Review

Digital services of tourist areas—Key to competitiveness

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Abstract: In our study, we examined 11 designated tourist destinations in Hungary, which can also be interpreted as tourism products including services, infrastructure and attractions. The National Tourism Development Strategy (NTS) also puts a strong emphasis on digitalisation, as it is an unstoppable process with a significant impact on tourism, thanks to globalisation, increasing competition, accelerating information flows and the dominant paradigm shifts on the demand and supply side. We used both qualitative and quantitative methods in our primary research. First, we conducted in-depth interviews with several important tourism service providers in Hungary on the topic of the digitalisation of tourism. A professional questionnaire, addressed to the offices responsible for destination management was distributed in the designated tourist destinations in Hungary in order to get a more comprehensive picture of the attitudes towards digitalisation in the regions under study. In the course of our work, we managed to classify the destinations into three distinctly different clusters. Our hypothesis—that the higher the digitalisation of a tourist destination is, the higher the average length of stay—was partially confirmed by calculating the regional value of the digitalisation, logistic regression analysis, slope and the individual factor categories.

Keywords: digital service; tourism; destination, competitiveness; digitalisation

1. Introduction

Digitalisation is a dominant research topic today, and it is also an area of major interest in tourism. In tourism, digitalisation mainly refers to the use of modern information-communication tools and technologies. Although digitalisation emerged in the context of reservations - first with airline tickets and later with accommodation, nowadays it is present in all areas of tourism. The development of digitalisation can be studied at several levels in the sector. At a micro level, the tools and methods used by businesses, and at a macro level, the level of digital development in individual tourist areas and throughout the country.

In Hungary, the identification of tourism areas and priority development areas started in 2016. In October 2020, the Government of Hungary designated 11 tourism regions and the capital city based on the territorial aspects of regional branding, following a destination approach. In our research, we will examine and analyse the 11 tourist destinations of Hungary, looking at their digital assets, digital development and the impact of these tools on tourism in the region.

2. Literature review

The first step in any research on tourism areas is to define the concept of a tourist destination and the methodology for its designation.

From the demand side, as defined by the UNWTO, the tourist destination is a

main destination, a place visited, which plays a central role in the travel decision (UNWTO, 2008).

However, from the supply side, it is also worth defining what is considered a tourist destination.

A place or area that is significantly dependent on the resources of an attraction for generating revenue (Chilembwe-Gondwe, 2020).

A group of companies and organisations involved in the production and marketing of tourism products, located in the same geographical area; a strategic entity providing all the necessary resources, which integrated activities ensure the experiences expected by tourists (Höpken et al., 2018).

A geographical area consisting of the set of infrastructure, services and attractions visited by tourists (Blázquez-Resino et al., 2016).

To sum up, a tourist destination or region is a geographical area and a destination comprising the various elements of offers—services, infrastructure, attractions—that are necessary for a stay, and can be understood as a complex tourism product.

There are several possible ways of defining destinations, and four approaches to defining tourist areas can be found in literature (Papp, 2013):

- On the demand-side approach, a destination is what the tourist considers it to be (Leiper, 1995).
- On the supply-side approach, a destination is defined as an area where the attractions, basic and additional services needed by tourists are found (Buhalis, 2000).
- In the case of a geographical definition, any territorial unit can be taken into account, for example a city, a sub-region or even a country can be a destination (Michalkó, 2007).
- The complex approach emphasises primarily the role of management, but also synthesises the previous approaches by emphasising the role of supply elements, cooperation and administrative borders (UNWTO, 2007).

In the present research, data collection and processing is carried out in the tourist areas defined by the Hungarian Tourism Agency in the complex approach. The tourism areas identified in the Tourism 2.0 Strategy are the following: Balaton tourist area, Tokaj and Nyíregyháza tourist area, Greater Gyula tourist area, Greater Budapest tourist area, Sopron-Fertő tourist area, Mátra-Bükk tourist area, Greater Debrecen tourist area, Greater Szeged tourist area, Bük-Sárvár tourist area, Pécs-Villány tourist area, Győr-Pannonhalma tourist area and Budapest.

For the designated tourist areas, the priority is to develop a unified destination brand based on existing or ongoing developments and to treat the destination as a single tourism product. In defining the brand profiles of the destinations, the development of the area has been taken into account, as well as its tourism performance. Then, the required further cooperations, service development and marketing interventions were also identified.

The strategy identifies the improvement of the quality of service and the strengthening of sales and marketing activities of the destinations as a key task (MTÜ, 2021).

2.1. Development of digitalisation

A paradigm shift has taken place in tourism, resulting in a new era of tourism, digital tourism. This new type of tourism goes beyond everything previously known of consumer orientation, as it not only takes into account the needs of the consumer, but the consumer is now actively involved in the marketing process through digital tools and networking. The consumer is involved in the product design and is responsible for the real-time evolution of prices. The online/virtual space is the main point of sale, and online communication is at the forefront of building and maintaining relationships with the consumer, which also means personalised messaging—in line with the consumer's profile (Happ and Ivancsóné Horváth, 2018; Happ et al., 2020).

2.1.1. The impact of digitalisation on tourism

Digitalisation is an unstoppable process with many impacts on tourism:

- Increasing transparency—Information is becoming more transparent;
- Globalisation—The global dimension of tourism is expanding;
- Increasing international presence—increase in the number of overnight stays abroad;
- Increased competition—The competitive environment is on the rise;
- Decreasing demand for labour;
- The industry is becoming more cost-effective with higher profit margins;
- Information moves faster than ever before;
- More favourable travel decisions can be made because travellers have more and more information easily available, often ordered systematically; information can be accessed anywhere. Travel arrangements are faster (nowadays more bookings are made within 30 days) and the booking process is easier and faster. Travel can be personalised and personalisation is an important change.
- New players are emerging—e.g. sharing economy;
- The digital space (especially in such a small country) can reduce the effects of seasonality. It can spread demand both geographically and over time.
- The biggest impact of digitalisation will probably be on quality due to post-demand evaluation. Customer opinions and feedback, especially when transparent, have power, credibility and therefore a market cleansing effect (Chovanová et al., 2016).

2.1.2. Evolution of the conditions for digitalisation on the demand side

In a study shared in January 2018, the We are Social Agency (We Are Social Ltd, n.d.) defined the characteristics of consumers in Hungary as the following: Out of 9.71 million citizens, there are 7.67 million internet users (this means 79% penetration), out of whom 5.8 million are also active social network users. There are a total of 7.87 million mobile phone users, out of whom 4.8 million use mobile phones as an active social networking platform. The penetration of mobile devices and the close relationship with them have fundamentally changed the way we spend our time with media consumption (Happ, 2013). A total of 96% of Hungarian residents have a mobile phone, out of which 65% have a smartphone. 73% have a laptop, 23% have a tablet and 93% have some form of television. 7.67 million are considered active internet users, representing 79% of the total population. 6.35 million are active mobile internet

users, representing 65% of the total population. The internet is used for personal (non-work) purposes by 89% of the population every day. A further 9% use it at least once a week.

In 2016, 65% of Hungarians have already used the internet when planning a holiday, 87% connected to the internet while on holiday and wifi access was an important factor for 48% when choosing accommodation, according to a survey commissioned by financial services company PayPal and conducted by market researcher GfK in several European countries in June 2016, surveying 5000 adults online (Turizmus.com).

2.2. The emergence of digitalisation in NTS 2030

The Hungarian National Strategy for Tourism Development 2030 prioritises the development of digitalisation. Digital development in the sector requires a comprehensive change to help businesses operate more efficiently, improve the guest experience of tourists and enable data-driven decisions. The strategy sets out three directions for digital transformation. Firstly, the introduction of digital solutions to improve workflow efficiency through the promotion of digitalisation. Secondly, the development of a common platform to connect different applications, databases and actors in the sector, providing them with data and thus supporting the creation of great guest experience. Thirdly, to promote the sharing of information and knowledge on a large scale to support innovation (MTÜ, 2021).

In particular, the attractiveness of tourist destinations depends on how the communication and information needs of tourism stakeholders can be met through information and communication technology (ICT) infrastructures. Today, a huge amount of customer-based data is already available in tourist destinations, but these valuable knowledge resources often remain unused. One of the biggest challenges for tourism destinations is to make the knowledge they have about tourists, tourism products, processes, competitors or business partners available and usable for others (Höpken et al., 2014).

2.3. Digitalisation in tourist destinations

The literature on the possibilities of using digitalisation in tourism has been around since the turn of the millennium, but the number of academic publications on the subject really increased after 2010. While in the early stage (2003–2012), there were fewer publications, mainly on the subject of online marketing communication tools, in the later growth stage (2013–2018), digital services were the focus of publications. The period after 2018 can be called the hype stage, as the number of publications has multiplied and the newest digital technologies are now in the focus of research (El Archi et al., 2023).

Among the publications on the topic, the most important subjects in the early stage were the future possibilities for the use of digital tools (Dwyer et al., 2009); while the later ones with the application of mobile phones in tourism marketing (Dickinson et al., 2014; Happ, 2013); and Tourism 4.0, i.e., digital transformation in tourism (Pencarelli, 2020).

There are several examples of analyses and investigations of papers published on

the topic of destinations and digitalisation that examine the authors and the published research results from different points of view. The literature review on the application of the Technology Acceptance Model in tourism (El Archi et al., 2023a) and the analysis of publications on the links between digitalisation and sustainability (El Archi et al., 2023) also attempt to review the literature published in the recent period.

3. Methodology

We used both qualitative and quantitative methods in our primary research. First, we conducted in-depth interviews with several important tourism service providers in Hungary, including the CEO of szallas.hu, the largest online booking platform in Central Europe, and the Deputy CEO of the Hungarian Tourism Agency Ltd. on the topic of the digitalisation of tourism. Our research was based on a professional questionnaire addressed to the offices responsible for destination management. As illustrated in the flowchart in **Figure 1** below, we started our choice of topic by reviewing the literature and mapping the practical background, which was then subjected to our objectives and hypotheses. To ensure that our hypotheses could be tested, we chose an appropriate methodology, a professional questionnaire. According to Babbie (1998), questionnaire distribution is a valid and recognised method in social science, it is the most common form of data collection, after all, this type of study is suitable for descriptive, exploratory, but also explanatory purposes. In addition to the abundance of topics suitable for research, the questionnaire offers the possibility of observing a large population. The use of questionnaires is also useful as they provide anonymity and in-depth data processing.

Figure 1. Flow-chart of the research.

Source: self-made.

In our own questionnaire, we used the self-administered questionnaire format. Neither the complexity of the response options nor the personal nature of the topic justified the involvement of an interviewer or the use of telephone interviews.

Other advantages of using a questionnaire were also recognised, such as its cost-effectiveness, the non-intrusiveness of personal space, the convenience of filling it out, the possibility of drawing conclusions, the controllable probability sampling, its statistical power, its accuracy, its anonymity from the point of view of the respondent, the processing of a large number of items, and the general acceptance of its large number of questions.

In our primary research we conducted a quantitative survey using a questionnaire in designated tourist areas in Hungary. The allocated time for completion was 1 month, but the responses received almost immediately show that those responsible for destination management are attentive to R&D activities, even when they receive a survey externally. We completed our professional questionnaire with 67 tourism destination management offices and municipalities in all tourism regions. We surveyed about 10% of the areas designated by the government decree at national level, which are illustrated (**Figure 2**) in the map below (priority areas in light blue and surveyed areas in dark blue). The data were processed by using JMP Pro software.
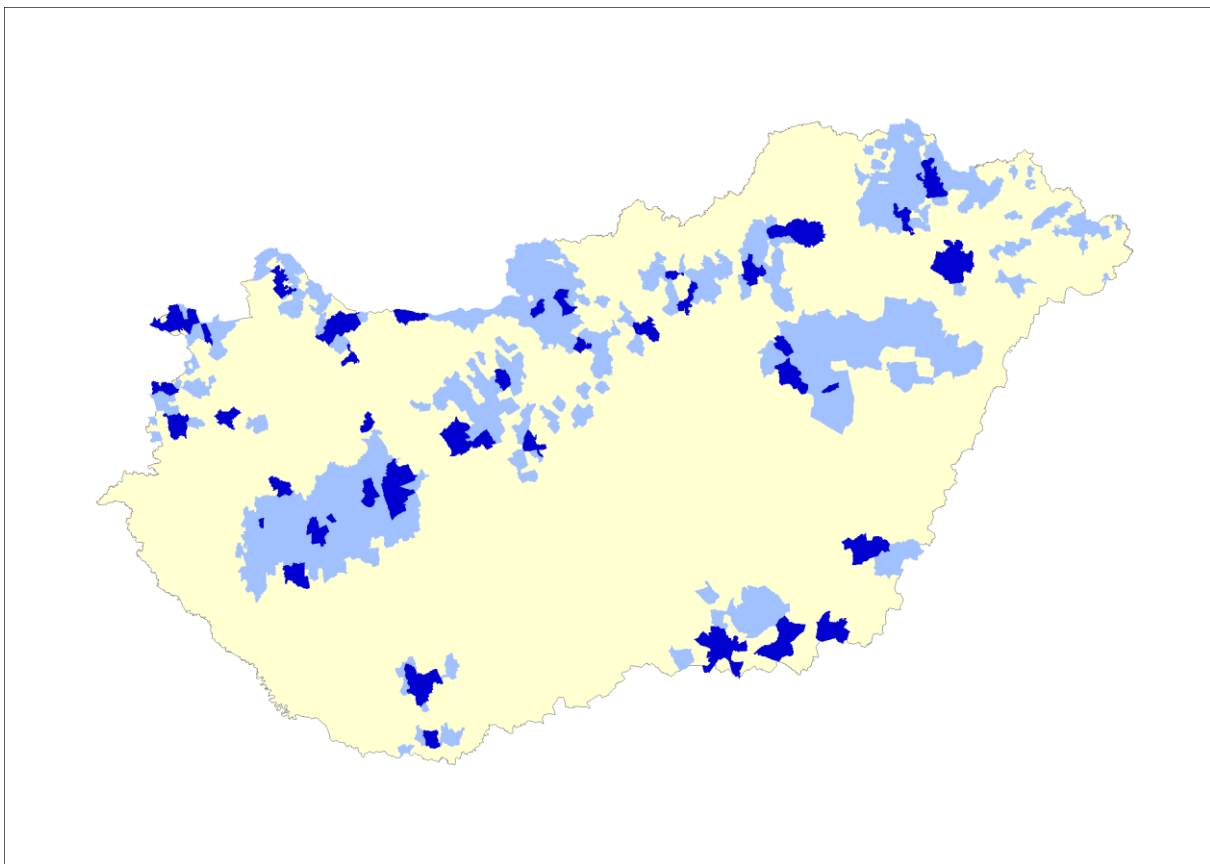

Figure 2. The questionnaire survey at national level.
Source: self-made map using MAPINFO PRO.

4. Results and discussion

The in-depth interviews revealed that in Hungary, the degree of digitalisation is

not worse than the European average, but the number of Hungarian digital product producers in the e-commerce sector is very low. A total of 3 main ones were mentioned during the in-depth interviews: szallas.hu, edigital.hu and shop.builder.hu. In the number of digital producers, the best position in Europe is held by the Dutch and the British, but the Czechs are also much better than Hungary with around 500 digital product producing companies. In Hungary, the presence of digital suppliers is dominant in the tourism sector (Booking, Airbnb, etc.). However, there is a need for another 5–8 globally competitive domestic digital product manufacturers.

Additionally, not only the number of domestic companies is low, but there is also a lack of professionals in this field and the training system is not prepared for digitalisation, nor are the training places.

There is a wide disparity in both digitalisation and the supply of professionals between regions and tourism service providers. In Budapest, tourism and accommodation would not exist without digital technology, but the situation is less favourable in rural areas. The same can be said for hotels, apartments and guesthouses: while the former are well prepared, most of the latter lack digital solutions.

Analysing the answers of the tourism destination management organisations, the following results were obtained. In the hierarchical cluster analysis, taking into account the driving distances, the regions can basically be grouped into three major digitalisation groups (~clusters) based on the surveyed municipalities representing the destinations. This was based on a digitalisation assessment question, in which we measured the digital attitudes of the region on a Likert scale from 1 to 5. According to our K-means test, the three cluster categories are:

1) Areas with low digitalisation but positive attitudes: Although they see that the digital world makes life easier ($\overline{x}$ = 4.12; δ = 0.69) and feel their area is part of the global world ($\overline{x}$ = 3.62; δ = 0.85), they are not able to take advantage of it. In their attitudes, they perceive that their region is not well represented on social media ($\overline{x}$ = 2.87; δ = 0.85), does not have a developed infrastructure ($\overline{x}$ = 2.56; δ = 0.86), nor advanced digital capabilities ($\overline{x}$ = 2.5; δ = 0.70), and their digital and online services are perceived as particularly limited ($\overline{x}$ = 2.37; δ = 0.59), while they are mostly confident that tourists will leave a mark for them in the online space by providing online feedback ($\overline{x}$ = 3.18; δ = 1.13).

2) Regions with medium digitalisation and neutral digitalisation attitudes: They do not believe that digitalisation would facilitate their tourism ($\overline{x}$ = 1.75; δ = 0.82), nor do they feel that their region is part of the global world ($\overline{x}$ = 2.25; δ = 0.82). Their social media presence ($\overline{x}$ = 3.5; δ = 1.11), infrastructure ($\overline{x}$ = 3; δ = 0.4), digital opportunities ($\overline{x}$ = 3.25; δ = 1.08), and online services ($\overline{x}$ = 3.5; δ = 0.8) are all rated medium.

3) Regions with high digitalisation attitudes and high digitalisation: They have a strongly positive attitude, thinking digitalisation makes their lives easier ($\overline{x}$ = 4.72; δ = 0.44) and think their region is part of the global world ($\overline{x}$ = 4.52; δ = 0.64). They are satisfied with their presence on social media ($\overline{x}$ = 3.92; δ = 0.939), their infrastructure ($\overline{x}$ = 3.72; δ = 1.04), and the range of digital and online services ($\overline{x}$ = 3.76; δ = 0.64).

All cluster groups agree that it is important to read positive things about their

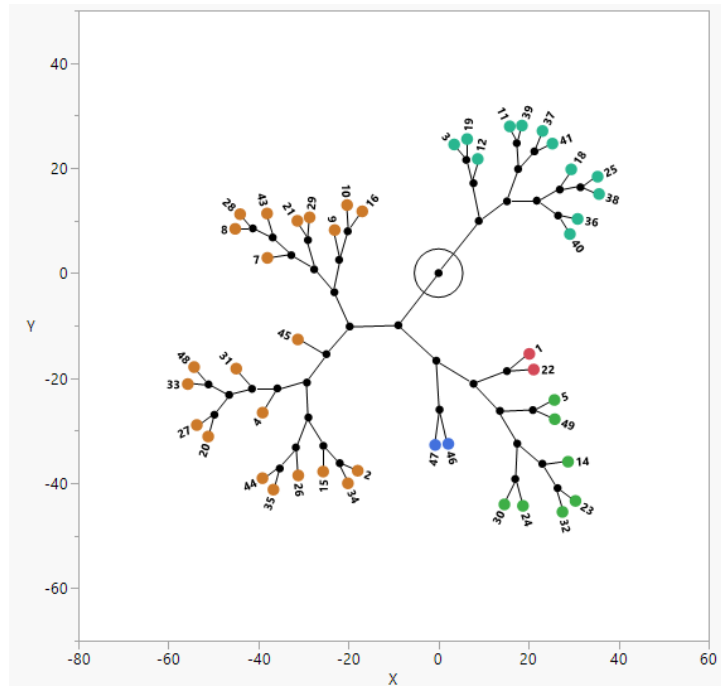region online and that tourists like to compare prices online (**Figure 3**).

Figure 3. Constellation diagram.

Source: SAS JMP output based on own analysis.

Taking into account the services provided, it can be concluded (max = 49) that almost all regions have (47) local/urban tourism websites, and free WiFi in public spaces (46), online accommodation booking in the region (46) and regional (marketing) videos uploaded to video portals (45) are also common. The least offered services in the areas are online car rentals (20), local/urban tourist app (guide) (26) and historical website/area history on the internet (30) (**Figure 4**).
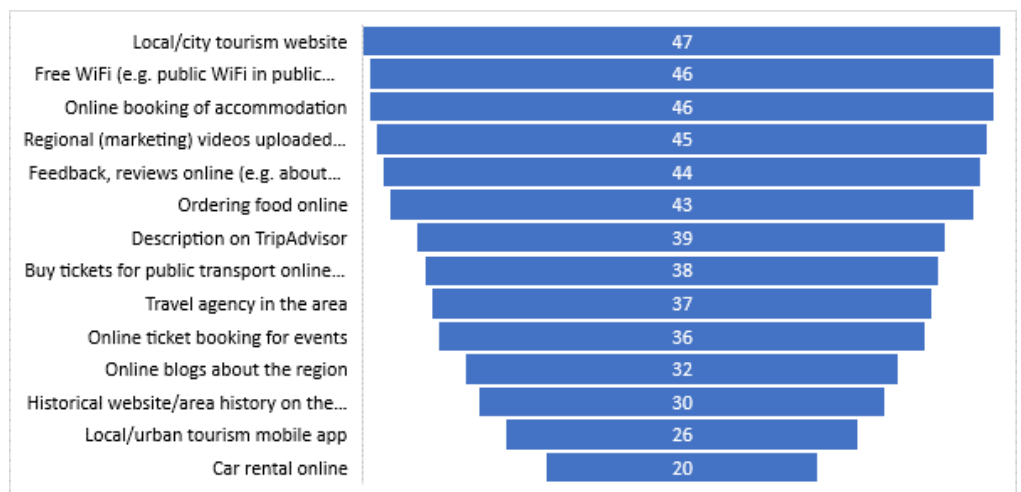

Figure 4. Presence of services in the regions.

Source: own editing.

To determine the degree of digitalisation, we collected the digital offer elements available in each municipality, weighted each municipality by the presence of 14 different services and then aggregated them by K-mean at the level of tourist areas

(**Table 1**). Based on the results, the high scores indicate that almost all destinations have a digital offer, with all but one region scoring above 10. The only exception to this is the region of Pécs. However, it should be noted that in the case of Gyula and its region, there are only two cities that make up the destination, with Békéscsaba being a relatively developed county seat and Gyula being a highly developed tourist destination, which may justify the high weighting. In the case of Lake Balaton, the lower mean value (10.43) is due to the fact that the region is made up of around 175 settlements, most of which are villages or small towns, and there is a large difference in the development of the individual settlements (e.g. Veszprém and Balatonmáriafürdő).

Table 1. The digital offer of the regions.

Area	Average of weight values	Standard deviation of weights
Gyula region	13.00	0.00
Sopron region	12.50	0.71
Bük and Sárvár	12.33	1.15
Eger region	11.75	2.63
Győr and Pannonhalma	11.33	2.08
Greater Budapest	11.11	2.52
Debrecen and surroundings	11.00	2.00
Szeged region	11.00	2.65
Tokaj and Nyíregyháza	10.50	2.38
Balaton	10.43	3.03
Pécs region	8.67	5.03

Source: own editing.

However, the degree of digitalisation can also affect the demand for a region, so it can be assumed that the more digitisation a tourist area has, the more popular it is with tourists. In our questionnaire, we also assessed the average length of stay and looked for a correlation between the dependent variable of length of stay and the independent variable of the spatial weights representing digitisation. Although our logistic regression analysis did not show a significant correlation ($Khi^2 = 0.268$), the positive value of the slope and the distribution of the sample suggest that the higher the degree of digitalisation is, the greater the shift is towards higher values of average length of stay. This is not only a result of the slope, but also of other factors, as some destinations where people tend to spend more time (typical example is Lake Balaton, the most famous tourist area in the country) have lower digital weights. This nevertheless further supports our hypothesis, that for one factor category (1–2 days of stay) the Khi^2 test showed a significant correlation of 0.0235, which was confirmed for example by Pécs (8.67 digitalisation weight and 1.67 average length of stay), which means that our hypothesis can only be partially confirmed.

Although only a few research have previously examined the relationship between tourism and the emergence of digitalisation, the majority have shown a positive effect (Ilic and Nicolic, 2018; Lopez-Cordova, 2020; Nonthapot and Watchalaanun, 2015; Seetanah and Fauzel, 2023). The cited publications have found that countries with

advanced digitalisation can benefit from higher levels of economic impact from tourism due to potential synergies between digitalisation and tourism. In their work, Seetanah and Fauzel (2023) studied 28 islands and found that the economic benefit of tourism is found to be higher with an increased digitalisation level.

In our research, we attempted to find a link between digitalisation and the development of tourism in each region. The hypothesis analysis of the research shows that there is a partial correlation between the digital development of tourist destinations and the length of stay of tourists in our sample. This means that higher levels of digitalisation may improve tourists' access to information and thus lead to longer stays.

On the basis of the conducted research, three distinct clusters were created based on the level of digitalisation development in the tourism areas, which made it possible to examine regional differences and the impact of attitudes. The results from this analysis suggest that the relationship between digital infrastructure and tourist behaviour is complex, multi-factorial, and shows regional differences. Increasing digital development in tourism may therefore be of strategic importance for tourist destinations. Of course, the findings should not be interpreted in itself, as both in our research and in our results there is a partiality.

Our hypothesis that digital development determines the development of tourism in a region could only be partially confirmed, which may be due to the fact that some destinations were already very popular before the advent of digitalisation, so that the emergence and development of digitalisation had less impact on the development of tourism. It would certainly be justified to extend the research in this direction.

5. Conclusions

In our study, we focused on the 11 designated tourist areas in Hungary, which can also be interpreted as tourism products, i.e. regions and destinations that combine services, infrastructure and attractions. Their branding is part of the National Tourism Development Strategy (NTS), as is the strengthening of the destinations' services and marketing. Naturally, the NTS also places emphasis on digitalisation, an unstoppable process, which impact on tourism is significant, due to globalisation, increased competition and the acceleration of information flow, as well as the major paradigm shifts on the demand and supply sides.

A professional questionnaire was distributed in the designated tourism destinations in Hungary in order to get a more comprehensive picture of the digitalisation attitudes of the regions under study, which showed that basically they can be classified into three major clusters: regions with low digitalisation but positive attitudes; regions with medium digitalisation and neutral digitalisation attitudes; regions with high digitalisation and high digitalisation attitudes.

Our primary research also showed that almost all areas have local/urban tourism websites and public WiFi, while online car rental services are still an untapped area. Our hypothesis that the higher the digitisation of a tourist destination is, the higher the average length of stay, was partially confirmed by calculating the spatial value of the digitalisation measure, logistic regression analysis, slope and the individual factor categories.

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