following variables: gender variables, educational qualification and job title?

In order to answer this question, the average and standard deviations of the obstacles of Using Tourism Information Systems have been calculated from the point of view of workers in the tourism sector according to gender, qualification and experience variables.

Table 7:The average and standard deviations of Obstacles of Using tourist information systems from the point of view of workers in the Tourism Sector by gender, scientific qualification and experience variables

			Administrative and material aspects.	Qualified employees	Tourist information systems	Total
Gender	Male	A	4.03	3.95	4.01	4.00
		S	.312	.425	.681	.437
	Female	A	4.07	3.98	4.04	4.03
		S	.711	.421	.463	.428
Educational qualification	Bachelor	A	4.11	4.03	4.08	4.07
		S	.537	.629	.471	.365
	Higher Diploma or more	A	4.07	3.86	4.05	4.01
		S	.361	.717	.421	.423
Experience	5years or less	A	3.90	3.73	3.97	3.80
		S	.711	.840	.715	.336
	6-10 years	A	4.09	4.02	4.06	4.05
		S	.466	.583	.471	.421
	More than 10 years	A	4.12	4.05	4.5	4.20
		S	.430	.513	.427	.415

A = average   S= standard deviation

Table (7) shows an apparent discrepancy in the averages and standard deviations of the obstacles of Using of Tourism Information Systems from the workers point of view in the tourism sector because of the different categories of gender, qualifications and experience variables. Table (8) shows the significance of the statistical differences between the averages by Using the Analysis of Variance test ANOVA on the domains while Table (9) shows the analysis of the total Analysis of Variance test ANOVA.

Table 8:ANOVA test of the impact of gender, educational qualification and experience.

Source of variance	Domain	Sum of squares	Df	Mean squares	(F) value	Statistical analysis
Gender	Administrative and material aspects	.133	1	.133	.657	.412
	Qualified employees	.026	1	.026	.059	.725
	Tourist information systems	.326	1	.326	1.672	.169
Educational qualification	Administrative and material aspects	.176	1	.176	.823	.330
	Qualified employees	3.273	1	3.273	11.247	.000
	Tourist Information Systems	.097	1	.097	.453	.221
Experience	Administrative and material aspects	3.674	2	2.136	11.341	.000

	Qualified employees	2.877	2	1.445	5.871	.002
	Tourist Information Systems	5.160	2	2.178	10.322	.000
Error	Administrative and material aspects	11.345	67	.175		
	Qualified employees	14.985	67	.198		
	Tourist Information Systems	20.214	67	.317		
Total	Administrative and material aspects	19.445	69			
	Qualified employees	19.687	69			
	Tourist Information Systems	30.123	69			

Table (9) shows the following:

- There is no statistical significant differences (0.05=α) due to the impact of gender in all domains.

- There is no of statistical significant differences (0.05=α)) attributed to the impact of educational qualification in all domains except qualified employees.

- There is statistical significant differences (0.05=α) due to the impact of experience in domains, and to show statistical differences between statistical averages, the Schiffe test was used for post-Hoc, as shown in table (9).

Table 9:The results of Schiffe test for the Obstacles of Using Tourism Information Systems from the point of view of workers

			Average	Less than 5 years	6-10 years	More than 10 years
Administrative and material aspects	Less than 5 years		3.72			
	6-10years		3.91	0.21		
	more than 10 years		4.03	0.39*	0.19	
Qualified employees	Less than 5 years		3.66			
	6-10years		4.03	0.33		
	more than 10 years		4.10	0.56*	0.13	
Tourist Information Systems	Less than 5 years		3.98			
	6-10years		4.07	0.25		
	more than 10 years		4.11	0.23*	0.06	
Total	Less than 5 years		3.93			
	6-10years		4.05	0.39*		
	more than 10 years		4.11	0.44*	0.05	

*statistical significance at the level of significance (α≤0.05)

Table (9) shows:

- There are statistically significant differences (α≤0.05) between the category of) 5 years and less)and the category more than (10 years), and the differences in favor of the category more than (10 years), in domains .

- There were statistically significant differences (α≤0.05) between the category (5 years and less) on the one hand and each of the categories (6-10 years and more than 10 years), thus the differences were in favor of more than (10 years).

Findings and Recommendations

The results of this study show the following:

The averages ranged between (3.85-4.02), where the obstacles related to the administrative and material side ranked first with the highest average of (4.02), while the obstacles related to qualified employees in the last rank with an average of (3.85) (3.95). This means that the application of Obstacles Tourist Information Systems from the point of view of workers in the Tourism Sector is high. This may be due to the fact that the application of Tourist Information Systems requires providing a management environment and qualified employees capable of implementing such a System in the tourism sector. In addition, the application requires enormous financial and technical capabilities. Thus, this imposes a heavy cost on the Ministry of Tourism. This is similar to the findings of Awad (2010), which showed that the Obstacles of Information Systems are the lack of equipment used in municipalities, the weakness of applications in municipal programs, and the lack of support of senior management.

While The results of the study are in line with the findings of Ibrahim and Kuta (2015), which showed that the lack of qualified staff, lack of data and high cost are the main Obstacles of Information Systems. The results show that there were no statistical significant differences (α≤0.05) according to the impact of gender in all domains. Also the results indicated that there were statistical significant differences (α≤0.05) due to the effect of the educational qualification in the field of qualified cadres. The differences were in favor of the bachelor's degree. This may be due to the fact that BSc students have received specialized courses in Information Systems rather than higher diploma courses, which are often more administrative than academic qualifications. In addition, the results indicated that there are differences in all domains of highly experienced people, mainly because they are more aware of the handicaps because of their long experience.

In the light of the previous results, the researcher recommends the following:

1- The necessity of holding training courses to qualify the employees in the Tourism Sector to Use Tourist Information Systems.

2- The need to monitor the financial and technical capabilities to support and provide the Ministry of Tourism with modern devices and activate their use to revitalize the Tourism Sector and develop it

3- Taking into consideration the list of constraints included in the questionnaire of the current study and work to find appropriate solutions to them.

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