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Toward Smart Exhibition Framework Implementation: Exploring the Opportunities, Barriers, and Underlying Motivations from the Perspective of the Canton Fair Complex Centre Attendees

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Abstract

This study applied a qualitative approach to explore the opportunity for adopting a smart exhibition framework for the Canton Fair Complex Centre. Specifically, this work employed and extended the DeLone and McLean Success Model (2004) of information systems (IS) to provide a comprehensive framework for measuring and improving the performance of smart systems in large exhibition venues such as the Canton Fair Complex Centre, which is located is Guangzhou of China. In-depth interviews were conducted with Canton Fair attendees, and the data were analysed by using content analysis. Attendees were dissatisfied with the current IS and were expecting smart technology to enhance their visiting experiences. Strategies to facilitate the smart exhibition framework adoption and technology upgrade for stakeholders are provided in the conclusion.

Keywords: Exhibition centers, Smart technology, Mobile device experiences, Information systems success

Introduction

Smart technologies have become pervasive across several areas, including in retail, hospitality and tourism, and the financial sector (Wang, Park & Fesenmaier, 2012). With the advancement of information and communication technologies (ICTs), smart technologies have received widespread interest in the hospitality and tourism domain. Smart technology developments have offered opportunities and caused a transformation in the industry (Wang et al. 2012). For example, major hotel chains have switched to a conventional local server base to the cloud base solution. The switch allows hotel chains to manage big data and hardware easier and to avoid a technological bottleneck. Over the last few years, hotel technology has been rapidly upgraded, and the benefits are manifested via the rise in customer experience scores, productivity, and revenues. The introduction of mobile applications (hereinafter “apps”) in lodging and airline companies can increase shareholder return by 1.32% (Qin et al., 2017). The Internet, social media, and mobile technologies have allowed businesses and consumers to connect and interact at an unprecedented level, with consumers playing a participatory role in the production and consumption process (Buhalis & Law, 2008).

Winning customer loyalty is an important issue in ICT research because loyal customers bring in substantial revenues and reduce transaction costs (Otim & Grover, 2006). With the new collaboration of technologies, the marketplace is currently experiencing a shift toward greater power and control for consumers (Alt & Klein, 2011). Therefore, businesses must use technology to interact with consumers in a more personal way to gain their engagement and loyalty (Pine & Gilmore, 1999). In this vein, Gretzel (2011) highlights the potential of smart systems in tourism to meet tourists' personal and situational needs. Along with the enhancement of ICT, customers already use smart technologies in their everyday lives. Therefore, the characteristics that should be adopted by the event and exhibition industry and the effect of smartness dimensions on consumer perceptions of innovation and satisfaction must be assessed. As such, an understanding of the factors that determine an exhibition attendee's visit intention and satisfaction from the ICT perspective is vital.

To this end, this study uses the DeLone and McLean Information System (IS) success model as its theoretical basis. The said model (DeLone & McLean, 2003) is well established and has been used to examine consumer behavior in a variety of settings (e.g., DeLone & McLean, 2004; Lee & Chung, 2009; Hsu et al., 2014; Wu & Wang, 2016). Lee, Love, and Han (2008) applied and modified the model to evaluate the success of trade show websites as no change occurred in the fundamental role of information technologies in facilitating the communication of information to decision makers in the exhibition environment. Although this model is one of the most elaborate models in ICT success measurement, its application to exhibitions needs modification. Given that the goal of conventions and exhibitions is to establish, develop, and maintain a meaningful relationship with exhibitors and attendees, smart systems in the exhibition sector should be regarded as an important marketing and communication tool for building a long-term relationship between attendees or exhibitors instead of merely being commercial interactions and transactions. However, little research has been conducted to explore and modify the DeLone and McLean IS success model to test what may affect attendees' visit intention and satisfaction in the exhibition context. To fill this gap, this study uses the DeLone and McLean IS success model to test the predictors of visit intention and satisfaction from the aspects of smart system characteristics (information quality, system quality, and service quality) and added network quality as the fourth independent variable.

Literature Review

Impact of Smart Technology Implementation

Information and communication technologies (ICTs) are consistently changing the nature of the tourism industry (Buhalis & Law, 2008). ICTs' use for travelling has become increasingly fast, intelligent, and embedded in a user's environment. The emergence of smartphones and their apps made such changes even more dramatic (Gretzel, 2011; Wang, Park, & Fesenmaier, 2012). Morgan Stanley Research estimated that more people would access the Internet through mobile

devices rather than desktop devices after 2014 (Green & Lomanno, 2012). A smartphone is a type of mobile device and is often regarded as a "pocket computer" owing to its capacity to install and run advanced applications. Smartphone apps were first developed in 2008 by Apple, Inc. and have developed rapidly in recent years and are now considered one of the most salient functions for smartphones. The increasing popularity of apps also seems to have had a significant impact on consumers' preference and behavior (Wang, et al., 2012). This change in consumer behavior allows firms to communicate and engage with customers in an interactive and relevant manner (Siau et al., 2001). Mobile service opens several opportunities for service customization by considering several contextual factors, such as user profile, interaction behavior, location, time, social context, and environmental conditions (Dourish, 2004).

Prior research in the hospitality and restaurant literature suggest that the use of ICT provides a corporation with the competence to understand customer preferences and support personalized service which, in turn, augment customer satisfaction (Ansel & Dyer, 1999). For example, to further support the overwhelmingly demand for reservations, hospitality corporations have started to offer services by introducing a mobile phone-based location technology into their hotel reservation services (Wang & Wang, 2010). Travelers can find a favorable hotel nearby with a single click of a button, as mobile services automatically consider their approximate location and personal preferences. Smartphone technologies combined with other available technologies, such as wireless Internet, global navigation satellite system, geographic information system, and global positioning system, have enabled hoteliers to meet customers' mobile hotel reservation demand by delivering time-critical, location-based services (Wang & Wang, 2010).

Other examples of technology-enabled service deliveries include electronic retailing, online banking, scanning purchases in supermarkets, and paying for public transportation tickets by mobile phone. Thus, the effective implementation of advanced ICT in service industries is a prerequisite to providing satisfactory service to customers (Gilbert & Wong, 2003). According to Not and Venturini (2013), customization by implementing advanced ICT may consist of different aspects of service, including content data (e.g., for which specific products are suggested to users), information presentation (e.g., graphical rendering and language), or interaction mechanisms (e.g., for which browsing options or activities are proposed to users at certain points of interaction). However, further online searches reveal a scarcity in marketing strategies to use smart technology for enhancing customer satisfaction and the performance of exhibitions.

Information System Success Variables

Onsite ICT quality is considered an important factor for exhibitors when selecting an exhibition venue (Lee, 2011). However, the onsite environment of trade shows and exhibitions has unique characteristics relative to other conventional ICT uses. Hlee et al. (2017) stated that a variety of innovative ICT

devices has been aggressively introduced and used in trade shows and exhibitions onsite, including smartphones, apps, Radio Frequency Identification, near-field communication, automatic registration systems, and digital monitors. Although many new business models have been emerging, the laws of economics remain the same. The fundamental role of an IS, which is to facilitate business transactions and communicate relevant information to decision-makers, has not changed. Therefore, the basic principles for measuring the success of IS should not change. Thus, this study adopted DeLone and McLean's IS Success Model.

According to DeLone and McLean (2004), although many new technological innovations and developments are found in information technology, the success variables and their underlying dimensionalities should remain the same. Since its introduction in 1992, the IS Success Model has been a widely applied framework to measure the success of an IS (DeLone & McLean, 2003). An updated version of the model is applicable to smart system success measurement with the addition of new metrics. According to previous studies, the quality of exhibition websites has been assessed by measuring four factors (system quality, information quality, service quality, and relationship quality) and their impact on visitor satisfaction (Lee et al. 2008). This four-factor structure is adopted in this research to measure the potential of onsite smart technology usage in terms of attendees' intention to use and their satisfaction. The proposed framework consists of four interrelated dimensions of information systems success, namely, information quality, system quality, service quality, and network quality (Figure 1).

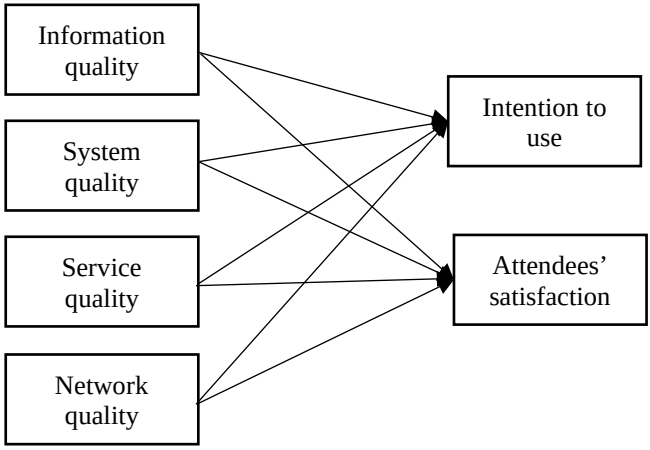

Figure 1. Proposed Information System Success Model for Exhibitions

Information Quality

Information quality captures the quality of content that a system presents. According to DeLone and McLean (2003), the content of a web system should be personalized, complete, relevant, easy to understand, and secure if prospective buyers or suppliers are to initiate transactions via the Internet. Therefore, in an

exhibition setting, information quality in this study is defined as the degree to which utilizing the smart exhibition framework can help attendees obtain complete, detailed, timely, accurate, reliable, and selective information to choose and compare exhibitors, enhance the convenience of browsing and organization, and make better recommendations for their tour.

Research articles on e-commerce devote minimal attention to information-or content-quality success measures (DeLone & McLean, 2004). Many of the prior studies on information-quality focused on the measurement of applications of information, such as accuracy (Molla & Licker, 2001), relevance (Peppers & Rogers, 1997; Molla & Licker, 2001), understandability (Molla & Licker, 2001), completeness (Vladimir, 1996; Palmer, 2002; Molla & Licker, 2001), currency (D'Ambra & Rice 2001; Molla & Licker, 2001), and competitive intelligence (Teo & Too, 2000). However, when the users are customers (instead of companies) the measures for information quality should be renewed and updated. Objective, new, dynamic personalization measures are important because of the mass customization developments in sales and marketing (Parsons et al., 1998; Barua et al. 2000; Molla & Licker 2001; Palmer, 2002).

System Quality

In the setting of the Internet, a system measures the desired features of a typical web system, including its usability, availability, reliability, response time (e.g., download time), and adaptability (DeLone & McLean, 2003). From the perspective of an entire system operation, a system's quality primarily refers to the operation efficiency of an information system. Thus, the key measures of system quality are still usefulness, usability, responsiveness, reliability, and flexibility (DeLone & McLean, 2004). In this work, system quality means the degree to which using a smart exhibition framework appears to have met customers' needs in several aspects, such as instant connection to the Internet, fast response (download speed), good functionality, error-free transactions, and appropriate hypermedia presentation. This approach was applied because when the information system users are customers instead of employees, their use is typically volitional (DeLone & McLean, 2004). Thus, poor usability, usefulness, or responsiveness can discourage customer usage of an e-commerce system. For instance, research in online hotel booking has found that the essentials of system quality mainly include availability (Kim et al., 2006) and searching response time (Au Yeung & Law, 2003; Wong & Law, 2005), and these features are crucial in determining customers' purchase decisions. The expected benefits are unlikely to be realized when system quality is unsatisfactory. Moreover, when users are customers instead of firm employees, system security becomes a more significant system-quality issue because e-commerce is typically conducted over the Internet rather than over a private, proprietary network (Molla & Licker 2001).

Service Quality

Service quality refers to the overall support delivered by a service provider and applies regardless of whether support is delivered by the IS department or a new organizational unit or is outsourced to an Internet service provider (DeLone & McLean, 2004). According to Bhattacherjee (2001), service quality in a traditional IS environment typically refers to the availability of multiple mechanisms for dealing with customer complaints, assisting customers in using a product, suggesting complementary product or services, and problem solving. In the original formulation of the DeLone and McLean (2004) model, the dual dimensions of the system and information quality seemed sufficient to capture the essential characteristics of ISs being delivered to users. However, service quality is clearly needed as a third dimension. This is because users are now customers rather than employees. Therefore, DeLone and McLean (2003) stated that the service quality of a web IS should encompass the measures of assurance, empathy, and responsiveness as the users are customers, and poor user support will translate into lost customers and lost sales.

In this work set in an exhibition environment, the researchers define service quality as the degree to which using a smart exhibition framework can provide customers with prompt, promising, professionally-personalized service with a follow-up feature. Research in the hospitality industry (Ho et al., 2000) has found that the service quality of an online platform has a significant impact on customers' online purchase intention. Lee (2008) measured customer satisfaction with the official trade show websites and found that the overall introduction, general information, resource center, exhibitor list, and online registration had the largest influence on attendees' satisfaction. The ICT structure of exhibitions should fully consider the needs from the perspective of exhibitors and attendees and at different stages of the exhibition. To achieve high service quality, different design features should be incorporated into the smart exhibition system to meet various user requirements (Wu & Wang, 2016). Betts (2010) pointed out that designers of official exhibition websites must consider an easy-to-update website, provide convenient attendee registration, and consider different demands of information management at different stages. If arranged properly, the organization, navigation system, signage system, and search function can all enhance the experience of users (Sun & Tian, 2010).

Network quality

In the exhibition industry, networking is an important factor for conference attendance (Severt et al., 2007). Thus, this study replaced relationship quality with network quality, and the expanded four-factor framework was applied to examine the determining factors of a smart exhibition system in terms of attendees' use intention and satisfaction.

To enhance networking in exhibitions, several ICT technologies have been developed, such as a social media algorithm that matches attendees according to their profiles, a booth recommendation system that identifies the information of

attendees during their tours inside the exhibition, and a facial recognition system with artificial intelligence that displays an image and caption that represents attendees' interests at specific areas. These features facilitate the sharing of information about exhibitors and attendees; hence, more information is known about current attendees and more possibility is presented for high-quality connections. According to McCarthy et al. (2004), these advanced ICT technologies help most attendees gain positive experience and greater knowledge of their fellow attendees, thereby providing a stronger sense of community. A sense of community is as a sense of belonging and a shared belief that attendees' needs will be met through their commitment to unite at an annual meeting (McMillan & Chavis, 1986). From the individual perspective, Hahm et al. (2016) suggested that a sense of community contributes toward satisfaction with the event and future intention to return, and these features drive attendees to keep attending the same conferences annually.

Besides a sense of community, networking activities can also provide value from varying perspectives. In their exploratory study of event attendees and organizers, Mitchell, Schlegelmilch, and Mone (2016) found various value dimensions, such as learning and knowledge, innovation, reputation, and entertainment. From an organizational perspective, networking interaction not only leads to a business relationship but also causes experienced employees to use this external information for business purposes. From an individual perspective, networking activities allow attendees to fulfill human needs, such as esteem, status, emotional, and entertainment, for social interaction and satisfaction.

In summary, along with the advancement of smart products and smart systems, information technology has become one of the major aspects to be considered in almost every industry (Hlee et al., 2017). Thus, IT use perceptions and behaviors of convention attendees must be examined. Selecting exhibitions usually involves specific features of the exhibition, such as the reputation of the event, the surrounding environment, the quality and quantity of buyers/attendees, and costs (Kijewski et al., 1993). However, only a few prior studies have explored how intention to participate in an exhibition is affected by the corresponding IT service. In addition, little research is available on the influence of networking activities through ICT implementation before/during/after the event and exhibitions, such as the collaboration and project developed through the connections made between attendees. Such paucity is understandable as the boundaries are not always clear for relationships and networking activities accounted for by ICT systems and applications (Watson, 2002). However, in-depth interviews may be conducted with exhibition attendees to determine the effect of exhibition smart systems on the business relationships formed. This analysis can reveal the percentage of participants who are highly active in initiating/maintaining networks through the smart system in the exhibition, and repeating these measures over a longer period of time may provide even greater insight into the topic (Gloor et al., 2008). Therefore, this work aims to fill this gap to support the frequently proposed outcomes of networking activities.

Methodology

This study collected qualitative data through in-depth interviews of Canton Fair attendees. Qualitative studies commonly use a non-probability sampling method which focuses on whether the sample can reflect the characteristics of the population instead of highlighting statistical generalization (Ritchie, Lewis, & Elam, 2003). In this study, purposive sampling was chosen as a guideline to select interviewees. Purposive sampling is based on theoretical sampling in which participants are chosen in consideration of their insights into the studied issue and not because of their representativeness of a target population (Guba & Lincoln, 1994). Another key criterion for interviewee selection is accessibility. Interviewee availability in this study was secured by the invitation of exhibition attendees in the Canton Fair who are interested about the topic and available to take the interview. The target population of the study is the Canton Fair attendees who have knowledge and experience of smart technology and services. As discussed under the Literature Review, information quality, system quality, and service quality are often associated with the intention to use smart technology and user satisfaction. Accordingly, potential interview participants are any attendees who have knowledge and experience of smart technology and services during the Canton Fair. Fourteen attendees were recruited as interviewees. Table 1 presents the information on the final demographic profile.

Table 1. Profile of Interviewees

No.	Gender	Age Group	Origin	Numbers of visits to the Canton Fair
#1	Male	40–50	Local	9
#2	Male	30–40	Local	4
#3	Male	50–60	Local	15
#4	Male	40–50	Non-local	9
#5	Male	40–50	Non-local	11
#6	Male	50–60	Non-local	40
#7	Female	20–30	Non-local	1
#8	Male	20–30	Non-local	2
#9	Male	30–40	Non-local	4
#10	Male	60–70	Non-local	10
#11	Female	20–30	Local	10
#12	Female	30–40	Local	3
#13	Female	20–30	Local	1
#14	Male	20–30	Local	4

Data analysis followed Miles and Huberman's (1994) approach and consisted of three concurrent flows of activity, namely, "Data Reduction," "Data Display," and "Conclusion Drawing and Verification." First, data reduction refers to the extraction of rich data into identifiable categories, themes, and concepts. By analyzing the data from a bottom-up approach, themes were identified and organized into thematic domains. All interview transcripts were coded and rearranged into categories and sub-categories manually by the researcher

according to the themes, patterns, and relationships and by using the NVivo 11 software. Second, data displays are the ideographic presentations of the categories, themes, and concepts. Data display is the second element in Miles and Huberman's (1994) model of qualitative data analysis. From the perspective of smart framework evaluation, data display could be extremely helpful in identifying why a system is or is not working well and what can be done to change it. Finally, conclusion-drawing and verification is the third element of qualitative analysis. Conclusion drawing involves considering what the analyzed data mean and their implications for the research questions.

The validity of this study was assured through respondent validation and triangulation. Respondent validation or "member checking" was conducted after the interviews were verbally transcribed. This approach requires interviewees to review transcripts and/or a summary of the analysis and evaluate the accuracy and consistency of the transcription with the actual interview. Such process can prevent misinterpretation of the means or behaviors of interviewees and any biased observation of researchers (Maxwell, 2013).

Results

Prior research shed light on the motivational antecedents for exhibition attendees. Nevertheless, the literature does not satisfactorily account for the consequences and consumer behaviors regarding smart technology. This study systematically reveals the motivations of exhibition attendees and the consequences of dissatisfaction regarding smart technology. The analysis led to the creation of four primary themes relating to smart technology experiences and expectations: 1) dissatisfaction with information quality, 2) dissatisfaction with system quality, 3) expectation of better service quality, and 4) expectation of better network quality. Several secondary themes were also identified, all of which are discussed in the following section.

Dissatisfaction with Information Quality

Information quality captures the quality of the content that a system presents. According to DeLone and McLean (2003), the content of a web system should be personalized, complete, relevant, and easy to understand. Therefore, information quality is defined herein as the degree to which utilizing the smart exhibition framework can help attendees obtain complete, detailed, timely, accurate, reliable, and selective information for choosing and comparing exhibitors, enhancing the convenience of browsing and arranging things, and making better recommendations for their tour. However, most interviewees were extremely dissatisfied with the current information quality. Two categories of complaints emerged: lack of information and poorly designed website.

Lack of Information

Eight of the 14 interviewees (#1, #3, #5, #6, #7, #11, #12, and #13) complained about the limited information presented to them. Lack of information could cause confusion and frustration of attendees. For example, Informant #12 reported:

> *"The Canton Fair organizer offers an official website. They give a clear guide of how to register, how to get a map, how to go to the different areas. But I suppose it's quite difficult to connect with the reality when you go to the Canton Fair. The complex is very big. We just see the booth online but it's hard to get the really clear guide."*

> *"I think they should provide the buyers or the suppliers a clear platform to get information. They just still use the guide books. I think they do not have much smart technology in the complex, they should improve that. Still old school style."*

Such confusion and frustration could lead to dissatisfaction. For example, when asked about their satisfaction with the information provided from the Canton Fair Centre, Informant #12 complained:

> *"Not really, because they provide limited information. When I want to search specific information such as what area I can get the product I want, and how can we compare different suppliers of the same product, I cannot find it. It's very important in the import and export exhibition business."*

In addition, previous literature revealed that when users are customers, the measures for information quality should be renewed and updated (Parsons et al., 1998; Barua et al. 2000; Molla & Licker 2001; Palmer, 2002). Customers may prefer dynamic and personalized information. The current results echo such finding. For instance, Informant #7 stated:

> *"It is my first time at the fair and for that reason I download the APP, because I want to navigate the fair as easy as possible and to maximize the fair as much as I could. I found the APP is no use, it's difficult to get into and difficult to log in too. Even when I'm logged in, it didn't track where I have been to and where I should go next. It didn't give me the information that I want before."*

Poorly Designed Website

Betts (2010) indicated that designers of official exhibition websites must consider an easy-to-update website, provide convenience for attendee registration, and consider the different demands of information management at different stages. If arranged properly, the organization, navigation system, signage system, and search function can all enhance user experience (Sun & Tian, 2010). However, a

poorly designed website can also greatly damage user experience. According to Informant #6, the website must be easy to use:

> *"First of all, updating the website makes it interesting and attractive. The most important point is when foreigners register in the website, it's very difficult. A lot of friends have told me so. It requires this and requires that, as very complicated. It should be made simple."*

In addition, attendees also seem dissatisfied with old information and low-tech format of the current website. They expected more smart technology to help enhance the experience of using exhibition websites. According to Informant #1,

> *"Current information on the Internet is limited as I mentioned, and this is one major limitation to the current website. And also all the information, I think, is primarily for their membership only, but not for buyers. The information in there is 2D, which is a very traditional way, but the current technology is 3D and even 4D.They can watch these things. If smart technology can help make these product 3D, then they may be much attractive."*

Dissatisfaction with System Quality

The key measures of system quality are usefulness, usability, responsiveness, reliability, and flexibility (DeLone & McLean, 2004). In this study, system quality means the degree to which using a smart exhibition framework appears to have met customers' needs in several aspects, such as instant connection to the Internet, fast response (download speed), good functionality, error-free transactions, and appropriate hypermedia presentation. With the Canton Fair's enormous space and attendees, Wi-Fi connection and Internet speed were very poor, and informants thus felt unable to enjoy any smart technology inside the venue. Eleven of 14 interviewees complained about the Wi-Fi connection, and they decided not to use it at all. For example:

> *"I tried the Internet once. The Wi-Fi doesn't work so I just used my mobile data." (#8)*

> *"I didn't because I found it difficult so I didn't use it. I tried to find it comfortable. I tried to find it easy before I came, but I don't think it's comfortable and easy."(#9)*

System quality is the foundation of numerous smart technology uses. If connection fails, then all other smart technologies would fail. For example, e-payment would become difficult:

> *"Actually it can connect the Internet in the Canton Fair. However, you know so many people come here so the Wi-Fi and the Internet are very slow. Even in the corner, when I wanted to buy some food*

in the Café, I had a bad experience because I cannot pay via phone. I need cash or credit card. I think they can improve the Internet speed." (#14)

The experience of using communication apps would also be largely affected:

"I see many people try to call via WhatsApp or WeChat, but they cannot hear each other. They need to put something to make it louder. Everyone needs to contact each other, but everyone's saying 'where are you? Where are you? Where are you?' Then after one minute, the line is gone." (#3)

Some interviewees were expecting 5th generation (5G) mobile networks (5G)to solve this problem. For example, Informant #1 stated:

"We are now living in the 5G era, but the Canton Fair still feel like it's in 2G or 1G. Canton Fair always promote with historical fair, so it means that other people think it's old fashioned. The Canton Fair features history, but it should also demonstrate technological tools."

Expectation of Better Service Quality

Service quality is defined herein as the degree to which using a smart exhibition framework can provide customers with prompt, promising, professionally-personalized service with a follow-up feature. Previous research has found that the service quality of an online platform significantly affects customers' online purchase intention (Ho et al., 2000). If arranged properly, the organization, navigation system, signage system, and search function can all enhance user experience (Sun & Tian, 2010). However, the service quality of Canton Fair's ICT system failed to meet attendees' expectation, and a huge room for improvement was revealed.

Smart Technology Solutions

Smart technology means that consumers will be surrounded by ubiquitous computing in a modern environment, and smart products can act autonomously to establish interactions with other products or provide important information according to customer needs (Rijsdijk, 2006). As revealed by interviewees, using smart technology could effectively enhance their visiting experiences during the exhibition. In particular, most interviewees mentioned that a booth guidance system should have been present. For example,

"I think they can make a guide system to direct how attendees how to go to each booth or the industry booth you want to visit is in which hall." (#14)

"The smart technology set-up at the Canton Fair, for example, should have a QR code for each booth. Once we have scanned the

back of the booklet, the navigation should direct us to the booth. That will help us save time." (#1)

Dining and transportation needs were also constantly mentioned by interviewees. Smart technology seems to be the solution to such issues. Informants #4 and #11 stated that:

"People should be allowed to order food or book a taxi via app, or all suppliers the can order food on the booth. Currently, only McDonalds is offered, but no one can eat McDonalds for five straight days." (#4)

"At the Canton Café, Canton Fair guests can order food and beverages online on their own. No need to deliver; they can do it like McDonalds wherein they have mini apps for you to choose which shop you would like to make the order, and what time you will go there to pick up the food whether immediately, 15 minutes later, or 20 minutes later. I thinks it's very convenient for both buyer and supplier."(#11)

Expectation of Better Network Quality

In the exhibition industry, networking is a crucial factor for conference attendance (Severt et al., 2007). According to McCarthy et al. (2004), advanced ICT technologies help most attendees have a positive experience and greater knowledge of their fellow attendees, thereby providing a better possibility for high-quality connections. The results of the current study echo the findings from previous research. According to informants, smart technology could greatly improve the network quality.

"With this smart technology, I always think about instances when I forget to bring my business card or when some of my records are missing, but once this smart technology is set up, then I can go to the booth to use the tag, the buyer and supplier can have a record of this guy visiting, so then they can know you more and keep contact using this smart technology." (#1)

"Good technology can help people make everything faster and attractive for customers. May be you have to make an APP on the phone. You know, I go to the Canton Fair, I have many cards. It's art, but after that I don't know how to put this, maybe I lose some cards, or I take only five because I don't care that much. After one day, people don't know who is who. To make an APP, you sign in and see this is a booth next to you, located in A or B. You can check everything on the computer—the email, the contact number—and you know who is who, including which booth you want to visit,

which booth you want to inquire, and everything on the computer." (#2)

"If I could scan your stand QR code with phone, then everything appears automatically, and it will be easy. The fair says I know where you went, the fair says I know you have a good fair, because I know you attend on Monday and you attend on Tuesday, and we know you went to the following booth because you walked there and you scanned, I know that you got involved in the fair." (#7)

DISCUSSION

Figure 2 summarizes identified themes about the role of smart technology in IS success variables (DeLone & McLean, 2003). Exhibition companies play a key role in planning and offering exhibition products for exhibitors and attendees. Traditionally, the tasks of exhibition companies mainly involve floor space promotion and selling. Therefore, organizers only needed to focus on acquisitions raised by exhibitor and attendees. However, with the development of technology and the evolved function of exhibitions, organizers must develop innovative exhibition concepts and catchup with industrial trends to help exhibitors establish effective communication and networking with their customers (Heckmann, 2005). Massive usage of smart technology has become a norm nowadays. However, this work revealed that the adoption of smart technology in the exhibition industry remains underdeveloped. To fill this gap, the current research regards attendees' motivations and expectations from an ICT perspective, and the results provide a comprehensive understanding of exhibition attendees' motivations and expectations from smart technology.

ICT is consistently changing the nature of tourism (Buhalis & Law, 2008). ICT used for travelling has become increasingly fast, intelligent, and embedded in users' environment. The emergence of smartphones and their apps made such changes even more dramatic (Gretzel, 2011; Wang, Park, & Fesenmaier, 2012). The increasing popularity of apps seems to have significantly affected consumer preference and behavior (Wang, et al., 2012). However, empirical research on such issue in the exhibition industry and on the nature of attendees' visiting experience, which affects their satisfaction, is lacking. The results of the current study indicate an emergent need for developing smartphone apps for large exhibitions such as the Canton Fair.

As discussed, smart technology means that consumers will be surrounded by ubiquitous computing in the modern environment, and smart products can act autonomously to establish interactions with other products or provide important information according to customer needs (Rijsdijk, 2006). Clarke and Flaherty (2003) indicated that the benefits of mobile services relative to generic online services can be summarized into four main factors: the possibility of accessing services anywhere regardless of location (ubiquity), the availability of services at all times with the convenience for users to access them at their point of need (availability), the tailoring of service contents to user location (localization), and

the additional customization according to other personal variables (personalization). The findings of this study echo these statements. Specifically, attendees were expecting the information service from the Canton Fair to be personalized, real-time, traceable, and easy to acquire. Developing a specific mobile app for large exhibitions, therefore, could fulfill attendees' expectations and enhance their visit intention and satisfaction.

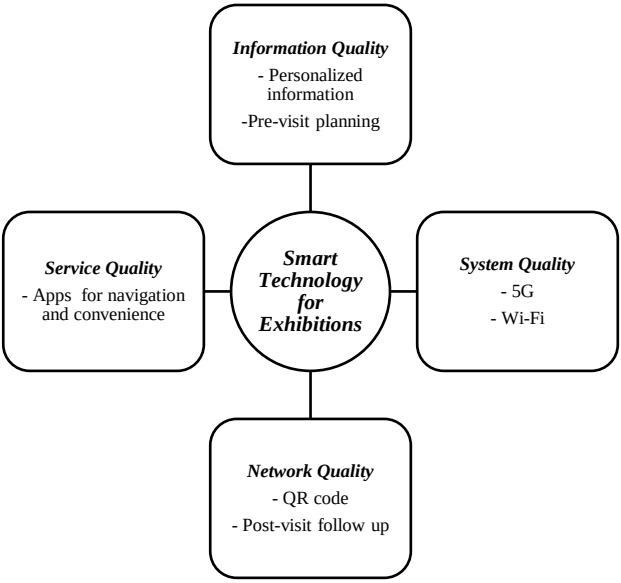

Figure 2. Model of Smart Technology Implementation for Exhibitions

As for the size and functionality of such a mobile app, a mega app seems to fit the descriptions from the attendees. Mega apps incorporated with smart technology are starting to appear in many industries and have changed business approaches. A mega app such as WeChat allows users to do almost everything in China including chat, shop, play games, pay bills, and even manage bank accounts. People communicate and interact with everybody else on such platform (Yang, Sun, & Lee, 2016). In addition, understanding users' actual information needs and their actual usage patterns are vital for adjusting user–system interaction to successfully implement a smart technology. This circumstance is because users typically cannot engage in complex browsing due to the many contextual constraints in a mobile scenario. Thus, the actual usefulness, adoption, and success of a mobile IS heavily depends on the appropriate design of the available functionalities and of the interaction interface (Not & Venturini, 2013). This situation is particularly essential for mobile apps conceived to be accessed anytime, anywhere, and for various purposes. Moreover, an iterative revision of design choices is required for such apps starting from the analysis of actual usage. The outcomes from the current study indicate that a mega app developed for large

exhibitions should have at least four major functions: mapping and navigation, social networking, tracking and tracing, and integration with other apps, such as e-payment, taxi, and food delivery.

Besides their application in software development, the results of this study could also be used as guidelines for ICT infrastructure development for large exhibitions and events. According to Kim et al. (2016), ICT infrastructure (e.g., service server, database, and network) should be already built before implementing smart apps and software. 5G technology seems to be essential for smart apps. In terms of system quality, Canton Fair attendees require stable Wi-Fi connection and high-speed Internet. In terms of service quality, smart apps must constantly collect the location information of attendees who use the app and offer corresponding personalized services. Most interviewed attendees stated that they prefer personalized information services. Such services could be achieved through a smart exhibition infrastructure and smartphone apps for attendees. For example, target exhibiting firms can be recommended for attendees according to visitor's preferences obtained through a real-time recommendation analysis model. Furthermore, items that rank high in terms of real-time crowdedness can also be provided to help attendees obtain diverse useful information through the exhibition app. From the exhibitors' perspective, the system can also prevent people from flocking in some booths only and encourage them to visit less popular firms. Visitors would be able to receive diverse contents through the platform and easily locate the booths they are interested in. In addition, exhibiting firms can measure the effectiveness of marketing and promotion efforts with quantitative data and analyze buyers' behavior patterns to maximize the benefits from participating in the events. Big data gathered from the smart exhibition platform can also be used to generate heat maps (a tool that measures the flow of traffic) in exhibitions. Such developments can considerably affect the events industry.

Conclusion

In summary, this study investigated how modern smart technology influenced attendee behavior, perceived usefulness, and brand awareness. DeLone and McLean's (2004) IS Success Model seems to successfully fit the scenario of smart technology adoption in the exhibition industry, and the newly added dimension (network quality) was a suitable extension of the said model. The results of this work can help academics and industry executives understand more of the dynamics behind smart technology development for convention and exhibition venues. This work also adds to the current literature in the field of conventions and exhibitions by providing a basic framework for comprehending the issues that have been and will be encountered by destinations.

As with any other research, this study has limitations. First, given its exploratory nature, the data in this work were collected solely through in-depth interviews using a small sample of attendees to the Canton Fair. This limitation may prevent a full understanding of what must be done regarding smart technology adoption. Second, only a single setting was investigated, namely, the Canton Fair,

the largest trade event in terms of exhibition footage, number of attendees, and business turnover in China (Jin & Weber, 2008). Information on other venues that host conventions and exhibitions (such as convention hotels) are excluded from this research. Third, this investigation only examined a well-known convention and exhibition venue, and the findings may be unsuitable for new and expended venues. Thus, multiple avenues must be employed for future research. Specifically, future research could use other methods, such as quantitative approaches, to verify the results of this Moreover, future work. research could be conducted in other settings of exhibition venues to explore if any other factors affected smart technology adoption. Lastly, a longitudinal research design is recommended to obtain a more thorough understanding of the development of smart technology in the exhibition industry.

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