



Digitalisation in the field of tourism marketing

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Abstract: Digitalisation is not a new buzzword in the case of tourism, but its significance has grown during the last few years as not just the COVID-19 pandemic changed the way how people like to travel, but also the experience creation at the destinations changed, had been digitalised with the appearance of new (mobile) technologies.

The aim of the conference paper is to show a literature review including practical solutions too about the recent digitalisation trends in tourism. These trend are mainly based on smartphone technologies, and the appearance of newly developed mobile apps. These applications can provide location-sensitive and time-sensitive experience to the users, which both are important in the case of tourism.

Digitalisation can enhance the offline experience as an additional feature of the sightseeing, but also can mean an alternative touristic experience without even travelling to the destination. So digitalising the experiences can have dual purpose at the same time. Also it is important to notice that in the case of tourism experience the visitors are looking for escapism from their average life which can be reached by digitalised and unique content, but also to reach this several guests would like to be more offline than online during their trip.

Keywords: digitalisation, experience, marketing, mobile technologies, tourism

1 Introduction

In many areas of tourism, the internet has become a key factor as a connecting tool, a source of information and an information sharing platform over the last decade (Navío-Marco et al., 2018). In recent years, the Web has become an essential tool not only in the pre-trip phase, but also in the on-trip phase and post-trip phase, where it plays an important role in sharing experiences (Kang et al., 2019).

Literature suggests that social media platforms (both tourism-specific and general) and online travel agencies (OTAs) are becoming more and more popular every year among all generations. In addition to new sources of information, new technologies have emerged that have transformed not only consumer behaviour and the consumption process in tourism, but also the creation of products and services (Irimiás et al., 2019), for example through co-creation.



In their literature review (analysing 115,103 references from 404 articles in 15 international scientific journals), Yuan et al. (2019) highlight the ever-increasing importance of information technology and ICTs. Among others, they highlight artificial intelligence, augmented reality, YouTube, Facebook (as major platforms), big data, gamification, smartphones and smart devices, social media, virtual communities and electronic word-of-mouth (eWoM, and electronic Word-of-Mouth-Marketing, eWoMM) as keywords as innovative tools in tourism marketing. In this paper, I focus on digitalisation, also examined by Yulan et al., in the form of secondary research.

2 Methodology

In this paper I present a detailed literature review about the basic themes of digitalisation in tourism as an establishment research. For later researches about specific topics in the field of digitalisation in tourism the better understanding of the basics of eTourism, or digital tourism products can be an inevitable step. ETourism is a rapidly changing part of hospitality management as it is also emphasized by Kazandzhieva and Santana (2019), so academics should understand the basics of it in a deiled way to develop up-to-date primary researches. The goal of this literature review is to emphasise the most important topics that can appear in the case of a research about digitalised goods and systems in tourism. The selection of technologies that are mentioned in this review is based on Yulan et al. (2019) and combined with the suggestions of Buhalis et al. (2019), which review gives a much boarder collection of topics in digitalisation.

3 Literature review

3.1 Definitions of digitalisation

Digitalisation, like other areas of marketing, has played a major role in tourism marketing in recent years. Digital content and processes have not only shaped the image of a destination, but have also significantly transformed the three phases of tourism (the pre-trip, on-trip and post-trip part). According to Lehdonvirta (2012), digitization is built on three pillars:



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- Changes in consumer behaviour, based on co-creation, which has become increasingly important for consumers in recent times as they became an active partner in the two-way communication with the service providers and also communicate with each other in the three phases of tourism.
- Changes in online distribution channels and the purchasing process. As the digital buying or reserving of accommodation and flights appeared in the last decade and also nowadays several tourism attractions provide online ticket sales.
- The transformation of the products purchased. As on one hand side virtual travelling and virtual services appeared and on the other hand side several digital services were developed to enhance the (offline) on-site experience while travelling.

Agárdi (2018), based on the study by Lehdonvirta (2012), presents three phases of digitalisation. The stages are defined in general for retailers, but these can be applied for service providers in tourism too:

1. online shopping: when the consumer purchases the product through online channels, i.e. the sales channel is digitized.
2. online co-creation: when information gathering and sharing is transferred to the online space, thus digitizing the whole decision process, not only the actual purchase. In many cases, this also means the emergence of user generated content (UGC) and is based on consumer empowerment
3. virtual consumption, digital consumption occurs when virtual or digital goods appear that provide an alternative solution to the consumer's problem. Such solutions were seen, for example, during the first wave of the COVID pandemic, when many tourist attractions were able to offer virtual tours, alternative travel experiences. In tourism, digital products can serve not only as an alternative but also as a complement to the offline, real-life experience. On the technological side, both of these are often addressed through the use of so-called virtual and augmented reality, which will be discussed later in this paper.

3.2 The connections of digitalisation and tourism

Although we have already seen examples of the emergence of digitalisation in tourism in the previous list, there are many sources in the literature focusing on this area. Digital tourism is referred to in the literature in a number of ways: smart tourism, smart tourism and even e-tourism.

Lőrincz and Sulyok (2017) mention digitalisation as one of the ten most important tourism trends. Besides digitalisation the top ten include demographic changes, the emergence of new transport technologies and the increasing demand for and



importance of sustainability. Buhalis and Sinarta (2019) also link the digitalisation of tourism to the emergence of real-time marketing and real-time co-creation. They argue that enhancing experiences, consumer-centricity of service providers and the use of data-driven decisions play an important role in this.

Real-time can also be important in the pre-trip phase, for example, when price comparison sites are constantly changing their dynamic offers, but it is also an important factor when travelling, for example, for personalised offers or re-planning. Neuhofer et al. (2012), in addition to mentioning the pre-trip and on-trip phases, also point out that the entire tourism consumption process is encompassed by digitalisation and infocommunication tools, which also means that the classic on-site experience creation can be extended to the pre-trip and post-trip phases in the form of virtual experience creation, and that the on-site experience is now also created from a combination of physical and virtual experiences.

With the emergence of *online travel agencies (OTAs)* and online review sites, as well as online travel communities (like TripAdvisor), online shopping, reservation in tourism has also become not just reality but part of the decision process of the travellers. Furthermore, online co-creation began to transform the entire consumer process. The third phase of digitalisation (by Agárdi, 2018), the consumption of virtual or digitized goods, can be understood in the form of virtual tourism (also accessible from the comfort of home), which has become increasingly vocal since the pandemic broke out. On the other hand, we can include, for example, smart hotels (like the one in Kőrösladány – see the webpage here: <http://www.hotelsmart.hu/hu/>), virtual guided tours via smartphones or mobile app experiences used by attractions (museums, zoos, etc.) in addition to offline experiences. Happ et al. (2020) also point out that while a few years ago only the first phase of digitalisation - mentioned by Agárdi (2018) - was implemented, for example with the purchase of online airline tickets, today co-creation, digital communication and mass customisation have completely transformed consumer behaviour and the entire consumer life-cycle in tourism.

The online shopping phase was implemented by online travel agencies (OTAs) at the moment of their emergence. Nowadays, OTA sites are more like meta-search engines and, with the help of artificial intelligence and big data analytics, they can provide price comparisons that not only enable online shopping but also significantly transform the purchase decision process (Christodoulidou et al., 2010). All of these sites can be combined with online review sites and online travel communities in online co-creation. In many cases, OTA sites also integrate consumer content (e.g. ratings, feedback) similarly to social media, which also shifts the role of the service providers in digitalisation towards co-creation and creates much more complex systems.

It can therefore be seen that digital or smart tourism is created by the emergence of several elements separately and then later on by their interaction. We can associate



a number of technological solutions to digital tourism, for which, for example, Wang et al. (2016b) identify the following categories:

- Tracking and coordinating personal travel preferences and schedules;
- time estimation by reducing waits and delays through optimised traffic flows;
- availability of travel information via the Internet;
- online booking of tickets and rooms and online shopping for additional tourism products (e.g. entrance tickets);
- price comparison on different travel websites;
- communication in virtual travel communities;
- using electronic complaint handling systems, speeding up problem handling;
- providing multimedia services, mobile devices and applications and technical facilities (e.g. wifi).

In addition to these, they also mention solutions such as the running of virtual tourist attractions, smart forecasting (whether for tourist movements or queuing times, for example) and smart sightseeing (which includes personalised recommendations, route planning, guided tours) (Wang et al., 2016b).

Kontogianni and Alepis (2020), analysing studies focusing on smart tourism published between 2013 and 2019, have published a compilation similar to Wang's list, where they also collected a number of practical implementations. A significant number of these were launched between 2017 and 2019 and mostly include mobile apps, augmented reality, personalised recommendation systems.

Based on the five characteristics (interactions, information reliability, accessibility, security and personalisation) of online tourism websites (focusing on the online shopping phase) developed by No and Kim (2015), Huang et al. (2017) derived four characteristic features of smart tourism technology (STT). Based on SEM modelling, all four attributes show significant relationships as a result of their primary research:

- Informativeness: which can be interpreted as a combination of quality and reliability of information.
- Accessibility: which shows how easily a user can obtain the right information and use the online tourism site.
- Interactivity: which shows whether the consumer receives immediate interactions (e.g. real-time feedback, active two-way communication options) when using the STT-based site.



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- Personalisation: which shows the extent to which the traveller can gather information tailored to his/her individual travel needs.

Together, the technologies mentioned by Wang et al. (2016b) can form a so-called smart tourism ecosystem, as defined by for example Pinke-Sziva and Keller (2021). They refer to a tourism system as a smart tourism ecosystem "that takes advantage of digital technology to create, manage and administer smart tourism services and experiences, and is characterized by intensive information sharing and value creation." (Pinke-Sziva - Keller, 2021:34.) In terms of value creation and information sharing, the system also plays a two-way intermediary role: it can generate value and information not only for the consumer but also for the service provider, as it can collect a range of relevant data that can be used later.

The two-way value creation process identified by Pinke-Sziva and Keller is also in accordance with the grouping of Happ et al. (2020). According to them, the digital tourism ecosystem encompasses all infocommunication tools and information technology solutions that can assist the visitor or tourist and contribute to meeting the needs of the destination and increase the competitiveness of the place.

Happ et al. (2020), based on the 7P model of services, mention a number of tools that can be linked to smart tourism. Examples include dynamic package configuration, crowdsourcing (i.e. community financing of products), dynamic pricing (e.g. for accommodation or transport) and yield management (i.e. managing bookings by matching supply and demand). These are complemented by online booking and distribution systems, web 2.0 and social media sites based on web 2.0, where the consumer becomes an active participant in the communication.

By adding a further 3P to the classic 4P model, it is possible to extend the digitalisation of tourism marketing as a specific service solution to new elements of service marketing: online booking systems and online payment solutions can be linked to the process mix element, and non-stop automation (e.g. the emergence of chatbots or online check-in solutions - also closely linked to the process mix element) can be connected to the people mix element, replacing human labour. To the physical evidence mix element we can also relate virtual tours, virtual product demonstrations and online branding and visibility.

3.3 The role of smartphones in the digitalisation of tourism

Among the technological solutions, many are now very widespread in the tourism sector. Among the smart devices, the smartphone stands out, where WANG et al. (2012) emphasise that it can not only enrich the experience, but can also help tourists to visit more places and attractions, optimising their itineraries, which can be an important aspect for the visitor, given the limited time available for the tourist trip and the unfamiliarity of the place.



However, research by Wang et al. (2012) also shows that smartphones have a mediating effect throughout the entire tourism consumption process, not only during the trip. In their research, they examined reviews written for different smartphone apps and developed five possible scenarios using storytelling. They point out that phone-based software can be effective not only in providing travel information, but can also contribute to a hedonistic, aesthetic and social experience through innovative solutions. It has been observed that these apps can increase the efficiency of tourists' trips, and that consumers can create more value when travelling or using services by providing immediate, up-to-date and usually location-specific information. Scenarios were created for both pre-trip and post-trip phases, where consumers shared their experiences and were inspired to plan their trip using their smartphone. Smart travel systems can enhance the content, personalisation and uniqueness of the experience through the features identified by the smartphone Wang (Kontogianni - Alepis 2020).

3.3.1 Smartphones in the process of tourism

Although the penetration of smartphones is widespread in the whole society, their use in the tourism sector is still uneven. According to Kang et al. (2019), significant differences in age, income, education and employment data can be detected between those who use and those who do not use smartphones to search for travel-related information during the pre-trip phase. In addition, thanks to smart devices and the spread of roaming internet, the information seeking of the tourists continues during the on-trip phase. Both pre-trip and on-trip information about the location itself (35.5%), restaurants (65.2%), attractions (45.8%) and activities (36.8%) were also sought by visitors, according to surveys by Kang et al. (2019).

Over the last decade, smartphones have become one of the most important tools for STT, or smart tourism technologies, which also plays an important role in blurring the boundaries between the three traditional phases of tourism. Gretzel et al. (2006) point out a number of important infocommunication functions that can appear in the three phases. Wang et al. (2014) identify four core functions of smart tourism technologies: communication, entertainment, information seeking and facilitation or assistance. They also point out that the functions previously identified by Gretzel et al. (2006) are increasingly merging and that the traditionally pre-trip function of information seeking and the classically post-trip function of experience sharing already become more dominant in the on-trip phase (see Figure 1, where the main components of the overlaps are highlighted).

Apps and smart devices are not only blurring the boundaries between the different phases, but also the boundaries increasingly blurring between everyday life and the escape from it, the temporary change of location such as tourism (Hannam et al., 2006). For example, a local resident can be a tourist without changing location, and can experience travel-like activities in his or her own living environment thanks to smart devices. Consumers can use both 'work-related' and 'tourism-related' functions



through smart devices, even when they are in their own residential area and when they are in a completely different surrounding, stepping out of their usual lifestyle (and therefore taking a tourist trip in the traditional sense) (Wang et al., 2016a).

3.3.2 Marketing communication solutions of smartphones in the process of tourism

Thanks to the continuous development of mobile devices, a number of marketing solutions have emerged in recent years, which Kaplan (2012) refers to as mobile marketing, but given the technological background, we can now also call it smartphone marketing. According to Kaplan, mobile marketing includes "all marketing activities conducted through a ubiquitous network (Internet of Things - IoT) to which consumers are continuously connected through their personal mobile devices (such as their smartphones)" (Kaplan, 2012:130).

Kaplan (2012) not only defines mobile marketing solutions, but also identifies four distinct categories along the following two dimensions:

- Information about consumers, degree of knowledge: this dimension shows how much information we have about the consumer when creating a marketing communication message, i.e. it highlights the extent to which we can personalise the content we want to communicate. Depending on the complexity of the software developed, the personalisation of content on smart devices can be automated, similar to the solutions based on artificial intelligence and machine learning of the semantic web (web 3.0). But of course, for simpler and more cost-effective developments, there is still the possibility to create mass, impersonal messages similar to traditional advertising as a communication tool. It is also possible to integrate a so-called onboarding process in between the two solutions, which collect some information about the user, for example during the first use of the application.
- The push and pull way of mobile marketing: this dimension shows which party initiates (triggers) the communication. Although basically in the online world it is the pull type of communication, initiated by the consumer. The notifications provided by smart devices or emails offer the possibility to display and use push communication too.

Although, according to Kaplan (2012), mobile marketing can cover a wide range of mobile devices, such as SMS, email, BlueTooth, NFC chip or MMS, in recent years it has been mostly mobile apps, websites optimised for mobile (or created with a mobile-frist solution) and the so-called progressive web apps that can be placed in between, that are considered part of mobile marketing.

These mobile apps can be grouped along several dimensions. For example, the following categories can be developed for tourism apps, which may overlap:

navigation, social interaction, mobile marketing, security, information, entertainment and shopping/transaction apps (Kennedy-Eden - Gretzel 2012). Several other classifications of mobile apps and tourism apps can be found in, for example, Dombroviak and Ramnath (2007), Heinonnen and Pura (2006) and Nickerson et al. (2009). These classifications are generally based on the characteristics of the applications, the degree of interaction with consumers and the degree of consumer orientation. Important factors may include whether the content is linked to a user profile, whether it is based on individual or group content delivery, the direction of communication within the application and the possibility of transactions (Nickerson et al., 2009).

Kaplan (2012) classifies the above-mentioned mobile marketing apps, independently of the commonly used mobile marketing classification, into four further groups based on the extent to which the apps behave in a location and time-dependent manner (see Figure 1 for links to the models of Gretzel et al., 2006 and Wang et al., 2014):

- "quick timers" are solutions with essentially time-dependent content, but independent of location. This includes many classic social media platforms, such as Facebook or Twitter, where it is crucial that consumers receive up-to-date information, as content quickly becomes outdated and new elements are added.
- Slow timers" are also time- and location-independent, and include social media that provide content that is always relevant, such as YouTube in many cases.
- Space-timers" are applications that depend on both location and time. These can be particularly important for tourism solutions, where both location and time can help personalise the content.
- In the case of "space-locators", the consumer can always be exposed to relevant content that does not change over time, or changes very slowly, infrequently, but is highly location-dependent, which can be important for tourism apps, especially for tour guides and software that complements offline experiences, as mentioned earlier in the study.
- Smartphone apps in tourism marketing can be basically location-based, but they can appear in all four categories of Kaplan's classification. For events such as festivals, time-relatedness can become significant, but similarly, the presentation of time-related information can be an important factor for news and transport events. Attractions, although largely time-independent, are always relevant content, but it is also worth mentioning, for example, temporary exhibitions or experience-enhancing programmes that are also closely linked to attractions. It is also important to highlight the fact that many applications have multiple functions, which can be grouped into different categories. In addition, there are of course a number

of applications that are not designed for mobile marketing, but which are both suitable and used by tourism destination management organisations for marketing communication purposes, in addition to providing local people and visitors with a wide range of information about the destination (Lu et al., 2015).

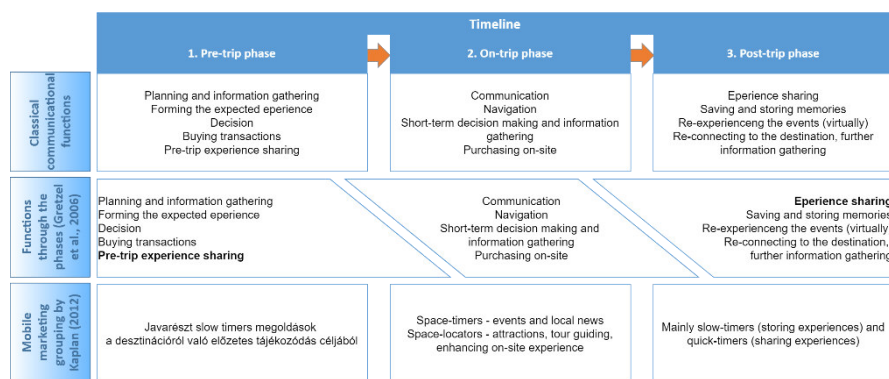


Figure 1 Digitalised solutions during the tourism process

Source: authors own edit based on Kaplan, 2012, Gretzel et al., 2006

3.3.3 Virtual and augmented reality in tourism as a smartphone function

In the case of digitalisation, it has also been shown that it can provide alternative tourism solutions, especially since the beginning of the pandemic. We also encountered virtual events, festivals, online guided tours of museums and self-guided 3D tours. This technology, which provides a fully online experience, is called virtual reality (VR). Azuma et al. (2001) describe augmented reality (AR) as a transition between the continuum of reality and virtual reality, where, for example, a monitor (smartphone) placed in front of your eyes or a helmet placed on your head mixes the camera image of reality with virtual information. While an important aspect of AR is that you have to be present at the location and the screen displays the extra information, with VR you don't have to visit the location. On this basis, even before the pandemic began, Gerdesics et al. (2019) pointed out that tourism professionals fear this solution because it could become a substitute product and its increasing use could lead to no-tourism. They stress, however, that this fear is not necessarily real and point out that virtual technologies can also be used to create an identity, an image for the destination.

Nagy and Gerdesics (2020), already after the pandemic had begun, focused specifically on VR as an alternative tourism service. As a result of their research, they showed that openness to VR has a positive impact on perceived usefulness and, through this, on behavioural intention, i.e. the desire to see the attractions in real life after use. However, it should also be pointed out that the opposite effect to perceived



usefulness was found for the intention to substitute, so that for the most part VR can be seen as an additional experience element to the on-site, live tourist experience, or as a part of the information gathering period before or during the on-site, live tourist experience. In the latter case, the VR experience helps the consumer to develop the expected experience against which he/she will later compare the perceived experience during the trip. Bec et al. (2021) also consider VR solutions as a so-called "second chance tourism" element, i.e. a tool to make tourist attractions and objects that no longer exist, have been destroyed or have ceased to exist, still visitable. They argue that AR solutions, 3D printing and robotic technologies can enhance the second chance tourism of different sites alongside VR. Their results are very close to those presented by Nagy and Gerdesics (2020).

Bec et al. also distinguish between two types of virtual tourism: in the case of so-called in-situ virtual tourism, VR emerges as a complementary element as mentioned above, while in the ex-situ case, the use of VR devices emerges as a substitute product providing an alternative tourism experience. This ex-situ solution was also investigated by Vishwakarma et al. (2020). In their results, they highlight that both the complexity of the VR device and the physical risk associated with travel have a significant positive impact on the perceived value provided by VR and, through this, on the openness to use. They also highlight that the perceived richness of the VR world (i.e. how developed the virtual experience and virtual space is) is one of the strongest factors in the formation of perceived value of VR.

Discussion and conclusions

In this study, I investigated some up-to-date aspects of digitalisation in tourism through secondary research. Literature sources show many examples of the significant impact of digitalisation on traditional tourism products, both in terms of sales and consumer behaviour, and even the potential for these technologies to become substitutes by consuming virtual goods. Nevertheless, most of the solutions can help to enhance and deepen the classic, offline tourism experience, for which smartphones and their apps, as well as websites optimised for smartphones, can be the most important tools for tourism service providers during the travel process. The mentioned topics in this article are among the most important in the field of tourism digitalisation, that can be the basics of further primary researches. These topics are collected together in Table 1.

However, it is also important to emphasise that, while smart tourism solutions and services can stand on their own, the shift towards smart tourism is about organising the different tools into a so-called smart tourism ecosystem using a holistic approach. These can incorporate a range of technologies and tourism services based on them, which can then enhance the consumer experience in a more holistic way, activate co-creation, make sales more efficient and integrate virtual goods alongside or instead of the live tourism experience.



Table 1. The most important topics mentioned in the article

Topics	Mentioned references
Digitalised systems in tourism	Christodoulidou et al., 2010 – OTA websites as part of the smart tourism system Pinke-Sziva – Keller, 2021 – Examples of smart tourism systems Kontogianni – Alepis, 2020 – Smart tourism topics Happ et al., 2020 – digitalisation as a tourism system Buhalis – Sinarta, 2019; Buhalis et al., 2019; Yuan et al., 2019 – Most important topics of tourism digitalisation
Smartphones as main part of digitalisation in tourism	Azuma et al., 2001 – Augmented reality and virtual reality Bec et al., 2021; Vishwakarma et al.2020 – AR and VR in tourism Gerdesics et al., 2019 – VR in tourism Hannam et al., 2006; Wang et al., 2016a – Digitalised tourism process Kang et al., 2019; Wang et al., 2014; Wang et al., 2016b – Touristic functions of smartphones
Smartphone marketing and applications	Dombroviak – Rammath, 2007; Heinonen – Pura, 2006; Kennedy-Eden – Gretzel, 2012; Nickerson et al., 2013 – Taxonomies of smartphone apps Kaplan, 2012 – Classification of mobil apps and mobile marketing Gretzel et al., 2006 – Functions of smartphones in the tourism process Lu et al., 2015 – Travelling applications

Source: Author's construction

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