ARTIFICIAL INTELLIGENCE ENHANCING CULTURAL HERITAGE AND TOURISM DEVELOPMENT: A DISCUSSION OF THE ATHENS CASE

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Abstract
There is an increasing emphasis on inclusive urban development, particularly in addressing the challenges that people with disabilities (PwD) encounter when accessing cultural and tourism environments. Simultaneously, the integration of artificial intelligence (AI) in smart city ecosystems is revolutionising the preservation, interpretation, and accessibility of cultural heritage and tourism services. Advanced digital heritage technologies and intelligent tourism systems offer significant benefits for individuals with disabilities, enhancing their accessibility, participation, and independence in complex urban and historical settings. Countries that invest in these initiatives can also reap substantial rewards. This study explores the advantages of AI-enabled technologies for people with disabilities (PwD) and identifies ways to further enhance them. The discussion is based on a focus group consisting of six (6) experts who examined these issues through the lens of several initiatives implemented in Greece. The findings suggest that employing AI in cultural heritage contexts within smart cities can provide valuable services that enhance the tourism experience for people with disabilities (PwD). Addressing these challenges can lead to significant benefits for individuals and countries that prioritise this issue. Professionals in relevant fields, as well as academics and policymakers, can gain valuable insights from the findings presented in this study.

Keywords: artificial intelligence; cultural heritage; accessible tourism; smart cities; people with disabilities (PwD; urban sustainability

1. INTRODUCTION

Technology is closely connected to travel and tourism experiences, offering valuable services to everyone. In this context, the roles of artificial intelligence (AI), automation, and immersive digital experiences are expected to transform the travel and tourism experience further (Marr, 2026). Promoting cultural heritage is essential for tourism growth. Utilising AI and machine learning alongside traditional tools helps improve the conservation and preservation of cultural heritages (Colace et al., 2025). Smart cities adopt several advanced technologies to facilitate the daily lives of all citizens. In this context, information and communication technologies (ICT) and the Internet of Things (IoT) are used by local governments (Albino et al., 2015; Gomstyn & Jonker, nd). People with disabilities (PwD) may attain greater benefits in visiting cultural sites and enjoy travel experiences. As a result, technology-oriented individuals may gain significant advantages. AI-enabled accessibility solutions facilitate independent exploration, boost confidence, and enhance social participation among PwD, while also increasing usability for broader audiences. The economic benefits stemming from the adoption of advanced technologies for PwD are significant and should be acknowledged (Choi & Kim, 2023; D'Aniello et al., 2017). Thus, from a sustainability perspective, these practices, besides their economic advantages, contribute to wider socio-cultural resilience by promoting equal access to cultural resources and reinforcing the social aspect of sustainable urban development, while environmental benefits remain also crucial. In this effort, the role of state-owned organisations and their cooperation with private entities is vital. Countries with rich cultural heritage and thriving tourism industries must adopt more innovative solutions, addressing PwD needs, to achieve higher sustainability. Travel and tourism is a robust industry expected to generate USD 11.7 trillion globally by 2025, accounting for over 10% of world GDP, signalling a significant recovery and a major achievement for an industry that faced a crisis during and after the COVID pandemic (Smith, 2025). In this context, countries in Southern Europe with rich cultural heritage, such as Greece, are making significant contributions to the tourism industry. Greece, for instance, expects to surpass €23.5 billion (Greek Tourism 2025, A National Affair, 2025). Accessible tourism delivers substantial sustainable benefits, and all countries should invest more in this area. To support this, advanced technologies, particularly AI, provide valuable services.

The issues discussed earlier, particularly AI-driven applications in Greek museums and archaeological sites, and their role in enhancing the travel and tourism experience for PwD, were addressed in this study. These applications include personalised digital guides, adaptive multimedia content, audio description systems, assistive navigation tools, and intelligent accessibility mapping. The analysis explores how such technologies address physical, sensory, and cognitive barriers to foster more inclusive cultural and tourism experiences. These issues were discussed in detail during a focus group with six (6) experts. Initially, several study-related initiatives were presented to the participants. All agreed that advanced technologies, particularly AI, contribute to greater participation and accessibility for PwD and should be viewed as an opportunity for investment. These technologies should be incorporated with more accessible services across all areas of cultural heritage, within a smart city context. Additionally, collaboration among all stakeholders and monitoring others' applications are both essential. Countries that invest more in these issues are expected to benefit more.

Overall, this research contributes to the emerging discourse on AI, accessibility, and inclusive smart cities by providing empirical insights from the Greek context. It offers valuable insights for academics, practitioners, and policymakers seeking to leverage AI to advance disability-responsive cultural heritage and tourism development, supporting more accessible, equitable, and sustainable urban futures.

1.1 Literature Review

In this section of the study, issues such as the role of AI in cities, museums, and other cultural heritage, and how this can improve the travel and tourism experiences of PwD, are briefly addressed.

AI is an advanced technology, defined as the ability of a digital computer or computer-controlled robot to perform tasks typically associated with intelligent beings. This includes abilities such as reasoning, discovering meaning, generalising, and learning from experience (Britannica, 2026). AI and AI-related technologies, including AR and VR, are widely used in many areas of daily life, offering significant advantages.

Cities around the world are undergoing significant transformations as AI impacts infrastructure, services, and cultural assets that shape modern urban life. A smart city is an urban area that extensively uses technology and data collection to ensure effective governance, increase citizen satisfaction, promote business growth, and boost sustainability. Yin et al. (2015) provide a functional evolution of the smart city concept, transitioning from a digital city to an intelligent city. A digital city is characterised by the complete digitisation of communication, information, and processes, which enables the population to access data, resources, the environment, and the economy. In contrast, an intelligent city builds on this foundation by incorporating AI-driven decision-making. An efficient smart city requires a balance between complex infrastructure (technologies) and soft infrastructure (people, institutions). Also, the six dimensions commonly used in the relevant research are the following: 1. Smart Economy (innovation, entrepreneurship, productivity); 2. Smart People (education, creativity, social inclusion); 3. Smart Governance (participation, transparency, public services); 4. Smart Mobility (transport systems, ICT infrastructure); 5. Smart Environment (energy, pollution, resource management); and 6. Smart Living (health, safety, culture, housing) (Albino et al., 2015). However, in a context where advanced technologies prevail, the human aspect should not be ignored. Citizens play a crucial role in smart cities, both as technology users and as active participants in shaping urban life. This involvement makes smart cities more responsive, inclusive, and sustainable. However, challenges such as digital inequality and privacy concerns must be addressed, highlighting the need for inclusive and citizen-centred approaches (Hernàndez, 2016).

The management of smart cities must effectively address the ‘digital divide’. Failing to do so may inadvertently worsen existing inequalities by focusing on technologically advanced solutions without ensuring high levels of accessibility for all. It is crucial to prioritise digital inclusion and equity to enhance the daily lives of PwD. Consequently, implementing an efficient digital leadership should involve employing inclusive design principles, adhering to universal accessibility standards, and actively engaging PwD in the planning of smart cities (Kolotouchkina et al., 2022).

Nanneli et al. (2024) argue that smart cities serve as innovative centres that promote cultural integrity. To achieve this, it is crucial to foster interdisciplinary collaboration among technologists, social scientists, economists, policymakers, and to involve local communities. Such collaboration is essential for the preservation and management of cultural heritage.

The development of smart cities is closely linked to the preservation of cultural heritage. Cultural heritage plays a crucial role in how humanity understands itself today. It defines our identities, strengthens communities, and ensures continuity across generations. Cultural heritage is crucial for the 2030 Agenda for Sustainable Development, even though it is specifically mentioned only in Sustainable Development Goal (SDG) 11. This goal focuses on cities and emphasises the importance of making urban areas and human settlements “inclusive, safe, resilient, and sustainable” (Target 11.3) and facilitates “efforts to protect and safeguard

the world's cultural and natural heritage" (Target 11.4), mentioned in one out of 169 targets (UN SDG 11, nd).

The role of AI in preserving cultural heritage is vital. AI technologies, such as natural language processing, neural translation, and voice cloning, help preserve the intangible elements of cultural heritage, including language, dance, spiritual practices, music, and folklore. Cultural heritage also includes physical aspects, such as temples, monuments, murals, textiles, and manuscripts. Unfortunately, these can be threatened by conflict, natural disasters, or climate change. AI-enabled tools like drone imaging, satellite monitoring, and pattern recognition can detect structural risks, track encroachment, and even create digital reconstructions of sites when physical restoration is impossible. In addition, technologies such as real-time translation, Virtual Reality (VR) exhibitions, and adaptive learning tools can foster cross-cultural empathy and knowledge sharing. Finally, a human-centred approach is essential; those connected to the heritage must guide the narrative to ensure dignity and authenticity in representing their culture (Persaud, 2025).

By adopting digital technologies and data-driven approaches, they can enhance the preservation, documentation, and management of cultural heritage sites in urban areas. This ultimately leads to more sustainable and inclusive urban environments (Kourtit, 2019). According to UNESCO (2025), the application of AI in culture presents several opportunities, including: i) Expanding creativity and access by reducing entry barriers and enabling new forms of artistic expression; ii) Protecting cultural heritage; iii) Strengthening cultural and creative industries, as the automation of routine tasks leads to lower costs and enhances the competitiveness of small businesses; iv) Fostering AI literacy, creativity, and critical reflection, which helps create equitable learning opportunities in museums and cultural institutions.

Ocón (2021) emphasised the importance of preserving the intrinsic value of physical heritage sites instead of relying solely on digital replicas. Terras et al. (2017) emphasised that increased digitisation of cultural heritage content enhances accessibility and encourages new forms of creativity.

Museums are a vital part of cultural heritage, and technologies such as AI, the Internet of Things (IoT), immersive media, and intelligent guide systems offer personalised, interactive experiences for visitors. The implementation of these services enhances visitor satisfaction, optimises museum operations and educational outcomes, and advances broader goals of cultural dissemination and digital transformation within the heritage sector (Li et al., 2025). Museum robots (at Paris' Musée du quai Branly), AI-powered virtual guides (at Paris Louvre), augmented reality (AR) integrated with AI (at the British Museum), AI may apply for predictive maintenance, using sensors and machine learning algorithms to forecast equipment failures and schedule timely repairs (Smithsonian Institution), and specialised AI-based services for PwD (at the Museum of Tomorrow in Rio de Janeiro) (Styx, 2024). In addition to the primary benefits that AI provides for museum operations—such as revitalisation, accessibility, sustainability, interaction, and personalisation—the enhancement of participation for PwD in museum experiences by addressing physical, linguistic, and auditory barriers is crucial (Suiçmez et al., 2025). Accessible booking platforms provide information on customised services, VR tours offer previews for individuals with cognitive or sensory needs, and Digital Accessibility Maps deliver real-time data on the accessibility of tourist attractions, beaches, and public transport (e.g., https://wheelmap.org/) (Poli & Malagas, 2024a).

Thus, in the realm of cultural heritage and tourism, AI-driven systems are changing how historic sites are documented, interpreted, and experienced by diverse audiences with different characteristics and needs. Smart cities are increasingly utilising sensor networks, computer vision, machine learning algorithms, and immersive digital platforms to manage visitor flows,

restore artefacts, personalise cultural experiences, and promote sustainable tourism practices. These advancements are significant, as cultural heritage is a crucial element of identity, memory, and socio-economic development in many global cities (Buhalis & Amaranggana, 2015; Gretzel et al., 2015).

Cultural heritage focuses on both locals and tourists, each with different needs. Gargiulo and Tremiterra (2017) highlighted how smart city technologies can improve interactions between residents and visitors, enhancing the quality of life for locals and the overall experience for tourists, by aligning the interests of both groups.

In this context, all individuals should receive essential services that enhance their daily lives. Over 1.3 billion people have some form of disability, making them the largest minority group in the world, according to the WHO (2021). Advanced technologies provide valuable services for individuals with disabilities both at home and in the community, thereby enhancing sustainability (Poli et al., 2022; Poli & Malagas, 2024b).

ICTs adopted by destinations can address the specific needs of different groups of PwD through profiling and personalisation features, enabling users to specify their requirements. Consequently, destinations that use ICTs can provide suitable products and services tailored to each traveller's needs, promote participation, and align with the social model of disability (Buhalis & Michopoulou, 2011).

Providing AI-driven customer services and adaptive travel planning systems significantly improves PwD well-being. Thus, AI facilitates independence, reduces travel-related stress, and enhances social connections, contributing to more inclusive and enjoyable tourism experiences. Although economic stability and health condition are key issues, AI-powered accessibility solutions and social engagements are the 'strongest predictors' of happiness among travellers with disabilities (Marino-Romero et al., 2025).

Making cultural heritage more accessible to PwD through AI-based technologies is vital for the growth of accessible tourism. Accessibility is not only a matter of human rights; it also offers a significant business opportunity for destinations (UN Tourism, n.d.). Important statistics highlight the significance of accessible tourism: nearly 50% of individuals over the age of 60 have a disability, and over 250 million older people experience moderate to severe disability (UNDESA, 2022). Additionally, travellers with disabilities typically travel with 2 to 3 companions, and two-thirds of PwD in developed countries are likely to have the financial means to travel (Bowtell, 2015).

Thus, beyond physical access, universal design and strategic, system-wide approaches that benefit not only people with permanent impairments but also temporary disabilities and ageing populations are essential (Buhalis et al., 2012).

It is also important to consider the needs of PwD when implementing accessible solutions, while balancing the preservation of heritage with inclusive and equitable access for everyone (Ruiz-Rodrigo et al., 2024). Finally, the implementation of AI should be emphasised in travel and tourism experiences for PwD, as it provides significant benefits.

2.0 SOME EXAMPLES FROM THE GREEK EXPERIENCE

Case Studies from Greece: Accessibility and AI in Cultural Heritage

2.1 The Acropolis of Athens: Smart Accessibility Infrastructure

The Acropolis is an important example of how to improve accessibility at a UNESCO World Heritage site. The installation of an advanced elevator system for wheelchair users, along with digital wayfinding and AI-supported audio guides, has significantly enhanced access for visitors with mobility and visual impairments (Ministry of Culture, 2020). In particular, AI-driven content adaptation allows visitors to access contextual historical information in various

formats, including audio, simplified text, and multilingual narration, thereby enhancing accessibility and engagement. Visitors using smartphones with AR apps can see how ancient Greek monuments appeared thousands of years ago. This technology significantly enhances the experience of exploring the Acropolis in Athens by overlaying digital reconstructions onto the physical ruins. The particular Chronos app is supported by Greece's Culture Ministry and developed with Greek tech partners (Gatopoulos & Tongas, 2023).

2.2 Municipality of Athens Smart City Applications

As part of Athens' smart city strategy, AI-powered mobile applications offer information about accessibility in public spaces, cultural routes, and tourism infrastructure. These platforms utilise real-time data, offer accessible navigation, and incorporate user feedback to enhance urban mobility for PwD and tourists. The city has implemented targeted initiatives such as the "Proseggizo (approach)" support program and has trained municipal staff in digital accessibility to improve the autonomy and equal participation of marginalised citizens in Athens' social and digital life. This commitment demonstrates the city's values of inclusion, accountability, and transparency, aligning with its strategic vision of creating an open, fair, and accessible environment for everyone (Municipality of Athens, 2022).

2.3 AI-Driven Sign Language Guide at the Archaeological Museum of Thessaloniki

At the Archaeological Museum of Thessaloniki, researchers and technology partners have developed the SignGuide system. This AI-based interactive museum guide significantly enhances accessibility for Deaf and hard-of-hearing (DHH) visitors. This system is designed to understand and respond to visitors' sign-language questions and to provide additional content in sign language using AI. Specifically, the Sign Guide system employs AI to recognise exhibits and provide information in Greek Sign Language, featuring sign-language avatars and videos that explain the history and significance of the artefacts. Visitors can ask questions through a mobile interface and receive answers in sign language, allowing them to explore and understand the museum independently without relying solely on text or audio. By prioritising sign language communication, this AI application addresses a crucial accessibility gap in traditional museum experiences for DHH audiences. It serves as a dedicated AI solution tailored to this specific disability group, ensuring that museum content is fully accessible in visitors' preferred languages rather than merely translated (Kosmopoulos et al., 2025).

2.4 Museum of Byzantine Culture, Thessaloniki

The Museum of Byzantine Culture of Thessaloniki (MBP) is one of the most representative examples of the application of Universal Design principles in the Greek cultural sector. The museum offers the following:

Actions for enhancing interaction and the visitor experience

- Audio guide application using portable devices (audio guide);
- Digital interactive educational applications for young people;
- Multilingual guided tour application for visitors' portable devices (mobile app for Android & iOS devices);
- Virtual visit application for selected museum exhibits using AR technology on visitors' portable devices (mobile app for Android & iOS devices);

- Special signage in the museum spaces and on the exhibits corresponding to the guided tours (numerical labels and QR codes);
- It features an innovative virtual tour application for selected exhibits of the permanent exhibition, using AR technology on visitors' portable devices (mobile app for Android & iOS devices).

Specifically for PwD:

- Audio guide application for people with visual impairments, using certified portable devices (audio guide);
- Guided tour application for people with hearing impairments in Greek Sign Language (Museum of Byzantine Culture, n.d.).

2.5 Greece has launched a €27.3 million digital transformation project to modernise its museums and archaeological sites, supported by funding from the EU Recovery and Resilience Facility.

This project, led by the Organisation for the Management and Development of Cultural Resources (ODAP) in partnership with the Ministry of Culture, aims to enhance visitor experiences and improve heritage management across 107 museums and archaeological sites nationwide. Key components of the initiative include: - A unified ticketing and access control system; - A digital membership platform called the Hellenic Heritage Web App; - Interactive virtual guides available in multiple languages, including Greek Sign Language; - Augmented Reality (AR) and VR experiences at select sites; - Smart signage featuring QR codes; - Advanced visitor monitoring and asset protection tools. Experts view this initiative as a significant milestone in integrating technological innovation with heritage stewardship. The project seeks to achieve universal accessibility, personalised digital services, and deeper engagement with Greece's cultural wealth for both domestic and international visitors (GTP editing team, 2025).

2.6 ARVIP – Interactive AI/AR/VR Platform for Cultural Heritage

The ARVIP project is a Greek initiative that integrates AI, AR, VR, GPS location tracking, and digital interactive maps to enhance visitor engagement with cultural sites. AI is used to personalise tours, provide visitors with intelligent narrative content, and connect digital experiences to real-world locations. Additionally, the project adopts a history-centric approach through various subsystems, including personalised digital guided tours and thematic routes, aiming to create a comprehensive experience of cultural heritage monuments (ARVIP, n.d.).

3.0 METHODOLOGY

Qualitative research aims to collect and analyse non-numerical data to better understand concepts, opinions, or experiences (Haven & Van Grootel, 2019). In particular, the focus group method was utilised to collect the necessary information for this study. This method is a non-standard technique for collecting information based on seemingly informal discussion and interaction among participants, in which the moderator, who is primarily the researcher, plays a critical role in leading the discussion (Acocella, 2012; Morgan, 1997). The focus group technique provides detailed information collection quickly and at a low cost (Bertrand et al., 1992), and it is easy to organise (Stokes & Bergin, 2006). Additionally, building trust is

essential because it helps gather necessary information and fosters effective, generative conversations.

The first author of the study served as the moderator for a group discussion held in the Interior Design Department at the University of West Attica. Before the discussion, the moderator provided participants with the above-mentioned initiatives related to the adoption of AI technologies in the Greek context to serve as the foundation for the conversation. The meeting lasted for three hours. The following participants were included: a Professor of Tourism, a Professor of Social Sciences, an expert in assistive technologies, an individual with mobility challenges, a senior manager from the Ministry of Tourism, and a manager from a major museum in the Athens area. All participants were selected purposefully for their extensive experience and knowledge in the subject under examination. The detailed discussion of the cases presented above yielded valuable insights, which are outlined below.

4.0 THE STUDY'S FINDINGS

The six participants in the focus group agreed that AI-powered technologies could greatly enhance accessibility and inclusion for PwD in cultural heritage. This improvement would enrich their travel experiences and lead to notable social and economic benefits. Inclusive AI-driven heritage tourism expands market reach, enhances visitor satisfaction, and supports sustainable and responsible tourism development. Also, AI promotes universal design principles, benefiting not only PwD but also older adults, families, and visitors with temporary impairments, strengthening social inclusion. Therefore, it is essential to emphasise AI-powered technologies that cater to the personal needs of PwD while promoting the values of diverse cultural heritages. Collaboration among all stakeholders, including government officials, PwD representatives, academic institutions, and private enterprises, especially those in the tourism industry, is vital to developing effective services. It is essential to monitor how other cultural heritages abroad, such as renowned museum organisations, are adopting advanced technologies. Greece, with its rich history and numerous cultural heritage sites, should invest in this area and implement a comprehensive initiative that promotes AI-powered services for all cultural heritage across the country, while also fostering accessible sites. They also emphasised the need for a holistic approach that integrates 'smart cultural heritage' into a more accessible framework at the city level, requiring local cooperation. Finally, they emphasised the need for continuous training and awareness among employees in government offices responsible for providing advanced technologies.

The two professors emphasised the necessity of extensive research involving universities and research institutions (ARVIP).

A professor from the Department of Tourism noted that while nothing can truly replace an authentic, live experience that engages all the senses, technology can effectively simulate them, including smell, hearing, and vision. As users become more accustomed to these virtual experiences, they may develop a curiosity to visit the actual places they have encountered online. Therefore, these technological advancements should be viewed positively.

An expert in assistive technologies emphasised that the adopted technologies need to identify individuals' problems and offer personalised services to address their needs. He also mentioned the use of augmented technologies that have already been developed and implemented in other countries, highlighting their effectiveness for navigation in cities and cultural heritage sites.

The museum representative emphasised that the future of art and cultural heritage is rooted in technology. Subscribers will have greater access to video content showcasing everyday life in ancient Greece, which is now widely available. This development allows previously inaccessible sites of major civilisations to be explored virtually.

5.0 DISCUSSION AND CONCLUSIONS

AI plays an increasingly significant role in enhancing accessibility and social inclusion for PwD, particularly within cultural heritage and tourism contexts. AI technologies, such as machine learning, computer vision, generative models, and recommendation systems, are being used to optimise destination management. These technologies aim to enhance personalised and inclusive visitor experiences, improve accessibility for diverse audiences, and support the preservation of both tangible and intangible heritage (Sánchez-Martín et al., 2025).

Smart cities utilising AI technologies should strive to provide inclusive, effective services for all citizens, ensuring their needs are met across demographics. In this pursuit, it is essential to promote and integrate various aspects of cultural heritage, as they play a vital role in shaping community identity and cohesion. Ultimately, prioritising cultural heritage in smart city initiatives can lead to a more harmonious and vibrant society, where technology and tradition coexist to benefit everyone. The application of smart technologies in cultural heritage and museums is crucial and offers benefits to all visitors, ultimately contributing to higher sustainability (Cranmer et al., 2023).

PwD are an important part of society and should have access to the same services as everyone else. Technology-oriented PwD may benefit from high-quality services provided by cultural heritage organisations that invest in advanced technologies. The different groups of PwD have unique needs, and AI-related technologies aim to provide personalised services. By providing these services, accessible tourism can thrive, yielding significant social and economic benefits. Considering the environment, adopting convenient services will also promote greater sustainability for the PwD community.

However, PwD who are less technology-focused should not be overlooked and should have access to all aspects of a smart city, including cultural heritage sites.

In this context, Greece has made significant progress but should invest more in adopting AI-powered technologies for cultural heritage. These services should be integrated into a broader smart city framework. The central government is committed to implementing the necessary policies and measures to protect the PwD community and promote the country's rich cultural heritage. Connecting this initiative with the promotion of accessible tourism is vital. Achieving this requires close cooperation among all stakeholders, including government offices, academic institutions, PwD communities, and private organisations. Moreover, the Country has a robust tourism industry, and if AI-related technologies are better integrated with cultural heritage and tourism, the benefits will be even greater.

In conclusion, utilising AI technologies in the cultural heritage sector, particularly to meet the needs of PwD within the context of smart cities, presents significant opportunities for countries. Thus, Greece should seize this opportunity by investing more in this area. The PwD group comprises various subgroups, each with unique needs, making personalised services a top priority. It is vital for all stakeholders to collaborate closely on the development of these technologies and to continuously monitor advancements in AI-related fields. Also, employees developing AI-related services must have adequate training and awareness. Ultimately, the benefits of implementing AI in the cultural and tourism sectors are significant for everyone, including PwD, and adequate resources should be allocated to these areas. PwD who are less technology-oriented should have the same opportunities as everyone else to access cultural heritage, and travel and tourism businesses should strive to achieve this.

6.0 LIMITATIONS OF STUDY AND SUGGESTIONS FOR FUTURE RESEARCH

The current study has notable limitations, but it has also produced some valuable outcomes. The primary limitation is the small sample size; a larger sample that includes more experts and PwD from diverse groups would yield more accurate information. Future research should consider using a quantitative approach with a larger sample size.

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