

**Mendel University in Brno  
Czech Society of Landscape Engineers – ČSSI, z.s.**

**Public recreation and landscape protection  
– with environment hand in hand?**



**Proceedings of the 14th Conference**

**Editor: Jitka Fialová**

**9th–11th May 2023, Křtiny**

**MENDEL UNIVERSITY IN BRNO**

**Czech Society of Landscape Engineers – ČSSI, z. s.,**



**and**

**Department of Landscape Management  
Faculty of Forestry and Wood Technology  
Mendel University in Brno**



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**Editor: associate Professor Ing. Jitka Fialová, MSc., Ph.D.**

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Under the auspices  
of prof. Dr. Ing. Jan Mareš, the Rector of Mendel University in Brno,  
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Mendel University in Brno,  
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Křtiny, Mendel University in Brno,  
of Ing. Dalibor Šafařík, Ph.D., the Chief Executive Office, Forests of the Czech Republic,



of JUDr. Markéta Vaňková, the Mayor of the City of Brno,



and of Mgr. Jan Grolich, the Governor of South Moravia,

## south moravian region

in cooperation with Czech Bioclimatological Society, Nature Conservation Agency of the  
Czech Republic) and Partnerství, o.p.s.,

with the financial support of FS Bohemia Ltd.



The authors are responsible for the content of the article, publication ethics and the citation  
form.

All the articles were peer-reviewed.

© Mendel University in Brno, Zemědělská 1, 613 00 Brno, Czechia

ISBN 978-80-7509-905-1 (print)

ISBN 978-80-7509-904-4 (online ; pdf)

ISSN 2336-6311 (print)

ISSN 2336-632X (online ; pdf)

<https://doi.org/10.11118/978-80-7509-904-4>

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# POSSIBILITIES OF USING NEW TECHNOLOGIES IN CULTURAL TOURISM IN THE POST COVID ERA

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<https://doi.org/10.11118/978-80-7509-904-4-0202>

## **Abstract**

The study *"Possibilities of using new technologies in cultural tourism in the post-Covid era"* deals with the analysis of different ways of using IT technologies in cultural tourism with a special focus on the effects of Covid19. As part of the study, the method of literary research was chosen, enabling the analysis of the possibilities of using new technologies, including the assessment of their potential. Based on the study, it was confirmed that the potential for the use of new technologies in the field of cultural tourism is diverse. Due to the impact of Covid19 on global tourism, a massive development of digitization in the cultural tourism sector can be expected. The use of new technologies in cultural tourism could help make tourism accessible to a wider range of users. Based on the results, it can be concluded that the direction of the development of new technologies is influenced not only by the creators of IT technologies, but also by the demand from users and their IT skills.

**Key words:** Innovative, Tools, Information, IT, Big data

## **Introduction**

New technologies represent a wide range of information technologies that can be used in the field of tourism. The development of new technologies has a significant impact on the cultural tourism sector and their potential has increased during the Covid19 epidemic, when restrictions have reduced global tourism. According to the World Travel and Tourism Council (WTTC, 2020), tourism accounted for 10.4 % of world GDP and for 334 million jobs worldwide in 2019. As a result of the Covid epidemic, global GDP fell by half to 5.5 % in 2020 and 18.5 % of jobs were lost to 272 million. Furthermore, due to restrictions on travel opportunities, there was a significant worldwide decrease in tourism expenditure by 45 % for domestic visitors and by 69.4 % for foreign visitors. Restrictions associated with Covid19 have affected cultural tourism, especially in connection with visits to cultural monuments (museums, castles, chateaux, etc.) that were closed during the state of emergency. According to United Nations Educational, Scientific and Cultural Organization (UNESCO, 2020) 90 % of museums worldwide were closed for a transitional period during Covid19-related restrictions in 2020 and it is estimated that up to 10 % of museums do not have to reopen. At the same time, these museums are less resilient to the effects of the crisis due to lower digitization rates. The effects of the crisis have increased the use of digitization, but UNESCO estimates that only 28 % of European museums have staff with digital expertise and only half of the institutions devote more than 10 % of the budget to digitization and communication. The use of new technologies in cultural tourism is closely related to the level of use of digitization.

With the development of science and research, big data about tourism participants is increasingly being used. According to Perez and Quintans (2019), big data can be defined as *"a set of data that is at a high level in terms of content, variety and speed of data, which is not processed by traditional methods"*. For this reason, it would be advisable to use new technologies to simplify the process of data collection and analysis, unify metrics and provide current data that can be used in solving current problems. Big data captures the digital footprint of users. According to Naeem. et al. (2022) among the most important sources of big data are data from communication systems, global network, data generated by business processes, sensor data and sharing data.

## **Materials and method**

In the form of a literature search, information was collected that deals with the topic of modern technologies and the possibilities of their use in the framework of cultural tourism. According to Krčál (2017), literary research can be defined as *"a written document that contains essential points of current scientific knowledge (theoretical and methodological), which is related to a specific topic"*. As part of the research, the method of systematic research was used, which can be characterized as a systematic method used to identify and evaluate the results obtained from relevant sources. A comparative method was used to evaluate the data obtained through literature research. According to Lorenc (2013), the comparative method can be defined as *"the basic method used in the evaluation of*

*two or more phenomena*". As part of the study, the comparative method was used to compare individual ways of using modern technologies in cultural tourism.

## **Results**

Based on this study, the possibilities of using modern technologies in the tourism industry include the use of big data for:

### 1) Capturing the movement of tourism participants

According to McKittrick et al. (2022), through the billions of active social network users worldwide, spatial data generated in a geographic information system (GIS) format can be used for scientific research. Within GIS, big data can be used, which can be used in the tourism industry. Tourism takes place in specific areas (tourist destinations) that have unique characteristics in GIS that distinguish them from their surroundings. The range of GIS applications is wide ranging from route planning to various types of analysis that can be used by tourism providers and participants.

### 2) Profiling the behavior of tourism participants

Currently, an increase in demand for specific forms of cultural tourism can be expected, which can be adapted to the psychological needs of tourists based on big data analysis. The information that can be found based on the analysis of big data sources can be used in the planning of activities related to cultural tourism. According to research by Sahebi et al. (2022), service operators in the tourism industry can use big data analysis both to verify the potential of new products, but also to evaluate customer feedback and satisfaction with already implemented products or services. Based on research by Mele et al. (2022) found differences in the understanding of culture in different countries and that universal advertising aimed at a broad spectrum is not as effective as specific advertising aimed at a specific target group. This knowledge can be used in the creation of advertising on social networks aimed at specific target groups, whose characteristics must be determined and analyzed in advance in order for the advertising to be effective.

### 3) Measuring tourists' satisfaction with visiting a destination

According to Chang et al. (2022), big data can be used as a tool to analyze the perceptions of tourism participants, which can help to better understand their behavior and needs. According to (Lopes et al. 2022), tourists' satisfaction with visiting a destination plays a key role in the destination decision-making process. Through digital technologies, it is possible to share visit experiences, including texts, photos, videos, with a wide range of IT technology users through websites, social networks. This makes it possible to raise awareness of the cultural attractions in the tourist destination. Based on the Cuomo study. et al. (2021) it was confirmed that the sharing of photos, videos and posts on social networks has a massive impact on readers, which can be used to effectively promote a tourist destination through the promotion of influencers. According to Coves-Martinez et al. (2022) results show that the level of cultural intelligence is directly related to the way of perceived satisfaction with travel applications. The higher the level of cultural intelligence, the higher the motivation, flexibility and adaptability of users when using applications.

### 4) Monitoring the costs of visiting the destination

According to the Global Digital Yearbook (Digital 2020), smartphone users accounted for more than half of the world's population in 2020. Mobile applications in the tourism industry offer a wide range of uses, from the possibility of providing complete travel agency services to the provision of individual services: transport (Lufthansa, Uber: tickets, bus, train, taxi), accommodation (Booking, Airbnb), catering and leisure activities (Tripadvisor), travel guides (Lonely planet), translators (Google translator) and map geolocators (Google maps). Data obtained from mobile application providers could be used to monitor costs associated with visiting a tourist destination. However, it is necessary to ensure the protection of the privacy of their users.

### 5) Support for connecting tourism participants

According to Tang (2022), the popularity of self-help tourism has recently been growing, in which tourists can use freely available data that provide them with information about the possibilities of visiting interesting tourist destinations in the researched location. The integration of online and offline resources and the possibility of using big data will be essential for the future development of sustainable rural tourism, providing more opportunities for tourism operators and users for meaningful and sustainable cultural tourism.

#### 6) Prediction of visitors behavior

Based on research by Kalvet et al. (2020), big data can be used as a key source for configuring the tourist experience. In the process of deciding to visit a destination, tourists have the opportunity to use a wide range of information that is available online. Whether it's about offering culture, tourist experiences or sharing photos, videos and articles about the destination. According to Bizirgianni and Dionysopoulou (2013) since 2010, social media have played an increasingly important role in promoting cultural tourism especially among young users (16-29 years). This data can be characterized as big social data that is available online through popular social networks such as Instagram, Facebook, YouTube, Twitter, Internet blogs and discussion forums. Through online interaction in discussions and reviews, tourists actively participate in the process of co-designing travel experiences.

#### 7) The use of digital technologies in the indirect mediation of culture

According to Richards (2018) the development of new technologies offers opportunities to consume culture indirectly in the form of images, videos and sounds using appropriate technologies almost anywhere in the world. While some cultural services: music, films, musicals are protected by copyright, most of the intellectual property contained in creative products is highly mobile and difficult to protect. According to Çakici, Yildirim (2022), the growing importance of digitization, which enables tourists to provide the widest possible cultural opportunities, is related to this. The use of digital technologies can have a positive impact on increasing competitiveness in the tourism industry. Through the digitization of archival materials, the collections of museums and cultural performances preserve cultural heritage and ensure accessibility to a wide spectrum of the population.

### Discussion

According to Richards (2018) the need for up-to-date data continues to grow, as do the possibilities of obtaining and using it. The lack of data can also appear problematic in the case of cultural tourism. According to Kalvet et al. (2020) the sensitivity of personal data, including privacy, may be an issue when using this data. The potential is primarily data freely available from social networks, web searches and website visits. GIS data containing the location of social network users appears as a promising alternative to the localization of tourism participants. The use of new technologies appears as an alternative to the traditional methods of obtaining data (national statistics, questionnaires, individual interviews). According to Coves-Martinez et al. (2022) differences in the cultural intelligence of users of tourism applications may be a barrier to their use. For that reason, in the future, the way and frequency of using modern technologies in cultural tourism will be closely related to the ability and interest of users to use them.

### Conclusion

Based on the results of the study, it was found that the potential for the use of new technologies in the field of cultural tourism is diverse. The use of new technologies in cultural tourism could help make tourism accessible to a wider range of users. The direction of development and use of new technologies is influenced not only by the creators of IT technologies, but also by the demand from users and their IT skills. What will be the direction of the development of new technologies in cultural tourism can only be estimated, but due to the effects of Covid19 on tourism, a significant development of digitization in the cultural tourism sector can be expected.

### References

- Ammirato, S. et al. (2021). Digital business models in cultural tourism. *International Journal of Entrepreneurial Behavior & Research*. Emerald Publishing Limited 1355-2554. 22 p.
- Bizirgianni, I.; Dionysopoulou, P. (2013). The Influence of Tourist Trends of Youth Tourism through Social Media & Information and Communication Technologies: *Procedia - Social and Behavioral Sciences*, 73 p.
- Coves-Martinez, A, L. et al. (2022). Cultural intelligence as an antecedent of satisfaction with the travel app and with the tourism experience, *Computers in Human Behavior*, Volume 127, 2022, 107049, ISSN 0747-5632
- Cuomo, M. T, et. Al. (2020). Digital transformation and tourist experience co-design: Big social data for planning cultural tourism. *Technological Forecasting & Social Change* 162 (2021) 120345
- Chang, V. et al. (2022). Brand personality in cultural tourism and sustainable development by using big data analytics, *International Journal of Business and Systems Research* 16.1 (2022): 125-139.
- DIGITAL. 2020. DIGITAL 2020: GLOBAL DIGITAL YEARBOOK. [online]. Datareportal [2022-03-05]. Available at: <https://datareportal.com/reports/digital-2020-global-digital-yearbook>

- Kalvet, T et al. (2020). Innovative tools for tourism and cultural tourism impact assessment. *Sustainability* 2020, 12 (18), 7470.
- Koster, R., L., Carson, D., A. (2019). Perspectives on Rural Tourism geographies. Case studies from Development Nations on the Exotic, the Fringe, and the Boring Bits in Between, *Geographies of Tourism and Global Change*. Springer, Switzerland. 4-6 pp. ISBN 978-3-030-11949-2
- Krčál, M. (2017). Literární rešerše. [online]. [cit. 2019-22-02]. dostupné na: <http://www3.econ.muni.cz/~99246/zav-prace/lit-review.xhtml>
- Lorenc, M. (2013). Závěrečné práce: metodika [online]. [cit. 2019-16-02], dostupné na: <http://lorenc.info/zaverecne-prace/metodika.htm>
- Luo, CH.; Wu, X. (2021). Research on the integrated development of leisure agriculture and red cultural tourism under the background of big data. *Acta Agriculturae Scandinavica, Section B — Soil & Plant Science*. Volume 72, 2022
- Mckitrick, M. K.; Schuurman, N.; Crooks, V.A. (2022). Collecting, analyzing, and visualizing location-based social media data: review of methods in GIS-social media analysis. *GeoJournal*
- Mele, E.; Kekrhof, P., Cantoni, L. (2021). Analyzing cultural tourism promotion on Instagram: a cross-cultural perspective, *Journal of Travel & Tourism Marketing*, 38:3, 326-340
- Naeem, M. et al. (2022). Trends and Future Perspective Challenges in Big Data. In: Pan JS., Balas, V.E.; Chen CM. (eds) *Advances in Intelligent Data Analysis and Applications*. Smart Innovation, Systems and Technologies, vol 253. Springer, Singapore.
- Pérez, G.; Quintáns, D. (2019). Using Big Data to Measure Tourist Sustainability: Myth or Reality? *Sustainability*. 11. 5641. 10.3390/su11205641.
- Richards, G. (2018). Cultural tourism: A review of recent research and trends. *Journal of Hospitality and Tourism Management* 36 (2018) 12e21
- UNESCO. (2020). Museums around the world in the face of COVID-19 [online] UNESCO digital [2021-06-11]. Available at: <https://unesdoc.unesco.org/ark:/48223/pf0000373530>
- WTTC. (2020). Economic Impact Reports. [online]. World Travel & Tourism Council [2022-03-05]. Available at: <https://wttc.org/Research/Economic-Impact>

## Souhrn

Studie „*Možnosti využití nových technologií v kulturním cestovním ruchu v post Covidové éře*“ se zabývá analýzou odlišných způsobů využití IT technologií v kulturním cestovním ruchu se zvláštním zaměřením na dopady Covid19 na cestovní ruch. V rámci studie byla zvolena metoda literární rešerše umožňující analýzu možností využití nových technologií, včetně posouzení jejich potenciálu. Na základě studie se potvrdilo, že potenciál pro využití nových technologií v oblasti kulturní turistiky je různorodý. Vzhledem k dopadu Covid19 na globální cestovní ruch lze očekávat masivní rozvoj digitalizace v sektoru kulturní turistiky. Využití nových technologií v kulturní turistice by mohlo pomoci zpřístupnit cestovní ruch širšímu okruhu uživatelů. Na základě výsledků lze konstatovat, že směr vývoje nových technologií ovlivňují nejen tvůrci IT technologií, ale také poptávka ze strany uživatelů a jejich IT dovednosti.

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Title: **Public recreation and landscape protection – with environment hand in hand?**

Proceedings of the 14<sup>th</sup> Conference

Editor of the proceeding: associate Professor Ing. Jitka Fialová, MSc., Ph.D.

Publisher: Mendel University in Brno, Zemědělská 1, 613 00 Brno, Czechia

Print: Mendel University in Brno, Zemědělská 1, 613 00 Brno, Czechia

Edition: 1<sup>st</sup> Edition, 2023

No. of pages: 392

No. of copies: 75

ISBN 978-80-7509-905-1 (print)

ISBN 978-80-7509-904-4 (online ; pdf)

ISSN 2336-6311 (print)

ISSN 2336-632X (online ; pdf)

<https://doi.org/10.11118/978-80-7509-904-4>