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Enabling Tourism 5.0: How a new digital era can transform accessible tourism information systems

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Objectives | Given the rise of Industry 5.0, the concept of Tourism 4.0 is currently evolving into Tourism 5.0 (Gomes, Lopes, & Ferreira, 2023). While Tourism 4.0 mainly focuses on technology development, Tourism 5.0 intends to transform previously identified technology advancements and place the human being at the center of this innovation and transformation. The scope of Tourism 5.0 is connected to technological impacts with social sustainability (Gretzel, Sigala, Xiang, & Koo, 2015; Neuhofer, Buhalis, & Ladkin, 2012). Tourism 5.0 can be potentially defined as human-centered tourism, based on Industry 5.0 drivers, i.e., robotics, intelligent machines, and artificial intelligence. Essentially, smart tourism evolves into super smart tourism, as technological drivers redefine the travel industry's boundaries by improving consumer experiences, and service quality and transforming current technologies, such as tourism information systems (Bulchand-Gidumal, 2022). Studying how technology in tourism interacts with society to promote social sustainability is the main purpose of the 5.0 tourism paradigm. Concerning social aspects, technology may be used to improve accessibility conditions, therefore accessible tourism and Tourism 5.0 go hand in hand (Teixeira, Teixeira, Eusébio, Silva, & Teixeira, 2021). However, studies on the Tourism 5.0 paradigm are still few in the literature, despite the trend of innovation across tourism (Madsen & Slåtten, 2023; Mukherjee et al., 2023). Some of the research carried out in Tourism 5.0, tends to introduce a plethora of related concepts: Hospitality 5.0, Marketing 5.0, Digital Tourist. However, the literature about the relationship between Tourism 5.0 and accessible tourism is very scarce. Therefore, this paper intends to increase knowledge in this field examining how Tourism 5.0 may contribute to the development of a more accessible tourism industry. In particular, this study's objective is to analyze the transformation of tourism information systems, and understand how technological drivers can improve existing solutions, thus enabling Tourism 5.0.

Methodology | To achieve this goal, a case study analysis is performed. Essentially, traditional literature research was used to identify the technological drivers with the potential to improve the

accessibility of information systems. Then, it is presented a proposal for integrating these drivers with access@tour by action, taking into account the potential of each driver and the needs of accessible tourism, in terms of improving accessibility. The access@tour by action is a mobile app prototype developed by the authors as part of the ACTION research project (ACTION, 2019). The platform was specially designed for the accessible tourism market (tourists with special needs; supply agents; and institutions responsible for training in tourism) supporting information management in the context of accessibility (Teixeira, Teixeira, & Eusébio, 2022). The relationship between technological drivers and their integration into the access@tour by action app offers a comprehensive view of how technological advancements can bolster accessible tourism. Essentially a literature research was used to identify the technological drivers with the potential to improve the accessibility of information systems. Then, it is presented a proposal for integrating these drivers with the access@tour by action, taking into account the potential of each driver and the needs of accessible tourism.

Main results and contributions | The in-depth exploration of integrating technological drivers with accessible tourism, specifically with a case study on access@tour by action, revealed the significant potential of technology in establishing more accessibility. The technological drivers, such as 3D Printing, Cyber-physical systems, Cloud technologies, the Internet of Things, Big Data Analysis Tools, Cognitive Computing, Virtual reality, Radiofrequency identifiers, Augmented reality, and Artificial intelligence, provide unique improvements that can revamp the app's usability, adaptability, and information/communication spread. Despite some of these drivers already being established in different industries, their application to accessible tourism components is what allows the enabling of Tourism 5.0. This is verified on the possible innovations to the access@tour by action. For example, the Internet of Things might help personalize the user experience within the platform and Artificial intelligence/ Virtual reality could simulate tourism experiences for accessibility testing, also within the access@tour by action. These connections have the power to improve and tailor user experiences, guaranteeing high levels of customization and real-time adaptation to meet the diverse demands of people with special needs.

Limitations | There are some limitations to the study that need to be addressed. This study provided only a particular view of how a specific platform can evolve to promote more accessibility. To better estimate the technological impacts of Tourism 5.0 on tourism platforms, it may be necessary to analyze platforms with other types of functionalities (e.g. wayfinding). Moreover, it would be important to listen to the opinions of several stakeholders (e.g., visitors, and decision-makers) regarding which technologies should be integrated, and for what solutions. Also, these stakeholders

need to be directly related to the design of the system. Otherwise, the core value of Tourism 5.0 would be neglected

Conclusions | The incorporation of emerging technologies in accessible tourism apps like access@tour by action has the potential to transform accessibility conditions available for tourists with special needs. This case study provides in-depth insight into real-world applications, providing a clear understanding of how to place the human being at the center of technological innovation and transformation, thus enabling the transition from Tourism 4.0 to Tourism 5.0. However, the journey does not end with integration; it demands continuous refinement and research to overcome limitations and evolve with the dynamic technological landscape.

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