Preface

INTRODUCTION

This publication – Human Interaction with Technology for Working, Communicating and Learning: Advancements – comprises some of the best articles published in the International Journal of Technology and Human Interaction. It is our purpose to offer the reader the most up to date research and discussions providing an overview of the trends and advancements in this area.

IJTHI

The first issue of the International Journal of Technology and Human Interaction appeared in 2005 due to the recognition that an increasing amount of research was being done in the area where technology and human meet. Several studies came to the conclusion that the success or even the failure of the implementation of technologies were not due to the technology itself but to the interaction between the technology and the user. Furthermore, this problem of technology and human interaction covers all the fields and aspects of our lives, such as education, profession, private, leisure time, just to mention a few.

Taking this into consideration, the journal provides a platform for leading research that addresses issues of human and technology interaction in all the domains. The research that the journal intends to publish should therefore be interdisciplinary and include aspects from a wide variety of disciplines. These disciplines may range from more technical ones such as computer science, engineering or information systems to non-technical descriptions of technology and human interaction from the point of view of sociology, psychology, education, communication, management, marketing or even philosophy. The journal also aspires to provide a publication outlet for research questions and approaches that are novel and may find it difficult to be published in established journals following a rigid and exclusive structure. It is open to all research paradigms, be they empirical or conceptual, but requires that they be accessible and reflected. We also encourage the submission of high quality syntheses across research in different specialties that are interesting and comprehensible to all members of the information systems community and related disciplines.

The journal is opened to several topics that may include (but are not limited to) the following:

- Experiential learning through the use of technology in organizations
- Influence of gender on the adoption and use of technology
- Interaction and conversion between technologies and their impact on society
• Intersection of humanities and sciences and its impact on technology use
• Perceptions and conceptualizations of technology
• Relationship of theory and practice with regards to technology
• Social impact of specific technologies (e.g. biometrics, SCM, PGP, etc.)
• Social shaping of technology and human interaction research
• Technological risks and their human basis
• Value of intellectual capital in knowledge management

and all other issues related to the interaction of technology and humans, either individually or socially.

**Special Issue**

The IJTHI is also attentive to the trends and changes in the society and from time to time organizes special issues that cover, discuss and deal with special and particular topics. This is why one of the next issues will comprise researches concerning green technologies and human interaction. Green technology is, by definition, environmentally friendly, and aims to conserve natural resources as well as the environment itself. “Green technology” provides us with processes of generating energy by way of environmentally non-toxic products. Our major goal is to provide a “Low” environment which includes Low carbon emission, Low pollution, and Low water waste. This special issue focuses on the field of new, innovative green technology to make changes in human daily life. We are looking for papers discussing bio-energy, curriculum research and development in green technology, climate change education and water resources, green chemistry, green energy, scientific progress of green technology, just to name a few. For these special issues we invite guest editors, experts in the field that help to draw the most important lines concerning these novelties. For the edition of Green Technology the editors will be Keng-Shiang Huang and Chun-Yen Chang.

However the topics that need to be explored are not confined to those mentioned above. Everyday new technologies and applications emerge in the market. These are applied in all the different dimensions of our lives, namely in working, communication and learning. In the next paragraphs I will focus on a development that may have impact in these 3 dimensions. This is the mobile industry with particular emphasis on the apps and their application in the touristic market. I also point out the trends in the market as well as the challenges that are or will be faced by those that want to be successful in this field.

**THE MOBILE, THE APPS AND THE TOURISM**

Traditionally, the mobile industry tried to innovate improving performing handsets and faster transmission speeds for data traffic. Now all the energy spent is around mobile operating systems and software applications while handsets become a commodity. This development had an impact on the use and consumption of tourism services. For instance, the internet has changed the way people acquire information about tourism destinations, make their reservations and interact with players in the tourism industry (Leo, 2010). In the US 34% of tourists use mobile phones to find travel information, 29% to check reservations and 25% to book accommodation (op. cit.).

At the time of the introduction of UMTS¹ systems in the market, many operators were on a quest to find the “killer application” for this new technology. This conduced to an increasing competition
through new entrants in the market, resulting in significant price reductions that lead to increased mobile broadband access and internet usage over mobile devices. At this time, Europe was the region with the “largest mobile penetration and rather broad mobile internet usage caused by low prices due to strong competition and strict regulation” (Leo, 2010). This scenario has changed due to the ongoing software revolution that shifted the centre of activity from Europe to US. Apple entered the market and introduced iPhone. The advantage of this device was the user interface that fully exploited the touch principle. The excellent usability of the phone made it a huge success with customers and changed the paradigm for mobile phones substantially (op. cit.).

Table 1 shows the evolution in the smartphones brands. The iPhone is by far the leading device; however 7 of the top 10 smartphones run on Android.

These figures show that there is a potential market for this kind of products. Moreover, a survey done in February 2010, based on 963 respondents, revealed that Android and iPhone users download ~9 new apps / month, ~12 iPod touch, ~6 webOS. Twice as many iPhone users regularly download paid apps as Android and webOS users. For instance, iPod touch users that purchase paid apps spend $11.39 vs. $9.55 webOS, $8.36 android and $8.18 iPhone. Android users that purchase paid apps download 5.0/ month vs 4.6 iPod touch, 3.6 iPhone and 2.5 webOS (Admob metrics, 2010).

As for the behavior and habits of consumers, Android users have similar download habits as iPhone users as shown in Figure 1 (Admob metrics, 2010).

At the end of 2008 there were approximately 10,000 apps in the App Store. By the end of 2009 there were over 100,000 apps delivering approximately 1 billion downloads in the last 9 months alone. This scenario, seen before as a promise of technology convergence, has become a reality and for the tourism industry, this represents an unprecedented opportunity to deliver “in-destination visitor information, hyper-localised and hyper-personalised to the individual and where they happen to be” (New Mind, 2011).

Table 1. Evolution in the number of smartphones between 2008 and 2010 (Source: Admob metrics, 2010)

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<thead>
<tr>
<th>Top Smartphones, May 2008</th>
<th>Top Smartphones, May 2009</th>
<th>Top Smartphones, May 2010</th>
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<tbody>
<tr>
<td>Brand</td>
<td>Model</td>
<td>% requests</td>
</tr>
<tr>
<td>Nokia</td>
<td>N70</td>
<td>10.8</td>
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<td>Nokia</td>
<td>N73</td>
<td>4.9</td>
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<tr>
<td>Nokia</td>
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<tr>
<td>RIM</td>
<td>Blackberry 8100</td>
<td>4.4</td>
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<tr>
<td>Nokia</td>
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<tr>
<td>Apple</td>
<td>iPhone</td>
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THE TOURISM INDUSTRY

Our behavior, as consumers, has changed – we are more informed, more demanding, we want to engage with the content, with the brand, we want stories, emotions, relationships. We are more and more mobile. Four in five business travelers would like to have mobile applications offering recommendations for restaurants and bars close to a hotel location (Psarros, n/d). We travel for work and leisure. We prepare our trips and like to share them with friends. We recommend hotels, restaurants and places to visit. Before travelling, tourists educate themselves about what they are looking at. They read books, hire a tour guide or they can read every plaque and sign on the premises – they prepare themselves beforehand. They are described as “self made tourist” or “active tourist” (Evjemo et al. 2009). As far as smartphones are concerned, more than 40% of owners of such technology, already get destination information, and 34% of business travelers and 26% of leisure travelers use them to make booking during their trip (Psarros, n/d).

Tourism industry is currently an extremely sensitive hybrid industry and incorporates distinct features of information society. Although the core product in the industry is physical service, which is produced and consumed in the physical world, it is dominated and achieved though information services. The perfect integration of information and physical services is the challenge for the contemporary tourism industry across the globe. Hence it is largely a information product.

Usually the touristic activity can be divided in 3 phases:

- **the pre visit phase**: this phase can usually start with information search and online research, word of mouth (via online review sites, social media and face to face accounts) and continues with conversations both online and offline with other consumers which can recommend places to visit, to stay and to eat. Consumers use the technology for booking and ticketing (transport, dinner, accommodation and attractions) as well as for other preparations (Simons, 2005). At this stage what do customers want from travel websites? 52% say they look for information about the destination which can be useful when choosing a holiday, while 38% say they look for maps showing the location of the airport and resort (Psarros, n/d) (data obtained from the consultancy digital marketers united). Consumers also look for photos of the destination and accommodation since these help them to choose a holiday. Reviews are also useful before making a decision.
• **the visit phase:** the experience that started in the pre visit phase is extended throughout the travel. At this stage, consumers still look for information and routing using digital guidebooks, digital guides using GPS or SMS services. They still need booking and ticketing (transport, dinner, accommodation and attractions). They also use GPS navigation, get around with RFID, take pictures/movie clips, stay in contact with home/work and share information with other travelers (Simons, 2005; acoupleofchicks, 2011).

• **the post visit phase:** after the experience tourists gather information about the place visited and if they liked it they are likely to share their experiences via review sites and social media (Simons, 2005; acoupleofchicks, 2011).

The use of the devices depends on the services being offered by the touristic market. And this means that this market needs to know exactly what the consumer wants in order to satisfy their needs with adequate products and services. The five main sectors of the tourism and travel industry and for which consumers are looking for information are (Middleton and Clarke, 2001): (1) Accommodation; (2) Attraction; (3) Transport; (4) Travel organisers’ sector and (5) Destination organizations. It is here that suppliers must keep their eyes on and make their offers.

**TRENDS AND CHALLENGES**

In the next paragraphs we briefly present some of the trends and challenges in the mobile industry and apps applied to tourism.

Maybe enabled by the technologies (or because of them) we can no longer imagine the leisure industry without mobile devices. The free internet via wifi access is also blooming and has a catalyzing effect on the development of digital applications which will, by its turn, to reform the tourist landscape (RCCT, 2011).

Moreover, one knows that internet is becoming more and more important in the pre-holiday phase, when the tourist looks for information about the place to visit, where to eat, sleep, what to do and see. According to RCCT (2011), 52% of the potential travelers visit three or more websites before making a booking. Also, more and more users book their own custom-made trip (dynamic packaging). But despite the growing dexterity in using the internet, many people still have problems to book and/or pay the desired product due to customer unfriendly sites and applications. People would abandon a travel purchase online if the pricing is unclear and if there are hidden charges. Moreover, this will also happen if there is lack of information or if they experience difficulties in searching for holidays (Psarros, n/d). This means that there is still a lot to do in order to facilitate to reserve, book and pay the product/service.

Another trend, according to the Trendwatching.com, is related to real-time reviewers. Nowadays, whatever one sells or launches is viewed and discussed widely, live and 24/7. People want to read reviews about all sort of products and services and be able to share their comments with their peers.

Related to the need to look for information and have recommendation there is the F-Factor (Trendwatching, 2011). Consumers are increasingly tapping into their networks of friends, fans and followers to discover, discuss and purchase goods and services, in ever-more sophisticated ways. The five ways that the F-Factor influences consumption behavior are (op. cit.):
• **F-Discovery**: How consumers discover new products and services by relying on their social networks.

• **F-rated**: How consumers will increasingly receive targeted ratings, recommendations and reviews from their social networks.

• **F-feedback**: How consumers can ask their friends and followers to improve and validate their buying decisions.

• **F-together**: How shopping is becoming increasingly social, even when consumers and their peers are not physically together.

• **F-me**: How consumers’ social networks are literally turned into products and services.

Almost everybody has a mobile phone and in a few years we will have smartphones. Power of multimedia technology storytelling together with digitalization trends and diffusion of handy mobile devices support changes. All these developments are transforming the mobile phone into a multimedia device. However, there are still some problems that need to be solved such as the communication costs and network coverage (Evjemo et al. 2009). We also acknowledge that more and more there is an emphasis on relationships. Consumers want to engage with the products / services and brands. This is why cultivating relationships online will dominate value in content, links and promotion (Psarros, n/d).

Another technology that can have some impact in the tourism is the use of QR Codes or “Quick Response” codes. The code is a specific matrix barcode (or two-dimensional code), readable by dedicated QR barcode readers and camera phones. How does this work? Users scan the code into a smartphone and then they are taken to a friendly web based page or mobile app where they can find more information about the product / service / monument and engage with the brand while they are in the market and experiencing travel. In order to be successful the QR codes must be used at the point of consumption or close to the travel buying cycle.

However, one also has to consider the cost of development of application. As a matter of fact, to develop an application costs thousands of dollars, depending on the functionality the client wants. It is also important always provide updated information for visitor, which means having the information always updated. Furthermore, there will also come into question whether or not one should charge for the app (Lively, 2011). Usually they are available for free but now some suppliers are already charging for it.

Another issue that needs to be discussed is the need for speed. Consumers need to get what they want even faster. They do not want to wait too long.

Usability will also be the key success factor saving those deep, cumbersome websites from instant dismissal by users (Psarros, n/d). This means that websites must be simple. A visual appealing website is a site that is easy to read, easy to navigate and where one can find relevant information.

Finally, content is the king. This means that qualitative and diverse information, trip planning tools, attractive visual material including video and photo sharing applications, multilingual content, B2B and press sections are all must elements of a successful DMO website (Psarros, n/d).

In the next section some ideas on how the technology can help to improve the trip of the tourist are presented.
HOW TECHNOLOGY CAN HELP THE TOURIST TO IMPROVE THE TRIP

In the next paragraphs it is specified ways in which technology can help the tourist to improve his / her trip (Bashara, 2010):

1. **Identifying tourist problems:** The common problem among tourists is to decide where to go and what to do. To overcome this problem, travelers are relying on smartphones and tablets and do not typically browse websites from mobile devices. Anyway, special apps helping to identify popular spots are needed to be developed. The next step is to help tourists to know how to get to their final destinations and coordinate travel with availability of certain attractions.

2. **Identifying tourist solutions:** The possibility to document and share a trip is something that the tourist wants. The user wants to bring something with him / her back to his / her life. It could be a photosharing or leaving a digital trail full of blogs.

3. **Indispensable travel apps:** There are several apps that improve the travelling experience. Nevertheless, users will only download an app that provides value. It is necessary to give them a reason to use the app while they are visiting a destination and encourage consumers to share experiences while they are in the destination. In the next paragraphs some tools are presented.
   a. **Google maps:** a map is one of the mostly needed tool together with guidebooks during a trip.
   b. **Guidebooks and itineraries:** tourists look for sources where they can find all sorts of reviews and information about any attraction.
   c. **Translators:** frequently, tourists need translations and here the iPhone seems to reign with its app iLingual. This app replaces the mouth of the user with an animated mouth generated from photo reference that speaks the inquiries to whoever one is requesting information from.
   d. **Layar:** this app is about augmented reality. This application allows finding fellow Twitter users, or café’s to spend time while one checks up on what is going on back at home. It is also possible to get information about the building the tourist passes by asking the app to identify the places around. How can this be done? Just need to hold up the mobile phone in front of the user and receive annotation on the screen on top of the visual coming through the camera lens from the real world. It is also possible to narrow down the information by selecting categories such as bars, restaurants, hotels, etc. The user will see dots in the screen that will tell him / her which direction is relative to his / her position as well as how far they are. The software relies on knowing the user’s position rather than recognizing the scenery. As long as the user can receive a GPS signal and have a compass, gyroscope and accelerometer in his / her device, then the app will know which way the person is facing, the orientation at which he / she is holding the phone and where all the POIs are relative to his / her location (Sung, 2011).
   e. **Tracking transactions:** There are some apps that help tracking transactions and facilitate the expenses report portion of any business trip. The user just needs to point the camera to the receipt, shoot and file the report away for later.
   f. **Tracking the journey:** tourists also enjoy tracking their journey. There are several solutions for this. One of them is Foursquare.
   g. **Staying in touch:** there are several chat programs that allow communicating with family and friends.
CONCLUSION

The *International Journal of Technology and Human Interaction* is concerned with research that explores the link between men and technology. Being the technology present in all the dimensions of our lives it is natural that all sort of disciplines may contribute for this publication. Furthermore, the journal also publishes special issues where a certain topic is fully discussed and presented. One of the next special issues will cover “green technology”. Besides that, one acknowledges that in the mobile industry and tourism market several developments have occurred in the last years, bringing changes in the way people look for information at all the travelling stages. Users want to engage with brands, they want to be stimulated and get emotionally involved with the experience. Taking this into consideration, some trends were identified and presented. However, there are also some challenges that need to be overcome and these were also discussed.

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REFERENCES


ENDNOTES

1 Universal Mobile Telecommunications System (UMTS) is a third generation mobile cellular technology for networks based on the GSM standard.

2 The term has been used as shorthand for “application” in the IT community for decades. However, it became popular for mobile applications in smartphones and tablets, especially due to the advent of Apple’s iTunes App Store in 2008. It is just as correct to say “iPhone application” as it is “desktop computer app;” although app is shorter (PC Mag, 2011).