Application of Geospatial Mashups in Web GIS for Tourism Development

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INTRODUCTION

Tourism is defined by the World Tourism Organisation *(NSCB, 2004),* as the act travelling for the purpose of recreation and the provision of services for this act. Currently, tourism industry is one of the fastest growing industries all over the world. This smokeless industry is basically a kind of service industry, as it renders service to the tourists and all other supporting industries related to tourism like, hotel industry, transport industry etc. This business involves many socio-economic activities like promotion and advertising tourist spots and destinations, providing effective transport facility, fooding-lodging, entertainment etc. At the same time when the tourism industry is flourishing it helps in socio-economic development of those tourist destinations. It also helps in strengthening the economical status of the country by earning foreign currencies without exporting national wealth. So, it is obvious that if this industry becomes more effective and efficient, it will definitely be the major source of revenue and will take a leading role in the overall economic development of the nation. Information and Communication Technology (ICT) can lead tourism to emerge as a new mantra for alternative economic development (Buhalis, 1998). Information Technology breaks the geographical boundaries so it is shared to the global audiences. Information Technology integrates between tourism product and requirement of the tourists. Due to changes in tourists or visitors behavior, the tourism market is becoming more segmented with each potential tourist belonging to a number of market segments (Cheng et al., 2002). Tourist operators need to be aware of these changes and be equipped to respond or better still, take a proactive approach. Technological revolution during 1990s brought with it new opportunities and challenges for the tourism industries. Technology has become fundamental to the ability of the global tourism industry to operate effectively and competitively. Information technology is being rapidly diffused throughout the tourism industry and that no player will escape from information technologies impacts. These technological innovations started in the 1970s when the main airlines set up CRSs (Computerized Reservation Systems), with the strategic aim of building a global distribution network for their products. Connecting travel agencies to the CRSs set off a process of distribution automation involving an ever-increasing number of tour operators, carriers, and car hire firms, individual hotels, hotel chains, and other hospitality firms. Geographical Information System, an ICT tool has been extensively used for tourism promotion and management. It was in use for GIS data design and collection, database design management and application of tourism analysis and problem solving. Currently, Internet has become the inseparable part of the Information and communication Technology. Online technologies within the tourism industry have significantly impacted on communications, transactions and relationships between the various industry operators and with

the customer, as well as between regulators and operators. The Internet provides many advantages in the tourism industry (Ray et al., 2014). The GIS technicians and researchers started research on how to share the GIS features online, rather than using it as a standalone system. In the year 1993, the Web GIS started evolving rapidly. The online static maps slowly changed to interactive dynamic maps over the World Wide Web. This is the first step of Web GIS. The greatest advantage was to get rid of traditional desktop GIS, its installation and data sharing hazard. Today's web user can create content on the web both collaboratively and individually, allowing for a personalized web experience through wikis, blogs, podcasts, photo sharing, and other technologies. GIS and mapping applications have both benefited from and contributed to these trends, collectively called "Web 2.0" (Pierce et al., 2009). This provides the concept of Geospatial Mashups, especially Map Mashups. The latest trend in the field of geospatial science and technology in Web GIS, is *Geospatial Mashups*. Integration of multiple data layers from multiple sources, is one of the most common and effective functional requirements of Web GIS applications. On the Web GIS context, a Mashup is the process of merging multiple sources of data, both spatial and non-spatial, into a single integrated spatial display. It is about extracting spatial data from a non-spatial source and combining with other spatial data and finally displaying it on a map. This research paper discusses the basic architecture of the Geospatial Mashups in Web GIS and its application in visual impact analysis and strategic management in tourism.

Objectives of the Study

This present study seeks to the application of Web-Based Geographical Information System (GIS), an ICT tool for tourism management and promotion particularly through internet, with a future plan to develop this type of promotion by implementing GIS tools for tourism. In the context of tourism management this present study penetrates the usage of Geospatial Mashups, a spatial technical tool of Web GIS. It disseminates maximum level of information for tourism promotion in a collaborative manner. This paper examines current development in Web GIS with the implementation of Geospatial Mashup technologies, such as Google Map in the context of map Mashups, and presents a classification of map Mashups and their application in tourism management and promotion. Geospatial Mashup has great potential to facilitate and widen the rapid development of the future web mapping technology in Web GIS in the context of tourism development.

Background and Literature Survey

Geographic Information System is one of the most popular ICT tools for capturing, storing, retrieving, manipulating, mapping and analyzing spatial and non-spatial geographical data in the digital format. GIS is the information system that provides functions including visual 3D presentations about any geographical locations, advanced analysis of digital geospatial information by processing them in an integrated manner.

GIS technology integrates common database operations, such as storage of data, retrieval through query and converting those data to information through statistical analysis (see Table 1). GIS manages region-based information and provides tools for depictation and analysis of various statistics, including population density, economic development, transport facility, types of vegetation etc. GIS helps us to store the detailed information of any region in the databases and maps to create dynamic displays. Additionally, it provides tools to convert and display raw data in the form of 3D maps, run any query, and overlay those databases in ways which is not possible with traditional spreadsheets. These special-efficient as well as effective abilities distinguish GIS from other information systems, and make it one of the most effective ICT tool to a wide range of public and private enterprises for elucidation of events, predicting outcomes, and scheduling

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