Use of Modern Technology in Trip Planning for Enhancing visitors' Experience

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(Abstract)

The Geographic Information System (GIS) is a cutting-edge scientific instrument that improves tourists' vacation planning and overall experience of a place. Use of Geographical Information Systems (GIS) take help of coordinates to uniquely identify certain locations both in terms of latitude and longitude. Tourists need detailed information to prepare for their upcoming trips. But the geospatial data could be used to make a geoportal that helps people before, during, and after their trip. When geographic coordinates are included, the datasets are categorized as geospatial. The "facilities under one roof" concept is popular with visitors, and GIS is utilized in many developed countries to facilitate this. Indian tourism has partially adopted GIS technology in several niches, but a comprehensive system based on geoportal is yet to be launched. This investigation, conducted using ArcGIS 2.0, elucidates the conceptual framework of geoportal and delves into the possibilities of cutting-edge technology, which might revolutionize the Indian tourist industry. Sikkim, a tiny, mountainous state in Eastern India, has been chosen as the research region due to perennial infrastructural problems. GIS may be utilized more effectively, allowing India to provide its domestic and foreign visitors with cutting-edge facilities to improve their experience.

Keywords: Geographic Information System, Geospatial Technology, Geoportal, Trip-Planning using GIS.

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Introduction

The latest technological advancement in tourism planning, the Geographic Information System (GIS), uses satellite imagery to provide tourists with a more complete picture of the area. Coordinates are the backbone of geographic information systems (GIS) both in terms of its latitude and longitude. When geographic information is added to a database, it is considered geospatial data. Travellers need detailed information to plan their trips in the future, including where to stay, what to visit, how far one attraction is from another, how long it will take to go from one to another, the locations of shopping centres, artisan markets, and entertainment districts, and so on. These


Source: https://www.wttc.org/publications/2018/domestic-tourism/
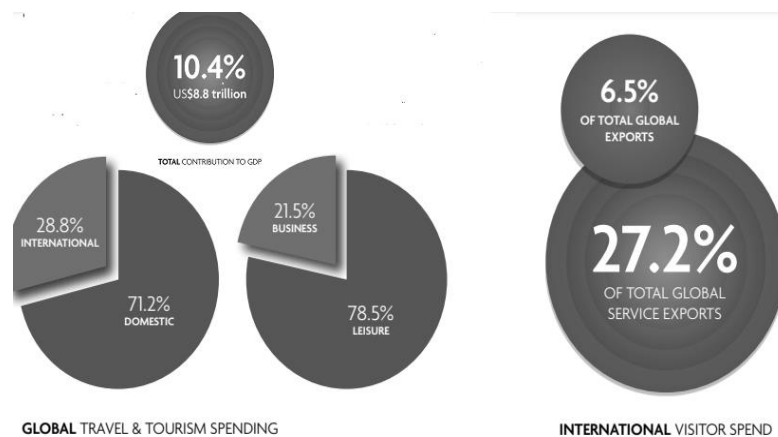
things are essential for the journey to go successfully once we get there. If this data is gathered one by one and kept in a spreadsheet, it cannot be termed comprehensive. However, the aforementioned data may be used to build a geoportal that will be of use to visitors at every stage of their journey. When a geographical component is included in the datasets, they are referred to be geospatial. The "facilities under one roof" concept are something that travellers from all over the world appreciate, and GIS is commonly utilised to facilitate this. In particular, Switzerland, Canada, and the United States have used GIS technology to advertise, expand, and improve their respective travel and tourist industries. Despite some scattered uses of geographic information system (GIS) tools in the Indian tourist industry, no fully integrated system based on a geoportal has yet been launched. Well-known hotel and travel companies are beginning to use GPS and other geospatial technologies because of the positive effects they have seen in the transportation industry (GPS). The fast global spread of the COVID virus has had a devastating impact on the tourism industry. Many individuals see tourism as a collection of actions that benefit everyone involved. Therefore, most nations went from "Over tourism to Zero Tourism" as a result of the lockdown,

travel rustications, and suspension of interstate and international transit. The World Travel and Tourism Council (WTTC) surveyed the tourism sector in 185 nations and 25 regions to determine the industry's employment and economic effect. The results of the poll showed that the tourism industry was the fastest-growing industry overall. In 2018, the sector generated 10.4% of the global GDP and employed 319 million people.(Economic Impact Report - World Travel & Tourism Council, 2019).

Background of the Study

To access and utilise geographic data and resources, users may visit a geo-portal, which is a collection of web portals (display, editing, research, etc; (Mathys, Boulos, &Kamel, 2011). 'Single window information for visitors" is the goal of this system, which integrates Geographic Information Systems (GIS) with Spatial Data Infrastructure (SDI). Geoportal also makes it easy for travellers to get a wide variety of digital resources in one convenient location. Through its public access point, it allows users to both download and upload data. There are several online tools for analysing maps and other spatial data; a geo-portal must stand out. Online mapping services like Google Maps and Yahoo Maps rely heavily on geographic data (Resch& Zimmer,2013). However, Geoportal is useful for extracting spatial data for further study of the data representation. Official geodata, such as land use classifications or population density zones, are not required for specialised mapping (Zeiler, 1999). Unfortunately, this doesn't allow users to retrieve spatial data using Web Map Services (WMS) or other Web-based standard software interfaces (Li, Li, Goodchild, &Anselin, 2013).
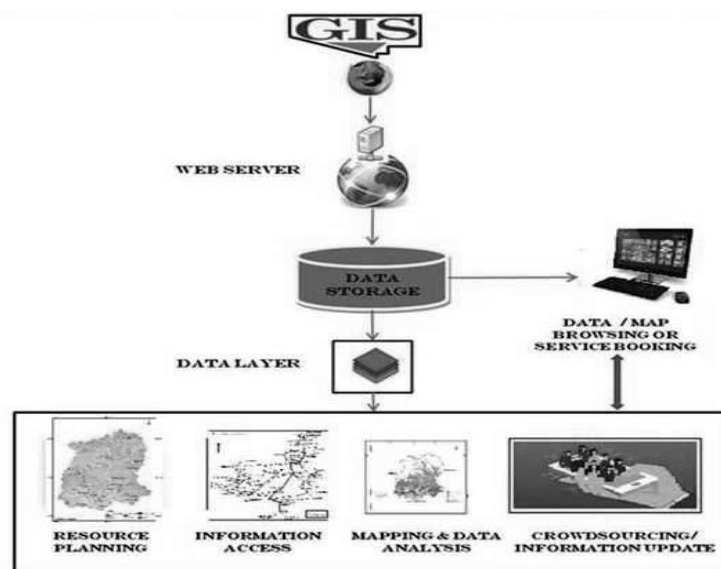
Source: Workflow. Created by the authors

Building a geoportal requires little effort. In the first stage, layer data (the digital map's foundation) is added to a server running ArcGIS 2.0. (Newton, Gittings, & Stuart, 1997). The coordinates of desired places, such as hotels, highways, and tourist attractions, are entered into the server. The primary administrator is provided with off-site access to input and update data in real time (Rigaux, Scholl, &Voisard, 2002). At last, the programme is told to generate a wide range of digital maps (layer maps that don't overlap) (Wang & Adelson, 1994). The final consumer may then access the file when it has been posted to the internet. Features like crowdsourcing are also available to users via the site. In crowd-sourcing, users are given the freedom to contribute to a project by posting their ideas, opinions, and other content online (Wu, Tsai, & Li, 2013). In addition, they are provided with a forum via which their feedback may be shared with prospective guests. Customers may see how others have rated the establishment and make an informed choice about whether or not to visit.

Products sold in the tourism industry include both naturally occurring and artificial components (Turtureanu & Anca, 2005). All of these items may be managed in one place on a digital map, which is made available via the Geo Portal (Resch & Zimmer, User experience design in professional map-based geo-portals, 2013). On this map, you'll find depictions of all the various types of tourism infrastructure, such as hotels, malls, highways, hospitals, visitor centres, and more. Using a smartphone app, a huge number of visitors may access the facility's information quickly and easily (Beedasy & Whyatt, 1999). It helps make decisions more quickly, which saves money and time, (O'Looney, 2000). As a result, the relevant tourist agencies in India need to decide on creating a web-based geo-portal to boost tourism in the country (Resch & Zimmer, 2013). The goal is to create a geoportal that accurately defines tourist attractions and related facilities, such as hotels and restaurants, in one convenient location. Travellers may get over their fears and start making plans for their next trip after they have a clear mental picture of the recommended vacation place.

Result and Discussion

India's tourism industry has to decide on whether or not to build a geo-portal on the internet to streamline its processes. The goal is to create a geoportal that consolidates information about the destinations and their amenities into a single location for easy access by tourists. It speeds up the decision-making process, which saves both time and money when compared to other options. The idea of a geoportal is utilised for the all-encompassing development, management, control,

and monitoring of services linked to tourism due to its capacity to build, manage, and analyse tourist datasets. Recent developments in geoportal technology provide several potentials to streamline and improve the effectiveness, interactivity, cooperation, and enjoyment of the travel planning process for visitors. These days, it's not uncommon to see a web-based tourism geoportal and the provision of online map services on a travel blog or an e-tourism app. Through the use of online map services, vacationers may plan their vacations with more efficiency, precision, and correctness. This will allow them to get over their fears and start making plans for their next trip.

Display of Layers in a Geo-portal
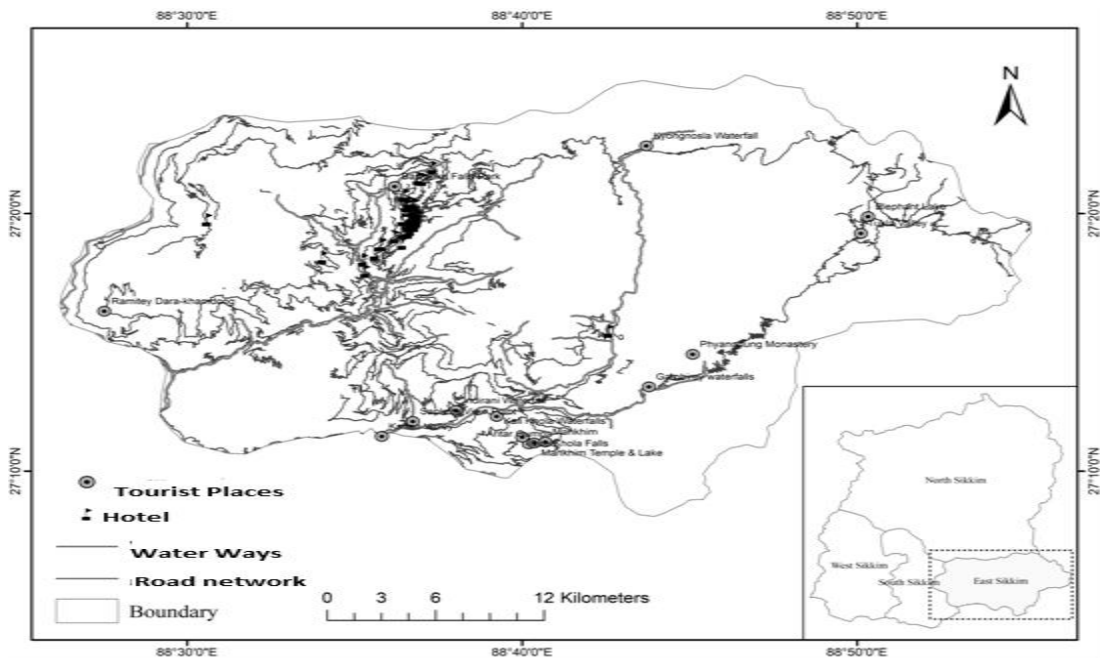
Source: Created by the authors using ArcGIS 10.2 version

The geoportal serves as a hub for accessing and analysing Web GIS data from several sources. The new geospatial tools and route planning data they provide are accessible through these fast, cheap, interactive, multi-layer internet mapping services. On top of that, a geoportal compiles information from several resources and presents it in a visual format, such as a map. The map might be static or dynamic. In the tourism sector, maps are often used for deciding on destinations and organising trips. Potential tourists use maps to navigate on or before their journeys and plan their holidays. The dynamic online maps on Geoportal make use of the two-dimensional nature of human vision to provide data in a style that is useful, accurate, and simple to read. A web-based geoportal may also enhance the visitor experience. To attract customers, a site must first attractively showcase its offerings. Only if all tourist-related information is posted online and

freely accessible to users can this be achieved. For example, if a traveller wants to know about picturesque areas in a city as well as the location of neighbouring five-star hotels and multi-cuisine restaurants, or if they want to visit a wildlife refuge and stay in jungle huts, they may access all of that information on a single digital map. With the aid of geoportal, this information may be presented on a single-layer map. One further benefit of using a geoportal is the speed with which you may get the data you need. A traveller who, say, wishes to see a popular landmark and eat at an authentic Indian restaurant on the way there would benefit greatly from having a digital map at their disposal. The geoportal may also get numerous bits of information from a single online platform. For instance, a tourist can look up and see on a single digital map the most promising tourist spots in a city, the best quality hotels, super-speciality dining arrangements, travel time between all points of interest, entertainment facilities at the destination, climatic conditions, and the location of the nearest airport, railway station, bus stand, authorised tour operators, and government tourist information centres. Concern about one's safety ranks high on the list of priorities while planning a trip.

Vacation plans are put on hold if potential guests have doubts about the area's security. Convincing curious onlookers to book a trip is crucial to the tourist industry. Instilling trust in the destination is aided by geoportal data showing how things are right now. For instance, Sikkim is quite susceptible. The occurrence of numerous landslides is typical across the state. Many areas have not had landslides in recent years, and a geoportal can reveal this fact with complete certainty. It is also obvious that Sikkim is in an earthquake zone, having a history of earthquakes in numerous regions. The webpage can provide a digitalized map showing significant earthquake-prone regions close to popular tourist destinations for those who are curious about such things. As soon as the locations are revealed, tourists may avoid visiting those in high-risk areas. Geoportals in the tourism industry have the potential to be a catalytic factor in elevating public trust in a place and opening up new doors for the industry.

Being outside in the cold and watching it snow is a popular pastime for many. To attract more visitors to a state, it is possible to create a digital map that displays all of the state's tourist attractions overlaid with the climate zones in which they are located. As a result, geoportal may be useful for helping people find places that fit them. Geoportals can help vacationers plan their travel by delivering correct information about how long their journey will be. If a couple is planning a trip to a state but isn't sure how long it will take, a geoportal can provide them with

information about the distances between cities, the amount of time needed to see all the major attractions, and the locations that are off the beaten path and thus require more time to reach. This transforms geoportal into an informative and user-friendly resource for visitors. Creating and developing custom circuits is unlikely on a generic travel website. Tourists report feeling uneasy about the limited number of routes shown on official tourism websites. A geoportal allows users to create a unique itinerary for a trip. Tourists may find out about the state's history and culture, locate points of interest, and map up an entirely personalised itinerary. The portal includes the display, storage, and print options for the same. Eco-tours, adventure travel itineraries, and Buddhist pilgrimages are just a few of the options available to visitors.

The selling of supplementary goods like souvenirs, local specialities, and eco-friendly provisions is often tied to tourist destinations. Because of this, the community's revenue is boosted while also being able to provide for itself. Visitors may choose a path through an organic company using an interactive geoportal and get a taste of the goods first hand. Geoportal, which may be accessed through a web-based application, may help solve this issue by alerting visitors to any incidents as they happen. Furthermore, geoportal may assist offer travellers' up-to-date disaster-related information, which can make them feel safer and save them time before or during their journey. In addition, during travel between cities or during sightseeing, visitors may locate escape routes in case of an emergency. Planners and travellers alike may benefit from geoportals because of the streamlined data management they provide. By using the portal, guests may see how many people visited the attraction on a given day, month, or year. Visitors' traffic counts at a particular landmark might be recorded and shown on a map. The attraction's profile among visitors will rise in this manner. The planned geoportal will make registration available online, enabling visitors to Sikkim from the mainland to save time and effort before they ever arrive. Geoportal may also be used to show daily visitor counts to authorities or curious sightseers.

Most popular vacation spots are restricted in some way by local, state, or national authorities (Crouch & Ritchie, 1999). While a standard website could compile all relevant legislation into a single page, a geoportal is more suited to presenting information relevant to a certain geographic area (Peterson, 2020). Tourists may see the same details, including the place where they can get the appropriate permission, by clicking on Tsomgo Lake on the interactive portal geoportal. They may see driving directions, distance, and time spent in transit from their present location, such as a hotel, to the permit-issuing authority's office, all on one digital map.

The promotion and development of tourist sites are also crucial to the tourism sector. The web-based geoportal allows for the exhibition of all fairs, festivals, and special events alongside tourist attractions, complete with images and detailed descriptions.

Conclusion

The current research shows that different websites offer different kinds of travel information that is useful for planning a vacation. Tourists usually have to spend a lot of time perusing them to get all the information they need. In addition, they have no idea whether sites are legitimate. Tourists will often use a variety of search engines and a wide variety of terms to get this information. Google searches for "religious tourism places in Sikkim" often result in results on Buddhist monasteries. All you have to do is follow the same steps to find the most suitable hotels in Sikkim. Due to the prevalence of "paid hotel service providers" in Google, the search engine may not deliver accurate and up-to-date results in either scenario. In this way, the truth might be skewed. A search engine can use GPS to display the distance between two points of interest, but it can't provide many possibilities in a unified digital environment. Digital maps on most websites, for instance, can't show everything at once, such as hotels, travel agencies, hospitals, restaurants, weather, and population density. However, if the geoportal shows the same, it is feasible. The vast majority of site visitors either don't make a selection at all or waste their time making one because they lack the necessary details. Because of this, it becomes more difficult for planning authorities to monitor the volume of people who visit a certain location. People's schedules these days are jam-packed. Inevitably, they have a hard time setting aside a substantial amount of time to arrange details for a future vacation. As a result, people come to rely on tour guides and ask them for advice. Therefore, travel agencies often push their most popular packages, regardless of whether or not they are a good fit for the customer's preferences. Furthermore, new places to visit are not advertised as often as might be desirable. Visitors' experiences may vary from the idealised versions painted by tour companies. It may lead to discontent, which in turn might reflect poorly on the destination. An additional value proposition of geoportal is the opportunity to generate income. If a website is popular with visitors, other businesses will pay to have their ads shown there. It's a way that popular websites like Google, Yahoo, and others make money. It stands to reason that if a government agency builds a geoportal, the site will attract a large number of users, and therefore, other businesses may want to advertise on it. There is an opportunity for tourism boards to develop and market mobile applications to tourists at a fair price,

intending to facilitate their needs while they are in the area. Tourists' ability to make informed decisions and the amount of time they spend preparing for their trips are both enhanced by Geoportal. Additionally, it is simple to use and can guarantee client happiness by delivering timely and accurate information. A one-time investment is required, but the potential income boost might significantly alter the travel sector.

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