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## Destination marketing: The use of technology since the millennium

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## ABSTRACT

This editorial presents an overview of studies contained in this special issue. Recognising that destination management and marketing remains a key field of academic study and as an issue of importance to the tourism industry. The collection of papers in this issue explore the rapid and expansive technological enhancement and innovations in destination management. Whilst not attempting to provide full coverage of emerging technologies, the issue has succeeded in identifying some key issues for future practice and research.

## 1. Introduction

Destination management and marketing remains a key issue as a field of academic study and as an area of importance to the tourism industry. Yet, in recent years, DMOs (destination management organisations; although the term is often used interchangeably with destination management organisations) have seen reduced public sector funding and an increased reliance on generating commercial income to support their core activities (Robinson, Lueck, & Smith, 2013). Over his same period, the impact of technology on the delivery of DMO responsibilities has produced significant opportunities and challenges. Disruptive activities and technologies have forced changes, even revolutions, in the way DMOs engage with their consumers. Over the past twenty years these can be best summarised as the emergence of the internet, the emergence of Web 2.0, the impact of eWOM, increased technological mobilities and, finally the consumer revolution which has witnessed the expansion of non-traditional forms of booking accommodation and travel. Such is the rapid pace of change that this special edition considers - the current technological forces which are shaping contemporary destination management and marketing.

Of particular interest, however, is one key issue which underlies all the papers which are presented in this special edition: the extent to which the role of DMOs and tourism communities increasingly reflect the idea of both co-creation and prosumption (Ritzer, Dean, & Jurgenson, 2012). Despite only becoming prevalent in the last two decades, prosumption was first explained by Toffler (1980) as bringing together the processes of production and consumption, an idea first explored by Karl Marx and later by McLuhan and Nevitt (1972). Prosumption was subsequently discussed by Kotler (1986) as 'The Prosumer Movement' and Dabholkar (1990), whilst the related concept

of 'value co-creation' (Humphreys & Grayson, 2008) has been of interest within tourism literature. Ritzer and Jurgenson (2010) and Ritzer et al. (2012) argue that prosumption has always existed, but has been understood as the separate processes of production and consumption. Xie, Bagozzi, and Troye (2008, p110) define prosumption (within tourism) as 'value creation activities undertaken by the consumer that result in the production of products they eventually consume and that become their consumption experiences'. This is consistent with the notion of value co-creation, where tourists also contribute to co-creation through their own performances (Haldrup & Larsen, 2010; Lusch & Vargo, 2006; Rakić & Chambers, 2012). This emerging work can be explored through a range of tourist activities. For example, Robinson (2012) discusses the role of Google Earth in contributing to the development of destination image, feeding into the hermeneutic circle of representation (Jenkins, 2003; Robinson, 2012) that informs and constructs destination images. This presumption of images and representations of first-hand visual experiences supports the network of resources that facilitate the tourist gaze in the first place, including transport and accommodation. Yet such images only provide information about what it is the visitor might see: in much the same way that TripAdvisor tells visitors about what they might experience. Further, as Ritzer and Jurgenson (2010) observed the consumer is fully engaged in the production of Google Earth content, adding their own photographs, 3D buildings and Wikipedia content, thus demonstrating the role of prosumption (and wikinomics) in travel experiences. Of even greater significance is the way in which such open access and image sharing opens up a more democratic construction of tourist spaces. Emerging technologies of augmented reality, multi-sensory experiences and enhanced technological functionality and design further enhance opportunities for prosumption and are all explored in this special

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edition. Indeed, [Ritzer et al. \(2012\)](#) suggested that it would be online spaces which enabled prosumption to become fully embedded in producer/consumer relationships.

This first discussion acts as a preface to the subsequent papers, exploring the context from which this special issue has developed. The paper provides a quantitative analysis of the content and topics discussed in the context of DMOs and technology over the last 17 years, providing a fascinating and valuable insight into the changing nature of both DMO practice and research in the field.

## 2. Setting the scene

Technological innovations have a long history of facilitating the development of tourism ([Hjalager, 2015](#)). Whilst tourism scholars started to recognise the key role of technology in tourism since the 1970s ([Buhalis & Law, 2008](#); [Pike, 2002](#); [Poon, 1993](#); [Sheldon, 1997](#)), it is argued that it is since the late 1990s, and certainly since 2000, technology has revolutionised the information distribution and communication channels within the tourism sector. As [Zins \(2007\)](#) concludes, web-based materials are the most prominent information source to travel planners. This is, to some extent, reflected in the existing research reviews which have been carried out ([Law, Leung, & Buhalis, 2009](#)). [Buhalis and Law \(2008\)](#) reviewed progress in information technology and tourism over a ten year period, and more recently [Standing, Tang-Taye, and Boyer \(2014\)](#) reviewed the impact of the internet on travel and tourism between 2000 and 2010. This resonates with the content analysis of [Leung, Au, and Law \(2015\)](#) where e-marketing is found to be one of the three most popular research topics since the millennium in the *Journal of Travel & Tourism Marketing*.

During this time period, numerous authors have commented on the profound impact of the internet ([Benson, 2008](#); [Jalilvand & Samiei, 2012](#); [Wareham, Zheng, & Straub, 2005](#); [Wirtz, Schilke, & Ullrich, 2010](#); [Zeng & Gerritsen, 2014](#)), and it could be argued that whilst much of this research was enquiring of the impact of technology ([Zeng & Gerritsen, 2014](#)), the increased proliferation of papers discussing technological aspects of travel and tourism is equally driven by the fast pace of change in the sector ([Neuhofer, Buhalis, & Ladkin, 2012](#); [Yovcheva, Buhalis, Gatzidis, & van Elzakker, 2014](#)). At the start of the millennium, the sector was looking to the production of websites as a key marketing tool ([Baggio, 2003](#); [Douglas & Mills, 2005](#); [So & Morrison, 2004](#)), but the following ten years saw a pace of change which was not predicted in the early years of the 21st Century. One of the key findings in [Standing et al. \(2014\)](#) was the degree to which the impact of the internet was underestimated during this period of time. [Leung and Law \(2007\)](#) particularly call for further research on the use of technology in destination marketing.

Whilst there have been meta-analyses of literature on the subject of technology and its impact on travel and tourism ([Buhalis & Law, 2008](#); [Law, Buhalis, & Cobanoglu, 2014](#); [Standing et al., 2014](#)), these reviews have been broad in their focus, with little attention placed specifically upon the impact of technology within destinations and destination marketing. In fact, [Lew and Duval \(2008\)](#) summarise that the work of [Alderman and Good \(1997\)](#) on the southern States in the US is one of the earliest online destination marketing research at the time when there were only 50 million internet users worldwide. Nowadays, destinations rely heavily on online marketing communication, and subsequently communication technologies ([Davidson & Keup, 2014](#); [Stienmetz, Levy, & Boo, 2013](#)). DMOs have undergone major changes in the way they work, and especially so in the last 15 years ([Gretzel, Fesenmaier, Formica, & O'Leary, 2006](#); [Sheehan, Vargas-Sánchez, Presenza, & Abbate, 2016](#)). [Pike \(2002\)](#) produced a well-cited analysis of destination management literature by which he reviewed 142 papers on destination management between 1973 and 2000 to provide a 'useful reference guide' and a useful insight at the time into the evolution, development and then contemporary state of destination management. It should be noted that these 142 papers were methodo-

logically selected and were not the sum-total of all papers on the subject. Similarly, [Buhalis and Law \(2008\)](#) identify two key limitations: one is their focus only on tourism journals and the method by which they classified the data. Their paper recommends extensions of the study, both longitudinally and in terms of breadth.

Thus, this paper reviews academic discussions surrounding the use of technology on destination marketing since the millennium. As a consequence of the analysis, the study is able to identify progression within this field of research, changing and emerging themes which direct future research and an overview of the impact and influence of technology upon destination management during a key period of technological innovation. As a result, the paper identifies and explores the key changes in academic research, from early studies of the impact of the internet through to contemporary research around Web 2.0, virtual reality and augmented reality, as well as the impacts of technology on the management and marketing of destinations.

## 3. Defining destination management

[Pühringer and Taylor \(2008\)](#) note that DMOs are complex and diverse organisations. The roles of DMOs have various dimensions as they are public facing as marketing organisations ([Pike & Page, 2014](#)), industry facing in terms of product development, quality, and destination brand development ([Bregoli, 2013](#); [Volgger & Pechlaner, 2014](#)), as well as adopting a lobbying and research role ([Laesser & Beritelli, 2013](#); [Pike, 2016](#)). Such organisations usually manage the 'official' destination websites ([Del Vasto-Terrientes, Fernández-Cavia, Huertas, Moreno, & Valls, 2015](#)), underpin database driven destination management system ([Énalán & Soteriades, 2012](#)), and develop strategic analysis through big data ([Fuchs, Höpken, & Lexhagen, 2014](#)). Destination management is further defined by [Vernon, Essex, Pinder, and Curry \(2005\)](#) as a 'collective effort that requires various organisations and businesses in a geographically limited area to harmoniously work together to achieve a common goal'. They play a key role in marketing, management, planning, and are relied heavily on engagement with stakeholders ([Bornhorst, Ritchie, & Sheehan, 2010](#); [D'Angella, 2007](#)).

The internet has evolved tremendously since the millennium. Web 2.0 has enabled websites to facilitate user generated content which are widely used by online travellers' ([Hays, Page, & Buhalis, 2013](#); [Shakeela & Weaver, 2012](#)). These user generated content sites, together with image sharing websites ([Hanan & Putit, 2013](#)), Google Earth ([Robinson, 2012](#)), and review websites such as [Tripadvisor.com](#) ([Miguéns, Baggio, & Costa, 2008](#)), have become widespread. This technological revolution has increasingly ceased the market failures in information production and dissemination ([Reinhold, Laesser, & Beritelli, 2015](#)). As a result, the conventional function of DMOs being an 'information source with authority' has been undermined somewhat by the emergence of these new communication tools ([Gretzel, 2006](#); [Hays et al., 2013](#); [Rand, 2006](#)). Further, the development of Geographical Information Systems (GIS) has created opportunities for tourism scholars to develop new perspectives regarding the places and the spaces at destinations ([Lau & McKercher, 2006](#); [Shoval, McKercher, Ng, & Birenboim, 2011](#)), as well as for DMOs to promote targeted tourism services or to enhance visitor experience with augmented reality technology ([Pedrana, 2014](#)). As [von Bergner and Lohmann \(2014\)](#) conclude, technology is one of the most prominent future challenges to destinations as DMOs need to 'adapt their marketing strategies, tactics and initiatives to the development and diffusion of new communication and information technologies in order to follow consumer preferences'.

[Standing et al. \(2014\)](#) identify that the period from 2000 to 2010 "covers the development of internet and tourism research over a significant period and is extensive enough to identify the emergence of literature on a range of research themes within the domain", thus by definition, any significant destination specific research will have taken place during and since this period of time, and not before it. [Buhalis and](#)

Law (2008) commence their analysis in 1998, but refer back to (Sheldon, 1997) and Poon (1993) in noting that communications in particular, have been influenced by technology for some considerable time before this. However, they also submit that 'since the year 2000 we have been witnessing the truly transformational effect of the communications technologies' and it is these tools which are of most interest in the context of marketing communications, as they most heavily influence the ways in which DMOs specifically communicate within and about their product offering. There were very few papers on this subject area before 2000 and most of these were published between 1990 and 2000, focussing on computer reservation system (CRS), global distribution system (GDS) and other systems aspects (Buhalis & Law, 2008). Therefore, this paper offers a timely review to conclude the use of technology in relation to destination marketing since the millennium. It is the creativity and communication technologies, and not the process and systems technologies which define the impact of technology in the context of this paper.

#### 4. Methodology

The aim of the research method adopted here is to review the specific paradigm of research which discusses, investigates and evaluates technology in the specific context of destination marketing. The research will conceptually classify focuses of research and will analyse papers discussing these subjects. The outcomes will provide longitudinal perspective around research themes and trends, and areas of greater and lesser research. This collective intelligence will cover the papers identified (but not limited) in *Annals of Tourism Research*, *Journal of Hospitality and Tourism Research*, *Journal of Travel Research*, *Journal of Travel & Tourism Marketing*, *Journal of Vacation Marketing*, *Tourism Analysis*, *Tourism Management*, and *Information Technology & Tourism*. Data was collected from journals using University of Wolverhampton databases and verified with reference to Google Scholar searches (Buhalis & Law, 2008), an approach also adopted by Leung, Law, van Hoof, and Buhalis (2013) and Standing et al. (2014). Upon completion of this initial data collection, each selected article was further reviewed through a process of content analysis in order to ensure the focus of its research is placed upon technology and destination marketing (rather than either of these two themes being an adjunct to the principal focus of the paper). The final analysis of the documents is, therefore, based upon a conceptual content analysis, based upon a grounded approach which allowed the key themes to emerge from the literature. This mitigates any issues of trying to make this analysis 'fit' and existing set of categories or classifications.

#### 5. DMO websites as the focal point

Official destination websites are recognised as a channel for providing authoritative information source to tourists. These DMO websites have taken the central stage of academic research in using technology for destination marketing since early 2000s and led to an array of studies investigating the communication of destination mix and unique selling propositions in the virtual environment (Govers & Go, 2003; Miller & Henthorne, 2007; Pechlaner & Raich, 2001). The high level of academic interest on official destination websites is comprehensible given that these websites are the most tangible evidence of using technology for destination marketing in an otherwise very intangible virtual world. Early adopters of DMO websites in the US could be traced back to late 1980s, but the majority of American DMOs did not launch their web presence until a decade later (Zach, Gretzel, & Xiang, 2010). It was also reported that by the end of the Dot-Com Bubble in 2000, around 80% of American DMOs were online. It was until 2006 that DMOs in the US were fully Internet-ready (Zach et al., 2010). Similar rush of launching official destination websites also happened around the world as recorded by The Internet Archive

**Table 1**  
The launches of official destination websites.

Year	DMO name	Website
1997	Japan National Tourism Organization	<a href="http://jnto.go.jp">jnto.go.jp</a>
1998	Tourism Australia	<a href="http://Australia.com">Australia.com</a>
1998	Visit Britain (VB is trading name for the British Tourist Authority [BTA] which has been in existence since 1969)	<a href="http://visitbritain.com">visitbritain.com</a>
1998	Tourism Authority of Thailand	<a href="http://tourismthailand.org">tourismthailand.org</a>
1999	China National Tourist Office	<a href="http://cnto.org">cnto.org</a>
2000	Hong Kong Tourism Board	<a href="http://discoverhongkong.com">discoverhongkong.com</a>
2000	South African Tourism	<a href="http://southafrica.net">southafrica.net</a> (initially operated by South Africa's embassy in Washington DC since 1996)
2002	Turespaña	<a href="http://spain.info">spain.info</a>
2002	Mexico Tourism Board	<a href="http://visitmexico.com">visitmexico.com</a>
2002	Greek National Tourism Organization	<a href="http://visitgreece.gr">visitgreece.gr</a>
2003	Finnish Tourist Board	<a href="http://visitfinland.com">visitfinland.com</a>
2003	India Ministry of Tourism	<a href="http://incredibleindia.org">incredibleindia.org</a>

(archive.org). The Table 1 exemplifies the Dot-Com Bubble of the DMOs, whereas other popular destinations such as France, Germany, and Canada relaunched their official destination websites with new web domains in later years.

The academia already concluded the influence of official destination websites on attracting visitations at the turn of millennium and made attempts to understand the profiles and intentions of DMO website users (So & Morrison, 2003; Tierney, 2000). Yet the use of technology within destinations and destination marketing was predominantly implemented for circulation of information to customers and email correspondence only (Yuan & Fesenmaier, 2000). Official destination websites were generally regarded as online brochures with limited functionality (Zach et al., 2010). Whilst destination marketers were busy delivering virtual visits for potential tourists to sample their destination offering through their websites in the midst of the Dot-Com Bubble, Sharma, Carson, and Delacy (2000) see the potentials of online technologies and argue that these innovations can enhance the efficiency of the tourism industry in communications, research, marketing, financial transactions, and enterprise management. In particular, official destination websites are considered as an indispensable part of shaping the image of the destinations to an audience who may not be easily reachable via conventional channels (Govers & Go, 2003). These sites are found to be particularly more effective to engage with the Millennials than of printed advertisements (Loda, Coleman, & Backman, 2010). As a result, the effectiveness of the design of these websites is frequently scrutinised by scholars in hope of outlining users' preference on quality of information and ease of use of these virtual gateways to destinations (Kaplanidou & Vogt, 2006; Qi, Law, & Buhalis, 2008).

A qualitative meta-analysis conducted by Park and Gretzel (2007) confirms that the primary essence of tourism websites is the dissemination of quality information, whereas the chief success factor of non-tourism websites rests on their reliability of fulfilling e-commerce. This raise an important reminder of the unique context of destination marketing and management where destination marketers typically do not possess ownership or control of their destinations' tourism offering (Feng, Morrison, & Ismail, 2004). Hence, official destination websites are primarily used for providing tourist information to reduce perceived risks of visitation (Buhalis & Law, 2008; Lepp, Gibson, & Lane, 2011). The study of Loda, Teichmann, and Zins (2009) on destination websites' persuasiveness indicates that clear display of fundamental information of the destination is the most effective way on persuading visitation. However, some scholars take a more entrepreneurial view of the functionality of official destination websites and advocate the integra-



tion of e-commerce transactions as a core function (Pechlaner & Raich, 2001). The e-commerce function is argued to be an expected function for tourists from technologically advanced markets (Minghetti & Buhalis, 2010). This is perceived as a tactic to convert intention of visit to actual visitation via securing bookings on the official destination websites which as well brings in an income stream for covering the maintenance cost of the official & destination websites (Harrill & Stringam, 2008; Li & Wang, 2011; Wang & Fesenmaier, 2006).

Nevertheless, the goal of DMO websites could be feeding traffic to local tourism businesses instead of maximising own business benefits (Qi et al., 2008). Pan and Xiang (2011) also question the inappropriateness of using standardized metrics for evaluating the websites of DMOs and businesses. It remembered that the measurement of website effectiveness must take into consideration of organisational strategies. Whilst Pai, Xia, and Wang (2014) discounted HKTB's website for lack of booking function, the authors fail to recognise the varying structures and funding models of DMOs (Pike & Page, 2014). In particular, HKTB is backed by government funding which eliminates the pressure on income generation to sustain its core business of destination marketing (Yew, 2015). It is not, therefore, the DMO's place to be involved in commercial sales activities eroding the market shares of its stakeholders in the travel trade. This enables the DMO not to be subject to any specific commercial affiliation and to represent the destination in its entirety (Hong Kong Tourism Board, 2017; Qi et al., 2008). As such, the gap between academic and practical understanding of the *raison d'être* of DMOs is highlighted through the debates of DMOs' use of technology for destination marketing.

This leads to a body of literature about the representation of destination, and subsequently, its visibility through the new digital channels. DMOs exist for representing their destinations at the marketplace in order to attract more visitation. As Xiang, Gretzel, and Fesenmaier (2009) argue that online semantic representation of destinations are rich but typically dominated by a small set of ontology. The language used by DMOs for online marketing tend to be functional descriptions of the destination (Kim & Xiang, 2009). Nevertheless, Pike (2005) points out the complexity involved in capturing the essence of a multi-attributed destination. The totality of any destination is unavoidably deducted when the narrative of a destination is based on selected attributes that are extracted and decorated as representation of the reality of the destination (Jenkins, 2003). Such deduction process of attribute selection has posed great debate within the academia as some scholars questioned DMOs for not emphasizing the stereotyped images of destinations that are favoured by tourists and the travel trade on their official destination websites (Choi, Lehto, & Morrison, 2007; Michaelidou, Siamagka, Moraes, & Micevski, 2013). However, the locus of the online representation of destinations on their official destination websites must be scrutinised beyond the surface value. DMOs often control their information channels to perform active application of de-marketing to ease tourism impact at vulnerable sites (Beeton, 2003; Marcotte & Bourdeau, 2012) or to redirect tourism traffic for wider distribution of visitor economy (Pike, May, & Bolton, 2011). Moreover, Moura, Gnoth, and Deans (2015) point out that official destination websites urge to provide information of novelty to tourists in order to stay relevance as an information source. Such differentiation sets DMO websites apart from commercially driven tourism websites.

Yet the proliferation of commercial travel websites means that official destination websites are far from the only source of destination information in the virtual world (Inversini, Cantoni, & Buhalis, 2009). Tourism organisations are connected to the Internet feeding tourists with a surplus of information (Pechlaner & Raich, 2001). Such competition of online space is extended to the placement of the official and unofficial destination websites on the search engines (Xiang & Pan, 2010). In particular, people habitually initiate browsing of destination information from search engines (Zins, 2007). This habit marks search engines as the starting points of tourist online information search which

dictate the virtual visibility of destinations (Baggio & Corigliano, 2009; Fesenmaier, Xiang, Pan, & Law, 2011; Xiang, Wöber, & Fesenmaier, 2008). Virtual visibility is chiefly paramount for attracting potential first-time or inexperienced tourists as these segments are less efficient on information searches (Schroeder & Pennington-Gray, 2015). As people's perceived knowledge about a destination grows by their information search, a reduced level of risk is perceived (Hyde, 2008) and a more favourable image of the destination is reinforced which subsequently triggers affective fondness (Li, Pan, Zhang, & Smith, 2009). Kim, Lehto, and Morrison (2007) further indicate that such psychological fondness is stronger with females who are found to be more involved, exhaustive and elaborative in online travel info search. Nevertheless, a majority of DMOs do not have effective search engine marketing practices despite of the power of these engine on connecting destinations with potential tourists (Xiang & Pan, 2010).

The dilution of destination information from official sources gets intensified in the Web 2.0 era of social media (Inversini et al., 2009). Tourists nowadays are used to constantly participate in and connect with their social and emotional circle of relationships at home and customarily continue their constant engagement during their travel (White & White, 2007). The new generation of tech savvy tourists are publicising in the virtual world about their experience at the destinations (Paris, 2012). As Xiang, Gretzel et al. (2010) describe that the collective intelligence of tourists 'challenge the established marketing practices of many tourism businesses and destinations'. The user generated content is shaping the stereotypes of destinations and requires attention from the destination marketers (Paris, 2012; Shakeela & Weaver, 2012). Although, previous content analysis shows that such user generated content emphasizes on opinionizing the travellers' own experience (Pan & Fesenmaier, 2006) and provides limited destination information (Carson, 2008; Volo, 2010; Wenger, 2008), the power of electronic word-of-mouth on destination marketing is significant (Jalilvand & Samiei, 2012; Jalilvand, Ebrahimi, & Samiei, 2013; Tham, Croy, & Mair, 2013). Therefore, DMOs must expand from using official destination websites as the their focal point of online marketing and proactively interact with tourists through social media to stay visible and relevant in the virtual world (Hays et al., 2013; Tussyadiah & Fesenmaier, 2008). This represents a paradigm shift of using technology for destination marketing within the past 10 years as DMOs evolve from a one-way communication approach to disseminate destination information online to an interactive communication approach to co-generate content with users (Kim & Fesenmaier, 2008; Mistilis, Buhalis, & Gretzel, 2014).

## 6. The next steps of tech savvy destination marketing

These virtual activities generate a huge amount of data of strategic significance. Particularly, the profiling of tourists through their digital footprints can help provide more personalised destination marketing (Pan, & Li, 2011). Yang, Pan, and Song (2014) even calls for the use of web traffic data of official destination websites to predict hotel occupancy rates. As Cooper (2006) states that the ability to manage knowledge through technology is a differentiating factor on competitiveness of a destination. However, DMOs have long been lagging on adaptation of technology as compared to aggressive and technologically advanced commercial tourism websites (Buhalis & Spada, 2000; Wöber & Gretzel, 2000). Past studies have made attempts to understand the barriers for DMOs on information technology acceptance (Yuan, Gretzel, & Fesenmaier, 2003). Wang (2008) points out that DMOs share many similarities of small and medium enterprises where these organisations are staffed by a small team with relatively limited technological capability and financial availability. This is echoed by the studies of Kim (2009) and Yuan, Gretzel, and Fesenmaier (2006) which conclude the bottleneck to DMOs' adaptation of technology rests on the e-business readiness of their management and staff (Fuchs, Höpken, Föger, & Kunz, 2010). The lack of integration of technology

results in DMOs predominantly limiting their use of technology for marketing only (Fuchs et al., 2010; Kothari, Xiang, & Fesenmaier, 2008). The digital divide is noticeable between the DMOs in metropolitan areas and suburban areas (Stepchenkova, Tang, Jang, Kirilenko, & Morrison, 2010), and particularly, disadvantages destinations in the developing countries where their main source markets are tourists from developed countries with high sophistication use of technology (Minghetti & Buhalis, 2010).

Despite of the inadequate analytics of the big data by DMOs (Li, Law, & Wang, 2010), the academia has been pushing the concept of 'smart destination' through embedding technology for understanding patterns of tourism activities (Buhalis & Amaranggana, 2013; Chareyron, Da-Rugna, & Raimbault, 2014; Fuchs et al., 2014; Wang, Li, & Li, 2013). The use of user generated content particularly draws attention of some scholars and practitioners as a mean of extracting organic and readily available data for developing destination marketing intelligence (Banyai & Glover, 2012; Pühringer & Taylor, 2008; Sun, Ryan, & Pan, 2015). Such data is recognised for gaining insights of tourist experience (Marine-Roig & Anton Clavé, 2015) and monitoring the feedbacks and attitudes of tourists (Pan, MacLaurin, & Crofts, 2007; Schmallegger & Carson, 2008). Nevertheless, user generated content and the digital footprints of tourists have potentials to provide useful intelligence via GIS data (Chancellor & Cole, 2008). Tracking and visualising tourists' movements create valuable data for market research as well as planning and management of destinations (Hallo et al., 2012; Lau & Mc Kercher, 2006; Shoval & Isaacson, 2007; Shoval et al., 2011). It also unlocks the possibilities to provide personalised travel information to tourists at destination enabling them to deepen their discoveries (Nielsen & Liburd, 2008; Tussyadiah & Zach, 2012). As Tussyadiah and Zach (2012) sum up that people nowadays are dependent on geo-based technology in daily life, it is totally natural that tourists would also utilize such technology on the go at destination.

The notion of using technology at destination poses a timely reminder that past research mainly focus on computer-based websites and fall short in investigating the use of app-based mobile devices by tourists (Lai, 2015). The prevalence of smart phones and mobile devices are swiftly changing the face of technology use for destination marketing as people now have access to the virtual world in their palms. As a result, mobile devices extend the use of technology from facilitating pre-trip destination marketing to enriching travel experience at destination (Wang, Park, & Fesenmaier, 2012). Stienmetz et al. (2013) further illustrate that today's tourists look for information at destination to make last minute decisions on restaurants or attractions. Therefore, DMOs are expected to deliver real time engagement with tourists at destination through mobile technology (Choi, Lehto, & O'Leary, 2007; Lamsfus, Wang, Alzua-Sorzabal, & Xiang, 2015). The use of mobile technology for disseminating tourist information at destination transcends the physical and time limits of a conventional visitor information centre.

Furthermore, mobile devices enable mobile-mediated virtual experience in tourism (Hyun, Lee, & Hu, 2009). Tourism academics had a history of being sceptical about the development of virtual reality and augmented reality technology as a substitution for tourism (Cheong, 1995). Whilst its possible use is recognised as potentially revolutionary to tourism (Hobson & Williams, 1995), technological constraints in the early days limited any meaningful application of the technology in tourism (Williams & Hobson, 1995). However, Dewailly (1999) sees the potentials of using virtual reality and augmented reality to create virtual touristic experience for easing the pressure of vulnerable destinations as a result of mass tourism. More scholars have since joined the discussion on its use for creating virtual destination for marketing (Tussyadiah & Fesenmaier, 2009), assisting heritage preservation of threatened sites (Guttentag, 2010), or enhancing cultural tourism experiences (Fritz, Susperregui, & Linaza, 2005). It is, however, mobile technology being the enabler of applying virtual reality and augmented reality in tourism (Yovcheva, Buhalis, & Gatzidis, 2012).

Tourists can mediate their experience and educational elements of their visits through virtual reality and augmented reality apps and tools on mobile devices (Bruno et al., 2010; Kounavis, Kasimati, & Zamani, 2012; Zarzuela, Pernas, Calzón, Ortega, & Rodríguez, 2013). The integration of GIS, virtual reality, and augmented reality technologies with mobile devices make possible real life destination marketing opportunities and access to information on tourist attractions, local culture, scenery, and shopping (Lin, Kao, Lam, & Tsai, 2014).

## 7. The future of virtual destination marketing

It has been two decades since the dawn of using technology for destination marketing. Huang, Backman, Backman, and Chang (2016) recapitulate the impact of technology on destination marketing, saying "the proliferation of the Internet and other technological innovations has transformed the structure of the tourism industry as well as affected how tourism destinations are perceived and consumed". DMOs around the world have been experiencing radical changes on the way how the virtual world communicates. It was at one point perceived as avant-garde to launch an official destination website. Many early adopters were experimenting interactive elements on their DMO websites such as web cams, guest books, message boards, and e-cards with limited success (Loda et al., 2009). The virtual interactions only fully took off after the emergence of social media platforms in the Web 2.0 era. This democratizes the Internet space as any tourist can publicize their travel experience at destination to virtually everyone. Therefore, the oligopolistic role of DMOs and mainstream media outlets as suppliers of destination information is eroded. The implication to destination marketing by DMOs is threefold. Firstly, DMOs are now required to go beyond their in-house websites and channels and utilize social media platforms to stay connected in the day to day interactions of the virtual world (Hays et al., 2013). Secondly, DMOs have virtually no control over the user generated content constantly published by individual tourists (Hanna & Rowley, 2015). Moreover, DMOs need to complete for virtual visibility of their marketing messages on search engines and social media platforms (Lipsman, Mudd, Rich, & Bruich, 2012). The pace of these disruptive innovations is manifestly challenging to DMOs that are historically slow in adoption of technology (Wöber & Gretzel, 2000). In particular, the rise of virtual reality and augmented reality technology for destination marketing requires technological sophistication which deepens the digital divide between markets and destinations (Minghetti & Buhalis, 2010). The gap of digital divide is being widen from the traditional sense of Internet access to the ability of having meaningful participation in the virtual world as destinations in the developed world attain ability to capitalize the new wave of technological innovations for destination marketing at a rate that many destinations in the developing world would struggle to cope with.

Data is at the heart of the new wave of technological innovations. The virtual world has continuously experiencing exponential growth of data volume (Cisco, 2016). Zwolenski and Weatherill (2014) further explain as we enter the era of the 'Internet of Things' (IoT) where smart devices are connected to the Internet and people are permanently and automatically online wherever and whenever. A ubiquitous digital universe of structured and unstructured data will provide insights such as the analysis of consumer behaviour for destination marketing strategies or prediction of tourism trends (Heerschap, Ortega, Priem, & Offermans, 2014). The power of big data analytics syndicates with the advancement of artificial intelligence and machine learning will create highly curated and selective destination marketing messages that are considered to "echo" with the mapping of the individuals' digital footprints and profiles. Such potentials of using technology for destination marketing may create questionable fashion of the future of destination marketing as technology eliminates unexpected adventures and discoveries that enchant the journeys. The rapid evolvement of the use of technology for destination marketing since the Millennium was unpredictable by many people. Yet, the future of destination marketing

may gear towards the technological preciseness of prediction which will reshape the meaning of being a traveller.

## 8. This special issue

The first paper (Martins, Goncalves, Branco, Barbosa, Melo & Bessa) discuss the technological evolution which has led to the transformation of tourism organisations: especially those which focus on particular market segments and considers the issues which arise for those organisations unable to access and exploit the necessary ICT to become globally competitive. This paper explores a theoretical model to support the implementation of multisensory and interactive virtual experiences together with a practical proposal to deliver such an opportunity.

The next paper, (Claudia, Dieck & Jung) considers augmented reality as an emerging technology within the construction of tourist experiences, noting that adoption of AR requires high levels of investment which may carry some element of risk for a small organization in the tourism sector. Thus the research explores the perceived value of AR from the perspective of a wide range of stakeholders to ensure long-term viability of technological innovations in the context of cultural heritage organisations. The case study selected from the UK for this paper demonstrates that AR has economic, experiential, social, epistemic, cultural and historical, and educational value from internal and external stakeholder perspectives. Interestingly, AR is considered the way to move forward to preserve history, enhance visitor satisfaction, generate positive word-of-mouth, attract new target markets and contribute to a positive learning experience.

The third paper (Lagiewski & Kesgin) provides an insight into the challenges of implementing digital experiences through a marketing development project designed to generate interest and awareness in historic visitor attractions located in the Finger Lakes Region of New York State. This case study based paper explores the interaction of stakeholders between destination marketing organisations and visitor attractions in implementing digital marketing strategies. This case provides an opportunity to highlight the complexities of implementing digital marketing efforts of a regional destination through a diverse set of stakeholders and is useful in understanding the organisational, human and technological requirements for implementing digital marketing strategies involving mobile technologies and augmented reality experiences.

In the fourth paper (Kotoua & Ilkan) a research model was developed to investigate the relationships between intention to visit and tourists' satisfaction as a source of mediation for travellers through information search and e-word of mouth. This research indicates that the dimensions of tourists' satisfaction as a mediator affect the overall tourists' intention to visit and as a consequence, simple websites no longer have an impact on destination marketing because of the advance in technology. The paper suggests that websites should provide different tools and marketing channels to facilitate the surfing and information needs of tourists, combining online word of mouth and information search by modifying the theory of planned behaviour to consider the context of intention to visit.

Silvana de Rosa, Bokki and Dryjanska in the final paper ask how destination branding can be reinterpreted based on the use of social representations as the main theoretical framework based upon research in ten European capitals using visiting cards and TripAdvisor. This final paper once again highlights the increasingly important role of technology prosumption in the construction and mediation of tourist experiences.

The collection of papers curated for this special edition do not attempt to provide full coverage of emerging technologies, but to identify some key issues for future practice and research. Indeed, many of the papers raise many more questions than the answers they provide. Similarly, the rapid and expansive nature of technological enhancement means that continual innovation will eventually outdate many of the

ideas which are emerging at this point in time. However, we would hope that this body of work may inspire, direct and support future innovation for DMOs to support the necessary competition and collaboration required to continue to attract tourists to popular, emerging and relatively undiscovered destinations.

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