WEB BASED INFORMATION SYSTEM FOR TOURISM RESORTS; A CASE STUDY FOR SIDE/ MANAVGAT

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ABSTRACT:

The internet is more and more emerging as a handy tool of traveling for the tourist industry. It presents a perfect platform that brings products and services to the customer. However, web based tourist information system provides not only on-line brochures, but provides both value and service. Information technology is having a big effect on all sectors of tourism. Tourists have problems to find what they are looking for, especially in reference to the geographic position of the object and its surroundings. In most cases, it is not satisfying to find a nice hotel without a reference to restaurants, sights or event locations located nearby. The study presented in this paper starts from the user needs, to present the tourism object in geographic context on interactive tourist maps supports planning for tourism, focusing on the analysis, decisions making and management using GIS technique and presenting the results on the internet.

1. INTRODUCTION

Touristic activities on the coastal lines have accelerated and the number of people participating has reached to more than 600 million a year. All over the world, getting maximum benefits from coastal zones, according to the concept of sustainable development is only possible by using management plans suitable for the characteristics of the area. Partnerships are becoming a very common; effective fast decision-making is possible using a geographic information system. During the last few years, the numbers of tourist sites / organizations that are using a Geographical Information System (GIS) have increased significantly. There are now many companies that are producing software and support specific to this industry. The tourist industry is now using GIS in many applications: interactive web-based maps, information kiosks, 3D hiking trail maps, analysis of current and potential customers, line of site analysis for new attractions and scenic bus routes, and much more. This only seems to be the tip of the iceberg for what the future holds in GIS technologies being implemented in the tourism industry.

2. CURRENT USES OF GIS IN THE TOURISM INDUSTRY

There are two categories for the use of a GIS system in tourism, public use and management use. The public wants to find geographic information about a place before they go there. They want to know where things are located, what amenities are available, what the climate is like, and be able to do site specific searches to find information. This can be achieved through Web-based GIS, or Information Kiosks located in key tourist areas. The other user of the GIS is the Management side; management may be done by individual operators, a tourism group, or by the local municipality. Management users want to query the system for where customers are coming from, their socio-economic backgrounds, and good potential locations for new tourist sites etc. One of the articles contains a list of general questions that public and management users may ask of a GIS system.

2.1 Study Area

As seen in figure 1, in this study Side at the Mediterranean coast of Turkey has been selected as study area. This area is one of the most popular and important tourism areas of Turkey. With its modern tourist facilities, Side is nowadays one of the liveliest towns on Turkey's southern coast. *The region situated between the "lake" and the sea contains many facilities. Titreyen Gol is not in reality an actual lake* According to Strabo, during the second half of the VII century B.C., Greek colonists from an Ionian city settled there. The area is excellent for mountain biking, trekking and cliff parachuting. Obtained results not only show that the problems still existing in the study area can be determined easily and systematically using by exposed GIS but also proved that GIS can be applied to these kinds of studies.

There are lots of historical monuments and natural resorts in this area. Photographs of several historical and natural examples also can be seen in the figure 2. There are also several holiday resorts lie around this town. East of Side, tucked in pine forests the holiday resorts of Sorgun, Titreyen Gol (Blue Flag) and Kizilagac are both popular for their sandy beaches and sparkling sea. The atmosphere is relaxed, the accommodation plentiful and the activities endless. West of Side, the holiday centers of Kumkoy, Colakli and Kamelya also offer sun and sea, in close proximity to ancient sites. In the Pamphlyian Seleucia, 15km northeast of Side, are the remains (in good condition) of Roman baths, temples, churches, a mausoleum, theatre and agora (Seker, 2002)

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Public User Questions	Management User Questions
Where is the city, state or country located?	What are the areas that tourists are interested in
What is the climate? Does it have warm or cold weather? What is the best time of year to visit?	What are the physical-geographic characteristics of those areas?
What is the official language	What are the accommodations available? What is their classification and categorization?
Where are the accommodations in the city located? What is their classification? What are their rates?	Where are the stops/stations of public transport facilities located
What kinds of public transportation are available? Where are rental car agencies located?	What are the demographic and socio-economic characteristics of the local population of each tourist space?
Where are the cultural/natural amenities located? What is their operation schedule? What is the cost to attend?	What are some plans, programs and projects that would help stimulate tourist activity.
What attractive places are near my hotel?	What infrastructure services are in current and potential tourist areas? Which is the service quality?
Where are the banks? Where is the police station? Where is the hospital?	What is the tourist demand for attractive places, tourist equipment, and services?
Where are the shopping centers?	What public and private institutions are available those are competent in tourism planning?

Table 1. Public and Management User's Questions

3. WEB-BASED GIS

With the World Wide Web, people have access to more tourism information than ever before. However, too much information from too many sources has caused an information overload. Accessing information on the Internet has become less a question of determining whether the information is out there, but rather, in what form, and how to find it.

The use of GIS and the Internet has changed the way organizations used geographic information, the processes of accessing, sharing disseminating and analysing data. Online GIS combines the advantage of both GIS and the internet. GIS has become more than an program since GIS is a visual and analytical tool and helps users to understand or visualize this information in a map and enables the users to manage these information interactively and analytically. The contributes to increase the use of GIS. Therefore, a web-based GIS can be built as a decision-making system in tourism. A web based touristic information system has been developed with the using of developing web technologies.

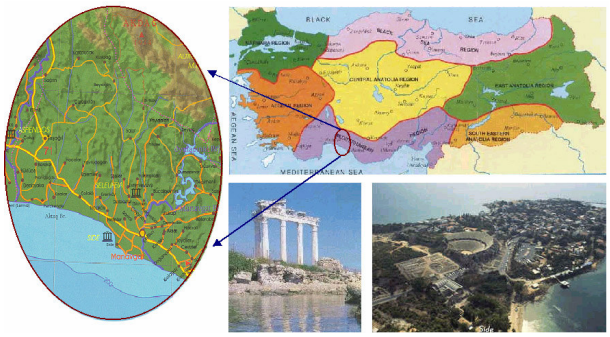

Figure 1. Study Area

Figure 2. Views from some natural and historical resorts

3.1 Phases of Study

In the first step, collect all natural, cultural and socioeconomic data concerning the study are to form a database. Second, data that regarding to study area are transfer into PC by scanner and digitizers and these data related with the database which is formed in the first step to constitute a skeleton of a tourism information system.

Third, obtain photos of the historical and cultural building, open areas and hotels to connect with the graphical data in the tourism information system. Fourth, prepare a software; which is devoted to the tourists query and a software that supply to tourist which uses tourism information system the easiest and the fastest by icons and signs.

Fifth, in this step of the study use required software to transform the tourism information system, which is formed with all literary, visual, graphical data, into a system can supply a query on internet. Sixth, to set up this system by relating the software-hardware and client-server.

Hardware contains; server, PC, digitizer, scanner, digital camera. Software contains; ArcView to join the data in the geographic information system, ArcView IMS (Internet Map Server) to broadcast the data on the internet.

3.2 Geographic Query

The integration of multiple technologies, including tourism information systems, Internet and Geographic Information System (GIS) has given an exciting new access to tourism information. As an information based society, tourists value systems and services that inform them about the location of touristic objects like hotels, restaurants, theatres, museums, skiing resorts, etc. This helps the tourist to find the most relevant accommodation or to locate the position of a specific tourist place. The existing tourism information systems do not reflect this requirement. For example, it is possible to search for

hotels in a city. This might be sufficient for small cities, but of course it will no deliver satisfying results for bigger cities, a more detailed location specification is needed.

A geographic search lets the tourist quickly search the database using geographic criteria. In the Tourism Information System of Side, a geographic search is a mixed query which combines tourism attributes and geographic criteria to search for "What is where?". Here "What": represents attributes of touristic objects "Where": represents the geographic space that the touristic place covered.

Some spatial analysis operations are needed to provide easy search operations to a tourist. These operations are geographic criterions like; nearness, distance and region. Nearness means; to search for nearest touristic object to given point. Distance is to find elements located within a specified distance to a given point. Region means; to search for objects located within a region marked on a map. A geographic search can be categorized into three different search types:

Type 1	Examples
Location of specific object	Show where the "Club Yek" is located Show the location of the "Perissa" hotel
Nearest object to a specific object	Which is the nearest hotel to " Aspendos" Which sight has the smallest distance to the "Bella" hotel Which is the nearest bus station to the "Penguen" hotel Which pharmacy is located next to the "Side museum"
All objects which don't exceed a definite distance to a specific object	Show all hotels which are located within a distance of 500 meter to the "Antik Theatre" Show all exchange office with in a distance of a 500 m to the "Asterya" hotel

Table 2. The Object Based Search, Which Enables The Search To Certain Tourist Objects.

Type 2	Examples
Search for objects in a city, region, etc.	Build a map with all hotels in "Side" Show all theatres in "Side"
Search for objects in a marked circle region	Show all hotels in the marked region Show all sights which are located in the marked region
Objects search within a distance to a desired location	Show all hotels which are located within a distance of 1 km to the point marked on the map Show all tourist information offices within a distance of 500 m to selected location

Table 3. Area Based Search, The Area Which Allows The Search For Objects In Geographic Relation

Type3	Examples
Combination of object search And area based search	Build a map with all 3-star hotels in the selected region Build a map with all 3-star hotels within a distance of 500 m to the selected location

Table 4. The Combination Of First Second Search Approach, Enlarged With Additional Objects Criteria Like Hotel Category And Availability.

3.3. Geographic Query Work Flow

The touristic information system including building road, touristic places, historical places, photos of hotels and the situation of these points for instance; the distance between hotel and the center of city or airport, the capacity of hotels, the number of stars of hotels, was collected from the maps and non-graphic data from municipality and internet.

To perform a geographic search for tourism objects, each tourism object needs a geographic representation. The geographic coordinates of tourism objects are stored in the GIS database.

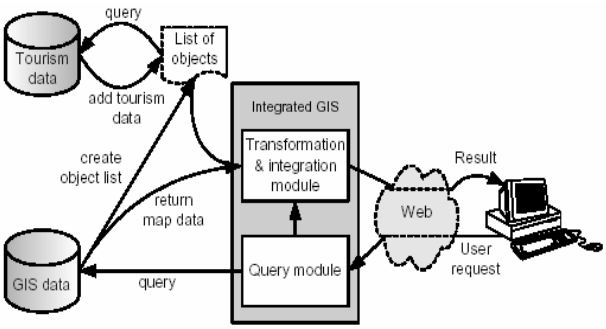

Figure 3. Geographic Query

This figure summarizes the workflow of the geographic query. The user performs a request, which is transmitted to the integrated GIS system. The GIS system queries the spatial database to get the map data and to create a list of tourism objects which are located in the queried area and fulfil the criteria. Each object returned will be completed with tourism data like object name, category of hotel, availability of hotel rooms, etc. Afterwards the transformation module converts the characteristics into the required representation. The transformation and integration module integrates the GIS data with the tourism data, identifies the layers, and defines the representation of the touristic objects (Mahajan, 2001).

3.4 Integrated GIS

When analysing the benefits of the GIS integration with internet, two different roles arise in the context of the user. Administration- To position objects onto a map, Application- To search for tourist objects The following figure shows the interaction of the user roles and the integrated GIS system.

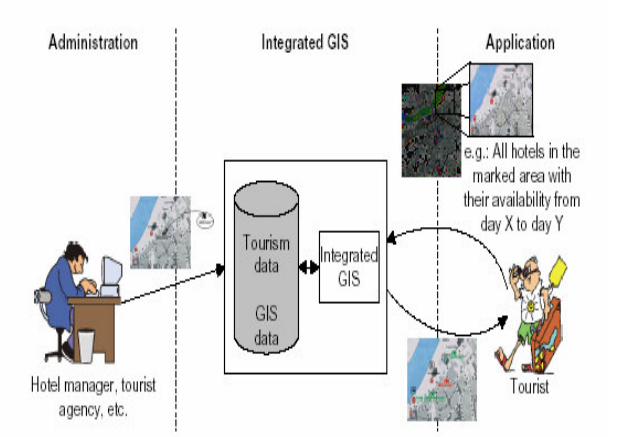

Figure 4. Interaction of User Roles and Integrated GIS System.

Administration- to position tourist objects (hotels, restaurants, sights, event location or other touristic objects) onto map. To integrate tourist information and GIS data, the location of each tourist object, to be integrated on to map has to be identified by geographic coordinate. All user can identify the object location of their objects by selecting the objects position on the map. After positioning the object, the geographical coordinates will be calculated by the GIS system and will be stored in the GIS database. At map creation the object will be represented on the map by means of a meaningful object symbol, the object name, the category if the object is an hotel. The object symbols are linked with the object homepages to enable further navigation.

Application-to search for tourist objects. On a functional view, the application uses a geographic search to perform complex geographic queries to search for tourist objects like hotels, restaurants, event location, etc. A thematic mapper is used to integrate tourism information and GIS data build tourist maps. A hotel search can be a time-based search and extends the map with availability information of rooms. To guarantee a sensible use, the user will have the possibility to zoom in 7 out to change the scale of the map, to scroll in the map and to print as well (Pühretmair, 2000).

4. CONCLUSION

Designing and marketing a geoinformation product requires an approach, which does not start from data collection methods but from he user's need: the geoinformation product must provide an information useful and valuable to the user. Content, appropriate data quality and presentation must meet the user's expectations. Most tourism information system still has backlogs in using new visualization capabilities. The approach described in this paper represents a new approach to integrate GIS data and tourism data on Web is implemented so many people can share the data. Dynamically generated, interactive tourist maps offer a variety of trend-setting functionalities like integration of vector shapes, images and text, high performance zooming and panning inside of graphics without reloading data, support of scripting languages in combination with the possibility of all related technologies. Tourist maps in information system offer a powerful, clear and user-friendly access to tourism data with great benefits for tourists and substantial advantages for tourism information systems because maps change from static raster graphics to interactive graphical representations allowing the presentation of the most extensive information possible thus satisfying the demands of the users.

When people serve and publish data on the Internet, other people can access and browse these data simultaneously. Because of this, GIS on the Web is an in expensive method for reaching a vast audience. Both offers the tourist more exact and more meaningful information to meet their quality claims (Cabuk).

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