

Smart Hospitality Strategies in a Smart City Context

Vicky Katsoni^{1*}, Evi Dougali²

^{*1} University of West Attica, Greece

² Freelancer, Greece

Abstract

Smart cities have been established as amalgamated and complex ecosystems, that take advantage of smart technologies, encourage cooperation and collaboration between actors, and focus on both citizens' and tourists' needs. The authors discuss the need for hospitality stakeholders to focus on a collaborative co-created destination experience by removing barriers of data silos and integrating data on hospitality management and marketing (micro level) with data on destination (macro level). A model is proposed for enhancing tourists' experiences by providing an intelligent platform for gathering and distributing information within a destination; and integrating tourism suppliers at both micro and macro level, ensuring that benefits from this sector are well distributed to local society.

Keywords: *smart tourism ecosystem, tourism value formation, ICTs, integrated micro-macro destination data management*

JEL Classification:

1. Introduction

Rapid technological progress and dynamic tourism developments have been going hand in hand for years. Since the 1980s, Information Communication Technologies (ICTs) have been transforming tourism globally, creating applications and solutions that are often termed as “e-Tourism”. In this fast changing era, tourist firms and especially hotels are using Information Technologies (IT) to unite with their stakeholders such as consumers, suppliers, workers, and destination management. Visible at every touch point in the hospitality industry, new trends and technology seem to totally transform the tourism value chain; from what travelers are looking for, the way they look for information and plan their trip, to the way they consume and experience the tourism product, the way they interact and share with peers and businesses, or finally the way they evaluate their whole experience (Skift Report, 2015a). As Gretzel and Jamal (2009:478) assert: "technologies are no longer only functional devices of everyday life but have evolved into integral tools enabling contemporary experience creation".

Hospitality is driving innovation by adopting new mobile strategies, smart solutions, and new business models not only towards enhanced guest experience, meaningful interactions, augmented customer care, and personalization or new marketing opportunities, but also towards intelligent operations, improved efficiency, and sustainability (Victorino et al, 2005). Mobile, seamless, and experiential are the big three key themes emerging in travel in 2015-2016 (Skift Report, 2015b).

The authors first analyze smart technologies and mobile strategies in hospitality in a smart city environment; and then they discuss the Service-Dominant (S-D) model's role in the tourism and hospitality domain for of experience creation and value formulation. The Altagest™ model and its application as a case study in a hotel in Belgium are discussed, in order to explore and explain current practices and conclude to practical and theoretical insights in the complex ecosystem of a smart tourism destination.

2. Tourism in a Smart Ecosystem Value Formation Context

Smart technologies provide tools with specific functionalities, which add value in several ways and in many sectors, for example the health, energy, retail, tourism and public sectors, and have already started to establish new forms and definitions, e.g. the combination of sensors, tags, RFID, semantics, and cloud computing that is used in the establishment of a smart city (Komminos, 2013). In this dynamic domain, tourism is characterized by constant need for innovation (Zach et al., 2010); smart technologies transform tourism management and marketing practices and concepts in a way where “tourism markets and actors both shape and are shaped by technology” (Sigala, 2018:153). All present and future technologies are characterized by the interconnected concepts of connectivity, data and smartness with the aim of forming an ecosystem which is proactive, reactive and able to take autonomous pre-emptive actions (Sigala, 2018).

The ultimate goal is to increase competitiveness and improve business practices; revolutionize tourist experience creation; produce economic, social and environmental value for all (Ritchie and Crouch, 2003; Fyall, 2011); and enhance quality of life of all tourist actors (Caragliu et al., 2011; Wang et al., 2013; Buhalis and Amaranggana, 2014; Gretzel et al., 2015).

ICT applications have been acknowledged for turning standardized services into richer and more personalized experiences, based on the tenet of *treating different consumers differently* (Piccoli et al., 2003; Tussyadiah and Fesenmaier, 2007; Sandström et al., 2008; Neuhofer et al., 2012a). ICTs are closely linked to Web 2.0, which covers a wide range of interactive and dynamic applications that have induced one of the most critical technological and social developments over the past years. Internet is now an immense platform of interaction, which opens new levels of engagement, exchange and collaboration between users (Sigala, 2009; Ramaswamy, 2009; ZEW, 2010); and one of the critical forces for the advancement of society and the growth of the empowered consumer.

Social networking and Web 2.0 companies, such as Facebook™, Twitter™, Instagram™ etc., grew at a brisk pace over the last years and have emerged as major players in the tourism industry. The proliferation of ICT tools and applications influences, to a growing extent, society through smartphones, tablets, and other digital devices and has enforced an unprecedented shift in the way that all tourism stakeholders have access to information, transparency, processes, and activities. ICT-based solutions are the engine of progress, driving developments in the emerging *smart industry sectors* (Fotis et al., 2011; Xiang and Gretzel, 2010).

Tourist stakeholders now experience a combination of social and mobile innovations that allow for new ways of connection, interaction, and co-creation of activities. According to a study by Skift (Skift Report, 2015b), 62 percent of travelers prefer to purchase/reserve hotel guest services via mobile device rather than face to face with hotel staff. This tremendous change has not only shaped the physical movement of people, products, and services, but has caused itself a mobility of technology at the same time (Green, 2002; Egger and Buhalis, 2008; Gretzel and Jamal, 2009; Wang et al., 2012). Smart phones gain in popularity and enable the creation of thousands of innovative applications, which are changing the lives of millions of people on a daily basis. With an estimated 5 billion mobile telephone subscriptions around the world, technology has made the globe more connected than ever before. More than 40 percent of tourists carry 2 mobile devices when they travel; while 45 percent of travelers carry more than 3 mobile devices (World Economic Forum, 2015). The figure is only increasing with the growing market of smart phones and tablets. This rapid spread of mobile telephony across the globe, the decreasing cost of Internet access via residential and public connections, and the emergence of lower cost access devices (cheap mobile telephones, cheap personal computers, tablets etc.) have as result the need to make the best use of access to ICT (World Economic Forum, 2015). Tourists are

prepared and willing to use ICT and they are likely to do it in a more effective and extensive way (World Economic Forum, 2015).

Recent literature confirms that ICTs application in the hospitality industry, along with the proliferation of mobile devices and social media (Xiang and Gretzel, 2010; Verma et al., 2012; Wang et al., 2012; Fotis et al., 2011), has led to an increased level of co-creation, the latter defined as a dynamic, collective and collaborative process, and a joint value creation between the company and the consumer (Prahalad and Ramaswamy, 2004).

Many recent studies have focused on B2C perspectives on how companies facilitate co-creation through ICTs in tourism destinations and hospitality settings (Neuhofer et al., 2012a; Neuhofer et al., 2012b), but also on consumers and social networks interaction (C2C) at all levels (Ramaswamy, 2009). As Helkkula et al. (2012) state, co-creation can encompass a multitude and diversity of social dimensions in a range of social contexts.

Recent research shows that the term '*value formation*' is more appropriate, since co-creation processes "can intentionally or accidentally result in the simultaneous co-creation and co-destruction of value for various actors" (Sigala, 2018:154), and the authors support this view.

3. Towards a Service-Dominant (S-D) Model for Increasing Tourism Experience

As earlier discussed, the potential of technologies for more personalized experiences is widely acknowledged. Currently, one of the main concerns of business in tourism and hospitality is to find ways to integrate smart technologies in their strategic plan, in order to co-create with the tourists' valuable experiences online (Ramaswamy and Gouillart, 2008). Examples of this work include the role of smart phones for travel and the mediation of the tourism experience (Wang et al., 2012; Wang and Fesenmaier, 2013); the use of context-aware mobile applications in tourism (Höpken et al., 2010); the use of high-tech for high-touch experiences (Neuhofer et al., 2012b); the adoption of mobile tour guides for personalized routes and location-relevant information (Schmidt-Rauch and Schwabe, 2014), to name but a few.

Tourism marketing theory has adopted a consumer-centric approach, in which tourists are key actors and integrate their resources in the co-creation of experiences and value formation through the use of ICTs (Ritzer and Jurgenson, 2010; Ramaswamy and Gouillart, 2008; Vargo and Lusch, 2008; Buhalis and Law, 2008). There are many different definitions of experience, but we can distinguish at least *four different pillars* of it in the literature. Firstly, it can be seen as "flow experience", a memorable event (Pine and Gilmore, 1999), in which people are totally involved, intensely concentrated, and losing their sense of time (Boswijk et al., 2005; Brunner-Sperdin and Peters, 2009); secondly, experience can be seen as an affective and/or cognitive response to the environment, which has both an emotional and a cognitive component (e.g. Schmitt, 1999; Ladhari, 2007; Wong, 2004) or a cognitive, emotional, and physiological component (Bitner, 1992; Johnston and Clark, 2001). In simple words, according to this view, experience is an internal response to external stimuli. Thirdly, experience is seen as the involvement of multiple moments, since "...*total customer experience is the result of every element in this journey*" (Voss and Zomerdijk, 2007:8) and "... *the guest's actual real-time experience includes all encounters throughout the journey with the hospitality brand*" (Knutson et al., 2010: 18). Finally, experience can be seen as a continuous and interactive process of doing and undergoing, action and reflection generating meaning, processes which create cognitive, emotional, and behavioral responses, resulting in a mental mark, or a memory (Johnston and Clark, 2001); or as a result of the customer journey (Voss and Zomerdijk, 2007).

Consistent with Pine and Gilmore's Experience Economy Theory (Pine and Gilmore, 1999), in which people turn from products to services and now experiences, every sector in hospitality and tourism is strongly affected by the demand for *local authentic travel experience* (Morgan et al., 2010). Due to the huge amount of now available data, as a result of increased mobile usage across the world, all major players –from travel agencies to hotels, carriers, and local businesses– are now focusing on social and mobile strategies towards new marketing opportunities, guest experience enhancement, augmented customer care, and personalization

(Skift Report, 2015b). Travelers of all ages (Millennial, Gen-X, Boomers) are now eager for transformative, inspirational, life-changing, and active experiences (Skift Report, 2015a); and they are looking for deeper connections to locals, traditions, and customs of the places visited. The traditional tour operator industry, which used to offer mass tourism products, now shifts into local gear, with various small experiential travel brands, offering more authentic and aligned with personal values experiences.

This is implying a change in consumer attitudes and travel trends, but it is also affecting existing ones and resulting in new roles within the tourism value chain, providing consumers with added value and fostering competitive advantage (Pine and Gilmore, 1999).

A theoretical framework that addresses the concept of value formation in different disciplines and an understanding of the process towards value formation in smart tourism destinations is the Service-Dominant (S-D) logic. Despite its limited criticism (Campbell et al., 2012; Wang et al., 2013), S-D logic offers a meaningful approach towards explaining the collaboration and interaction between heterogeneous actors towards value formation (Vargo and Lusch, 2004, 2008; Shaw et al., 2011; Cabiddu et al., 2013) within a dynamic ecosystem (Wieland et al., 2012) through the voluntary exchange of operant resources (Lusch and Vargo, 2014).

According to S-D logic theory, “an ecosystem is a relatively self-contained, self-adjusting system of resource-integrating actors, connected through shared institutional logics and mutual value creation through voluntary service exchange” (Wieland et al., 2012:15). In this ecosystem, traditional goods are the tangible (operand) resources and services as intangible (operant) resources, the latter consisting of skills and specialized knowledge, forming not only the basis of all exchange (Constantin and Lusch, 1994; Scott et al. 2008), but also contributing to the value creation (Vargo and Lusch, 2004:7; Akaka and Vargo, 2014).

Applying S-D philosophy in a smart tourism destination, the authors assert that S-D logic explores the interaction between all tourism resource integrating actors, the interaction of the tourism destination with the environment and the social norms present within the ecosystem, as well as the reintegration of tangible and intangible resources for value formation.

According to Boes et al. (2016), if hard smartness consists of technology, there are four additional soft smartness components that intertwine with hard smartness: that is innovation; social capital; human capital; and leadership. According to Wieland et al., (2012), innovation can be perceived as an outcome within S-D logic where it flourishes when all actors collaborate on its development and is vital for the competitiveness of smart cities (Hielkema and Hongisto, 2013).

Social capital has been defined as “networks together with shared norms, values and understandings that facilitate cooperation within or among groups” (Keeley, 2007:103) and support collective knowledge and competitiveness (Michaelides et al., 2013) by sharing open data.

Human capital is “the knowledge, skills, competencies and attributes embodied in individuals that facilitate the creation of personal, social and economic well-being” (Keeley, 2007:29), the core of value creation and competitiveness component (Vargo and Lusch, 2008) and essential for smart destination success (Buhalis, 2000).

In this vein, smart cities are perceived as hubs where human capital creates networks that connect, collaborate, cooperate, innovate and co-create to become smarter in a virtuous circle (Albino et al., 2015; Del Chiappa and Baggio, 2015), with the ultimate goal being the improvement of peoples’ overall quality of life (Piro et al., 2014:169)

Leadership shapes the value co-creation (Wieland et al., 2012), influences the adoption of technology (Spencer et al. 2012) and is critical to implement smartness (Dameri, 2014; Meijer and Bolívar, 2015). Leadership style adaption in a smart city can have a top-down management approach, a bottom-up approach, or a combination of top-down and bottom-up leadership as for example in Barcelona, Amsterdam and Helsinki in which participatory governance is promoted (Baron, 2013; Boes et al, 2016).

4. Implementing a Mobile Application in the Hospitality Industry

Understanding the importance of integrating smartness for value formation can enhance competitiveness and provide a strategic tool for innovation implementation. In a struggling economic period, firms and especially hotels, have turned to technology not just to increase automation levels and reduce costs, but simultaneously to increase tourist satisfaction and enhance tourist experience. An example of smart implementation in the hotel industry is *Altaguest*TM, an innovative, multi-tenant, cloud based *Guest Engagement Platform*, tailored to provide sophisticated mobile solutions with elaborate integration of social network and services, through simple UX workflows, and requiring only basic levels of computer literacy. The model builds fully customizable mobile applications (IOS and Android) to be used by hotel guests before, during, and after their stay in order to get information about the hotel and destination, personalize their stay, discover and order hotel services, and take advantage of hotel offers. In the micro level, as a cloud service, *Altaguest*TM hospitality platform consists of multiple services, such as an application development platform (app manager), marketing tools for guest engagement and hotel services promotion, an extensive list of dynamic hotel services (e.g. room service ordering, room amenities, customized stay, etc.), a cloud-based tool for services requesting management (service handler), and finally guest management and analytic tools. Furthermore, the model allows hoteliers to be in total control, enhancing their potential not only to fully customize their mobile apps according to their needs (in terms of app content, app structure and in-app hotel services, etc.), but also to easily and instantly adapt to any changes, content, and marketing available to their guests, all within mobiles' native features, meaning best and optimal mobile user experience.

Working closely with the Leopold Hotel team since June 2015, EXUSTM and the *Altaguest*TM team created within 2 months a fully branded native hotel mobile. Leopold Hotel Brussels EU is an independent 4 star hotel, in the heart of Brussels, Belgium, comprising a total of 106 rooms, which has quality and service at the core of its strategy. Leopold Hotel Brussels EU features 106 rooms, a Bar, and a Brasserie/restaurant. Preferred not only as an accommodation provider, but as a banquet venue as well, Leopold Hotel is full of life and business events. Located in Brussels' dense hotel market, where the satisfaction rate becomes a key factor in the attractiveness of hotels, Leopold Hotel Brussels EU – with 74 percent of business travelers and a 38 percent of repeated customers – sets high quality standards, emphasizing in premium guest experience and exceptional customer satisfaction. With 42 employees, Leopold Hotel has a total amount of 650,000 individual consumer interactions per year. Realizing the importance of mobile technologies, not only as a means of improving guest experience, hence gaining a competitive advantage, but also as a strong marketing tool towards increased revenues and a way to improve hotel operations, Richard Gale-Director of Operations - was in search of a vendor to develop an innovative hotel mobile app and the *Altaguest*TM team grasped the opportunity.

Via Leopold Hotel Brussels EU mobile application, hotel guests and restaurant/banquet customers can access all hotel and destination information; they can, among others, be informed about hotel services and events, restaurant information and menus, current offers, Brussels' events, exhibitions, tours and local attractions, useful information (e.g. transportation, weather), and maps. Leopold hotel mobile app also allows hotel customers to directly contact the Hotel, book a table at Brasserie Leopold or book their banquet event in one of Leopold's banquet halls, or directly book a room. Leopold hotel guests can access and fulfill a wealth of in-app hotel services (e.g. mobile check in, order room service, buy hotel products, request a taxi or airport transfer, reserve a parking spot, request a wake-up call, request laundry services, access e-newspapers, etc.) before, during or after their stay.

Moreover, through *Altaguest*TM App Manager, the Leopold team can edit and update their content anytime they want, being in total control of their mobile application, its content, and services. *Altaguest*TM Marketing Tools allow the team to instantly promote hotel offers, products or events or reach their guests through push notifications. *Altaguest*TM suite of services offers an extensive list of dynamic hotel services' ordering mechanism and the *Altaguest*TM Service handler –cloud-based tool for service requests management–that enables hotel to instantly receive and manage requests. Since the app's first launch on app stores (App Store, GoogleTM Play) in August 2015, the app is constantly updated by the Hotel team with content and new services,

entering the hotel's daily life for good towards redefining their hospitality strategy. Altaguest™ team is in constant collaboration with the hotel (on-site and on-line), offering premium Altaguest™ consulting services regarding guest experience and guest empowerment strategy, content marketing, mobile app "market launch" marketing strategy and collateral material, consulting on other hotel software integration, hotel staff training, as well gathering guests and business needs (questionnaires, brainstorming, and workshops) for new services development.

5. Methodology and Discussion

The authors chose a case study methodology, which offers holistic insights regarding the core components of smartness and proved to be critical to examining practice cases of the industry (Binkhorst and Den Dekker, 2009). The aim was to gather the necessary practical insights, explore and explain current practices, and address the research problem at hand. The study was based on two main pre-defined criteria, which the company had to embed in the tourism and hospitality context and to represent a best practice example by providing evidence for the current successful realization of technology-enhanced experiences.

The purpose of the case study was to:

- Identify the challenges hotels face towards successfully adopting new technologies throughout operations. This challenge will include investigation of implementation of both hard smartness, but also of all the four additional soft smartness components mentioned before, that is innovation; social capital; human capital; and leadership issues, according to the S-D model (Boes et al., 2016) in the tourism destination of Brussels.
- Highlight the new strategic marketing approaches that need to be adopted in order to successfully engage their guests.
- Explore whether the model contributes to an overall travel experience.
- In other words, the purpose was to examine whether this hard smartness implementation is "fostered by open innovation, supported by investments in human and social capital, and sustained by participatory governance in order to develop the collective competitiveness of tourism destinations to enhance social, economic and environmental prosperity for all stakeholders" (Buhalis, 2015).

In November 2015, an onsite qualitative research was conducted in Brussels, in collaboration with the hotel management and employees in order to help them meet the strategic marketing challenges emerging from the application. The qualitative enquiry was concerned of capturing the subjective experiences that occur within the individual human being (Larsen, 2007). Qualitative semi-structured in-depth interviews, based on literature and a one to one basis in all departments, such as management, sales, marketing, housekeeping, and front office, were selected as the most suitable method to cover predefined queries; whilst maintaining the necessary flexibility for participants to narrate their experiences. The whole procedure was refined through pilot-testing and was continuously adapted through an iterative interview process to allow for emerging aspects to be incorporated (Bryman, 2008). Other types of sessions, included a Brussels Hotel market analysis, a context analysis and observations with hotel staff, brainstorming and creative sessions, dedicated workshops (discussing matters, such as guest experience and guest empowerment strategy, content marketing, and mobile app "market launch" marketing strategy), hotel staff Training on Altaguest™ platform, and active promotion of app in collaboration with the hotel (onsite, online).

The results of the qualitative analysis revealed that having a mobile app can be a great competitive advantage for the hotel. However, investing in the human capital by informing and educating the hotel staff, at all levels, is the key to a successful adoption of an ICT application. Once understanding the benefits it brings, hotel employees are eager to embrace the change ICT applications bring to the organizational structure. For example, Flavio Storez, receptionist, said:

"Wow it now looks so nice! There's a huge difference since we first saw it! And there's so much info in there. Yes, guests definitely love it. And we receive service orders directly on service handler with no phones"

Grizelda Edith Sosa, receptionist, also remarked: *"Guests are able to find everything about the hotel in the app. That's so great! It helps us a lot and it saves us a lot of time!"*

To fully harness mobile technology's benefits, there is a need in shifting current mindsets towards horizontal integration across all departments of a hotel –from front office and management to marketing, sales, and housekeeping. For example, Krisiten Kloet, the housekeeping manager, said:

“Receiving housekeeping requests directly on my mobile is a great help! Housekeeping requests no longer have to go through the front office; Front office doesn't have to contact me. Having guests using the app before even they arrive at the hotel gives us the time to prepare their stay according to their requests; type of pillows, special items on the room, and more, significantly improving their experience. I do believe that the app certainly improves the way we work!”

From the demand side, in September 2016, the company conducted an onsite clients' qualitative research of semi-structured in-depth interviews with 20 customers, in order to reveal tourists' use, experience and suggestions of the application. Although the actual data are restricted from the company, the authors had feedback where it became clear that engaging the hotel and successfully incorporating smart technologies into everyday operations require a *holistic approach* by the hotel, not just *silo-actions*. In the micro level, horizontal integration across all departments of a hotel is needed, as well as marketing strategies through the hotel website's social media; other online presence (e.g. booking.com, tripadvisor.com, etc.); onsite advertising (hotel reception, rooms, restaurants, etc.); online communication (e.g. email signature, online newsletters); and printed communication (e.g. catalogs, brochures). Engaging guests into smart hospitality requires a swift in hotel operations, new and aggressive marketing approaches, and an end-to-end approach on the guest journey (before, during, after). Thus, it is essential to have a great change in the hotel management approach that will drive the new *smart marketing*. It became clear that the point is not just about having a great app, but it is about engaging hotel guests, by creating awareness and empowerment; and promoting the app through all available channels, long before guests arrive at the hotel. Hotel customers should be convinced to *co-create experience* through the app, which means that they should understand its benefits, like and explore its content, be involved in the value formation, and engage and reengage in the application, as they tend to lose interest over time.

In the destination level (macro level), although Altaguest™ platform offers useful information about Brussels' events, exhibitions, tours and local attractions, transportation, weather and maps, it seems more an operational software in which the customer participates. The hotel is not integrated with the destination in a smart way, where, in a S-D logic ecosystem structure analyzed above, value formation includes all actors, as all “operant resources are the fundamental source of competitive advantage”(Vargo and Lusch, 2008:7). Using Sharpley's idea of destinations' capitals (2010), where all tourist destinations possess, to a greater or lesser extent, a variety of capitals, such as environmental, human, socio-cultural, economical, and political capital, we can articulate that all businesses in the hospitality industry, including of course hotels, may exploit these capitals in ways, which meet the need to achieve sustainability objectives, as these are defined by the destination in which they operate and are reflected in local development plans; and take advantage of opportunities offered by the external market.

In particular, according to the four additional soft smartness components in the S-D model described above, we can observe the following:

- *Innovation* is only clear in the hotel's business model application itself- there is no evidence of collaborative innovative practices between the hotel and Brussels' tourism destination. It seems that the hotel is really working in its own innovative silo, with no cooperation with other tourist business and actors of any kind. In order to create a holistic and collaborative co-creation tourist experience, it means that all tourist actors understand and acknowledge the clear need for increased integration at all levels. Liberating this information by integration of capitals in the external market can leverage massive effects, leading to huge upticks in hospitality efficiency and increased satisfaction in the context of a smart city environment, as all customer services regarding tourists and locals improve. Overall, although Leopold Hotel Brussels EU is exceptionally satisfied on their Altaguest™ mobile solution and the way it has been improving guest experience, customer satisfaction, marketing, and operations, serious disadvantages emerged, revealing that the data were locked in silos within the hotel and that the system did not offer an overall travel experience in a macro level within a smart city holistic approach. In order for the Leopold hotel Brussels EU mobile app to become a valuable 24/7 tool, it became evident

that the application should not just build efficient operations and more personalized customer services but ensure that it is part of a smart city ecosystem, in order to survive in the long run.

- *Social capital*, that is networks with shared norms, values and understandings, that facilitate cooperation within or among groups, are not existing at all. There is neither evidence of sharing any kind of open data with the destination, nor any support of collective knowledge, with policies such as developing sophisticated new brands and partnerships. Smart hotels can be viewed as territories with high capacity for learning and innovation, which is built-in the creativity of their staff, their institutions of knowledge creation, and their digital infrastructure for communication and knowledge management. It is clear that the hospitality industry has an appetite to innovate, with some hotels pushing ahead with their plans to overhaul their operational systems and to use mobile technologies to offer unique services to their guests. In this new era, hotels –that have always tried to keep their guests within the hotel grounds for revenue maximization– are acting more like community portals by introducing guests to popular local experiences. Big hotel groups and chains are eager to differentiate themselves and deliver experiences, which immerse guests in local communities by developing new brands and partnerships that are more sophisticated, or through marketing and branding initiatives and new business models. Hospitality 3.0 is not a widespread reality yet, but its development has been accelerated over the last few years. With tech savvy hotel guests, eager to use new digital services to transform their journeys and co-create experiences, hotels that can offer a new ecosystem of connected personalized services win.
- *Human capital*, that is knowledge, skills, competencies and attributes embodied in individuals that facilitate the creation of personal, social and economic well-being as expressed by Keeley (2017) above, is only evident in the hotel staff, which seems satisfied by the incorporation of the application in everyday operations. However, smart cities are perceived as hubs where human capital creates networks that connect, collaborate, cooperate, innovate and co-create to become smarter in a virtuous circle (Albino et al., 2015; Del Chiappa and Baggio, 2015), with the ultimate goal being the improvement of peoples' overall quality of life (Piro et al., 2014:169). There is no network connection of any kind, with the only exception of the B2B connection of the hotel and the Altaguest™ team. However, for a smart destination success and value formation, it is essential to have a different philosophy where all human capital values are shared and disseminated in the society and the destination as a whole. The qualitative research carried out in the case study presented in the paper reveals that the hotel is composed of silos –departments within it, working in their own silo for their own profit. Although there are ample data in hospitality business in order to build efficient operations and more personalized customer services, unfortunately these data are locked in silos. Within the tourism ecosystem, we often see hotels narrowing down their focus into their own silo; instead of an overall travel experience, they form single points of contact with their customers by simply supplying a product or service. And even though vertical integration (e.g. collaboration between airlines and hotels) is generally apparent, this again is only focused on the product/service provision, not an overall co-created experience within a holistic smart city or smart destination context.
- *Leadership* is a critical to implement smartness and shapes the value co-creation. However, in our case, it is again limited in the adoption of technology inside the hotel. There is no evidence of any kind of leadership policy and connection with the tourism destination (macro level). There is neither proof of any sign of promoting participatory governance social, nor connections and synergies between them, revealing for example, partnerships between public, private, academic and citizen groups, with policies such as: introducing guests to popular local experiences; delivering experiences that immerse guests in local communities. The idea of a hotel, serving as a hub into the local community seems to be catalytic for the shift in hospitality strategy around the business value of localism, resulting in various disruptive innovations around the world. In order for the tourism actors to adapt to the smart tourism destination ecosystem concept, requires understanding the complexity and interconnections between the different core components of smartness; a clear vision and set of goals for innovation, as well as dynamic leadership by integrating all actors within the development of the smart tourism destination.

Smart cities' developments, contributing to the creation of cities as places that provide qualitative and innovative services to citizens, economic activities, institutions, but also their visitors, while they work towards

the production of a safe, pleasant, and highly inclusive urban environment (Stratigea, 2012; Panagiotopoulou et al, 2017), bring to the forefront a new potential for the flourishing of powerful ICT-enabled applications and a new culture of smart hospitality, broadening also perspectives of the tourist sector as a whole; and leading to the currently evolving concept of smart tourism (Gretzel et al., 2015).

6. Conclusions

The authors of this paper assert that in such a smart city and smart tourism environment, smart hotels should adopt an integrated marketing strategy that embeds, to a greater or lesser extent, the variety of destination's capitals (environmental, human, socio-cultural, economical, and political); and exploit them in ways, which meet destination's sustainability objectives, while assuring market competitiveness and exploitation of emerging opportunities in the tourist market. One limitation of the study is that the authors follow and monitor the application in only one hotel; however, further research in a bigger number of hotels in Brussels is organized for the future. One managerial implication of the study is that if all tourism actors work together and if hotels adopt a destination oriented (macro level) approach by making hotel portals functioning as a hub into the local community, serving multidimensional (micro- and macro-oriented) objectives in smart city environments, then decision-making and city management could be made more effective, for the benefit of all.

The authors assert that hotels themselves can play a role in co-creation of experience by connecting and integrating their micro level operations, with the macro and holistic view of a smart city environment. This is not that difficult, since hotels have always been aligning with an anthropocentric approach, which means that hotels invest in human development, besides techno-oriented infrastructures. Smart technology and smart hospitality is not just another new tool, but rather a whole new way of seeing things –it is a collaborative process towards redefining hospitality.

References

- M. Akaka and S. Vargo, "Technology as an Operant Resource in Service (eco) Systems", *Information Systems & e-Business Management*, 12:3 (2014) 367-84.
- V. Albino, U. Berardi, and R.M. Dangelico, "Smart Cities: Definitions, Dimensions, Performance, and Initiatives", *Journal of Urban Technology*, 22:1 (2015) 3-21.
- G. Baron, "Smartness' from the Bottom up a Few Insights into the Amsterdam Smart City Program", (2013), <http://amsterdamsmartcity.com/data/file/MeteringInternational_BottomUp_GB.pdf> (Accessed September 22, 2016).
- J. Barsky, and L. Nash, "What is More Important than Location in Selecting a Hotel?" 2010, <<http://www.marketmetrix.com/en/default.aspx?s=research&p=MoreImportantThanLocation>> (Accessed August 25, 2017).
- E. Binkhorst and T. Den Dekker, "Agenda for Co-Creation Tourism Experience Research," *Journal of Hospitality Marketing & Management* 18: 2-3 (2009) 311-327.
- M. J. Bitner, "Servicescapes: The Impact of Physical Surrounding on Customers and Employees," *Journal of Marketing* 56 (1992) 57-71.
- K. Boes, D. Buhalis, and A. Inversini, "Smart tourism destinations: ecosystems for tourism destination competitiveness", *International Journal of Tourism Cities*, 2: 2 (2016) 108-124
- A. Boswijk, J. P. T. Thijssen, and E. Peelen, *Een Nieuwe Kijk op de Experience Economy: Betekenisvolle Belevissen* (Amsterdam: Pearson Education, 2005).
- A. Brunner-Sperdin and M. Peters, "What Influences Guests' Emotions? The Case of High Quality Hotels," *International Journal of Tourism Research* 11 (2009) 171-183.
- A. Bryman, *Social Research Methods* (3rded.) (New York: Oxford University Press, 2008).
- D. Buhalis, "Marketing the Competitive Destination of the Future", *Tourism Management*, 21:1(2000) 97-116.
- D. Buhalis and R. Law, "Progress in Information Technology and Tourism Management. 20 Years on and 10 Years after the Internet. The State of E tourism Research," *Tourism Management* 29: 4 (2008) 609–623.
- D. Buhalis, and A. Amaranggana "Smart Tourism Destinations", in Z.Xiang, and L. Tussyadiah, eds, *Information and Communication Technologies in Tourism* (Dublin: Springer 2014).

- D. Buhalis, "Working Definitions of Smartness and Smart Tourism Destination", (2015), <<http://buhalis.blogspot.co.uk/2014/12/working-definitions-of-smartness-and.html>> (accessed March 1, 2017).
- F. Cabiddu, T.W. Lui, and G. Piccoli, "Managing Value Co-creation in the Tourism Industry", *Annals of Tourism Research*, 42(2013) 86-107.
- N. Campbell, A. O'Driscoll, and M. Saren, "Reconceptualising Resources: a Critique of Service Dominant Logic", paper presented at 37th Macro Marketing Conference (Berlin, June12-16 2012).
- A. Caragliu, C. Del Bo, and P. Nijkamp, "Smart Cities in Europe", *Journal of Urban Technology*, 18:2 (2011) 65-82.
- B. Chakrabarti, Smart+Connected Communities (S+CC), (2011). Available at: <<http://www.cisco.com/web/about/ac78/scc.html>> Accessed July 4, 2015.
- G. Del Chiappa, and R. Baggio, "Knowledge Transfer in Smart Tourism Destinations: Analyzing the Effects of a Network Structure", *Journal of Destination Marketing & Management*, 4:3(2015) 145-50.
- R. Egger and D. Buhalis, *eTourism Case Studies: Management and Marketing Issues* (Burlington: Elsevier Ltd., 2008).
- A. Fyall, "Destination Management: Challenges and Opportunities", in Y. Wang and A. Pizam, eds, *Destination Marketing and Management: Theories and Implications*, (Oxfordshire: Cabi Publishing, 2011).
- J. Fotis, D. Buhalis, and N. Rossides, "Social Media Impact on Holiday Travel Planning: The Case of the Russian and the FSU Markets," *International Journal of Online Marketing* 1: 4 (2011)1-19.
- N. Green, "On the Move: Technology, Mobility, and the Mediation of Social Time and Space," *The Information Society* 18: 4 (2002) 281-292.
- U. Gretzel and T. Jamal, "Conceptualizing the Creative Tourist Class: Technology, Mobility, and Tourism Experiences," *Tourism Analysis* 14: 4 (2009) 471-481.
- U. Gretzel, M. Sigala, Z. Xiang, and C. Koo, "Smart Tourism: Foundations and Developments", *Electronic Markets* 25:3 (2015) 179-188.
- U. Gretzel, H. Werthner, C. Koo, and C. Lamsfus, "Conceptual Foundations for Understanding Smart Tourism Ecosystems", *Computers in Human Behavior*, 50: 3 (2015) 558-63.
- H. Hielkema, and P. Hongisto, "No Developing the Helsinki Smart City: the Role of Competitions for Open Data Applications", *Journal of Knowledge Economy*, 4:2 (2013) 190-204.
- A. Helkkula, C. Kelleher, and M. Pihlström, "Characterizing Value as an Experience," *Journal of Service Research* 15: 1 (2012) 59-75.
- W. Höpken, M. Fuchs, M. Zanker, and T. Beer, "Context-based Adaptation of Mobile Applications in Tourism," *Information Technology and Tourism* 12: 2(2010) 175-195.
- R. Johnston and G. Clark, *Service Operation Management* (London: Prentice-Hall, 2001).
- B. Keeley, *Human Capital: How What You Know Shapes your Life*, (Paris: OECD, 2007).
- B.J. Knutson, J.A. Beck, S.-H. Kim, and J. Cha, "Service Quality as a Component of the Hospitality Experience: Proposal of a Conceptual Model and Framework for Research," *Journal of Foodservice Business Research* 13: (2010) 15-23.
- N. Komninou "Smart Cities and the Future Internet: Innovation Ecosystems of Embedded Spatial Intelligence," paper presented at 6th International Conference for Entrepreneurship, Innovation and Regional Development (ICEIRD) (Istanbul, June 20-21, 2013).
- R. Ladhari, "The Effect of Consumption Emotions on Satisfaction and Word-of-Mouth Communications," *Psychology and Marketing* 24:12 (2007) 1085-1108.
- S. Larsen, "Aspects of a Psychology of the Tourist Experience," *Journal of Hospitality and Tourism* 7: 1 (2007) 7-18.
- R.F. Lusch, and S.L. Vargo, *Service-Dominant Logic: Premises, Perspectives, Possibilities*, (Cambridge: Cambridge University Press, 2014).
- J. Matloka and D. Buhalis, "Destination Marketing through User Personalized Content," in U. Gretzel, R. Law, and M. Fuchs, ed., *Information and communication technologies in tourism* (Vienna: Springer- Verlag, 2010) 519-530.
- R. Michaelides, S. Morton, Z. Michaelides, A. Lyons, and W. Liu, "Collaboration Networks and Collaboration Tools: a Match for SMEs?", *International Journal of Production Research*, 51:7 (2013) 2034-48.
- M. Morgan, P. Lugosi, and J. R. B. Ritchie, *The Tourism and Leisure Experience: Consumer and Managerial Perspectives* (Bristol: Channel View, 2010).
- B. Neuhofer, D. Buhalis, and A. Ladkin, "Conceptualizing Technology Enhanced Destination Experiences," *Journal of Destination Marketing & Management* 1: 1-2(2012a) 36-46.
- B. Neuhofer, D. Buhalis, and A. Ladkin, "High Tech for High Touch Experiences: A Case Study from the Hospitality Industry," in L. Cantoni and Z. Xiang, eds., *Information and Communication Technologies in Tourism 2012b* (Vienna: Springer Verlag, 2012) 290-301.
- M. Panagiotopoulou, G. Somarakis and A. Stratigea, "Broadening Cultural Planning Perspectives in the Smart City Context by Enhancing Stakeholders' Engagement", paper presented at the 2nd Euro-Mediterranean Conference and Exhibition on "Smart, Inclusive and Resilient Small and Medium-sized Cities and Island Communities in the Mediterranean: Exploring Current Research Paths and Experience-based Evidence" (Heraklion-Crete / Greece, September 28-29, 2017).

- G. Piccoli, P. O'Connor, C. Capaccioli, and R. Alvarez, "Customer Relationship Management—a Driver for Change in the Structure of the U.S. Lodging Industry," *Cornell Hotel and Restaurant Administration Quarterly* 44: 61(2003) 61–73.
- J. B. Pine and J. H. Gilmore, *The Experience Economy: Work is a Theatre and Every Business a Stage* (Cambridge: Harvard Business School, 1999).
- G. Piro, I. Cianci, L.A., Grieco, G. Boggia, and P. Camarda, "Information Centric Services in Smart Cities", *The Journal of Systems & Software*, 88: C, (2014) 169-88.
- A. Pizam, "Creating Memorable Experiences," *International Journal of Hospitality Management* 29: 3(2010) 343.
- C. K. Prahalad and V. Ramaswamy, "Co-creation Experiences: The next Practice in Value Creation," *Journal of Interactive Marketing* 18: 3(2004) 5-14.
- V. Ramaswamy and F. Gouillart, "Co-creating Strategy with Experience Co-creation," *Balanced Scorecard Report* 10: 4 (2008) 1–3.
- V. Ramaswamy, "Co-Creation of Value – Towards an Expanded Paradigm of Value Creation," *Marketing Review St. Gallen* 6 (2009) 11-17.
- J.R.B. Ritchie, and G.I. Crouch, *The Competitive Destination: A Sustainable Tourism Perspective* (Wallingford: CABI Pub, 2003).
- G. Ritzer and N. Jurgenson, "Production, Consumption, Presumption," *Journal of Consumer Culture* 10: 1 (2010) 13–36.
- S. Sandström, B. Edvardsson, P. Kristensson, and P. Magnusson, "Value in Use through Service Experience," *Managing Service Quality* 18: 2(2008)112–126.
- S. Schmidt-Rauch and G. Schwabe, "Designing for Mobile Value Co-creation—the Case of Travel Counseling," *Electronic Markets* 24: 1(2014) 5-17.
- B.H. Schmitt, *Experiential Marketing: How to Get Customers to Sense, Feel, Think, Act and Relate to Your Company and Brands* (New York: Free Press, 1999).
- N. Scott, R. Baggio, and C. Cooper, *Network Analysis and Tourism: from Theory to Practice*, (Clevedon and Buffalo, N.Y.: Channel View Publications, 2008).
- R. Sharpley, "The Myth of Sustainable Tourism," *Centre for Sustainable Development (CSD) Working Papers Series* 4(2009/2010).
- G. Shaw, A. Bailey, and A. Williams, "Progress in Tourism Management: Aspects of Service-Dominant Logic and its Implications for Tourism Management: Examples from the Hotel Industry", *Tourism Management*, 32:2 (2011) 207-14.
- A. Shen and A. D. Ball, "Is Personalization of Services always a Good Thing? Exploring the Role of Technology-Mediated Personalization (TMP) in Service Relationships," *Journal of Services Marketing* 23: 2(2009) 80–92.
- M. Sigala, "E-service Quality and Web 2.0: Expanding Quality Models to Include Customer Participation and Inter-Customer Support," *The Service Industries Journal* 29: 10 (2009)1341-1358.
- M. Sigala, "New Technologies in Tourism: From Multi-disciplinary to Anti-disciplinary Advances and Trajectories," *Tourism Management Perspectives* 25 (2018) 151–155.
- Skift Report, "Megatrend for 2015: Hospitality Is Now Driving Innovation in Travel", (2015a) (Accessed May 28, 2015).
- Skift Report, "New Trends Report: Mobile First and the Silent Traveler in 2015", (2015b) (Accessed March 23, 2016).
- A. Stratigea, "The Concept of Smart Cities - Towards a Community Development?" *Networks and Communication Studies (NETCOM)* 26: 3–4 (2012) 375–388.
- I.P. Tussyadiah and D.R. Fesenmaier, "Interpreting Tourist Experiences from First-person Stories: A Foundation for Mobile Guides," paper presented at 15th European Conference on Information Systems (St. Gallen, June 7-9, 2007).
- S.L. Vargo, and R.F. Lusch, "Evolving to a New Dominant Logic for Marketing", *Journal of Marketing*, 68:1 (2004) 1-17.
- S. L. Vargo and R. F. Lusch, "Service-dominant Logic: Continuing the Evolution," *Journal of the Academy of Marketing Science Review* 36: 1(2008) 1–10.
- R. Verma, D. Stock, and L. McCarthy, Customer Preferences for Online, Social Media, and Mobile Innovations in the Hospitality Industry. *Cornell Hospitality Quarterly*, 53:3, (2012) 183-186.
- L. Victorino, R. Verma, G. Plaschka, and C. Dev, "Service Innovation and Customer Choices in the Hospitality Industry" *Managing Service Quality: An International Journal*, 15:6 (2005) 555-576.
- C. Voss and L. Zomerdijk, "Innovation in Experiential Services – An Empirical View," in Department of Trade and Industry (DTI), ed., *Innovation in Services* (London: DTI, 2007) 97-134.
- D. Wang, S. Park, and D. R. Fesenmaier, "The Role of Smartphones in Mediating the Touristic Experience," *Journal of Travel Research* 51: 4(2012)371-387.
- D. Wang, S. Park, and D. R. Fesenmaier, "Transforming the Travel Experience: The Use of Smartphones for Travel" in L. Cantoni and Z. Xiang, ed., *Information and Communication Technologies in Tourism 2012* (Vienna: Springer Verlag, 2013).

- D. Wang, X. Li, and Y. Li “China’s ‘Smart Tourism Destination’ Initiative: a Taste of the Service-Dominant Logic”, *Journal of Destination Marketing & Management*, 2:2 (2013) 59-61.
- H. Wieland, F. Polese, S.L. Vargo, and R.F. Lusch, “Toward a Service (Eco) Systems Perspective on Value Creation”, *International Journal of Service Science, Management, Engineering, and Technology*, 3:3 (2012) 12-25.
- A. Wong, “The Role of Emotional Satisfaction in Service Encounters,” *Managing Service Quality* 14: 5(2004)365-376.
- World Economic Forum, *The Global Information Technology Report 2015*
http://www3.weforum.org/docs/WEF_GITR_Report_2015.pdf Accessed October 2, 2017.
- Z. Xiang and U. Gretzel, “Role of Social Media in Online Travel Information Search,” *Tourism Management* 31: 2 (2010) 179-188.
- F. J. Zach, U. Gretzel, and Z. Xiang, “Innovation In Web Marketing Programs of American Convention and Visitor Bureaus,” in U. Gretzel, R. Law, and M. Fuchs, eds., *Information and communication technologies in tourism* (Vienna: Springer Verlag, 2010).
- ZEW (Zentrum für Europäische Wirtschaftsforschung), *Interaktiv, Mobil, International – Unternehmen im Zeitalter von Web 2.0* (Mannheim: ZEW, 2010) <http://www.zew.de/fileadmin/FTP/div/IKTRep/IKT_Report_2010.pdf> Accessed October 8, 2016.

About the authors