

Marketing the Therapeutic Tourist Sites in Jordan Using Geographic Information System

Ibrahim Kahlil Bazazo
Head of the Department of Travel and Tourism,
Faculty of Tourism and Hospitality, The University of Jordan, Aqaba

Omar Abedalla Alananzeh
Department of Hotel Management, Faculty of Tourism and Hotel Management, Yarmouk University, Jordan

Aymen Abed Alkareem Taani
Department of History and Geography, College of Arts, Al-Hussein Bin Talal University

Abstract

In light of the growing demand on therapeutic tourism that has become a very important element in the creation of the tourism, economic and social development domestically and internationally. It is also a significant economic resource, particularly, to the States with limited resources. This study came to rehabilitate a successful means in the field of e-tourism marketing using the Geographic Information System (GIS). Moreover, tackling a practical example through using the (GIS) in marketing of the therapeutic tourism websites in Jordan in this study has also enhanced its important.

Keywords: Geographic Information System (GIS), Spatial Decision Support System (SDSS), E-Marketing, E-Tourism, Jordan.

1. The Study Problem: The study tries to unveil elements of therapeutic tourism in Jordan, and maneuvers to plan, manage and market the using of the (GIS) through erecting a geographic database, which therapeutic tourism in Jordan will be marketed, exploited and developed soundly. The study intend to answer the confusion that arises in joining management of therapeutic touristic websites with the Geographic Information Systems so as to, benefit the sustainable tourism marketing from the outputs of the GIS that exists on the tourism websites through achieving the required objectives and raise its effectiveness. Furthermore, the study intends to benefit from the advantage of the GIS through establishing a proposed system so as to market the therapeutic tourist websites for meeting the increasing demands on them, as the usage of (GIS's) multi-technique provide the optimal management of e-marketing for the tourism websites.

The Study Basically Answers the following Questions:

Mainly, how to rehabilitate the e-touristic marketing system on the therapeutic websites in order to develop the touristic service that provided to tourists via using the geographic information systems?

Upon which, the following Questions Arose:

1. What are the inputs that shall be available to build an integrated database for the study?
2. Could the therapeutic touristic websites be marketed via using the outcomes of the GIS?
3. How to join the tourist therapeutics' needs with the outputs of the GIS in such away, to maximize the effectiveness of e-marketing of the therapeutic tourism?

2. Importance of the study

The scientific importance of this study embodied in benefiting from the applications of GIS in the marketing of therapeutic tourist websites through designing a proposed practical model for applying GIS in marketing and developing the therapeutic websites.

3. Rationales

- 1.Lack of studies on e-touristic marketing that using the GIS.
- 2.Importance of tourism in the National Income forms 14.7% of Gross Income.
- 3.Efficiency of using the GIS in marketing of tourist websites, thus connecting all relevant descriptive data i.e. location, services and prices together.
- 4.Database related to the touristic websites, is primarily spatial data, and is also linked to specific geographic locations, which is of the geographic information systems' specialization.
- 5.The geographic information systems' efficiently dealing with the numerous types of data, such as, reports, statistics, figures and maps, which give a kind of accuracy on the outputs of the system.
- 6.The expected results of the system depend on the geographic analysis operations for specific websites, which is available in the GIS.
- 7.Using the new GIS as an important marketing tool that compelled marketing and sales manager at the

touristic and hotel companies to change their techniques and strategies of marketing & ads campaigns. The new technique inevitably enable the touristic and hotel companies to maximize the areas of marketing, regardless of their size, their competition, and it keeps them in direct touch with the tourists.

4. Literature Review

Mostly studies tackled marketing of therapeutic touristic websites have been characterized by studying the traditional aspects of the marketing process (Bazazo, Alanazeh & Alshawagfih, 2016, Bazazo & Alanazeh, 2016), but studies related to the marketing of therapeutic touristic websites characterized by using the in question GIS, are still few, of which Harmsworth, GR, 2006 study, under the title "Applications of Geographic Information Systems in tourism marketing and how to benefit from the advantage of the GIS in marketing of tourist websites in New-Zealand". The study presented the following outputs: the importance of the GIS in tourism marketing, the possibility of using these systems in performing various analyzes as well. (1)

Examples studies that dealt with applications of GIS in managing resources of tourism, and marketing them using the GIS, which was conducted by "Walker, D. 2005", where the researcher confirms in his study that it is necessary to widely adopt the term "GIS" by specialists and systems developers. This development requires accordingly taking the nature of the marketing system, and convincing the decision makers of the importance of the GIS in tourism marketing. (2)

This study completes the past studies, and tries to build applicable model to use the GIS technology in tourism marketing via applying it on the therapeutic tourism in Jordan .

5. Methodology

The study has combined the theoretical and practical approaches, as it includes a theoretical approach that tackles the concepts of marketing therapeutic tourism websites using GIS, and practical approach that shares preparing of an integrated database that mostly includes all elements of therapy in Jordan. This also requires joining more than one approach at a time, such as cognitive approach and conceptual approach in order to highlight the personal regional of the tourist websites in accordance to above mentioned approaches. The methodology of building a geographic database relevant to the study shall include the following stages:

First Stage: collecting information and data of the study.

Second Stage: introducing the geographical data and its descriptive information, and then building its database.

Third Stage: managing and processing databases on the GIS.

Software Program Used in Designing the Proposed System:

The System that is posed by the researcher using designed program "ARCGIS 9.2," was equipped with all layers of the proposed system through this programming. Thus, the system was uploaded on the internet through the "ARCIMS 9.2" program that is used for disseminating the geographic data via domestic network, where the tourism staff can see through accessing all the details of the geographical databases, or a global internet that can be seen by tourists in the entire world via the internet, mobiles and wireless devices. (3)

The Internet Map Server acronym is, (IMS i.e. internet map server), the researcher considered the word "server", and he/she didn't use the word servant or retainer as in the dictionary. Consequently, websites can be built on the internet through this technique, which basically market the tourism websites and their natural and human resources of hotels, tourism offices and car rental companies. The latest version of this program is ARCIMS 9.3, which is considered one of the components of the ESRI ARCGIS package. Thus, the ARCIMS program of ESRI co. is of the best, used and specialized program in marketing of tourisms websites, as it disseminates GIS data via the Internet, hence allowing easily access the data in the entire world.

The server ARCIMS works as a central system provided with (geographic data) maps, databases, and all applications of tourism on the one hand, and as internet server on the other hand. It also deals with several types of internet servers, such as IIS, Apache and Planet. The ARCIMS server can link multi-sources and geographic data with more than a tourism websites locally or globally, for example, we can bring the already "base map" stored on a company computers, and then put it over the tracks or hotels that are stored in a tourism company's computer in other State. (4)

Differences between the Adopted and Traditional Means in Using the GIS to market the Therapeutic Tourist Websites:

Recently, the world witnessed a shift as a result of IT that has great effects on the profession of tourism marketing, which itself witnessed a remarkable changes in its nature, opportunities and problems that might hinder its success & accomplishment. Moreover, marketing functions were transferred to a new concept, and took a more effective shape due to technology as they started using the GIS, but without excluding or denying the traditional marketing theories as they benefited them through finding solutions to their problems.

Tourism marketing sector started to use the GIS in amazing speed in the developed world, especially, as it was able to expand the market, and to increase its share of tourism establishments by 3-22%. This kind of

marketing also gives the opportunity to exhibit tourism product via e-mail to the tourists, and to provide all other tourism, human and natural resources for the potential tourists via the website. Besides, the tourists access their needs and choose from among the products of international companies, regardless of their geographical locations, particularly, as this type of marketing doesn't know geographical borders, as is the case in the traditional methods used in tourism marketing.

There is a series of important things that shall be taken into account by people or bodies operating in marketing through geographic information systems in order to achieve the desired success of this process, these things are represented in the good usage of the tools used in marketing, a clear vision of the targeted markets and managing the relation with the tourists. Moreover, marketing through GIS needs a good management and clear plans to combat the ongoing changes in the local or international markets, as marketing itself is a tough business that needs professionals & specialists.

The GIS' applications in tourism marketing are limited worldwide, but modern technology "internet", has given good opportunities for the systems to market the tourism websites on-Line. So many applications of the tourism marketing were born when the GIS technologies and the Internet were integrated, both the demand and supply of tourism, and planning for marketing in terms of identifying the tourists and the places they have come from, and other competitive tourism websites. ⁽⁶⁾

Pune Gardner, J. 2007, believes that the e-tourism marketing depends largely on the availability of information and systems to analyze and display them using the GIS via maps, which is also called interactive maps "virtual map" that in a click, one can identify multi-features of tourism therapeutic websites ⁽⁷⁾. Gibson, C. 2006 also confirms that the rapid and great development of tourism industry using the geographic information system besides cancelling some laws restricting freedom of movement will accelerate the variables that take place on this industry. ⁽⁸⁾

Applying GIS in the Tourism Demand and Supply Sides

The GIS in the tourism Demand Side can be used as Market Mapping, as tourism markets might be local, regional or international, and their division might be geographic and/or demographic, psychological or even behavioral factors. Thus, through the Market Mapping, a large variety of markets might be identified to meet the very many needs and desires of tourists in a large geographical scale. Generally, the GIS is able to answer the following questions:

First: Where Do the Tourists Live? And what are Their Main Interests?

Harmsworth, GR 2006, said that analyzing the qualities of the tourists is not easy task. Thus, understanding their desires requires acquiring data about tourists e.g. their places of origin, and data on their life. The GIS technology can take this role through linking tourists lists acquired from the Ministry of Tourism and Antiquities or the Central Bureau of General Statistics with their geography by using the GIS, where those lists to be put in the geographic database, besides, linking the demographic data on tourists with their geographical locations on the map. This way saves time, effort and cost in the process of scanning tourism movement through knowing places of tourists, their income and jobs, age, education, social status, purchases and their activities. ⁽⁹⁾

Second: What is the ratio Expected from the International Tourism Market of a Proposed Tourism offer in the International Markets?

The GIS techniques provide us with the ability to accomplish special maps for the distributors and competitors, and to identify the distribution outlets elsewhere in the region. Jordan, G. 2003, has developed a model based on using the geographic information systems, to determine the size and spatial relations among the tourist websites in Canada through the availability of data on the number of residents from where the tourists come from, and the % of each tourism website of the total number of tourists, and to predict the % of this website from the market in case any of the above factors changed. ⁽¹⁰⁾

Third: Where shall Representative Tourist Offices globally be Located? Shall the Existing Ones Be Expanded?

The GIS technique provides a wide overview and wide geographical distribution of representative tourism offices on the map of the world. Objectives of the representation offices of tourism concentrate on spreading awareness about the tourism product, and increasing the number of travel and tourism companies that sell the tourism goods in Jordan as a tourist destination, besides, practicing media campaigns and monitoring their implementation and their feedback.

Through the geographic information systems, the achieved map characterized of flexibility and easy to use, it also contains significant information. As it markets the tourism websites, it might determine the following elements: tourism attractions, the geographical distribution of tourism services within the website, climate information and streets. This information is displayed in attractive way using image, sound, and action. Through these maps, one can identify the types of transportation, the shortcut roads to reach the attractive sites, travel agencies and health services, hospitals, police stations, and shopping centers.

Through using ARCMIS technology to market tourist therapeutic sites in Jordan, 3 Dimensions, and satellite images can be maximized, minimized and turned down and over. There are also sophisticated tools that

allow identifying the tourist routes for any tourist website, besides the very many other advantages. (11)
A number of other means can be used in marketing therapeutic tourism websites - see figure (1) - which operates through GIS software, such as:

1. Personal Digital Assistant Handled Computers (PDA), of which:
 2. Map View Display (MVD).
 3. List View Display (LVD).
- Mobile Phone Service VIA (GPRS).

Figure (1)



Devices operate via GIS software

Layers of Data Contained in the Proposed System for Marketing of Therapeutic Tourist Websites:

The tourist map of the therapeutic tourism websites, which is used in tourism marketing includes a number of layers, where the layers contain all natural and human resources. ARCIMS software enable us to make various analyzes on the map. Each feature on the map is linked with Attribute Data, which include information describing the Spatial Data. And the Attribute Data is linked with the Spatial Data via Encoding. Identifying the objective of the required database, besides what is needed to be achieved is of an important role to know the kind of the required data, and the form of outputs. Through the database, "tourist on the map", we can inquire which tourism activities do the users and tourists want. The tourist database includes a number of tables, which tackles the hospitals and natural therapeutic websites.

Through the proposed system, tourists can open the hyperlink of any therapeutic website through an "Identify" tool. As for the field Price, it represents the minimum price of time being in the therapeutic websites. The field can be used in search the price, where the system selects the therapeutic websites that suits the tourist. (12)

Analytical Process Presented by the Proposed System for Marketing Tourism Therapeutic Websites

There is a set of information, such as, input, processing, management, query and analysis that the proposed system can provide accurately and permanently regardless of the time and place. This can be done while tourist is on the International Network for Information "Internet". The proposed system is easy to use.

Among the services that the system provides:

Identifying Specific Feature


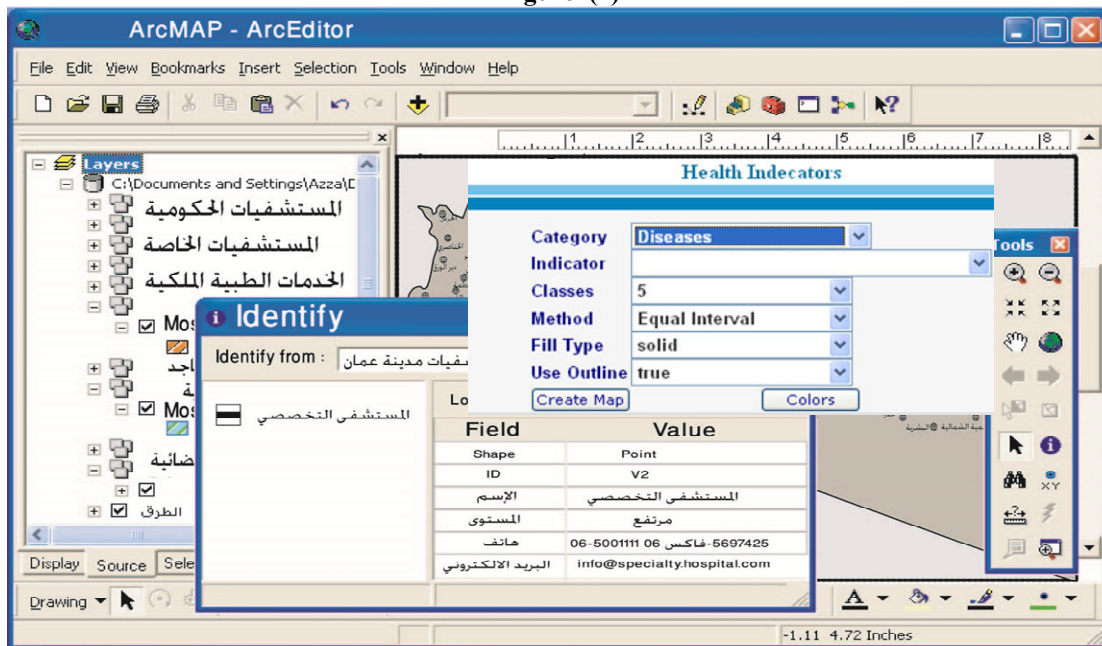
When clicking at any Feature on the tourist map using  tool, a figure contains the name of the landmark or the phenomena, its type and the address (ID), as figure (2) shows.

Figure (2)



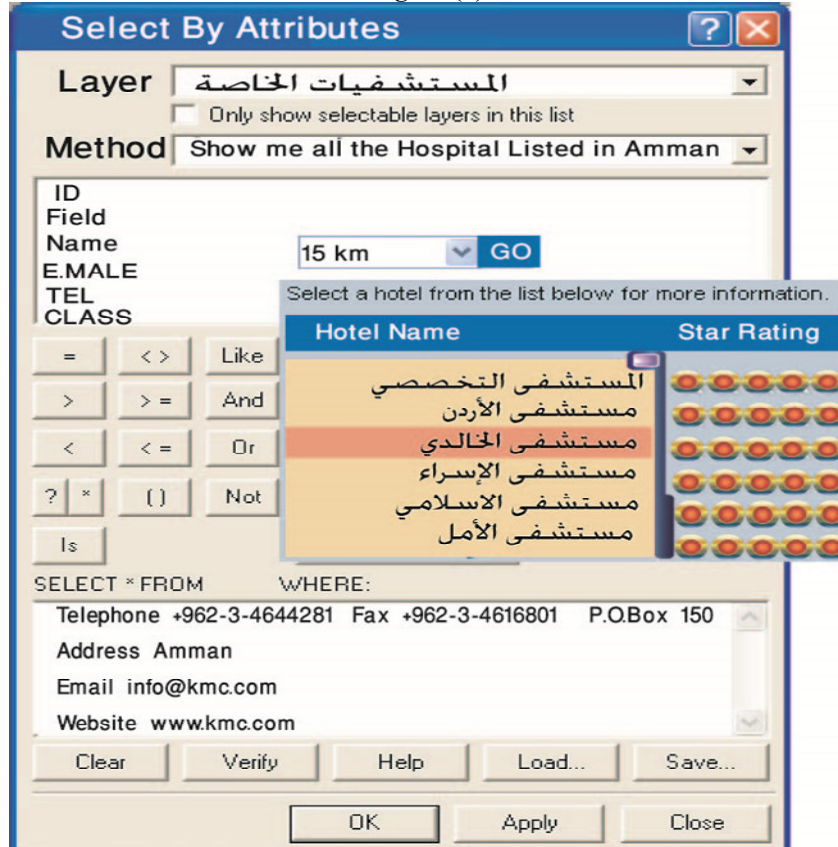
Source: by the researcher, depending on using of ARCGIS9. 2 Software

Defining a particular feature via the proposed system for the marketing of therapeutic tourism sites

Defining the Feature under Certain Condition

The proposed system for marketing therapeutic websites provide the tourist a chance to search for therapeutic tourist websites with a certain price or particular tourism rating, such as, searching for high rated hospitals or hospitals with a certain price, as figure (3) shows. The search could be based on the name or type.

Figure (3)



Source: by the researcher, depending on using of ARCGIS9. 2 Software

Searching by name via the proposed system

Searching for address of a desired therapeutic tourist website can be made in the same last way, either by name, address or price as well as the possibility to inquire on the various natural and human resources for marketing of the therapeutic tourism websites. Moreover, it provides us with the possibility to access the tourism activities, accompanied by written data, photos and live video clips, which have a website on the internet, where the tourist can make e-booking directly via the hyperlink, as shown by figure (4)

Figure (4)

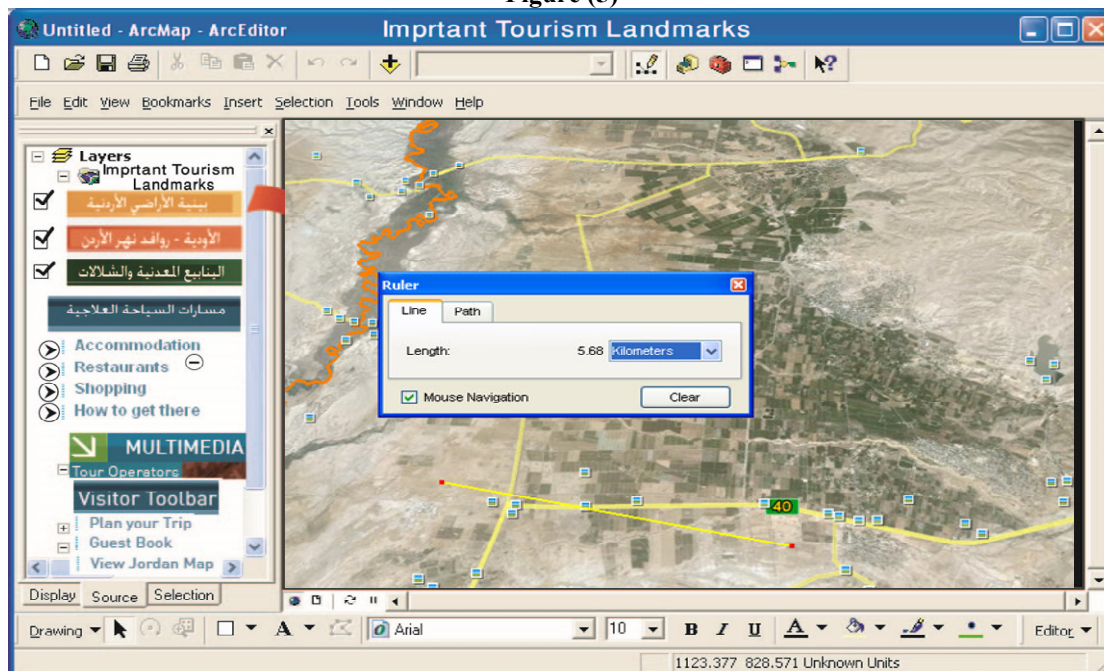


Source: by the researcher, depending on using of ARCGIS9. 2 Software

Proximity Analysis:

Proximity for a certain feature is determined by another feature, Figure (5) shows proximity applied on more than one Information Layer ◯ Analysis Overlay, that means a hospital can be chosen from the Informative Layer of the hospitals, then clicking the system can specify the closest hotel to that hospital, thus the system analyzed more than one layer to get to the required information. See figure (5)

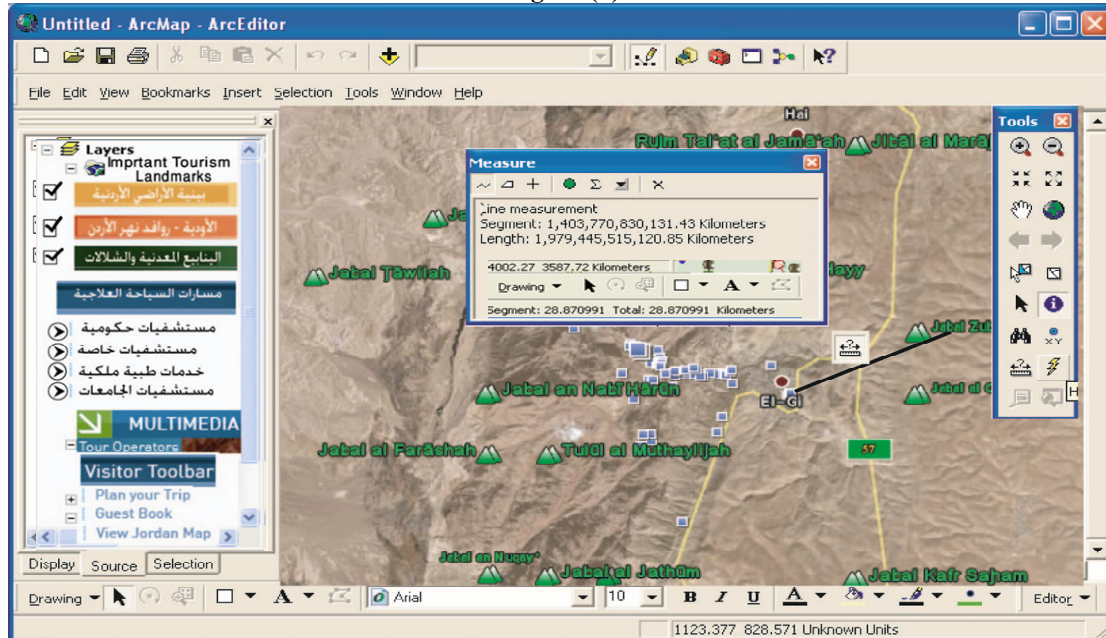
Figure (5)



Source: by the researcher, depending on using of ARCGIS9. 2 Software
Network Analysis and finding the shortcut net between two features.

This can be made via using the Add Edge Flag Tool, where the a Flag is put in place you intend to move, then another Flag to the place you intend to shift, and then select a tool Solve, then the system will draw net between the two websites, it also possible to choose a net under certain conditions as asking the system to choose the nearest or quickest net between 2 features. See figure (6), this also can be carried out via the tool Measure. Thus the distance on the screen appears as follows:

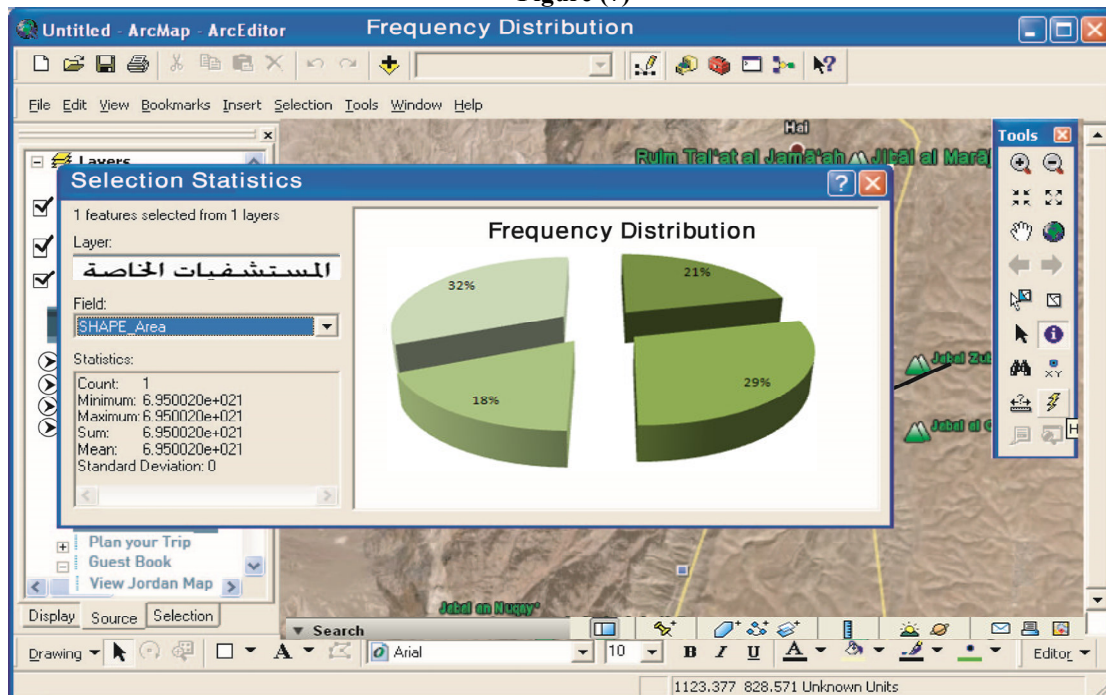
Figure (6)



Source: by the researcher, depending on using of ARCGIS9. 2 Software

The proposed system enables doing some statistical operations, such as, counting the number of hospitals that follow a specific classification via the tool "count", the minimum & maximum as well as the total "sum", "average", "standard deviation" or "x" field from the table multiple it by tool "I" then adding it to tool N, and finally giving the result in a new field, with a name for the total area, and with the ability to show that in tables as in figure (7)

Figure (7)



Source: by the researcher, depending on using of ARCGIS9. 2 Software
 Statistical operations carried out by the proposed system

Zooming can be made on any place of the tourist map using the Magnifier as this tool can enlarge the feature by 400%, as Figure (8) shows.

Figure (8)



Zooming possibility using Magnifier

Besides, zooming of the geographic features, simultaneous automatic amendment of the database & figures is made, and vice versa, see figure (9)

Figure (9)

OBJECTID	SHAPE	الموقع الجغرافي	اسم المستشفى	نمط المستشفى	البريد الالكتروني
2	Polygon	عمان	المستشفى التخصصي	خاص	info@specialty-hospital.com
3	Polygon	عمان	المستشفى الأردن	خاص	jorhos@jordan-hospital.com
4	Polygon	عمان	مستشفى الخالدي	خاص	info@kmc.jo
6	Polygon	عمان	مستشفى الحمادة	خاص	hamaidh@wanadoo.jo
14	Polygon	عمان	مستشفى الإبراء	خاص	essrahos.mang@yahoo.com
15	Polygon	عمان	المستشفى الاستشاري	خاص	cig@batelco.jo
16	Polygon	عمان	مستشفى الخنان	خاص	no e-mail address
17	Polygon	عمان	مستشفى الملكة علياء	عسكري	nfo@hamzahalhospital.com
18	Polygon	عمان	مستشفى الأمير حمزة	حكومي	nfo@istikiathospital.com
19	Polygon	عمان	مستشفى الأمل	خاص	alamal@nets.com.jo
20	Polygon	عمان	مستشفى الحياة	خاص	alhayat@wanadoo.jo
21	Polygon	عمان	مستشفى المدينة الطبية	عسكري	qs-hospital@gmail.com
22	Polygon	عمان	مستشفى ابن الهيثم	خاص	ihh_96@wanadoo.jo
23	Polygon	عمان	مستشفى الاستقلال	خاص	nfo@istikiathospital.com
24	Polygon	أردن	مستشفى أربد	خاص	info@irbids-hospital.com
25	Polygon	عمان	مستشفى الأهلي	خاص	no e-mail address
28	Polygon	العقبة	مستشفى الاسلامي بالعقبة	خاص	isha@cyberia.jo
29	Polygon	أردن	مستشفى النجاح	خاص	info@alnajah-hospital.com

Source: by the researcher, depending on using of ARCGIS9. 2 Software

Zooming possibility using geographic features

The proposed system enables us to show the tourism features, using Tips when stopping at one of the feature or landmark as its name or address or size is shown, depending and according to the tourist view, see Figure (10).

Figure (10)



Source: by the researcher, depending on using of ARCGIS9. 2 Software
 Mai'n Hot Springs appears using the tool Tips

Locate a Specific Feature

Using the tool Find, a dialogue table requesting the tourist to enter the feature he/she searches. After finding the feature, the system gives the tourist a group of selections such "Flash Feature" or "Select Feature" or "Zoom to Feature" or "Identify Feature" or "Unselect Feature." As shown by figure (11), which explains finding a feature on the map, as well "Select" it, and the "Zoom to Feature" as follow:

Figure (11)



Source: by the researcher, depending on using of ARCGIS9. 2 Software

6. Outcomes

It is recommended not to apply all GIS on all the Jordanian tourism websites simultaneously, but there has to be a obvious strategy to apply this system, where all bodies cooperate could provide support for designing and circulating the plans of those systems and features as researcher seen:

First: Specifying the tourist sites in Jordan so as to be shown on the tourist map.

Second: Specifying the useful text to be uploaded for each website on the Jordanian touristic websites.

Third: Designing the geographic database using GIS tourist for the Jordanian tourism websites.

Fourth: Proposing the designed system for each tourism site separately, or to all tourism sites in Jordan on the Internet using ARCIMS software.

Fifth: Providing Hard Copy of the system i.e. paper, maps and atlases for each tourism site or to the entire Jordan.

Sixth: Establishing a geographic information bank affiliated for each tourism site in order to providing all the up-to-date tourism data for any tourism site i.e. paper or digital maps with different scales, defined by all the natural, human, road and tourism resources.

1. Outcomes of the study showed the importance of using the GIS in rehabilitating and managing of the therapeutic tourism. As a result, the GIS could solve a lot of problems through practical examples that tackled using the GIS in marketing the therapeutic tourism in Jordan.
2. As the therapeutic tourism has environmental and economic importance, thus using the GIS in marketing them can help keeping their features, and benefiting of their economic importance.
3. Using traditional tools and methods in managing and marketing of therapeutic tourism sites needs plus effort and time if compared with the means used satellite and aerial images and topographic maps with high accuracy, but marketing using GIS combined the marketing thought and experience of using the computers and the GIS software.
4. The GIS function several tasks in the field of therapeutic tourism marketing sites via using audio-visual Multi-purpose Map as well as functioning various statistical and network analyze.
5. Applying the GIS in the marketing of therapeutic tourism sites, provides vast amounts of information, thus, it needs non-traditional methods in dealing with them. The study showed how important using the GIS.

7. Recommendations

1. To maximize depending on the GIS as a tool applied in all fields of managing and marketing of therapeutic tourism sites, as it possessed multi-technological features, and its ability to solve many difficult problems facing the planners.
2. To available suitable ground for the GIS, provide funding for computer automation, and to train manpower to deal with information technology IT.
3. To use the GIS in parallel with and intention to expand the use of remote technique, as this technique is considered as an important tool for the GIS, especially as the private satellite images represent the detailed photography base, which forms the first basic layer of the GIS.
4. To establish geographic information center (GIC) in the therapeutic tourism sites, and to provide it with digital and descriptive maps & information, thus the center can networking the organizations and websites electronically.
5. To put forward a systematic Terms of Reference for using the GIS in marketing of the therapeutic tourism in Jordan. The study also tried to create a clear methodology to apply the proposed system depending on the GIS technology so as to develop the therapeutic tourism websites.

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