A Turning Point for Tourism Informatics

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One often hears people saying that information is important for tourism, however it seems that there are very few business people in the tourist industry that recognize what and how the information would function in which scenes of tourism. This article will give an overview of the relationship between tourism and information, focusing on ICT, and provide context for thinking about the future of tourism and information.

1. Tourism Informatics Systems

The study of information related to society is generally known as "social informatics." This area can be broadly divided into two fields, one of which is information systems related to science and technology, and the other is those related to humanities and social sciences*1. Research on tourism and information can also be classified in general using this framework.

Figure: Organization of Tourism Informatics

The field of study related to tourism and information is generally called Tourism Informatics, and the quality and quantity of this research has increased recently as the number of tourism researchers has increased. Information systems research in the field of Social Informatics can be applied in the tourism industry, and there are also many systems that have been proposed and developed by science and technology researchers. In Japan, the Society for Tourism and Informatics is leading the way and has published many very interesting research reports[1]. Unfortunately, while there has been high-level research, very little has penetrated to practical business.

Furthermore, humanities and social sciences research in the field of tourism informatics can be further divided into two categories. The first is research on content and media and the second is on management informatics. The former is also called content tourism, and an academic society for content tourism was formed recently[2].

Content Tourism refers to tourism derived from any kind of media content, such as television, movies or manga (comics created in Japan). In particular, many anime enthusiasts make "pilgrimages to sacred places" depicted in their favorite programs and movies. Of course, "pilgrimage" originally means to travel to religiously significant locations, such as Jerusalem or Mecca. However, because anime fans greatly resembled pilgrims in their dedication to content-related locations, these journeys have also come to be called pilgrimages. There has been a veritable boom in pilgrimages in recent years, and in 2016, "Pilgrimage" was awarded a word-of-the-year prize.

Of the categories of tourism informatics shown in the figure, the majority of research in tourism informatics is based on management informatics, will therefore, describe this further in the next section.

2. Tourism Informatics from a Management Perspective

The accumulation of research and practice in management has had various effects on the tourism industry. This section discusses the tourism industry from the perspective of management and management informatics.

2.1 Big Data and CRM

Management information systems brought great change to management, and now, as we enter the Big Data era, we are in the midst of an even greater paradigm shift. Moreover, Big Data is greatly affecting the tourism industry.

An example of Big Data in Japan is the data gathered by transportation IC cards such as Suica, from the East Japan Railway Company (JR East). Initially, the collected data simply indicated where customers got on and off trains. However, the IC cards have since been equipped with an e-money function for various purposes in addition to the function for passing through automatic ticket gates of railways. In this context, the possibility to utilize the collected data has started to be considered.

Although the data these systems can collect is highly sought after by marketers, but personal data is currently legally protected in Japan. Consequently, this "treasure" has remained unexploited. While the utilization of such Big Data is just beginning, there is much promise in finding effective uses that are able to avoid

*1 See: University of Tokyo Social Information Laboratory Guide "Social Informatics I (Systems)", "Social Informatics II (Media)," University of Tokyo Press (1999), etc.

privacy issues.

Returning to our discussion of tourism, this sort of purchasing record can be used by retailers for high-level customer-relationship management (CRM). Service providers can collect data on what, when and how much of products customers purchased. They can then use it to make meaningful suggestions and to provide better services to those customers. Airlines and hotels are already implementing CRM through their own mileage or point systems. As a type of targeted marketing, airlines are giving out bonus miles for flights to particular customers to support sales or to measure demand on particular routes. Premium hotel chains are also collecting data on customer preferences, such as whether guests smoke, which morning paper they read, and the type of view they like. They then share these data over the network. Japanese hospitality services called "Omotenashi", which have thus far relied on the experience and intuition of hostesses or serving staff in Japanese inns and of doormen and bellboys, are now being systematized through the power of ICT. In other words, even if an individual staff member does not have long-term data regarding customers, the company is able to systematize its hospitality services, enabling scientific discussion of Japanese style hospitality as an objective service in terms of modern management practices.

2.2 Changes in Marketing Methods

Through the end of the 20th and into the beginning of the 21st Century, which could be called the period of Internet expansion, travel agencies experienced a shakeout in which conditions forced major companies to restructure operations. This probably does not need much further explanation.

Traditionally, airlines and hotels released blocks of tickets and rooms at low cost, which travel agencies would stock and sell to customers in large quantities with low mark-up. They increased their overall revenue through handling charges. However, this structure was destroyed by direct sales through the Internet. Users can now purchase tickets directly from airline Websites and reserve hotel rooms through travel portal sites. Travel agencies have lost their position through so-called disintermediation*2 .

This shake-out also occurred in similar quantity for American small-scale travel agencies. However, the situation has changed dramatically in the last seven or eight years. In America, there are many "Home Based Agents," which are small scale travel agents operating out of their own homes and this type of agency is reviving. The popularity of SNS, and primarily Facebook, is behind this trend.

Until about ten years ago, an important discussion topic in marketing was how to achieve top ranking in search engine results. However, as search engine optimization (SEO) techniques advanced, a search for something like "Hawaii vacation" only displayed ordinary tours. It became more difficult to find results that suited a user's particular interests using a search engine. Although this issue persists today, it is expected that real recommendation systems using artificial intelligence (AI) will mature in the future. However, I want to emphasize the major role that SNSs are currently playing in the USA in deciding travel destinations. Having choices to suit one's taste as to the destination and mode of travel can make for a very personalized vacation. Furthermore, seeing photos and comments on an acquaintance's timeline is more inspiring than seeing results displayed mechanically by a search engine oriented to the general public. In the USA, the small travel agents mentioned earlier are utilizing Facebook very well, following customers, posting items that could be interesting to them and continuously offering promotions to attract their interest. Customers' interest is generated by these posts, tempting them to take a trip. This approach is now quite refined, and practical seminars for these agents are held at the Travel Agent Forum, a trade fair held twice a year in the USA for small-scale travel agencies[3]. These seminars give instructions on how to post effectively, i.e., on when and what types of messages and photographs should be posted on walls. The author has attended several of these seminars and found them extremely educational.

3. New Trends

In the previous section, we described the current state of tourism informatics, following the progression of conventional social informatics. In this section, we describe some new trends, based on particular features of tourism informatics.

3.1 The Flow from E to M

The International Federation for IT and Travel & Tourism (IFITT) is a global society for tourism and ICT and the leading source for the latest research[4]. Looking at the movement made

*2 For details on this period, see my IPSJ article: Akira IDE, "Current state and prospects for tourism information systems," IPSJ Journal, 48(6), pp. 616-623, (2007).

by IFITT in the past ten years, we have noticed a major trend that the tourism informatics research has not been carried out on fixed desktop equipment, but has been shifting to the research assuming moving element of mobile devices. This trend has been particularly strong in the last five or six years as the smartphone has become widespread.

Multilingual tourism navigation systems are being prepared for well-known touristic cities. For example, several navigation apps have been created for the World Heritage City of Valletta in the tiny Republic of Malta (which the author has visited several times); therefore, a comparison by an ICT specialist might be interesting[*3] . Museums and art galleries also play a strong role as tourism resources, and speech guidance systems for them have also changed over the years. Until about 15 years ago, a dedicated speech guide would be rented and returned upon exiting the facility in most cases. About 10 years ago, it became common to use mobile devices, such as personal digital assistants (PDAs) in this way. In recent years, however, everyone carries their own smartphone. This means that museum and art gallery guides can be increasingly downloaded as apps from the App Store or Google Play. Even the Louvre in Paris is providing this type of service. One could say that enjoyment of museums and art galleries has changed dramatically since these services began, because before apps were provided, even with a voice guide, the experience ended upon leaving as it was difficult to take the information home and review it. With the current download format, users can study ahead and also review after they go home. These museum and art gallery guidance platforms are also becoming somewhat standardized[*4] . This is enabling even small museums with little technical ability or budget to provide visitors with a new experience by loading it onto existing systems, provided they have good content.

Furthermore, even if they are familiar with ICT, tourists are not usually familiar with the area, and are at best weak regarding local information. As such, matching tour operators and local governments, which are the sources of information, with the visitors is one of the challenges of tourism businesses. Therefore, demand for research on development and application of geographic information systems (GIS) and global positioning systems (GPS) is expected to increase and to be a major part of demand volume zone in the future.

The overwhelming success of Pokémon GO last year has shown the potential for location-based games on mobile devices. This is a good example illustrating that even if tourism resources are scarce, there is potential to attract visitors if the information is interesting. Unfortunately, under the current conditions visitors sometimes return home without even noticing attractions in the areas they have visited. In the future, perhaps more emphasis will be given to linking location-based games and the real world by integrating unexploited local cultural resources, or utilizing the exchange among game-related visitors.

3.2 Convergence of Systems and Management

At the beginning of this article, divided the discussion into information systems and management, which is a conventional approach in social informatics. This distinction is becoming very blurred in more advanced work.

Currently, a great range of things can be done in a browser, and many very convenient application programming interfaces (APIs) are available. As a result, this work may become accessible to specialized system experts and not require an engineering professional. Of course, while there still remains detailed work requiring high-level engineers, the conditions of ten or more years ago, when people said, "I'm in management, so I don't know anything about the system," or "I'm in systems, so I don't know about sales," are becoming less common. In tourism especially, everyone has travel experience, regardless of whether they studied humanities or sciences in school. Moreover, everyone is a potential user of tourism when involved in travel. As a result, divisions such as development, planning, and sales are becoming less distinct than they may be in other fields of management informatics.

4. The Paradox of "Developed" Japan

Finally, before closing, I will discuss the state of ICT and tourism in Japan, in its efforts to be more tourism-oriented.

Japan is often referred to as a Galapagos island in terms of ICT, that its technical ecosystem has evolved somewhat differently from the rest of the world, and this Galapagos effect influences the behavior of foreign tourists in various ways.

When planning a train trip outside of Japan, seats can be reserved using the Internet in Europe, Taiwan and even developing countries like Sri Lanka; however, such seat

*3 *MyMalta* and *Visit Malta* apps are popular.
*4 A typical app is Pocket Curator: http://welcome.mapps.ne.jp/pocket

reservations are basically not available for Japan Rail (JR), even with the Japan Rail Pass for foreigners.

The reason generally given to why this might be the case is that, although the railway reservation system, called "MARS (Multi Access seat Reservation System)," is very high quality, it was built in the past during the time of the state-owned and national railway system and was the first railway reservation system in the world. MARS was built as a closed system; therefore, the use in connection with open systems like the Internet was not anticipated, and various difficulties emerged regarding connecting the existing systems to the Internet. The most problematic concern was that the system was naturally designed to use only the Japanese language, and as it still does not support other languages, it is behind in internationalization.

In countries that developed railway reservation systems later, their systems and controls were designed from the beginning to use the Internet and mobile technology, so they are user-friendly for foreign tourists. As mentioned earlier, a typical example of this is Sri Lanka, where their reservation systems were developed after the Internet era began.

This type of contradiction is not limited to railways. Most Japanese inns have not accepted credit cards or allowed Internet reservations, and have been able to carry out their businesses without difficulty since these new systems appeared. Conversely, the inability to support card payments or the Internet can prevent members of the travel industry in developing countries from doing business with customers from developed countries. The fact that Japan is somewhat behind in standardization of tourism related information system may be because there is a sufficiently large domestic market that has enabled providers to get enough business just dealing with domestic residents that understand Japanese.

It is important to be aware that developing new technology inside domestic markets, as Japan has done, has resulted in obstacles today, and lead to an advanced-technology paradox.

There is little motivation to innovate as long as providers are able to generate income despite these Galapagos conditions. In addition to Shinkansen, JR Central and JR East get a large amount of income from commuter passes for work or school, so there is little motivation to invest large amounts to support the relatively few foreign tourists. More foreign tourists have visited Japan in recent years, but this has been due mainly to the simplification of visa controls and improving exchange rates, and not at all because Japan is an easy place to travel.

Since transport and other tourism-related businesses can produce income without innovation, it is important for those companies to be aware of the public mind and feel the need to change to overcome this serious situation. This means asking them to participate in open-data projects currently being promoted by the Japanese government and to become actively involved from the perspective of the public good.

5. In summary

In this short article, I have given an overview of recent ICT and tourism informatics research, and their relation to the tourism industry. Scientific analysis of tourism in Japan is still in its infancy, and many tourism related businesses are more like family businesses than an industry. Our tourism industry seems resigned to these conditions, but modernization using ICT would help revitalize and raise the standards of the tourism industry as a whole. In other words, rather than just supporting tourism with ICT, we should understand that now is the time to research and develop ICT to innovate tourism and the tourism industry.

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