



The technology transforming  
the **live event experience**

# An industry redefined by innovation

Over the past 30 years, society has been radically transformed by advances in hardware, software and connectivity that have laid the foundation for the modern event experience. From planning and delivery to promotion and attendance, every aspect of the sports and music events we enjoy today has been refined by these technological innovations and the customer expectations they have created.

Calling on our learnings across almost a decade of providing digital experiences for leading sports events and music festivals, we have analysed the fan journey across the different stages of event engagement. From ticket purchase to post event survey, we've dived into the technologies that have had the greatest impact and those that are likely to shape the event experience of the future.



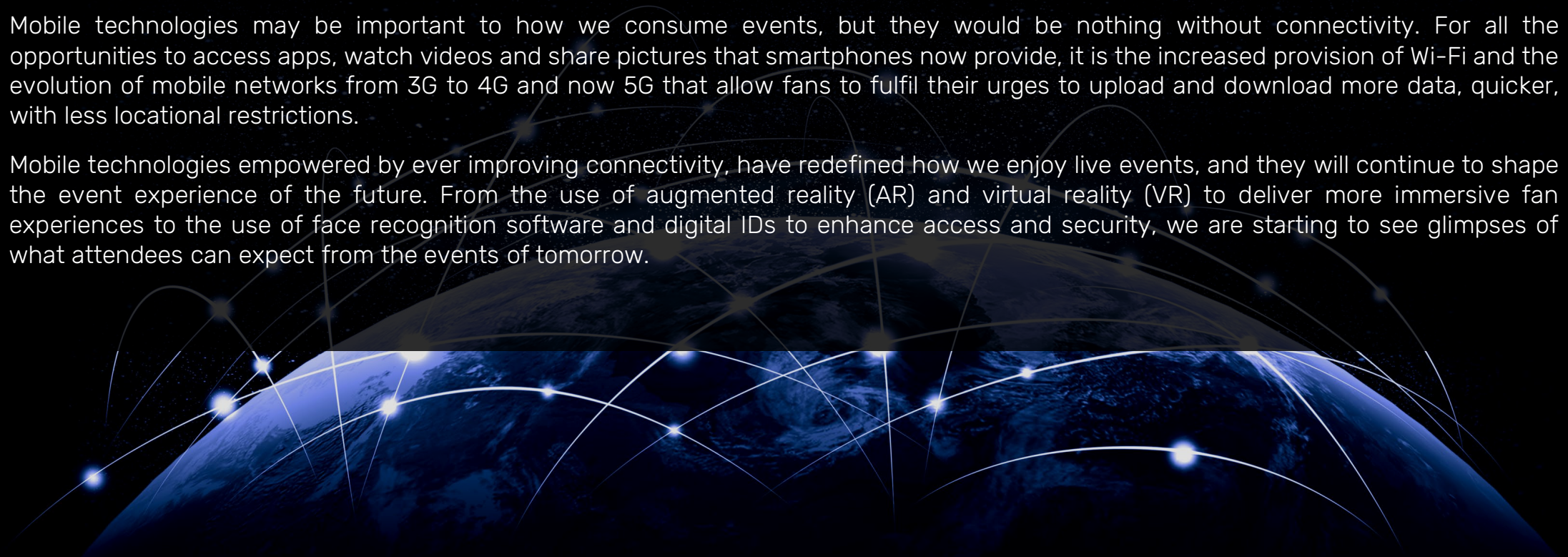
# Key environmental factors

Before looking at the different stages of event experience, we wanted to highlight two key environmental factors that underpinned the majority of the technology-led benefits attendees and organisers now enjoy.

The smartphone and the development of mobile applications are two of the most important technological and cultural phenomenon of the 21st century. As phones became smarter, the increased capabilities on offer meant they quickly became intertwined with how we go about our lives. In an events' context, today we use our phones to research what's on, buy tickets and merchandise, find our way to the venue, check in and take pictures and share them with friends. These mobile devices which are now practically omnipresent in society, providing organisers with an important branded hub to deliver technology-led benefits and experiences for fans.

Mobile technologies may be important to how we consume events, but they would be nothing without connectivity. For all the opportunities to access apps, watch videos and share pictures that smartphones now provide, it is the increased provision of Wi-Fi and the evolution of mobile networks from 3G to 4G and now 5G that allow fans to fulfil their urges to upload and download more data, quicker, with less locational restrictions.

Mobile technologies empowered by ever improving connectivity, have redefined how we enjoy live events, and they will continue to shape the event experience of the future. From the use of augmented reality (AR) and virtual reality (VR) to deliver more immersive fan experiences to the use of face recognition software and digital IDs to enhance access and security, we are starting to see glimpses of what attendees can expect from the events of tomorrow.



# Technology across the event experience

So, we know that technology has made events safer and more convenient for fans and driven efficiency, costs savings and more revenues for the organisers. We also know that mobile technologies and connectivity have underpinned the advances seen for all stakeholders, but how have digital innovations shaped the different stages of event engagement?

For the purposes of our analysis, we have broken down these stages into:

- [Pre-Event](#)
- [At the venue](#)
- [Watching the action](#)
- [Future events](#)



# Pre-Event

A fan's event journey starts with a ticket and increasingly that ticket is digital - usually purchased via digital channels, using a phone, having seen an advert on digital media! Technology has revolutionized the ticketing industry making the process of purchasing and redeem a ticket quicker and more convenient for fans, and providing more flexibility when they need to transfer tickets to a guest. For the organisers, it enables them to be more sustainable and to reduce costs from printing and distributing tickets.

Due to the costs involved, rights holders tend to offer digital ticketing solutions in partnership with established ticketing companies like Ticketmaster or Secutix, who **TEC Agency** worked with to deliver a digital ticketing solution for The Open Championship. These portals cover all stages of the ticketing process - purchase, delivery & redemption - simplifying the process at each stage, making things easier for the customer, whilst driving sales and reducing costs for the rights holder - a winning combination!

Scalability is an important consideration, with organisers needing to ensure their ticketing platform has the capacity to cope with the spikes in traffic it will receive at the different stages of the ticket sale process. Crashes caused by a failure to cope with demand will create a negative experience for the potential customers, possibly leading to transactions not being completed and with it a loss of revenues for the organiser.

As it has evolved and become more sophisticated, digital ticketing has also played a significant role in combatting ticket fraud. Initially, the threat of fraudsters sharing or faking screenshots meant there was an inherent risk with digital ticketing but innovations like **Ticketmaster's SafeTix** which use encrypted barcodes to bind tickets to a user's mobile have helped to ensure authenticity.

**TEC Agency** worked with UNTOLD, one of the largest electronic music festivals in Europe, to tackle ticket fraud after they found that some tickets were being reused up to twenty times! **TEC** built a bespoke online check in system, used for festival access, that connects each attendee to their ticket. The system now sees 90% of attendees checking in before entering the festival drastically reducing the chance of ticket fraud as well as reducing queuing on entry.

In addition to mobile ticketing, apps can also provide vital information hubs and communication tools for the different stakeholders attending. **TEC Agency** recently worked with a leading sports federation to build a bespoke app for their VIP tournament guests, that enabled them to deliver the personalised information guests needed to get the most out of their attendance, ranging from travel details to ticketing information.



## At the Venue

You've bought your ticket, and the day of the event has come. Fans now rely on a variety of digital solutions to ensure the experience on arrival, and around the venue, is as convenient and comfortable as possible. Radio Frequency Identification (RFID) systems employed at venue turnstiles and other access point enable guests to "tap themselves in", reducing queuing times. Similar contactless technology lets you make purchases, whilst providing the organisers with useful data around fan behaviour.

For example, for UNTOLD, **TEC Agency** developed RFID wristbands, connected to each fans online profile which are used to enter the venue and to make payments at bars and retail points. The wristbands provide a valuable source of fan data and have an auto-top up feature ensuring they always have the money they need. They can work even when there are connectivity issues, with payments being stored and then processed as soon as connectivity is restored.

Digital solutions are also key components of how we navigate venues; [something that research has shown is crucial to a good event experience](#), with stadium access/exit and navigation ranking just below core criteria like safety and quality of competition in Deloitte's study. To that end, venues are now able to employ a mixture of digital signage and wayfinding solutions to enhance fan experience. These range from dynamic signage that can adapt to conditions and redirect as required, to interactive maps that can deliver personalized wayfinding, with additional layers of information like wait times at queues. [A great example of this is the San Francisco 49ers' Levi Stadium App](#), which combines sophisticated wayfinding on route to, and around, the Stadium with ticketing, game content and retail opportunities.

# Watching the Action

You've found your seat or the stage you want to be at. You've bought your refreshments and your merchandise. Now you're ready to enjoy the main event. Fans come to be entertained; to experience something unique and compelling that they can't experience at home. However, digital innovations like social media and AR have changed how we define entertainment. We want a more immersive experience, connected to both our peers and the athletes, teams or artists we are watching. In our tech-laden living rooms, we are used to consuming event content via multiple devices and multiple channels simultaneously, expecting broadcasters and rightsholders to provide the latest technology to enhance the viewing experience. To get people off their sofas and into stadia, organisers are looking to offer elements of this connected, technology-enhanced experience in venue. For example, Major League Baseball (MLB), in partnership T-Mobile, provided AR data visualisation and new drone camera angles via their MLB Next App at this year's All-Star Game and FIFA provided something similar via its FIFA+ Stadium Experience at the FIFA World Cup in Qatar.

Of course, not everyone can get to an event. Most fans watch at home – or the go –increasingly via one of the many streaming options available. In sport, these range from dedicated new platforms like DAZN and offerings from tech giants and social media platforms to the creation of rights holder owned channels that are provided via their websites, like the solution **TEC Agency** built for The Open Championship via TheOpen.com or via dedicated apps, as NFL do through their NFL+ app.

Streaming's growth has been made possible by improvements in connectivity and video compression, allowing providers to be more scalable as demand rises, and to deliver more stable streams with lower latency. This ability to streaming close to real time, combined with the ability to provide multiple streams at once, is a perfect fit for sports and entertainment. It allows the broadcaster to create a live interface that offers fans a greater choice of match or musical act to watch when they want to watch it. Fans can now catch the action from more sports and music events that ever before – although some rightsholders (e.g. The Masters with their morning blackout) and festival organisers prefer to keep some content just for those attending live.

# Future Events

So how will technology shape the events you attend in the future? Any changes begin today with the data captured across the various digital touchpoints fans encounter. From fan's initial ticket purchase or subscription to a streaming platform, to cashless payments made on site and post event surveys completed via mobile apps, a huge amount of information is collected about how fans consume events, and this can be used to improve and personalise future experiences. Personalisation here is key as event organisers look to differentiate their offering and we are seeing the growing use of artificial intelligence to achieve it. For example, in sport, major tournaments like [The Masters](#) and [Wimbledon](#) have used AI-powered commentary to enable viewers to watch any match they wanted to and not just the featured players.

Blockchain technologies also look set to play a significant part in how we consume events in the future. Many events are already offering tickets as Non-Fungible Tokens (NFTs), so they can better validate ownership, prevent price hikes through resales and offer additional benefits – either digital or in the real world – connected to the ticket. In sport we have seen [the rise of fan tokens](#), cryptocurrencies sold by a team or league that can be exchanged for related value ranging from tickets and voting on club matters to merchandise discounts.

The Metaverse and virtual reality may well have the biggest impact on the events of the future, enabling a new kind of connected, immersive experience for fans allowing them to watch “pitch side” from their living rooms, with friends around the world or even put themselves into the action, a [virtual streaming experience that NBA unveiled this year](#). Teams like Manchester City as are [building stadia in the metaverse](#) to host fan experiences and deliver unique content a virtual environment. There have been [multiple concerts in the metaverse](#) with artists like Justin Bieber and Ariana Grande performing as avatars in established metaverse games like Fortnite and Roblox to provide new virtual experiences for fans.







# People Power

The unrelenting march of technological progress has shaped so much of how we engage with and enjoy live events. Innovations enabled by enhanced connectivity and mobile technologies have made the experience quicker, safer and more convenient than it has ever been. For the organisers, digital solutions have improved efficiency through process automation and the ability to capture and process data, leading to increased revenues and reduced operational costs.

Looking forward, new technologies are being used to provide fans with the richer, more creative experiences they desire, with rights holders and concert organisers embracing machine learning and Web 3.0 to offer greater levels of personalisation and immersivity.

Against this backdrop of technical progress – and growing dependency – it is vital not to lose sight of the people involved. Technology can bring benefits, but it is not a guarantee of success, in itself.

At **TEC**, we feel it is vital to take a people-centric approach to any project; to take time to properly understand the needs of the stakeholders involved and the environments in which they operate. Only then can you evaluate how technology can be employed to improve the event experience.

It is also important to understand that there can be problems with technology. Planning must be made so the people involved can react to get systems back on track and minimise any disruption. Sometimes you even find that digital problems need analogue solutions. For example, this year digital ticketing solutions went down at both concert venues and Premier League grounds, caused by mobile network or software issues (or a mixture of both) resulting in long delays and inconvenience for fans. Where connectivity is a risk, offering a print at home version of the ticket or communicating to fans to download tickets onto their phones in advance will reduce delays. As will having staff briefed on the process for providing manual checks in case of technical glitches.



Technology is therefore important for events, but its impact is in the hands of the people who implement it.

**TEC Agency** has dedicated teams of technology professionals experienced in designing, implementing and managing digital platforms for the event industry.

We have hands-on experience working alongside leading sports rights holders and festival organisers to supplement their event teams and give them the digital tools, and knowhow, to make their events a success.

If you're looking for digital support with your next event, we'd be happy to help!

## Contact us

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