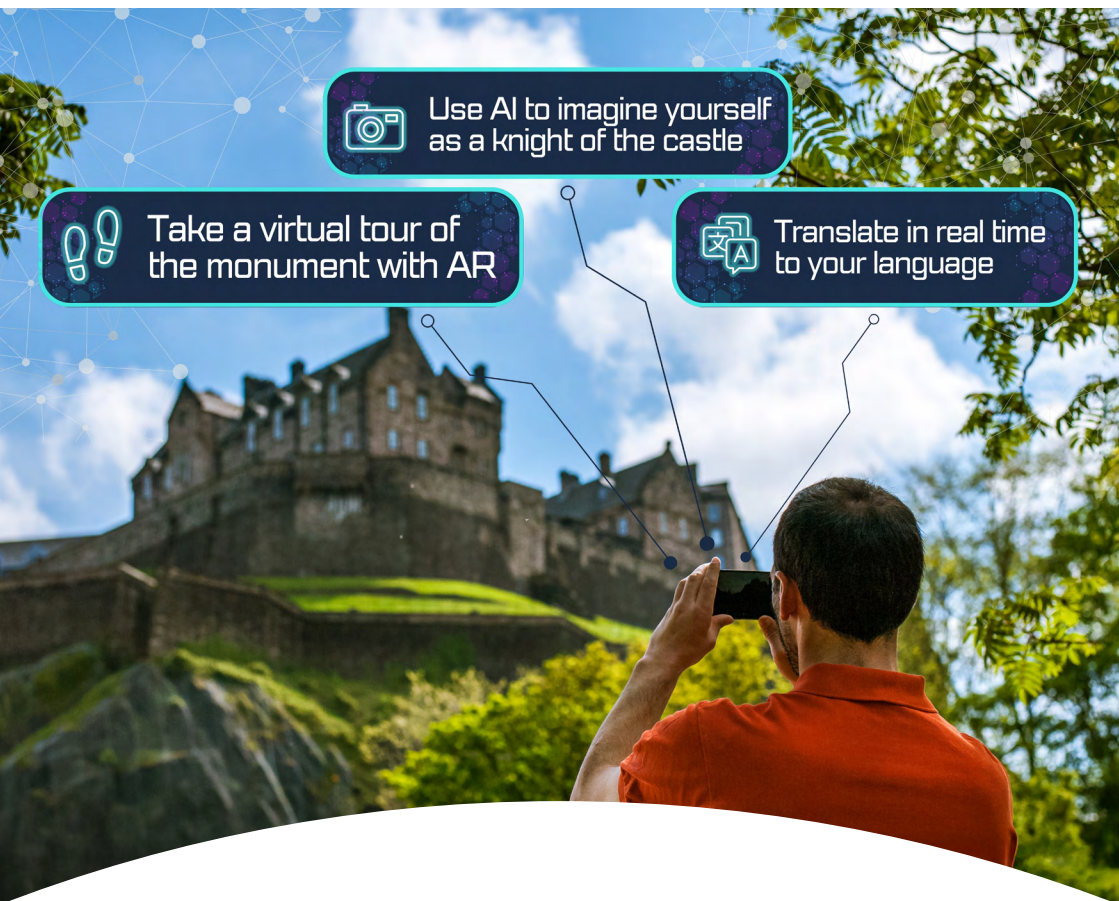


Transforming Culture and Heritage in the Mobile Digital Age



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About Mobile UK

Mobile UK is the trade association of the UK's mobile network operators (MNOs) - EE, Virgin Media O2 and VodafoneThree. Mobile UK's mission is to realise the power of mobile to improve the lives of our customers and the prosperity of the UK.
www.mobileuk.org



About Live Better Connected

The Live Better Connected awareness campaign by Mobile UK is designed to raise awareness and educate how we all, and wider society, rely on mobile connectivity for every aspect of life.
www.mobileuk.org/live-better-connected



About Building Mobile Britain

Mobile UK launched Building Mobile Britain in 2018 to support the mobile industry's collaboration with national and local government, regulators, industry, consumers and citizens to overcome the challenges to expanding mobile networks.
www.mobileuk.org/building-mobile-britain



About 5G Check The Facts

The #5GCheckTheFacts campaign provides factually accurate information about 5G and offers answers to common queries to help improve understanding.
www.mobileuk.org/5g-and-health

About this report

The report was produced by Mobile UK with assistance from Purplefish and Block B design. Purplefish is an award winning UK PR and communications agency: www.purplefish.agency

1. Connecting Culture: Why Mobile Matters More Than Ever

The UK's culture and heritage sector spanning galleries, museums, historic landmarks, and performing arts is a cornerstone of national identity, economic vitality, and community wellbeing. With over 400,000 listed heritage assets¹, it drives £34 billion annually and sustains millions of jobs, especially in rural areas². As a global leader in cultural tourism, the sector now faces a pivotal moment, challenged by rising costs, declining footfall, digital exclusion, and evolving audience expectations yet these pressures also open doors for innovation and renewal.

Mobile connectivity, especially 4G and 5G, has emerged as a powerful solution to these challenges. It is transforming how people engage with heritage, enabling immersive experiences, remote access, and inclusive digital content.

The COVID-19 pandemic changed consumer consumption habits and the way we engage with and value experiences and the interplay between the physical and digital world.

Online and mobile platforms became essential for engaging audiences during lockdowns and have since remained central to recovery efforts.³ Institutions that embraced mobile technology were able to maintain visibility, reach new audiences, and deliver innovative experiences.

However, digital exclusion presents a new challenge. The Centre for Economics and Business Research estimates that digital exclusion could cost the UK economy £10 billion annually by 2030, with cultural institutions at the forefront of this impact due to inefficiencies and missed engagement opportunities.⁴ To thrive in a digitally connected future, the sector must embrace mobile connectivity as a catalyst for relevance, resilience, and inclusive growth. In order to ensure the sector can realise the potential of 5G connectivity, the required infrastructure is needed nationwide to provide and main strong and reliable mobile connectivity.

"With 5G, independent artists will have the same kind of access that major cultural institutions do. Breaking down those barriers even more will be revolutionary."

Ali Hossaini, Research Fellow at King's College London and Board Member at the Young Vic⁵

¹ Historic Environment Overview 2024-25, Historic Environment Forum - <https://historicengland.org.uk/content/heritage-counts/pub/2025/historic-environment-overview-2024-25/>.

² House of Lords - <https://lordslibrary.parliament.uk/contribution-of-the-arts-to-society-and-the-economy/>.

³ Digital Inclusion and Exclusion in the Arts and Cultural Sector 2021 - https://www.artscouncil.org.uk/sites/default/files/download-file/Good_Things_Foundation_Arts_Council_Report.pdf

⁴ Digital exclusion in the UK: Communications and Digital Committee report 2024 - <https://lordslibrary.parliament.uk/digital-exclusion-in-the-uk-communications-and-digital-committee-report/>.

⁵ Connected Culture, Ericsson 2020 - <https://www.ericsson.com/en/blog/2020/5/5g-creating-culture>

2. Addressing Critical Industry Challenges through Enhanced Connectivity

The UK's cultural and heritage sector is at a pivotal moment. While institutions continue to play a vital role in shaping national identity and community engagement, they face mounting challenges that threaten their sustainability and relevance. This chapter explores these pressures in detail and outlines how mobile connectivity, particularly 5G, can unlock transformative solutions.

Sector Challenges



1. Declining Footfall

Despite efforts to reignite public interest, many cultural institutions are still grappling with reduced visitor numbers. According to VisitBritain, visitor numbers to English attractions remained 27% below pre-pandemic (2019) levels, highlighting a slow and uneven recovery⁶. This decline not only affects revenue but also undermines the sector's ability to deliver public value and justify funding.



2. Digital Skills Gap

The sector's digital transformation is being held back by a lack of technical expertise and capacity. The Arts Council England's Digital Culture Survey revealed that only 46% of cultural organisations rated their digital skills as "good" or "excellent", while over 30% reported needing significant support to improve their digital capabilities⁷. Without these skills, institutions struggle to create compelling digital experiences such as virtual tours or Artificial Reality (AR)/ Virtual Reality (VR) exhibitions, limiting their reach to younger, mobile-first audiences.



3. Changing Audience Expectations

Today's audiences, particularly younger generations, expect interactive and tech-enhanced experiences. Traditional formats may no longer meet these evolving expectations. The Department for Culture, Media and Sport's Participation Survey found that 71% of 16–24-year-olds are more likely to engage with cultural content that is interactive or digitally enhanced. Institutions that embrace digital innovation are poised to captivate new audiences and redefine cultural engagement for future generations.⁸



4. Limited Accessibility

There is a pressing need to make culture more inclusive and accessible to underserved and remote communities. Cultural engagement remains uneven across the UK, with physical, geographic, financial, and language barriers continuing to prevent many individuals from accessing heritage sites. However, a growing digital divide is compounding these challenges. Accelerating the adoption of mobile connectivity offers a powerful pathway to broaden access and enrich cultural experiences for all. The Heritage Access 2022 report found that 19% of UK museums and heritage sites had no online access information, with minimal improvement since 2018.⁹

In an era where smartphones are central to how people plan, navigate, and engage with the world, institutions can unlock new dimensions of engagement and inclusivity by integrating mobile-friendly platforms.

5G Opportunities

In the face of these challenges, mobile connectivity offers a powerful toolkit for innovation, inclusion, and engagement.

1. Immersive Mobile Experiences

5G enables high-speed, low-latency AR/VR applications that can turn static exhibitions into dynamic, immersive journeys. These experiences appeal to younger audiences and tech-savvy visitors, helping institutions reignite public interest and boost footfall. 79% of UK museum visitors express interest in using VR to explore collections.¹⁰

2. Bridging the Digital Skills Gap with Scalable Mobile Solutions

In an increasingly diverse and digitally connected society, mobile apps powered by 5G offer cultural and heritage institutions a powerful means to break down longstanding barriers to access. These platforms can deliver multilingual audio guides, real-time translation, British Sign Language (BSL) interpretation, and screen reader-compatible interfaces, making exhibitions and experiences more inclusive for international visitors, disabled users, and neurodiverse audiences.

For heritage sites located in rural or linguistically diverse areas, mobile connectivity ensures that visitors can engage meaningfully with content regardless of their language or ability. For example, a visitor from abroad can instantly access translated descriptions of artefacts, while a deaf visitor can follow a guided tour with BSL overlays all through their smartphone.

This approach also supports inclusive design principles, allowing institutions to meet legal accessibility standards while enhancing the overall visitor experience.

⁶ Annual Survey, VisitBritain - <https://www.visitbritain.org/research-insights/england-visitor-attractions-latest>

⁷ Digital Culture survey, Arts Council England - <https://www.artscouncil.org.uk/digital-culture-2019>

⁸ 2023/ 24 Participation Survey, DCMS - <https://www.gov.uk/government/statistics/participation-survey-2023-24-annual-publication>

⁹ Heritage Access Report - <https://abilitynet.org.uk/news-blogs/how-digitally-accessible-are-museums-and-heritage-sites-uk>

¹⁰ Museums in the Metaverse Audiences and Impact Report - https://www.gla.ac.uk/media/Media_1138224_smx.pdf

With 5G's low latency and high bandwidth, these features can be delivered seamlessly, even in high-traffic environments or outdoor heritage locations.

3. Remote Access and Virtual Tourism

5G supports high-quality streaming and interactive digital platforms, enabling remote access to exhibitions, performances and guided tours. According to data collected in the Digital Attitudes and Skills for Heritage (DASH) Report 2020 by The National Lottery Heritage Fund, more than 60% of respondents said their organisation had developed new digital content or services in response to COVID-19.¹¹ This approach maximises access opportunities, offering new ways for visitors to engage, even those unable to attend in person.

As mobile-only internet usage rises now accounting for 21% of UK adults the ability to deliver rich, mobile-first cultural content becomes not just a convenience, but a necessity.¹² 5G ensures that even remote or bandwidth-constrained users can enjoy seamless, high-definition cultural experiences.

4. Smart Tourism Infrastructure

The deployment of 5G networks and IoT sensors can support real-time visitor data, crowd management, and personalised content delivery. These innovations improve operational efficiency, enhance safety, and elevate visitor satisfaction making cultural sites more responsive and resilient.

The 5G Smart Tourism project, funded by the UK Government and led by the University of Bristol, trialled 5G-enabled infrastructure across major West of England attractions such as the Roman Baths in the heritage city of Bath and Millennium Square in Bristol. The project demonstrated how network slicing and mobile edge computing could support:

- Live AR/VR experiences
- Emergency response coordination
- Visitor flow optimisation

As cultural institutions face mounting financial and sustainability pressures, smart infrastructure powered by 5G offers a scalable solution to reduce costs, enhance accessibility, and future-proof engagement strategies.



3. Connectivity in Action: Real-World Impact of Mobile Innovation in Culture and Heritage

Across the UK, mobile connectivity is already transforming how cultural and heritage organisations engage audiences, deliver immersive experiences and improve accessibility. The following case studies demonstrate how 5G and mobile technologies are being deployed to offer exciting opportunities to provide a more inclusive, immersive engagement and enhance visitor engagement.

Sherwood Forest: Immersive Storytelling in Nature

The 5G Connected Forest project in Sherwood Forest is pioneering a new era of cultural and natural heritage engagement through advanced mobile connectivity. By deploying a private 5G network across a rural woodland setting, the initiative has overcome significant logistical and technological challenges to deliver immersive, educational, and conservation-focused experiences.¹³



At the heart of the project are three 5G-enabled visitor attractions which use AR and mixed reality storytelling to bring the legends of Robin Hood and the rich history of Sherwood Forest to life. These experiences are accessed via mobile devices, allowing visitors to interact with digital overlays that enhance their understanding of the forest's cultural significance.

The project also contributes to skills development and community engagement, with local schools participating in naming competitions for the robotic rangers and regional universities involved in research and deployment. This fosters a deeper connection between technology and heritage, encouraging younger generations to engage with both.

More than 26,000 visitors immersed themselves in AR and mixed reality experiences demonstrating the powerful appeal of tech-enhanced storytelling. The initiative supported over 30 hours of immersive content and contributed to skills development across local schools and universities.

¹¹ Digital Attitudes and Skills for Heritage (DASH) Report, National Lottery Heritage Fund, October 2020 - <https://www.heritagefund.org.uk/sites/default/files/media/attachments/DASH%20report%20draft%20v13.1.5.pdf>

¹² From Exclusion To Inclusion report, Mobile UK - https://cdn.prod.website-files.com/5b7ab54b285dec5c113ee24d/648af4b76554e41262beed55_Mobile-UK-Digital-Inclusion-report.pdf

¹³ 5G Connected Forest - <https://uktin.net/sites/default/files/2023-07/5g-connected-closure-report.pdf>



Roman Baths: Driving Footfall Through Mobile Innovation

The Roman Baths in Bath are redefining how visitors experience ancient history by integrating mobile connectivity into one of the UK's most iconic heritage sites. Visited by over 1.06 million visitors yearly,¹⁴ of which 40-45% of total visitors are international.¹⁵

As part of the 5G Smart Tourism initiative, the site deployed the UK's first 60GHz mesh network, enabling high-speed, low latency streaming of immersive content directly to visitors' smartphones.¹⁶

Through this advanced mobile infrastructure, visitors can access 360° video and AR reconstructions that bring the Roman Baths to life as they appeared nearly two millennia ago. These experiences offer a vivid, mobile-enabled journey through Roman architecture, rituals, and daily life without disrupting the physical integrity of the site.

Over 100 participants took part in the trial, with 90% reporting they'd be more likely to visit museums offering similar tech. This demonstrates how mobile connectivity can attract new audiences and make heritage more engaging. More than 25% of participants expressed a willingness to pay for enhanced digital experiences, showing how mobile-enabled content can open new income streams for heritage sites.

¹⁴ <https://www.romanbaths.co.uk/news/roman-baths-pump-room-welcomes-1-million-visitors>
¹⁵ <https://www.visitwest.co.uk/news/read/2023/03/roman-baths-and-pump-room-rises-to-27th-most-visited-attraction-in-uk-b3401>
¹⁶ 5G Smart Tourism - <https://www.gov.uk/government/case-studies/5g-smart-tourism>

Colchester Castle: VR Meets Roman History

In Colchester, a collaboration between We Are Colchester and Colchester City Council is using mobile connectivity to transform how visitors engage with Roman heritage. Set to launch by 2026, the initiative will deliver a state-of-the-art VR experience powered by advanced 5G infrastructure, allowing visitors to explore the city's Roman past through smartphones or rented headsets.¹⁷

Visitors will access a digital archive of actor-led stories, immersing themselves in reconstructions of Roman life and architecture as they move through key heritage sites like Colchester Castle and the Roman wall. This mobile-enabled journey invites visitors into a vibrant, interactive exploration of history, designed to inspire curiosity and connection. Offering a dynamic, interactive way to learn about the town's history especially appealing to younger and digitally native audiences.

The project is part of a broader city regeneration strategy funded by a £19.2 million Town Deal grant, with additional support from the Levelling Up Fund, a UK government initiative aimed at boosting infrastructure, cultural assets, and economic opportunity in underinvested areas and housing developers.



¹⁷ <https://www.gazette-news.co.uk/news/24282159.colchester-roman-history-come-alive-new-vr-experience/>

The Lake District:

Enhancing Accessibility with the Power of Mobile

Once a mobile “not-spot,” Honister Pass in Cumbria’s Lake District has undergone a digital transformation through the 5G DRIVE project, part-funded by the Department for Science, Innovation and Technology (DSIT). The initiative introduced Wi-Fi, 2G, and 4G connectivity to this previously unconnected area, part of the UNESCO World Heritage Site, significantly improving digital inclusion and accessibility.

The new infrastructure includes three cell sites connected via satellite backhaul, enabling reliable mobile services in one of the UK’s most remote and scenic destinations. This connectivity empowers visitors to access multilingual digital guides, real-time safety updates, and interactive content directly on their own devices, enhancing both the educational and practical aspects of the visitor experience.¹⁸

The mobile-enabled guides and safety tools enhance independence for disabled visitors and those unfamiliar with the terrain, empowering all visitors to explore with confidence, independence, and enriched understanding. Honister Pass is a powerful example of how mobile networks can bridge digital divides, support inclusive tourism and preserve the integrity of remote cultural destinations while enhancing their appeal and functionality.



¹⁸ <https://www.commsbusiness.co.uk/content/news/government-backed-5g-project-brings-mobile-connectivity-to-tourist-not-spots>

4. Ensuring the UK’s Culture and Heritage Sector Capitalises on Mobile Connectivity

Mobile connectivity, particularly 5G, is not just a technological upgrade; it is the foundation for a more inclusive, resilient, and future-ready heritage sector and is an example of where the physical and digital worlds converge. As this report shows, mobile networks are already transforming how people access, experience, and engage with culture from immersive storytelling in forests to accessible digital guides in remote landscapes.

To fully realise this potential, mobile infrastructure must be recognised as a strategic national priority. With targeted government support, mobile connectivity can become a powerful engine for innovation, inclusion, and economic growth across the culture and heritage sector. By closing the digital divide, every cultural institution regardless of size or location can harness the benefits of mobile technology. Embedding mobile at the heart of heritage strategy will unlock new opportunities, expand audience reach, and safeguard the UK’s cultural legacy for future generations.

- 1 Repurpose the £320m annual license tax from the industry via spectrum licence fees
- 2 Reform planning to enable more rapid deployment
- 3 Prioritise full implementation of the PSTI Act
- 4 Introduce a temporary business rates holiday on new mobile infrastructure deployments
- 5 Evolve the UK’s net neutrality regime towards a more flexible, principles-based approach
- 6 Support industry’s plans to retire legacy 2G networks
- 7 Enhance the rollout of 5G at regional and local levels by appointing skilled and experienced digital champions
- 8 Ensure public funding already committed through the Shared Rural Network is retained and invested into mobile infrastructure deployment

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