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TITLE: STAKEHOLDER ENGAGEMENT IN THE DESIGN OF SCENARIOS OF TECHNOLOGY-ENHANCED TOURISM SERVICES

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ABSTRACT: The rapid uptake of mobile and digital technologies has the potential to radically transform city-visiting experiences. This will result in a transition from technology that is owned and delivered by tourism organisations towards software developed by third party organisations that is owned and managed directly by tourists. Tourism providers in destinations must collaborate in service provision in order to develop integrated services to meet the needs of tourists and remain competitive. This paper argues that scenario-based design (SBD) offers a useful tool to generate innovative ideas for destination service development and to break down barriers to collaboration amongst tourism stakeholders. We report a study, which engaged city stakeholders in envisioning innovative, technology-based tourism services. We outline this process, discuss the value of SBD in multi-stakeholder service design, and make recommendations for future work in this area. (140 word)

KEYWORDS: *scenario-based design; stakeholder engagement; service design; mobile tourism.*

TITLE: STAKEHOLDER ENGAGEMENT IN SERVICE DESIGN FOR PERSONAL TECHNOLOGIES

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INTRODUCTION

Tourism is becoming increasingly mediated by digital technology. This started with the SABRE reservations system in the 1960s (Copeland, Mason & McKenney, 1995) and subsequent systems to assist booking agents, followed by computer-based and web services for tourists (such as Lonely Planet¹ and Trip Advisor²), personalised guides offering audio (Tallon, 2008), interactive multimedia (Proctor & Burton, 2004) and context-aware adaptation (Abowd, Atkeson, Hong, Long, Kooper & Ponkerton, 1997). The parallel trends have been towards developing interactive online services, personalisation of the tourism experience, and social sharing of visiting information.

Visitors now expect an integrated tourism product that enables them to know what is available at a destination, book travel, accommodation and visitor attractions, find relevant information before and during the trip, capture and share experiences, and view souvenirs of the visit. Developing such an integrated system requires a deep level of understanding of different tourist needs in respect to technology-enabled destination experiences that necessitates a high degree of stakeholder collaboration. The importance of stakeholder collaboration in tourism has been detailed in many previous studies, however there are few that have addressed these issues in the context of product innovation. Our aim with this study was to 'engineer' a collaborative environment for tourism stakeholders in which they could contribute to ideas for an integrated tourism service, based on scenarios. This was achieved through a method called Scenario-Based Design (SBD) (Carroll, 1995). This process revealed the potential for SBD to overcome some of the barriers and challenges to stakeholder engagement and collaboration identified in

¹ <http://www.lonelyplanet.com/>

² <http://www.tripadvisor.com>

the literature. Our aim with this paper is to show, through a case study approach, how SBD can be used to engage diverse stakeholders in new service developments.

The paper addresses the need and opportunity for introducing digital technology into tourism experiences. We first outline applications of digital technology in destinations to provide tourist services that are immediate, personal and social. This is followed by a discussion of the literature on stakeholder engagement and collaboration in tourism, focusing on barriers and challenges to collaboration, which have been highlighted as a critical issue in destination competitiveness. We then describe theory and applications of SBD, a method first developed for development of human-centred software systems. A case study is presented on how SBD was applied to engage city tourism stakeholders in collaborative design of technology-enabled tourist services. The case study involved the development of 'envisioning' materials based on the Experian Robin Hood Nottingham Marathon, semi-structured interviews undertaken with a small sample of key tourism stakeholders in Nottingham (a medium-sized city in the centre of the UK), and a half-day workshop event involving a wider range of tourism stakeholders. The paper concludes with a discussion of the value of scenarios in the development of integrated, technology-enhanced tourism services.

DIGITAL TECHNOLOGY FOR TOURISM EXPERIENCES

The introduction of personal, social and contextual technologies for tourism began in 1952, with short-wave radio providing Ambulatory Lectures to personal receivers carried by visitors to the Stedelijk Museum (Tallon, 2008). This was followed in the 1970s by audio recordings on Sony Walkman devices, and in the 1990s by digital location-aware guides (Abowd et al., 1997) that provided audio and visual media based on the position of the visitor.

Abowd and colleagues propose four digital services for a context-aware 'Cyberguide', namely: Cartographer (map component – 'where am I?'); Librarian (information component – 'tell me more about this'); Navigator (positioning component – 'what am I looking at?'); and Messenger (communications component – 'I want to contact'). These components have been elements of subsequent personal tourist systems. Examples include the Lancaster GUIDE system (Cheverst et al, 2000), the EU funded MOBIlearn³ project (Lonsdale, Baber & Sharples, 2004) the Danish tourism project 'Mobile Digital City and Nature Walks' (Bojen Nielsen, 2004), the 'MyMap' project (De Carolis, Novielli, Plantamura & Gentile, 2009), and city-based projects such as 'Mobile Bristol'⁴.

Some of the early projects in personalised digital tourism (e.g. Cyberguide, MOBIlearn) were developed by researchers with a background in human-centred computing. They adopted a Design-Based Research approach (DBR Collective, 2003) involving exploratory prototype development and testing in collaboration with stakeholders. This first considered what services might be useful and could be

³ <http://www.mobilelearn.org/>

⁴ <http://www.mobilebristol.co.uk>

best supported by mobile technology then determined, through design workshops and iterative prototyping, how the technology would have to work.

However, many digital tourism services have not had a good alignment between the needs of visitors and the services provided through technology. Schöning, Hecht, & Starosielski (2008) noted that many digital tourism systems provide either trivial information on a global scale, or good quality information on a very local scale. Furthermore, appropriate content for such systems is lacking as this development is time-intensive and expensive. The authors present and evaluate the WikEar system, which is specifically targeted at tourists seeking a more educational experience of the places they visit. It generates educational tourism narratives from Wikipedia and plays the narratives to tourists in audio form. The results of a pilot study to test the device were inconclusive, but positive scores were gained in relation to the educational value of the system.

Much of the current research in this area focuses on the solving of mostly technological problems together with shortcomings such as access and systems interfaces (O'Conner, 2008), Brown and Perry (2001 cited in Kenteris, Gavalas & Economou, 2009) suggest these technologies in general have had a limited success, due to the lack of in-depth study of the special characteristics of tourism, from which can be drawn implications for the design of mobile tourist applications. Similarly, Bojen Nielsen (2004) argues many projects in Europe are centred round technological potential and economic possibilities, rather than offering user oriented content. In response to potential disjunction between the context sensitive information provided in 'technology led' system developments and the actual behaviour of tourists, a recent strand of tourism research has emphasised the need for a 'user-oriented' approach to digital tourism technology development. This research stream identifies the clear potential for the use of new technologies in tourism whilst focusing on the services valued by the tourists (Goh, Ang, Chua, & Lee, 2009) and on their needs and actual behaviour (Brown & Chalmers, 2003).

Another smaller stream of digital tourism research focuses on the potential to offer locally adapted services (location based commerce). Just as the worldwide web brought information into a globally integrated system, the transition to digital mobile-based tourism experiences and services delivery represents a new transition, linking up aspects of visitor experiences through adaptive and personalised devices and location-sensitive services and communications (Sharpe & Hodgson, 2006).

Kannan, Chang and Whinston (2001) examined the potential for location based booking and ticketing for travel, hotels and events, whilst Hand, Cardiff, Magee and Doody (2006) explored the informational applications of location based services in terms of advertising, advising, traffic information and purchasing. More recently Marentakis and Emiris (2010) have studied the potential of location aware auctions of tourism services, arguing that such technology could allow companies to maximise their resources and could add an additional component to existing yield management systems. However, research on location based commercial applications is still in its infancy. Whilst mobile commerce (M-commerce) may revolutionize the way companies work, buy, sell and collaborate (Keen & Macintosh, 2001), this involves a co-evolution of personal mobile technology, business models, marketing, social networks, and administrative requirements (Buhalis and Law, 2008).

Furthermore, there has been little research that focuses on mobile technologies from the perspective of the suppliers. The only exception found was the study by Ihlstrom-Eriksson and Akesson (2007) where tourist agencies and several companies within the tourist trade in Halland, Sweden were invited to attend workshops. Several techniques such as brainstorming, scenario building, image boarding and story telling were used to explore barriers and challenges in providing IT support. Problems were traced to four problem areas: a) too many heterogeneous expensive systems that are hard to integrate, b) lack of IT competence, c) lack of time, d) problems with online marketing. The findings of their research were then used to inform the prototype development of a mobile tour guide, rather than to support M-commerce applications.

One further and important aspect in relation to digital technological development should be considered. According to d'Angella and Go (2009) the digital revolution has created an open networked world where instead of competing with each other, tourism firms are competing with rival destinations. The competitiveness of tourism organisations and destinations will increasingly depend on their ability to use innovative mobile technologies to promote location-aware services and to serve customers on the move (Keen & Macintosh, 2001). With the advent of this technology, the boundaries between competitors and partners have changed radically, necessitating a new rationality of sustained cooperation and reciprocity in the building of an offer (Aldebert, Dang & Longhi, 2010). It is critical therefore to gain an understanding of the factors that may influence the ability of stakeholders to work together in harnessing technology and integrating it into their business models.

STAKEHOLDER ENGAGEMENT IN TOURISM

Tourism studies has long recognised the importance of stakeholder collaboration in tourism planning (Jamal and Getz 1995; Bramwell and Sharman 1999; Arnaboldi and Spiller 2011). According to Hall (1999), since the 1970's the trajectory of Western governance of tourism has been to reduce the role of the state and to pass responsibility for tourism planning and development increasingly onto collaborative partnerships of stakeholders. Over the past twenty-five years there has been a growing body of tourism research on stakeholder engagement in successful tourism planning and development (Inskeep, 1991; Hall, 1999; Stokes, 2006). This emphasises the importance of collaboration between stakeholders, due to the composite nature of tourism destinations, together with the need to present a coherent offer while remaining competitive (March & Wilkinson, 2009). Whilst a thorough review of stakeholder roles and collaboration lies beyond the scope of this paper, the literature can be broadly classified into two approaches: stakeholder roles in tourism planning and development (the public policy perspective, e.g. Bramwell & Lane, 2000); or collaboration in marketing alliances (the marketing perspective, e.g. Fyall & Garrod, 2005; Palmer & Bejou, 1995). Two common threads are the need for collaboration to create sustainable tourism development (Sautter & Leisen, 1999) and role of the public sector in coordinating or facilitating engagement between the ranges of stakeholders (Jamal & Getz, 1995).

Collaboration follows as a result of differences between the needs or strategies of autonomous but inter-connected organisations (stakeholders). Bramwell and Sharman (1999) outline three important benefits arising out of collaboration:

reduction in costs associated with potential adversarial activities or conflict resolution; greater political legitimacy in effecting policy and planning decisions; and more efficient and effective organisational outcomes as a result of added value brought through the collaboration. Collaborating organisations understand and share a sense of common purpose. This does not necessitate holding the same goals, but rather sharing an understanding of the value derived from working together to plan, manage, or market tourism destinations, which is referred to as the exchange perspective (Jamal & Getz, 1995). Alternatively, organisations form groups in order to gain or improve control over scarce resources in the environment, known as the resource dependency perspective. Organisations will often form a mixture of each type of arrangement.

Theory development in collaboration for tourism has embraced the 'network' approach. We live in a networked society (Castells, 1997) where networks are complex adaptive systems of interactions between individuals and organisations (Scott, Baggio & Cooper, 2008). Stakeholder theory suggests that anyone with a legitimate interest in the organisation or its activities (often the case in tourism where one organisation's activities can impact on other people's or organisation's views) can be considered a stakeholder, and that all stakeholders should merit consideration regardless of the functional value they can bring to the organisation (Freeman, 1984; Donaldson & Preston, 1995). In this sense, stakeholders and their interests need to be harnessed and managed to maximise the value or achieve goals (Sautter & Leisen, 1999). Selin and Myers (1998) found a number of factors that contributed to the effective working of tourism marketing alliances: adequate representation of interests, a shared vision, goal accomplishment, good working relationships, and open communication between members all contribute to effective collaboration and member satisfaction.

Many studies on collaboration highlight barriers and/or challenges to successful partnerships, in a range of policy and marketing contexts (Bramwell and Sharman 1999; Yuksel and Yuksel 2005; Wong, Mistilis & Dwyer, 2011). Various studies have assessed the contributory factors leading to successful collaboration, partnership or network activity (e.g. Bornhorst, Brent Ritchie & Sheehan, 2010 provides a comprehensive review of research in this area). Wong and colleagues found that barriers to collaboration amongst ASEAN network partners included: a desire to maintain control amongst the individual participants, coupled with changing priorities; a lack of coordination amongst government departments which created barriers to inter-agency coordination; a lack of collaborative mindset in some areas despite a general sense of trust and goodwill amongst the network partners; the dialectic between cooperation and competition among members; and a lack of private sector involvement. There have been relatively few studies however on the processes by which city tourism stakeholders engage and collaborate in relation to tourism services innovation and the process of new service development. Whereas networks of small businesses have been shown to be effective in developing innovations (Novelli, Schmitz & Spencer 2006), and in the context of destinations, collaboration has been effective in process innovations (systems, IT etc.), there has been less emphasis on product innovation in destinations and a need for further research on innovation across a range of contexts (Hjalager 2010). Further research is needed to investigate how collaboration is negotiated and enacted between stakeholders: to understand how networks of stakeholders can

establish effective partnerships, and how destinations can form connective alliances and stakeholder relations in product innovation (Scott, Baggio & Cooper, 2008).

SCENARIO-BASED DESIGN

Scenario-based design (SBD) (Carroll, 1995) is a method for envisaging and developing new technology-based systems for work or leisure. It extends previous work in soft systems (Checkland & Scholes, 1990) socio-technical and cooperative design (Greenbaum & Kyng, 1991; Mumford, 1995; Sachs, 1995) and the application of ethnography to system design (see Rogers & Bellotti, 1997 for a review). SBD is one of a range of methods adopted as part of User Centred Systems Design (Norman & Draper, 1986) and Design Based Research (DBR Collective, 2003) where computer systems developers, topic experts and potential users work together to envision and design future human-technology systems (people interacting with technologies) which are then developed through an iterative cycle of implementation and user testing. Originally intended for developers of new personal technologies such as handheld computers and computer-based learning systems, SBD has broadened to develop technology-enabled experiences such as embodied computer games (Strömberg, Väättänen, & Rätty, 2002) and technology-enabled museum visits (Hall, Ciolfi, Bannon, Fraser, Benford, Bowers, Greenhalgh, Hellström, Izadi, & Schnädelbach, 2001).

By contrast with previous methods that relied on abstract descriptions of the technology and its use, SBD starts with the writing of short narrative descriptions of how people might interact with technology in the future. The systems designers in consultation with potential users, normally write each narrative, or scenario. It is told from the perspective of a typical user and describes a series of events that include the social setting, interactions with the technology, resources, constraints and background information. The aim is to produce a compelling and informative short story that illustrates the typical user's goals, activities and context.

The value of a user scenario is that it acts as a bridge between designers and stakeholders in the project, providing an informative 'day in the life' of a typical user of some future technology while indicating to systems developers the social and contextual factors that need to be considered in developing the new technology. The scenario then becomes a 'design object' that can be extended or revised as the technology is developed. It might directly inform specification of the new technology, or provide a more general indication of how designers and stakeholders view the impact of new technology on everyday activity.

As an example of SBD in practice, MOBILearn (Bo, 2002) was a large European project to design and implement a generic system for adult mobile learning. The project identified three typical domains where mobile devices might support effective learning: in museums, for first aid in the workplace, and by students on an MBA course. The project team for these domains produced scenarios. Then, all members of the large project consortium were invited to contribute additional scenarios resulting in 27 scenarios: eleven relating to Museums, nine within the MBA strand, three within the Health strand, and four outside these categories. The team examined all the scenarios, extracting common elements, to produce a set of general requirements and constraints for developing the MOBILearn system. The

three original scenarios were extended with ideas from the additional 27, and these were discussed with potential users to gain a rich picture of the user needs, issues and expectations. Throughout the project, the scenarios acted as reference points, to ground the expectations of potential users and to provide the systems developers with an indication of how their technologies would be used in practice.

Other methods that have employed scenarios as part of technology-oriented design include cooperative design workshops (Svanaes & Seland, 2004), situated and participative enactment of scenarios (Iacucci, Kuutti & Ranta, 2000) and future technology workshops (Vavoula & Sharples, 2007). These have extended the original focus on design of technology, to embrace an activity perspective that explores interactions between people and technology in physical and social contexts. Thus, the Future Technology Workshop method involves a series of structured workshop sessions where people with knowledge or experience in an area of technology-based activity work together to envisage future activities related to technology design, build models of future technologies in use, devise scenarios of use for their models, re-conceive their scenarios in relation to present-day technologies, list problems with implementing the scenarios, explore the gap between current and future technology and activity, and end by listing requirements for future technology (Vavoula & Sharples, 2007). Since tourism involves a diverse set of participants acting across a broad range of contexts then these more recent approaches to scenario-based design could offer an effective means to examine the social and cultural complexities of interacting with technologies that have not yet been invented or deployed.

STAKEHOLDER ENGAGEMENT THROUGH SCENARIO DEVELOPMENT

Technology is developing at a rapid pace and consequently the level of adoption of new technology into businesses is variable and dependent on numerous factors. Thus not all stakeholders involved in city destinations are aware of emerging technologies and their application to tourist experiences. The use of scenario development was aimed at highlighting the opportunities for new forms of visitor experience presented by mobile digital and context aware computing. The context for this study was Nottingham, a medium-sized city in the UK. In order to evaluate stakeholder responses to the SBD process, data were collected using a case study methodology (Yin 2003). Case studies have been widely used in tourism and recently to analyse collaboration issues between stakeholders (Wong, Mistilis & Dwyer 2011). Case studies have proved effective in studies on stakeholder collaboration behaviour, providing an opportunity for mixed methods and triangulated analysis of findings from different types of data or of data between researchers from different disciplinary perspectives (Lincoln and Guba 2000).

Our focus was to generate interest and involvement of a broad range of stakeholders from the tourism sector in envisaging how personal technologies could be integrated into their products and services as well as create new opportunities for city visiting. Such technologies are not part of current business models, so the research team had to try and stimulate interest from diverse stakeholders and to include a 'learning' element to develop their understanding of the potentials of the technology. This project was not developed specifically to study collaboration, but as part of a large research programme on the digital economy (www.horizon.ac.uk). For the initial stage the use of an 'envisioning tool' was proposed, as a prompt for

learning and to act as a generative mechanism to tease out future issues associated with the digital economy. This shared learning and idea generation activity led into a scenario development process, intended to examine the opportunities, challenges, scale and depth of potential collaboration in new forms of tourism.

RESEARCH PROCESS

The research process involved three key activities: the development of preparatory materials, interviews with key stakeholders, and a stakeholder workshop.

Developing preparatory materials

The Experian Robin Hood Nottingham Marathon was chosen as a scenario for development for two reasons. First, it constitutes a microcosm for city tourism. It is a temporally and physically contained event, attracting local and distant participants, their families and spectators, with a heritage theme. Second, marathon events are becoming increasingly instrumented, with runners wearing computer chips and GPS tracking devices that can collect race data and create an online visualization of the progress of a race.⁵ An initial generic scenario of a 'day in the life' of a marathon runner and her family taking part in a technology-instrumented marathon run was proposed by the research team, who then extended this by designing a storyboard from a series of discussion meetings between tourism experts, human centred system designers and marathon runners. A sketch storyboard was used as the basis for a photo-shoot around Nottingham and the images were edited with Photoshop then combined into a photo story with the ComicLife software.⁶ The intention of this storyboard was to show how emerging and near-future technologies might be integrated into a composite service, to enhance the experience of visitors to a combined sporting and tourism event. The intention was to use this as an 'envisioning' device around which interviews with key stakeholders could be conducted.

INSERT FIGURE 1 HERE

The photo storyboard (Figure 1) took the form of a story set in the near future of a runner (Anna) looking for a marathon, contacting a website to find a runner with a similar fitness profile (Claire) and preparing for the Nottingham Marathon. She studies the route, seeing projected times based on her profile and those of previous runners. After discussion with her family they decide to visit the city for the marathon weekend altogether. At the start of the weekend they follow the marathon route, with the car GPS system showing mileage points. At the hotel check-in they are given a personalised visit guide for the family, based on their ages and interests. The family meets Claire's husband for a car share and every family member has a phone with GPS tracking so they can find each other in the crowds. During the

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http://www.mylaps.com/index.php/us_eng/Websites/B2B/run/systems/gps_tracking_system

⁶ <http://plasq.com/products/comiclife/>

race, family members can send SMS text messages to Anna, relayed as synthesised voice to her earpiece. A citizen video system coordinates live camera feeds from the mobile phones of spectators, so the family members can watch video of Anna and Claire as they race, either on their mobile phones or nearby screens. A map shows the track of Anna and Claire, with camera points marked on the route. As the family walk around the city, a context-based tourist guide offers audio information about nearby landmarks and visitor attractions. One the way home after the race, the children combine and edit video clips from their cameras and the citizen video to produce a family video of the day while Anna reviews her race timings and biometric data.

Interviews

Interview requests were made with ten key stakeholders (people who had a high profile stake in the tourism and visitor economy of the city), selected specifically to represent the diversity of businesses, organisations and sectors involved with tourism. Seven interviews were eventually conducted. However, the diversity of the industry was still represented, as interviewees included the manager of a chain hotel, an event organiser, the manager of a visitor attraction, the regional marketing manager of cultural/heritage attractions, the head of the city sports association, the chairman of the hoteliers association, and the chairperson of the retailers association and council representative. Furthermore, four of the seven interviewees also held positions on the board of the city's destination marketing organisation.

The interviews were semi-structured in design with a guiding framework, which included the envisioning marathon storyboard outlined in the previous section. The interviews were detailed, varying in length from one hour to almost two and a half hours and with the permission of the interviewees, each was recorded and later transcribed. The main aim of the interviews was to explore the collaborative environment in the city, identify issues and barriers to collaborative product development, and also in part to pilot-test the envisioning materials and to inform the development of the research process. Initial questions about current business operations were asked to gauge the participant's general level of understanding and by association the current level of involvement in the use and development of digital technology. These were followed by questions on the future role of digital technology in tourism, designed partly to assess awareness of current digital developments and of technological potential. Finally, the materials were used to stimulate further discussion on the potential for a digitally enhanced visitor experience in the future, facilitating discussion on issues and barriers to the realisation of such.

Workshop event

The final phase of the data collection culminated in an interactive 'sandpit' workshop with key stakeholders drawn mainly from the city. The UK Engineering and Physical Sciences Research Council devised the 'sandpit'⁷ in 2003 as an

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interactive workshop for a range of stakeholders to explore multi-disciplinary problems and uncover innovative solutions. We have adapted the original 5-day sandpit workshop into a half day event with a focus on identifying and exploring future trajectories for technology development in improving the visitor experience. An emphasis was placed on generating an environment for creativity and lateral thinking among groups of participants.

Twenty-four external participants attended out of an invitation list of around forty people. Delegates represented the range of key stakeholder groups: council and local government, leisure and sport, entertainment, and arts and heritage. Our previous experience in running sandpits suggests that this was an optimal size as larger numbers may have led to a breakdown in-group dynamics. The event was held at a city-centre location, which proved to be a highly convenient venue for most attendees. At the start of the event, participants were split into four groups of around six people ensuring a complimentary mix of backgrounds and interests. Groups were also assigned two research facilitators to help support discussions.

The sandpit involved two key sessions. The first, the 'Oases,' required each group to progress around 4 'islands', each of which featured a showcase for new creative forms of visiting experience. Two of the four prepared examples were drawn from ongoing research, and involved short presentations about digital monuments and geospatially augmented visiting experiences. The third oasis centred on the marathon storyboard outlined previously. The final Oasis provided stimulus materials, in the form of tag clouds, drawn from the initial project interviews, the media and local tourism information. A researcher and a member of the project team staffed each Oasis. The groups spent about 15 minutes in turn, at each Oasis. This gave them the opportunity to ask questions about the visitor experience, investigate the digital technologies on display as well as getting to know their fellow group members. The process was designed to encourage participants to share their different perspectives. In a follow-up plenary, each group was asked to report on their collective group response to the Oases in relation to what had they considered innovative about the different displays, and what aspects they considered relevant or significant to their own sector as a tourism provider.

In the second session, referred to as the 'Garrisons' task, participants were reallocated into different groups and invited to brainstorm separately on novel aspects for future digitally enhanced urban visiting. Each member was asked to jot down a few words on post-it notes to capture their ideas, which were shared and discussed within the group, and clustered around agreed themes. Each Oasis group was facilitated by a person with technical expertise as well as a researcher from a tourism background with knowledge of the sector. Following a group vote, participants had to turn the most popular idea from the group into a scenario based upon a brief of a day visitor's experience to the city. The groups were given an hour for the Garrison activity. Each team then presented their final product idea to the rest of the group. The Chair of the plenary invited comments on the desirability, value and feasibility of each scenario.

Following the Sandpit event, the proposed scenarios were written up more fully by the researchers and distributed for comment among the Sandpit participants. Two of the four groups had proposed similar scenarios, therefore three distinct ideas emerged from the event.

1. 'EESE - Enjoy Every Second': a real-time, responsive, location based, 'pull'-advertising service for visitors,
2. 'MyNottingham': integrated mobile visitor services application allowing visitors to access information about and book tourism services,
3. 'Brought to life – The myths and reality of historical Nottingham': an augmented community local history benefiting from the Robin Hood links.

The final scenarios were reviewed and underwent a process of selection for future development by the research team. Each activity (station) area included a digital audio recorder, and audio files were analysed to capture the different perspectives on the SBD materials and also the challenges and opportunities for collaboration.

THE VALUE OF SCENARIOS IN STAKEHOLDER COLLABORATION

The value of using a scenario-based process to engage diverse tourism stakeholders was focused on its usefulness as a bridge between different stakeholders; its potentiality in helping to overcome perceived barriers to collaboration; and as a research and development tool that connected the public and private sector stakeholders and the knowledge-based academic community.

Firstly, SBD was useful in that it acted as a bridge between the designers (academics working in the cross-disciplinary digital economy research hub) and tourism stakeholders in the city. It furthermore seemed to provide a pivotal connection between the stakeholders in a novel way that went beyond the customary concerns of policy and business practice. Scenarios enabled them to think beyond current issues in operational contexts, to think about the broader destination-level issues, and to focus on the perspective of the visitor. Concurrent with previous studies, participants generally understood the need for greater collaboration in the city, and recognised the value of collaboration through current engagement in various networks and associations (Arnaboldi & Spiller 2011). However, those participants involved the scenario-based design process confronted issues of where responsibility lies for the holistic visitor experience, highlighting and emphasising the interconnected nature of tourism amongst diverse stakeholders and the importance of close collaboration in order to provide a digitally enhanced 'city offer' to visitors. It enabled stakeholders to learn more about the value of collaboration for developing digital applications that encompass the whole visitor experience as opposed to applications relevant for their own business function. The resulting scenarios projected applications and functions that would be appropriate for a multitude of businesses, whilst also combining 'guiding' applications from a user-oriented perspective.

Collaboration in digital technology requires that people think beyond current tourism practices, such as sharing marketing resources towards sharing data, knowledge and infrastructure. This proved problematic for participants. The data generated from the interviews and the workshop event revealed challenges and barriers to collaboration including: lack of congruence between strategic priorities and objectives of different stakeholders (especially between the public and private sectors); lack of trust in terms of sharing customer data and other internal information amongst stakeholders; possible legal barriers in terms of data

protection concerning sharing customer information; differences in policies imposed centrally by organisations or government on the use of data and access to technology. This presented a challenge in that success of any collaboration project requires open communication between members (Selin & Myers, 1998) and fundamental trust of staff to utilise technology and data properly. The types of barriers identified included some more generic factors identified in previous studies such as lack of trust and competing strategic objectives (Wong *et al* 2011). However, the majority of points raised concerned the technical and operational barriers to collaboration posed by the scenarios themselves. This was encouraging in that it shifted the perspective at least partially from systemic to task-focused issues of collaboration.

Although it is too early in the process to confirm the outcomes, based on the evidence collected during the study the SBD approach seems to offer potential because of this focus on task-related barriers. For example, participants expressed an awareness of the need to orient their offer to the needs and behaviour of tourists. However, they also understood that tourists plan, experience and reflect on an entire visit, so an integrated and ‘user-oriented’ approach was necessary (Bojen Nielsen, 2004; Brown & Chalmers, 2003; Goh *et al*, 2009). Therefore, a great deal of discussion surrounding the scenarios centred on how the technology should be instrumental to enhancing the visit experience, rather than being the focus of the experience itself or ‘getting in the way’ of the experience. The use of audio tours (with headsets) for example, was perceived to create barriers between visitors and staff leading to a ‘building full of zombies’. The participants’ focus on the design challenge enabled better collaboration and potentially a long-term commitment.

A further example concerns the considerable difference in the degree of knowledge of the technology amongst the participants. Whilst this was a perceived barrier to collaboration, the role of the SBD process was instrumental in enabling participants to overcome the ‘fear factor’, become interested in the creative process rather than the technical, and actively participate in the activities. The value of the SBD process was that it required participants to contribute to the development of a strategic ‘vision’ rather than detailed technological proposals. Furthermore, a shared vision of the future visitor experience is relatively easy to communicate to others, overcoming concerns relating to the level of knowledge of decision makers at the strategic level. However, we recognise that whilst it might be relatively easy to forge collaboration for ‘blue-skies’ thinking, the practical application might well be more prolonged and difficult to deliver in terms of committed collaborators.

The SBD approach was also useful in widening the scope for collaboration in the city to include the knowledge-based community. The process was instrumental in extending the networks of tourism stakeholders beyond the existing framework of interactions with the tourism department in the business school to include researchers and designers in education and learning, human-computer interactions, the humanities. Also, researchers learned more about the social and contextual factors that need to be considered in the design and development of technological applications. It informed the researchers understanding of how stakeholders view the role of new digital technology in everyday life activities. Whilst many studies to date have followed a technology-led path of progression, SBD enables a user-oriented approach, where users include both suppliers and customers of the urban

tourism product. As noted previously, stakeholder theory suggests that anyone with a legitimate interest in the organisation or its activities can be considered a stakeholder (Freeman 1984; Donaldson & Preston 1995) and stakeholders and their interests need to be harnessed and managed to maximise the value or achieve the goals (Sautter & Leisen 1999). The SBD approach was useful in widening the sphere of interaction beyond existing networks, which could potentially lead to further collaboration.

Although local residents and tourists were acknowledged as stakeholders there was a general reluctance to collaborate with these groups in innovative product design and development. Whilst the benefits of such involvement in terms of cost savings were acknowledged divisions between providers and customers and providers and local residents were believed to exist. Concerns were raised as to whether local residents would portray the 'right' message and suggestions were made for city residents to be 'reminded' of their city's offer so they took pride in the city and became advocates. This perhaps presents a challenge for stakeholders especially given the prevalence for users to use digital technology such as social networking media, to take control of visitor experiences. Secondly, this reluctance to involve and collaborate with a wider range of stakeholder groups may impact on creativity and innovation.

CONCLUSIONS

SBD is a useful and novel approach that can be used to engage diverse tourism stakeholders in new collaboration based on product development or innovation, in this case particularly useful in overcoming knowledge barriers surrounding digital technology, and to generate new interest in future engagement. SBD offers opportunity for further studies in tourism and potential use as an effective method for deepening and refining stakeholder involvement in tourism destination product design. In an emerging era of ubiquitous computing, the prospect of destination competitiveness being reliant, at least in part, upon the provision of mobile services to enhance the visitor experience is very real. Collaboration between stakeholders in this 'always on', 'always here' culture will be vital. Previous research has highlighted the factors that impinge on destination stakeholder's abilities to form connective alliances, which has led to a greater understanding of the complexities involved in the organisation of such a diverse and multifaceted sector. The findings outlined in this paper add to this research by contributing to understanding of issues surrounding stakeholder's engagement and in highlighting how barriers could be surmounted through an SBD approach.

A number of these issues relate to contextual factors and differences in sector, organisation structure and strategic priorities of the numerous stakeholders at the destination level. Hence whilst engagement of stakeholders at the local level is important, engagement with a wider range of interest groups provides a useful pivot for collaboration in new product development. Social factors were also found to present difficulties and until digital technological development becomes a core business function, many are likely to remain. Furthermore, whilst the value and need for increased collaboration between tourism-related suppliers' is widely recognised, the extent of acceptance of wider groups, including the academic community, and even locals and visitors, into the collaboration process was limited

in this case, perhaps indicating a ‘closed-circle’ mentality that may stifle creativity and innovation in destination product development.

The research found that the SBD approach proved potentially helpful to overcome some key barriers to collaboration, especially in relation to: differences in technological knowledge; providing a strategic focal point rather than technical issues; and contributing to a sense of shared ownership amongst stakeholders. By focusing on the end product, rather than technical aspects of product development, all participants were able to take an active role, resulting in a ‘shared vision’ of the future. From this perspective the SBD process may be as important as the outcome since it provides a useful platform for learning and for future collaboration, as well as an opportunity to build consensus between stakeholders. Importantly, SBD in this case acted as a bridge between the (technology) developers and the stakeholders. Instead of ‘technology-led’ initiatives that have dominated the field to date, which require ‘testing’ and assessment of their usefulness, the applications that emerged from the SBD process offer greater potential for successful application, starting as they do from a position of perceived ‘usefulness’ and greater sense of ownership amongst a range of stakeholders, facilitating ongoing involvement and ease of communication between the designers and the stakeholders.

However, there are limitations to this research. Whilst the case study offers interesting insights into digital applications in tourism destinations for the future, these remain at the conceptual level. And whilst the study offers evidence on stakeholder’s barriers and issues surrounding engagement and collaboration, we recognise the limited context and small sample involved in this research. Also, whether the stakeholders continue to work on the development of new products remains to be seen and is a matter for future research. However, we believe that the SBD approach has wider applications in tourism, not only in stakeholder engagement from the supply side perspective or in new product development, but in a broader set of contexts. This case study provides a possible template from which to explore future applications.

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Figure 1. Photo storyboard of a technology-enhanced Marathon.