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Smart Tourism

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Abstract: Smart tourism represents a modern trend in the area of tourism and involves the use of mobile devices as smart services. While this technology is already available, but some challenges are still open with respect to design an augmented experience of travel in area of art and culture. With the increasing uses of mobile devices in people's everyday life has a impact on how people think and behave. The advancement of mobile phones in the past few years with increasing the computational capabilities of smart phones appreciably. It affects the touristic experience by changing travellers' communication and information search behaviours.

This research explored the mediation mechanisms of smart phones by investigative stories provided by travellers correlated to their use of smart phones and related applications for travelling purposes. Smart phones, as one kind of modern media, now it can offer a wide variety of information services to maintain not only basic travel activities, such as planning, navigation and reservation, but many 'micro-moments' within the travel process such as, estimating waiting time of rides, finding gas stations and 'seeing' places as they once were.

Moreover, smart phones have the possible to build a very strong "mediated gaze" in that they can shape traveller's experiences by sharing moments and other type of shared experiences. Our research attempted to understand the relationship between information tools, information needs and touristic experience

Keywords: smart tourism, smart phones, mobile technology, smart tourists

I. Introduction

A mobile phone that combines communication with sophisticated personal use technology such as access to the Internet and the ability to download applications called smart phone. Desktop computers were well suited to the research, planning and booking of people's holidays before their trips but did not offer portability and flexibility. Laptop computers were more portable but were cumbersome to take on long trips. Then smart phones came into existence with its capability and user friendly nature.

II. Applications of Smart Phones

- A smart phone application that can be downloaded by the consumer from the region's transit information sites at no cost to the consumer.
- The smart phone traveler information applications will operate on the latest 4G cellular smart phone and wireless tablets in anticipation of 4G and highend outdoor WiFi wireless area networks.
- The applications will access the region's latest general transit feed specification (GTFS) on bus stops and schedules from the CCRTA and GeoGraphics Laboratory to provide the next scheduled bus and the next bus after that on a easy to understand display.
- The applications will access the latest automatic vehicle location (AVL) of the CCRTA regional and local transit services from the GeoGraphics Laboratory's Web mapping service and map the inbound and outbound buses on a Google map (Android 2.2 and iOS 4) and Bing map (Windows 7.5).
- The applications will access the estimated time of arrival (ETA) predictions from the CCRTA's computer assisted scheduling and dispatching (CASD) software.
- The smart phone application will display the location of the consumer ("where am I?") on a Google or Bing map showing the location of the approaching or departing bus (where is my bus?).
- The smart phone application will provide emergency communication with a designated caregiver if the consumer needs assistance.
- Smartphones need at least 3G communication speeds and work best at 4G
- Despite accessibility features in smartphones, such as text-to-speech and expanded print capabilities, these smart phone applications are less effective for the visually impaired than purpose-built devices in the marketplace for persons with low vision. Previous work by the
- GeoGraphics laboratory that converted the global positioning systems (GPS) data from bus locations into the street address, nearest intersection, bearing and speed that can be provided as a text table and

converted to speech was found to be more useful for individuals who had very low vision or were blind.

- These smartphone applications may be useful for the intellectually impaired consumer or for consumers experiencing memory loss or confusion associated with accidents or aging. After beta testing these three operating systems on the Sprint cellular network.
- With the potential for wireless capabilities from WiMAX or outdoor highcapacity WiFi emerging from Open Cape Broadband, issues associated with cellular wireless (e.g. speed and cost) may be overcome in typically underserved areas (e.g. rural and poor communities) using publicly-owned wireless metropolitan area network (WMAN) for “last mile” wireless communication for assisting persons with disabilities using both fixed route and paratransit services.

Although it has many applications but this research concentrates on tourism. In tourism, holidaymakers use smartphone’s Internet capabilities to gather holiday information, find reviews and even book tickets While travelling. Also, travelers can take phones with them on holiday and use them to easily and quickly organize aspects of their trip while travelling.

With the help of smart phones, it is easy to contact travellers through social media. Also, Travelers combine smartphone technology with social media and send photos, share reviews, take and upload videos and update their favourite sites as they travel. An active and well-compiled social media presence such as a Twitter account or Facebook Page may increase chances of being seen by travelers using smartphones. Smartphones and iPhones enhance business’ can dramatically increase exposure. Smartphones even work as a GPS and let travelers find your location.

There are many applications pertaining to the travel industry like the apps which help tourists book airline tickets on the move, deliver restaurant reviews or check local films in the area they are staying. They are usually either free of charge or made available at a minimal cost. There is also the convenience of being able to shop around using apps online and potentially snap up that last minute deal.

III. The Leapfrog Effect

Transport technologies and infrastructure developments like high speed rail (HSR), 4G networks and port upgrade/builds in the region will enable Asia to leapfrog traditional behaviours elsewhere.

IV. Comparisons between smart phone user and non-user:

According to the frequency analysis, the results regarding how often people use Internet for each activity are not normal distributed. So a Mann-Whitney test is performed to test whether people who have or don’t have smart phone are significantly different in terms of the frequencies they use the Internet for different activities. The test indicates that the frequencies of Internet using for different activities (i.e. Information search, Emailing, Social-networking, Download music, movies, Financial, News, Sports, Weather reports, Purchase travel related services, Purchase tickets for events) are all significantly different ($p < 0.05$) between smart phone user and non-user. Crosstab analysis was used to find out the patterns of smart phone users and non-users. The results suggest, in general, smart phone users are heavier Internet users. There is a significantly higher propensity for Smartphone users to use the Internet for information search, emailing and reading news based on daily use. It is worth noting that more than half non-Smartphone users never use the Internet for social networking (52.7%) or download music (59.5%), which is much more compared with smart phone users (social network 27.2%, download music 25.2%) although this could be attributed to the higher age profile of respondents to this survey. In addition, the Mann-Whitney test was also used for testing if there is any difference between smart phone users and non-users regarding the channels they use to share their travel experience and information. Uploading pictures and social networking channels are much more popular among smart phone users (uploading pictures 25%, social networking channel 7.4%) compared with non-users (uploading pictures 10.7 %, social networking channel 3.7%). This might because smart phone makes picture uploading and social networking online more convenient. Smart phone users take more trips per year for both business and leisure purpose. More than 20% smart phone users take more than 12 business trips per year while less than 10% non users do. Around 25% smart phone users take more than 9 trips for leisure whereas only 5% non-users take so many trips. As for the possibility of using a Smartphone for various applications in the future, significant differences are found in three applications between smart phone users and potential users. The three applications are for travel planning, tour guide and attraction specific apps ($p < 0.05$).

V. Deviation from Regular phones to Smartphone

Smartphones, which have advanced computing capability, better multimedia support and better connectivity, are becoming more popular. The adaptation of different smartphones such as iPhone, Blackberry, Windows mobile and Android phones are increasing day by day.

In tourism, smartphones are creating a huge impact. Tourists can alter their travel related decisions due to accessibility of information from anywhere using their smartphones. Smartphone usage while traveling is on the rise. Not only business travelers but also increase in smartphone usage within the leisure travelers is being observed.

VI. Different Methods of Mobile Marketing for different avenues

A. Location Based Marketing using SMS/MMS

Tourism service providers can collaborate with the mobile operators and push different marketing messages and offers through SMS/MMS to the tourists. SMS marketing has advantages of being interactive, low cost, personalized and customizable. In addition, these messages can be sent based on time and location, which enables consumer to receive that message at the point of action. Using this GPS system or BTS tracking, mobile operators can determine the tourist's location. This will help operators to send marketing messages of only those tourism service providers that are close by or are relevant. It is very important to understand where the tourists are staying or which destination they are visiting, as it would help the relevant businesses or nearby businesses to send marketing messages.

SMS marketing has its disadvantages as well like intrusiveness and reduction of consumer acceptance. Studies suggest that intrusiveness may affect brand perception negatively (Bauer, Barnes, Reichardt, & Neumann, 2005). Li, Edwards, and Lee (2002) suggest that intrusiveness can be mitigated by using proper targeting, providing incentive and seeking permission before sending messages. Consumers who have opted in for marketing messages will not perceive messages as intrusive as it will be anticipated. In such a scenario it is important for mobile operators to send marketing messages to only those tourists who have opted in. In this way, the factor of intrusiveness can be mitigated. Different monetary benefits or promise of relevant and trustworthy messages might influence tourists to opt in. Another disadvantage of SMS marketing is that, it can contain only 160 characters. Thus, the message that will be pushed to the tourists should be concise but informative at the same time. Managers should use strategic wordings and information that the tourists will find relevant and interesting. Managers can provide discounts, web site links, GPS location, online purchase or booking opportunities etc. through the SMS.

B. Mobile Optimized Websites

According to Shankar, Venkatesh, Hofacker, and Naik (2010) creating and maintaining a website optimized for mobile devices is important for businesses. Most of the tourism businesses have website presence. However, it is important for the businesses to optimize their website to be viewed properly in different mobile phones. Mobile website can be combined with SMS/MMS based marketing activities. Tourism businesses can send the website link to the tourists through SMS. As SMS has a disadvantage of being able to transmit only 160 characters, tourism businesses can send the website link in addition with a few more lucrative marketing message through this medium. This will enable the tourist to gather more information by visiting the websites.

C. Mobile Coupon

Mobile coupons are gaining popularity as more and more consumers are accepting it and in turn providing businesses with higher returns on investment (ROI) (Dickinger & Kleijnen, 2008). Coupons can be sent through SMS to targeted group of people using different methods. The most common method is where customers receive mobile coupons through SMS and get instant discount when they show it at the point of purchase. On the other hand, businesses can use different media such as outdoor, print media etc. to make consumers send text messages requesting for a coupon. The business will be sending the coupon to the customer and the customer later can show it at the POP to receive discount. The later method reduces cost and also attracts targeted group of customers who are interested to avail the service, resulting in a higher net return (Shankar et al., 2010). Tourism businesses can pursue this strategy as well. Through SMS marketing, mentioned earlier, tourism related businesses could send mobile coupons to targeted group of tourists. It will attract the tourists as it provides monetary benefits through showing the coupon and getting price reduction on the face value of the products or services they have purchased. Swaminathan and Bawa (2005) pointed out that like SMS marketing, mobile coupons are also time and location sensitive. Thus, companies can use time sensitive

D. AMS (Advanced Mobile Services)

Apart from traditional voice call and SMS services users of mobile phones now a day use mobile phones for different other purposes called Advanced Mobile Services or AMS. These services include e-mail, gaming, mobile TV, mobile chat, location services, mobile social media etc. Tourism businesses can incorporate these advanced services in their communication strategy. Through location services managers can send their business location to tourists who have GPS enabled handsets. E-Mails can be used as well to push more informative messages to targeted tourist groups. Tourists can be encouraged to check in, take pictures and share it with their friends and families, write positive reviews etc. in different social media through their phones. Apart from that, AMS can be used both before and after the travel experience.

E. Managerial Implications for Different Parties Associated in the Mobile Marketing Framework

Managers of different tourism related businesses should collaborate with the mobile operators to create a functional mobile marketing strategy. By using the tourist SIM option described in the paper, tourism service providers can target their customers more efficiently. It will be even better if they can collect demographic and psychographic data of their target market through filling out forms while selling the tourist SIMs. According to these data tourism operators can segment the tourists better and cater to the specific needs and wants of different segments. Different forms of mobile marketing can be used by the tourism services. Tourists who are nearby a particular business can be identified through location services. Businesses can send information, mobile coupon, different offers or even the website URL through SMSs. To avoid intrusiveness businesses can send offer which have monetary value or which are more relevant to the tourists. As SMS messages allow only 160 characters, marketers should be creative or can provide website URL for further information. Tourism Services managers should optimize their website for mobile devices. Managers should also monitor different tourism related blogs and travel sites, specially the popular ones like Trip Advisor, Lonely Planet etc. Managers of tourism businesses should have better presence in these blogs as well as other social sites. They should also induce tourists to provide positive reviews about their businesses. In addition managers can develop their own apps to provide tourists with additional services and better value.

Mobile operators should develop effective mobile packages for the tourists. Telecommunication managers should analyze and come up with profitable plans for developing the mobile marketing strategies. Collaboration with different tourism related business and the government authorities would enable them to get extra benefit from these tourists SIMs. However, this service will incur some opportunity costs. A proper business model and feasibility study is required for mobile operators to be successful in this perspective.

VII. Survey on the impact of smart phones on tourists, travelers as well as associated businesses

Tourism is important and, in many cases, vital for numerous countries around the world. It brings in large amounts of income in payments for goods and services, accounting for 30% of services and 6% of overall goods and services, globally. It also creates opportunities for employment in the service sector

VIII. How Smart phones Are Shaking Up The Travel Market

- More than 60% of individuals traveling for leisure rely on the internet for travel ideas. Both leisure and business travelers tend to shop around on the internet before booking their trip in order to get the best deal.
- The internet is used as a primary method of trip planning and inspiration. 80% of travelers use the internet to plan their trip. Both leisure and business travelers mainly use brand sites and search as sources for travel booking and planning. More than 60% of travelers spend more time researching because they are interested in finding the best value.
- 60% of travelers use the internet as a source of inspiration for new travel. Leisure travelers visit online travel agency websites for inspiration and planning, while more than 60% of business travelers book their trip directly on brand sites.
- The study also revealed that travelers use more than one digital device to undertake a variety of travel activities. For example, researching for an upcoming trip was carried out by 88% on computers, 53% on smartphones, and 70% on tablets. These devices were also used to do other travel activities such as reading reviews, looking at maps, making bookings and watching videos. More than half of leisure travelers access online sources when they are at the destination to find out more about local activities.
- Increased smartphone and tablet usage was an important finding. Overall, 1 in 4 travelers used their smartphones to make bookings. On both smartphones and tablets, websites were accessed more compared to apps. Due to the increasing use of mobile devices for travel planning, the report acknowledged the need for travel brands to improve the mobile experience by faster speed, as well as better format and compatibility.
- Another finding was the increasing popularity of online travel videos. More travelers are watching online travel videos compared to last year: 60% of leisure travelers and 75% of business travelers.

IX. Travel Statistics

- Internet travel booking revenue has grown by more than 73% over the past 5 years
- More than 148.3 million people use the Internet to make reservations for their accommodations, tours and activities. That's more than 57% of all travel reservations each year!
- Over 50% of today's travellers will rush to the keyboard, rather than the phone to make their travel bookings
- Global smartphone users are expected to touch 1.75bn in 2014
- Global mobile phone users to reach 4.55bn in 2014

- Between 2013 and 2017, mobile phone penetration will rise from 61.1% to 69.4% of the global population
- When using Facebook, 37% access the site via desktop, while 68% access the site via mobile
- 85% of customers expect businesses to be active in social media
- 71% of travel brands on Facebook found that they had better engagement and conversation with their customers
- 58% of Millennials (20% more than older generations) prefer to travel with friends - they can't bear the feeling of having missed out!
- Millennials are expected to spend incrementally more on travel services than any other age group in 2014
- 44% of Asian leisure travellers are watching videos about a destination during the research phase
- 58% of travelers want to watch a video of a trip review from an experienced traveler
- 58% of tourists enjoy checking out videos from travel channels
- 56% like watching trip reviews from like travelers
- 48% enjoy watching user-generated content as opposed to business-created content

X. Benefits to tourism industry

The rapid growth in the use of smart phones and respective mobile applications has created new ways for the tourism industry to connect with their visitors while travelling. a taxonomy of mobile apps in tourism from two perspectives: a taxonomy on what services travel-related apps provide to the user and a taxonomy based on the level of customization the user has with the mobile application..

In analyzing the travel-related apps from a value chain perspective, 7 categories emerged:

Navigation: Global Positioning System (GPS), augmented reality, and way finding

Social: sharing, collaboration, communication or social component.

Mobile Marketing: receive marketing messages, such as text messages for coupons

Security/Emergency: emergency locator services, health monitoring, weather alerts,

Transactional: auctions, financial/banking, tickets/reservations, and shopping

Entertainment: games, movies, e-readers, videos/television, photographs/editing, and fantasy sports

XI. Benefits of having a smartphone in the business

One can remain in touch with your business from remote locations where a connection is available and monitor one's business name on social media while you're on the move.

Having a smartphone will save you copious amounts of time by allowing you to:

- Check your emails from anywhere, respond and/or forward, archive or delete.
- Access your calendar (synchronises between your desktop, laptop and phone)
- Check your occupancy using your online booking system app (provided your online booking system has an iPhone application or a mobile---friendly layout)
- Take photos and post them on Flickr, Facebook and other sites
- Take videos and post them on YouTube, Facebook and other sites
- Manage your online reputation
- Online banking
- Live chatting
- Online accounting

Portable, versatile and capable the smartphone is not just the future for travelers but also for small tourism operators who can tap into the changing face of tourist travel technology.

XII. Benefits for Different Parties Associated in the Mobile Marketing Framework

A. Tourism service providers such as restaurants, hotels, museums, adventure sports shops, souvenir shops, spas, pubs and bars etc. which have tourists as its target market can create competitiveness by using mobile marketing techniques. As most of the tourists have little awareness about the small businesses operating in the tourism destination, it is of paramount importance for tourism service providers to find an effective way of promoting their product/services. Traditional media such as TV, newspaper, and radio might not be good options. Tourism businesses should search for better alternatives and mobile marketing can prove to be very useful. By using different techniques of mobile marketing described in this paper, tourism businesses will be able to target its customers more efficiently and also deliver strategic messages periodically. Mobile marketing will allow tourism related businesses to reach its customers at specific time and also at specific location creating competitiveness for the business, which other medium would not have provided.

B. Mobile operators will be able to make incremental profit if they are using mobile marketing techniques. They will get commissions from tourism service providers for transmitting their marketing messages. Apart

from that, they will receive additional revenue from the tourists by selling tourist SIM cards. Tourists will make more international calls and might prove to be less price-sensitive. Thus, mobile operators can identify this segment as a niche segment, from which they will be able to rip out more ARPU (Average Revenue per User) compared to ARPU from local customers.

C. Tourists will also benefit from the mobile marketing activities. Tourists have an intention to maximize their pleasure at a particular tourist spot, and to do so they are always seeking for better and reliable information. Through mobile marketing they will be able to get more information easily through their cellular devices. SMS, websites optimized for mobile devices, mobile coupons, GPS services, mobile apps etc. will definitely add value to the overall experience of a tourist. Being able to harness more information, tourists might try out new services, which will add to their overall pleasure. This will allow tourists to be more satisfied and in turn have a better image of the destination.

XIII. Conclusion

Mobile phones have evolved to be smart computers supporting a wide range of information services that can be accessed anytime and from (almost) everywhere. With the increasing numbers of users and greater incursion into people's life, smart phones have the potential to significantly influence the tourists, travelers as well as concerned business parties and ultimately the economy of the country.

XIV. Future Scope

For young traveller's, the tourism industry needs to implement new mobile technologies, which combine both elements – entertainment of video games and learning about cultural facts in a new phenomenon to engage visitors with the holiday destination. The tourism industry is massive on a global scale and continues to grow. .

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