



## Module 4. E-sports & Metaverse



Recently, electronic sports, commonly referred to as e-sports, have surged in popularity, captivating millions of players and enthusiasts worldwide (The Economist, 2023).

Revenue in the e-sports market is projected to reach US\$3.96bn in 2023. Revenue is expected to grow at a rate of 8.21%, resulting in a projected market volume of US\$5.43bn by 2027 (Statista, 2023).

In comparison, in 2019, the global box office was worth \$42.2 billion (Loria, 2020). This puts e-sports revenues worldwide at approximately 1/10th of that of Hollywood movies. However, the e-sports market is growing faster than Hollywood which is lagging by at least 1% at 7.2% instead (Grand View Research, 2023).

This is not just a temporary trend either. It is important to understand that the whole of the video game industry has been steadily growing for the last couple of decades, so the meteoric rise of the e-sports phenomenon is riding on a very robust historical trend at this point and without any signs of stopping.


As such, it is important for sports events organisers to understand the opportunities e-sports present, as well as the nature of this new way of sports related


entertainment.

Most e-sports are not digital copies of traditional sports games. This is to say that the biggest e-sports games are not virtual games of soccer or basketball, but rather games based on shooting, strategy, or fantasy genres. It may be hard for a sports events organiser to understand how playing a strategy video game can be considered a sport, but, as we will see later in the module, a lot of the activities around organising events for e-sports, as well as athlete training regimes and fan engagement strategies, can be very similar.

Even though most e-sports are not based on traditional sports, a significant number of them still does revolve around digital versions of football, basketball, and other traditional sports. In this module, we will explore both types of e-sports games to identify trends and opportunities that could be taken advantage of by traditional sports events organisers.

This module will further explore the multifaceted landscape of e-sports, encompassing its origins, rapid growth, and transformation into a global industry. We will also look at the concept of the 'metaverse' in some detail and how it relates to e-sports and sports in general.

 **What are e-sports**

 **References**

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# What are e-sports

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E-sports represent competitive video gaming in which skilled players or teams compete against each other in various video game titles. These competitions often mirror traditional sports events, featuring high levels of skill, strategy, and teamwork. E-sports involve a wide range of genres, from real-time strategy and first-person shooters to sports simulations and fighting games. It is important to understand that sports simulations, i.e., games with graphics resembling imagery of real-life sports such as football, swimming, skiing and so on, are only a small portion of the e-sports' universe. Most competitive e-sports leagues are held for games titles that do not resemble or mirror traditional sports. For example, the biggest e-sports league in the last seven years has been 'The International', with a prize pool of forty million USD (Gough, 2023a). The video game used in this tournament is not a gamified version of a traditional sport, but rather an action, Role Playing Game (RPG), set in a fantastical world of mythical creatures.

**Figure 1. Hero characters from the most popular e-sports title Dota 2**



Source: Chen, 2020, <https://bit.ly/47zrSRV>.

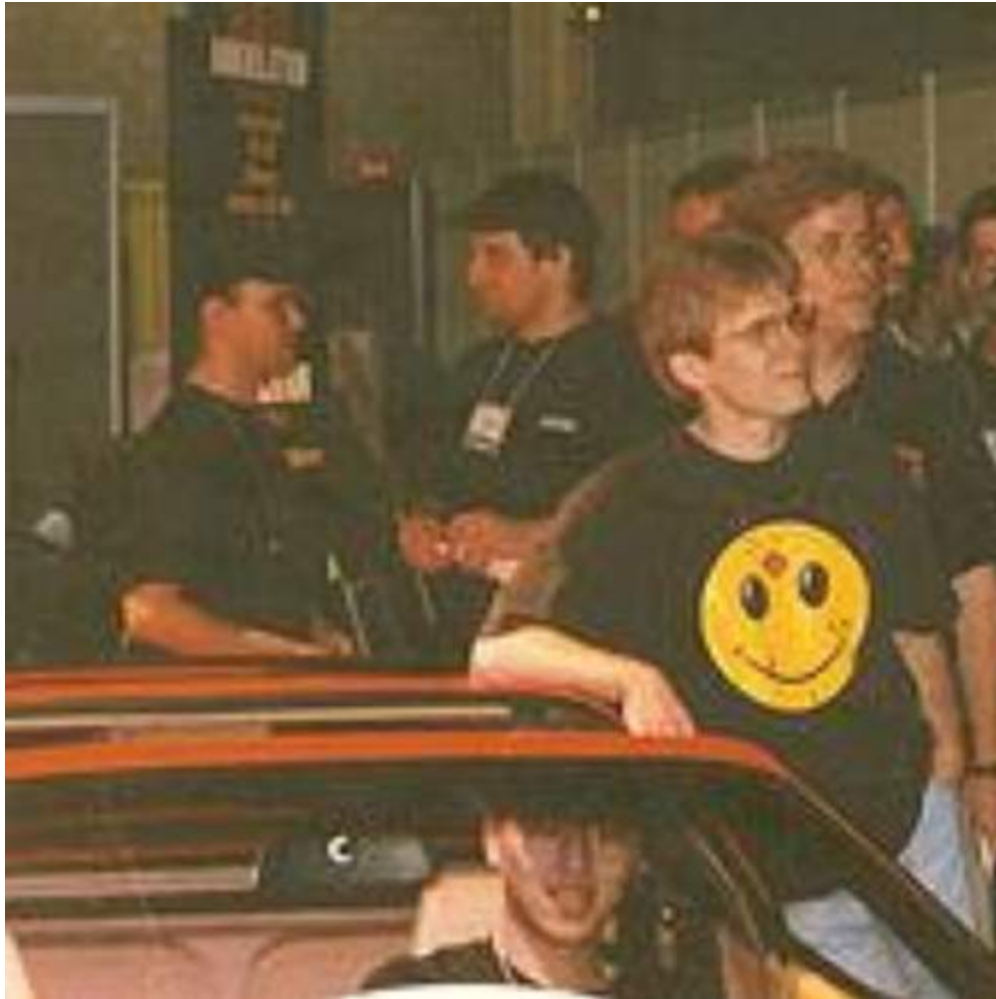
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The e-sports industry is a growing industry. It has evolved from a niche culture in the early 90s into a massive global phenomenon. With a dedicated fan base, lucrative sponsorships, and large-scale tournaments, e-sports have solidified their place in the mainstream entertainment landscape. The industry's growth is fuelled by factors, such as technological advancements, increased accessibility to gaming platforms, and the rise of online streaming.

The roots of e-sports can be traced back to the late 20th century, when video game enthusiasts began organising informal tournaments and competitions. However, the turning point came with the establishment of competitions such as the Red Annihilation tournament in 1997, which marked one of the first large-scale competitive events for the game 'Quake.' Such events laid the

foundation for organised e-sports competitions and garnered attention from both players and game developers.

**Figure 2. One of the first e-sports tournaments in 1997**



Source: [untitled image of one of the first e-sports tournaments in 1997], (n. d.), <https://bit.ly/3FZU9oK>.

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Figure 2 is a photograph taken at one of the first e-sports tournaments in 1997. In the smiley t-shirt, you see John Carmack, who later became executive

consultant at Meta/Facebook. John had already achieved financial success as a game developer by that time, and donated his own Ferrari to the tournament's winner (British Esports, 2023).

The early 2000s witnessed a gradual shift toward professionalisation. Games like 'Counter-Strike' and 'StarCraft' gained prominence, with players earning sponsorships and competing for cash prizes. The South Korean e-sports scene particularly set a precedent for player training and team dynamics. As streaming platforms emerged, e-sports events became accessible to a global audience, further propelling the industry's growth.

During the rise of the e-sports phenomenon to its current global state, video games mirroring traditional sports had little influence on its success, in comparison to other genres of games. This can perhaps be considered as a missed opportunity for traditional sports events organisers that are now more seriously starting to consider capitalising on the vast number of fans they already have. For example, the FIFA Interactive World Cup tournament, arguably the most popular traditional sports-based e-sports tournament, started in 2004 (FIFA, 2017). Only later, in 2008, it reached 20,000 spectators at the Sony Center in Berlin.

**Figure 3. The Sony Center in Berlin, home of the first international FIFA e-sports event in 2004**



Source: [untitled image of the Sony Center in Berlin], (n. d.), <https://bit.ly/3G1s4xv>.

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In the following sections, we will delve deeper into the dynamics of the e-sports ecosystem, explore popular e-sports titles, examine the infrastructure supporting the industry, and analyse its impact on mainstream culture. By uncovering the past, present, and future of e-sports, we will provide a comprehensive understanding of this phenomenon that has captivated the hearts and minds of individuals around the world.

## **E-sports' ecosystem**

The convergence of competitive e-sports gaming and entertainment has evolved into a rich and intricate ecosystem encompassing players, developers, organisers, and a passionate global audience. In this section, we will

investigate the multifaceted dynamics of the e-sports' ecosystem, highlighting the key players that contribute to its vibrancy.

## **Players and teams: forging digital athletes**

At the heart of the e-sports' ecosystem are the players and teams who transform gaming into a competitive art form. Professional e-sports players exhibit remarkable skill, strategic prowess, and hours of dedicated practice. These digital athletes often form teams representing various organisations, each with unique identities and strategies. The camaraderie and teamwork among players drive their journey towards mastering virtual worlds and achieving recognition on the global stage, very much so like traditional athletes.

### **Figure 4. G2's all-female e-sports team 'Gozen'**



Source: Lenovo, 2021, <https://bit.ly/3QY3nrY>.

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Notice that the sponsors include Red Bull, BMW, and Adidas, much like traditional sports teams (Lenovo, 2021).

## **Game developers and publishers: crafting the virtual arenas**

Behind every e-sports title lies the creative genius of game developers and publishers. Their vision shapes the landscapes where battles unfold, defining the rules and mechanics that govern competitive play. Game developers foster competitive balance, constantly fine-tuning gameplay to ensure fairness and excitement. Publishers collaborate with e-sports leagues to promote their titles and provide resources for tournaments, contributing to the ongoing growth of the industry. Some of the biggest publishers in the

field include EA Sports, a division of EA games, a company worth 32 billion USD (NASDAQ, 2023).

## **Organisers and tournaments: orchestrating spectacular showdowns**

E-sports tournaments are grand spectacles that bring players and fans together, facilitated by dedicated organisers. These entities design, plan, and execute tournaments of various scales, ranging from grassroots events to international championships. Organisers coordinate logistics, secure sponsorships, and create engaging experiences for both attendees and online viewers. Iconic tournaments like The International and the League of Legends World Championship have become annual milestones, drawing massive audiences, and offering substantial prize pools. To put these in perspective, the 2021 Free Fire World Series, hosted by Singapore, became the most watched e-sports event of all time with almost 5.5 million peak viewers. The second most viewed tournament was the 2020 League of Legends World Championship, with more than 5 million peak viewers (Gough, 2023b).

**Figure 5. E-sports arena with 1000 people capacity in Istanbul, Turkey**



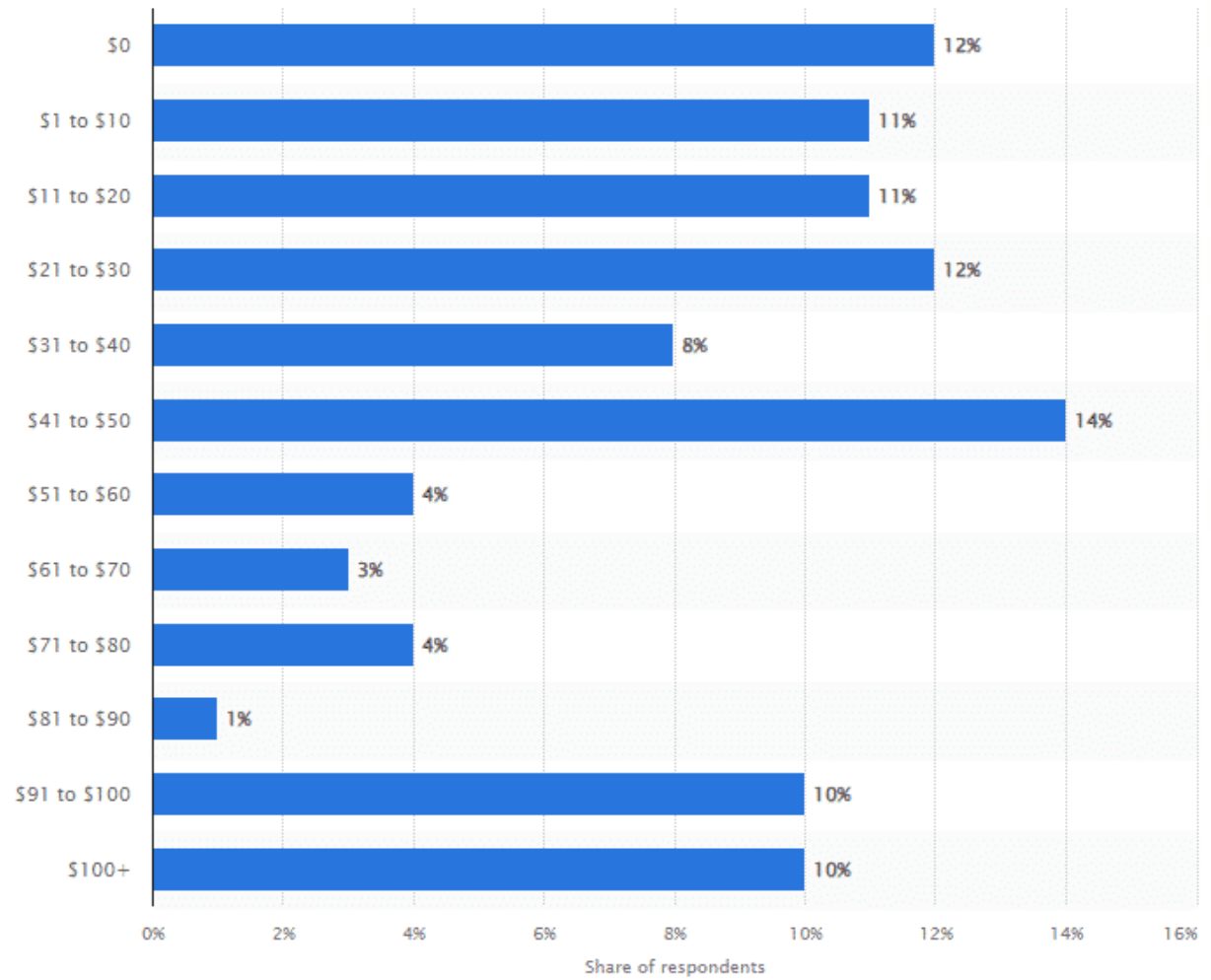
Source: [untitled image of E-sports arena with 1000 people capacity in Istanbul, Turkey], (n. d.), <https://bit.ly/3QXgx8D>.

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## **Audience and fans: a global community unites**

Central to the e-sports' ecosystem is the passionate global community of fans and spectators. These enthusiasts tune in to watch live streams, attend events, and engage in discussions on social media platforms. Fans not only elevate players to celebrity status, but also generate a substantial portion of the industry's revenue through merchandise, ticket sales, and virtual in-game purchases. The e-sports community thrives on its interactive nature, with fan engagement shaping the trajectory of the industry. The graph below shows the results of a global survey on how much fans are willing to pay to attend e-sports competitions in person. As it can be seen, the majority are willing to pay between \$41 to \$50 dollars for a ticket. 10% of the market is prepared to pay \$100+ per ticket.

**Figure 6. Ticket prices that fans are willing to pay for attending e-sports events in person**



Source: Gough, 2022, <https://bit.ly/3ucdNe0>.

As the e-sports' ecosystem continues to flourish, players and teams will push the boundaries of skill, developers will innovate to create captivating virtual worlds, organisers will orchestrate increasingly elaborate tournaments, and fans will fuel the momentum with their unwavering support. The synergy

between these elements has transformed e-sports from a niche hobby into a global phenomenon. With new technologies and innovations on the horizon, the e-sports' ecosystem is poised for even greater expansion, promising a future in which digital competition captivates the world like never before.

## **E-sports infrastructure and technologies**

In the rapidly evolving world of e-sports, the foundation of its success lies in robust infrastructure and cutting-edge technologies. This section explores the key components of e-sports infrastructure and technologies, including dedicated e-sports arenas and facilities, streaming platforms and broadcasting, and equipment and gear.

### **Dedicated e-sports arenas and facilities**

Dedicated e-sports arenas and facilities serve as the epicentres of competitive gaming. These can be existing venues that can be converted to support e-sports tournaments, or purpose-built venues that provide an immersive experience for both players and spectators. There are many dedicated e-sports arenas around the world, from California to Moscow to Melbourne. One of the biggest ones can be found in Arlington, Texas, with a capacity of 2500 people (Shevchenko, 2021).

#### **Figure 7. Zhongxian e-sports Stadium in China**



Source: Shevchenko, 2021, <https://bit.ly/3QZj3LM>.

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## Features of dedicated e-sports arenas and facilities

**State-of-the-art equipment:** e-sports arenas are equipped with high-end gaming PCs, consoles, and accessories to ensure the best possible gaming experience for players.

**Large-scale viewing areas:** these venues boast expansive seating arrangements, often with stadium-style seating, to accommodate large audiences. High-quality screens and sound systems enhance the viewing experience.

**Broadcast studios:** many arenas have built-in broadcast studios to facilitate live-streaming and commentary production, enabling real-time coverage of tournaments and events, much like traditional stadiums.

**Professional lighting and sound:** specialised lighting and sound setups are designed to create an electrifying atmosphere, also akin to traditional sports stadiums.

**Player facilities:** dedicated practice rooms, lounges, and accommodations are provided for participating teams, ensuring they are well-rested and prepared for competition.

**Sponsorship and branding opportunities:** these venues offer opportunities for sponsors to display branding and reach a highly engaged audience.

## **Streaming platforms and broadcasting**

The popularity of e-sports owes much to its widespread accessibility to streaming platforms and broadcasting. Live streams and broadcasts allow fans to follow their favourite teams and players from the comfort of their homes.

## **Key aspects of streaming platforms and broadcasting**

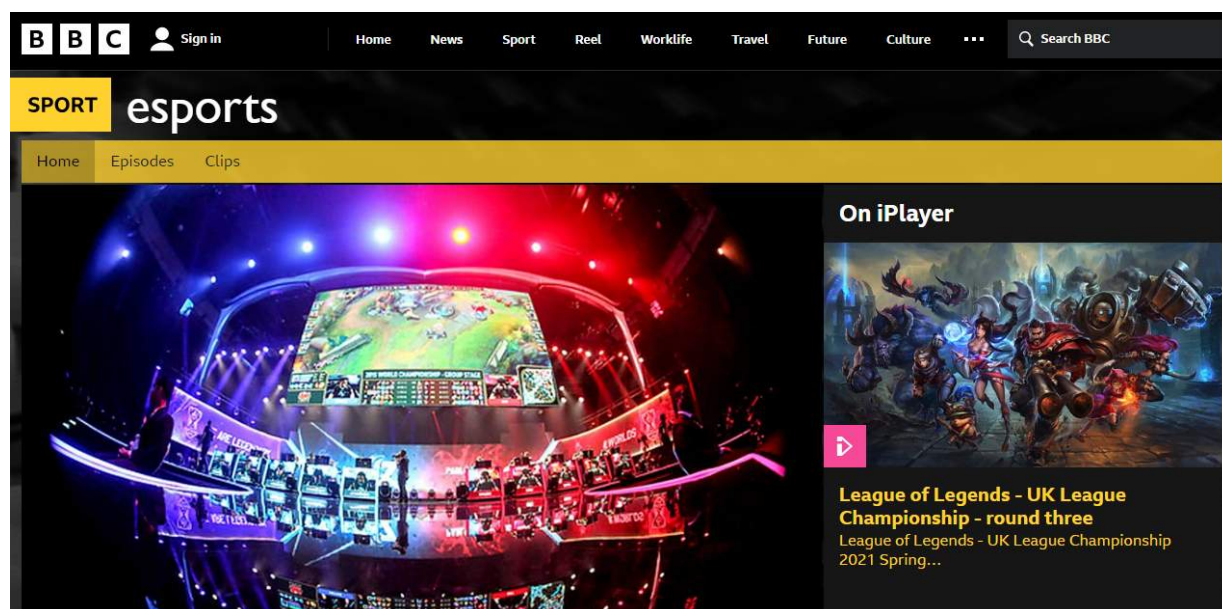
**Twitch:** it is a dominant player in the e-sports streaming industry. It offers real-time streaming of gaming content, including tournaments, player

streams, and e-sports commentary. Twitch is very popular with e-sports' athletes who broadcast live-gaming sessions on the platform. Twitch has an average viewership of 2.3 million viewers at any given point in time with almost 100,000 live streams, many of which are e-sports related (Twitch Tracker, 2023).

**YouTube Gaming:** it provides a platform for both live-streaming and on-demand e-sports content. It is a major hub for tutorials, highlights, and replays.

**Broadcast networks:** traditional television networks, such as ESPN and BBC, have started to include e-sports in their programming, broadening the reach of competitive gaming.

**Figure 8. BBC Esports**



BBC sports has an e-sports division that broadcasts live and recorded events.

**Live commentary:** professional commentators and analysts enhance the viewing experience by providing insights, play-by-play commentary, and post-match analysis.

**Interactive features:** many streaming platforms allow viewers to interact with streamers and other viewers through chat, polls, and interactive overlays.

## Equipment and gear

E-sports would not be possible without the right equipment and gear. Professional players rely on top-performing gaming PCs, controllers, and peripherals to compete at the highest level. Much like top traditional athletes, they depend on the best sporting equipment, technologies, and services.

**Gaming PCs:** high-performance gaming PCs equipped with powerful processors, GPUs, and ample RAM are the backbone of competitive e-sports. Custom-built rigs are often favoured for their tailored performance. The price of an individual e-sports PC can be in the thousands of dollars, with average rigs costing more than \$2500.

**Figure 9. An entry-level e-sports gaming setup**



Source: Andronico, 2021, <https://bit.ly/3SFmI2z>.

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More advanced setups can include multiple monitors and additional accessories like gaming controllers and even specially designed chairs (Andronico, 2021).

**Controllers:** for console gaming, controllers play a critical role. Professional players may use customised controllers with unique button layouts and sensitivity settings to match their specific biometrics.

**Keyboards and mice:** in PC gaming, mechanical keyboards and high-precision mice are essential for quick and accurate inputs. In some games, players will

have to click the mouse buttons dozens of times per second and sustain that rate for long periods. This puts a lot of stress on the hardware, which needs to be specially developed to accommodate it. The current world record for most mouse clicks in a second is fourteen clicks (Calvo, 2020).

**Headsets:** quality headsets with noise-cancelling features and crystal-clear audio are vital for effective communication and immersion in team-based games.

**Monitors:** high-refresh-rate monitors with low input lag provide a competitive edge by ensuring smoother gameplay and faster response times.

**Streaming and recording equipment:** for aspiring streamers and content creators, equipment like video capture cards, webcams, and microphones are essential for producing high-quality content.

In conclusion, the world of e-sports relies on a solid foundation of infrastructure and technologies. Dedicated e-sports arenas and facilities, streaming platforms, and cutting-edge equipment collectively contribute to the growth and sustainability of e-sports as a global phenomenon. These components continue to evolve and shape the future of competitive gaming.

## **Professional e-sports players**

Professional e-sports players are the driving force behind the immense popularity and competitiveness of the e-sports' industry. They possess a

unique set of skills, undergo rigorous training regimens, and face both challenges and pressures that come with being at the forefront of the digital sports world.

One of the most famous e-sports players of all time is Tekkz, whose real name is Donovan Hunt. Tekkz has been dubbed the 'Lionel Messi of FIFA' for years. At the young age of just sixteen, Tekkz, a then relative unknown, thrust himself into the spotlight by winning the FUT 18 Champions Cup held in Barcelona. Following this remarkable early tournament triumph, the young English sensation went on to secure a hefty £40,000 in prize money for his outstanding performance at the PGL FIFA 19 Cup in Bucharest. Just a week later, he added another £9.5K to his earnings by emerging victorious in yet another cup.

His rapid ascent catapulted him to the forefront of the e-sports' scene, and he played a pivotal role in Liverpool's success in the inaugural ePremier League. Tekkz is the most accomplished FIFA player in history (Brophy, 2023).

Currently, Tekkz is a key member of 'Fnatic', the world's oldest e-sports' organisation, often likened to the Real Madrid of e-sports.

**Figure 10. Tekkz playing a FIFA football e-sports competition**



Source: Brophy, 2023, <https://bit.ly/3FZd9UA>.

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## Player profiles and skills

### Skill diversity

Professional e-sports players come from diverse backgrounds and gaming genres, showcasing a wide array of skills and expertise. These players often specialise in specific games, such as League of Legends, Counter-Strike: Global Offensive, Dota 2, or Overwatch, each requiring distinct strategies and tactics.

### Reaction time and precision

A hallmark of professional players is their lightning-fast reflexes and precise in-game execution. Their ability to make split-second decisions and execute complex manoeuvres is crucial to outplaying opponents.

### **Teamwork and communication**

Many e-sports titles are team-based, necessitating effective teamwork and communication. Professional players must collaborate seamlessly with teammates, strategise in real-time, and maintain a unified front during high-pressure matches.

## **Training regimens and lifestyle**

### **Intensive practice**

Professional e-sports players dedicate countless hours to practice and honing their skills. This includes both individual and team practice sessions, reviewing gameplay footage, and analysing opponents' strategies.

### **Physical fitness**

Contrary to stereotypes, e-sports players recognise the importance of physical fitness. Regular exercise and a balanced diet are integral to maintaining focus, stamina, and overall well-being.

## **Mental resilience**

The mental aspect of e-sports is paramount. Players undergo stress management training, practice mindfulness, and consult with sports psychologists to stay mentally sharp during competitions.

## **Lifestyle adjustments**

E-sports players often lead unconventional lifestyles, with irregular sleep patterns and extensive travel for tournaments. This lifestyle can impact on their personal lives and relationships, requiring adaptability and support.

## **Challenges and pressures**

### **Burnout**

The intense practice schedules and relentless competition can lead to burnout. Players must manage their physical and mental well-being to sustain long and successful careers.

### **Performance anxiety**

Competing in front of live audiences and millions of online viewers can lead to performance anxiety. Overcoming nervousness and maintaining composure is an ongoing challenge.

### **Financial pressures**

While top players can earn substantial incomes from sponsorships and tournament winnings, there is also financial pressure to consistently perform at a high level to secure these earnings.

### **Career uncertainty**

The e-sports industry is highly competitive, with a limited number of spots at the top. Players face uncertainty about the longevity of their careers and the need to develop post-retirement plans.

In conclusion, professional e-sports players are at the forefront of an industry that continues to grow rapidly. They possess a diverse set of skills, adhere to rigorous training regimens, and navigate a unique lifestyle that comes with both challenges and pressures. As e-sports continues to gain mainstream recognition, professional players play a pivotal role in shaping the future of digital sports and inspiring the next generation of competitive gamers.

## **E-sports inclusion in traditional sports events**

## Olympic consideration

E-sports are being considered for inclusion in the official Olympic Games, signalling its growing recognition. Although there are challenges to overcome, such as defining a standardised set of games, the recognition of e-sports on this global stage is a significant step. In fact, the International Olympics Committee has trialled several games in its inaugural Olympic e-sports week in 2023. Competitors competed in ten video game titles, many of which resembled traditional sports like cycling, basketball, and archery (Olympics, 2023).

**Figure 11. The first official e-sports Olympic Games held in Singapore in 2023**



Source: Olympics, 2023, <https://bit.ly/3SJCm5>.

## Traditional sports partnerships

Professional sports leagues and teams have started forming partnerships with e-sports organisations. NBA teams, for example, have launched their e-sports counterparts, promoting cross-promotion and growing their e-sports fan base.

What is perhaps even more interesting is traditional sports teams partnering with e-sports teams that do not compete in their counterpart video games, but rather in completely different genres of games altogether.

Case in point is the partnership between the renowned French football club Paris Saint-Germain (PSG), which has teamed up with the North American e-sports organisation Team New Age (TNA) to create Paris Saint-Germain Esports. This new ePSG, however, does not compete in a football-oriented video game, but rather in a popular shooting game called 'Fortnite' (Hyrliková, 2022). This demonstrates that some of the biggest traditional sports organisations have fully understood that e-sports do not have to resemble or mirror traditional sports; they can be completely different, yet carry the same passion and pride a traditional sports name can bring to them.

### **Figure 12. Paris Saing Germain (PSG) and TNA**



Source: Hyrliková, 2022, <https://bit.ly/3MMDA3t>

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## **E-sports and the metaverse**

As we have seen in the previous sections, the popularity of e-sports has surged in recent years, transcending its niche origins to become a global phenomenon. With millions of devoted fans tuning in to watch top gamers battle it out in various titles, e-sports tournaments are now beginning to rival traditional sports events in terms of viewership and prize money. With the rate of growth e-sports are currently enjoying, it is not hard to imagine that the next generations of fans will watch and participate in e-sports events the same way they participate in traditional sports events. The opportunities for growth in e-sports events with its rapidly growing fanbase become even more exciting when we consider virtual reality (VR) and the metaverse, something we will explore further in this section.

Virtual reality and augmented reality (AR) are poised for a transformative shift in the way we enjoy e-sports. In these immersive realms, e-sports will evolve beyond conventional screens, allowing spectators to step right into the virtual arenas alongside their favourite players. The line between reality and the gaming universe will blur, opening exciting new possibilities for e-sports enthusiasts and ushering in an era in which sports engagement opportunities become almost boundless. Ever imagined playing football on the moon, for example? The metaverse can make it a reality.

## **The metaverse**

The term 'metaverse' refers to a collective virtual shared space, created by the convergence of physical and virtual reality, in which users can interact, communicate, and engage with each other and digital objects in real-time through digital interfaces.

It encompasses a digital universe composed of interconnected 3D virtual worlds, augmented reality environments, and various forms of immersive digital experiences. If you have ever watched any of the Iron Man movies, you may already have got a taste of what is to come in terms of merging reality and cyberspace.

**Figure 13. Scene from the Iron Man series of movies**



Source: Chub, 2018, <https://bit.ly/3FUHnbj>.

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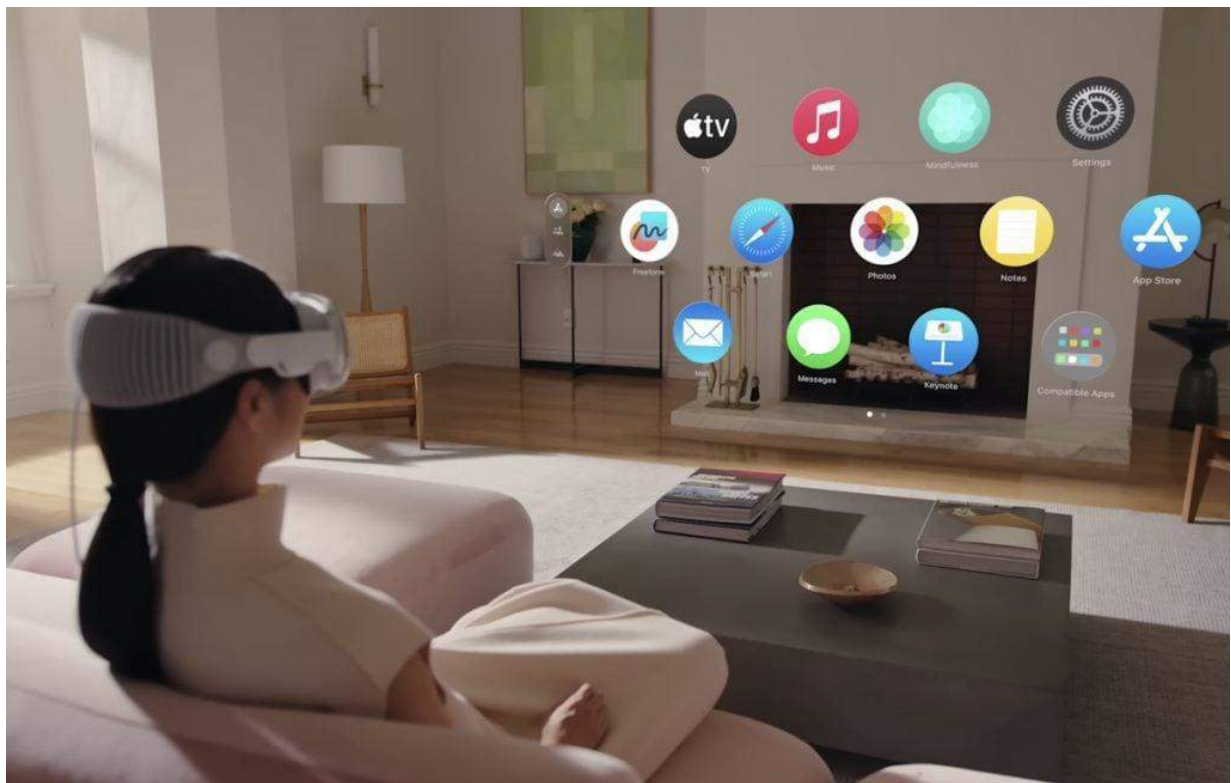
The metaverse will make this kind of experiences a reality for the masses (Chub, 2018). The scene from the Iron Man series of movies depicts the blending of real and cyber spaces.

In the metaverse, users can navigate, socialise, conduct business, and engage in a wide range of activities, blurring the boundaries between the physical and digital realms. It represents a holistic, interconnected digital ecosystem that has the potential to revolutionise how individuals interact, collaborate, and experience digital content.

It can be accessed by various types of electronic equipment, from mobile phones to virtual reality (VR) headsets, offering varying degrees of immersion. Companies like Apple believe that VR headsets will usher the next

step of evolution in computing. Literally, a paradigm shift in how humans use computers. Apple calls this new way of interacting with computers 'spatial computing.' The computer interface is confined on a static screen anymore. The computer can be literally anywhere and everywhere around the user. The technology to access this new way of using computers is a virtual reality or augmented reality headset. The one currently developed by apple is poised to be one of the biggest technical achievements of the company, as well as in the field of VR headsets in general. The product is called 'Apple Vision Pro,' and the starting price is currently set at approximately \$3500.

**Figure 14. The Apple Vision Pro VR headset**



Source: [untitled image of the Apple Vision Pro VR headset], (n. d.), <https://bit.ly/3MJVvrI>.

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The Apple Vision Pro VR headset poised to revolutionise the way we interact with information.

Apple is not, however, the only player in the field. Meta (previously known as Facebook) is currently bringing out the third generation of their very popular VR headset called the Meta Quest 3. The Meta Quest 3 has received a lot of praise by early reviewers and builds upon the success of the Meta Quest 2 that sold approximately 20 million units (Lang, 2023). The new version of the headset is smaller, faster, more comfortable to wear and boasts higher resolution than its predecessor. It comes with a price tag of \$499 for the basic model, making it significantly more affordable than other offerings.

### **Figure 15. Apple Vision Pro vs. Meta Quest 3**



Source: [untitled image of Apple Vision Pro vs. Meta Quest 3], (n. d.), <https://bit.ly/3FYTmo4>.

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Figure 15: clash of titans. On the left, the upcoming Apple Vision Pro; on the right, Mark Zuckerberg demoing Meta's Quest 3 headset.

## Key elements of the metaverse

There are several key elements that define and characterise the metaverse.

**Virtual worlds and environments:** at its core, the metaverse consists of immersive virtual landscapes that replicate and expand real-world settings, allowing for limitless creativity and real-time interaction. This could include replicas of traditional sports venues or imaginary, virtual sports venues, or a mixture of both in the case of augmented reality.

**Interconnectivity and accessibility:** seamlessly connecting users across devices like VR headsets, AR glasses, and smartphones, the metaverse ensures a consistent experience, facilitating effortless transitions between real and virtual spaces.

**User identity and avatars:** users can adopt customisable avatars to express themselves and engage personally with others, enhancing individuality and presence in the virtual realm. Imagine looking around you through your VR headset at a sports event and seeing other fans in digital costumes or even as digital characters.

**Social interaction and collaboration:** the metaverse enables global-scale social engagement through real-time voice, text, and gesture-based communication, transcending geographical barriers.

**Economy and commerce:** virtual economies can thrive in cyberspace, enabling asset creation, exchange, and trade, often using blockchain technology to ensure authenticity. The metaverse is already fostering digital entrepreneurship and innovation. This will enable sports events organisers, as well as sports organisations, to further engage with their fans in digital spaces and products.

**Cross-domain experiences:** integrating VR and AR, the metaverse allows users to interact with virtual and physical elements concurrently, blurring boundaries between realities.

**Immersive experiences and entertainment:** redefining entertainment, the metaverse offers virtual concerts, interactive storytelling, gaming, and dynamic content creation. For example, imagine fans watching a real football game in person through augmented reality glasses and seeing their hero player grow from their actual size in the stadium to a virtual giant, right in front of their eyes, so they can see their goal scoring celebration in more detail. All whilst fans of the opposing team see something completely different through their glasses, despite everyone watching the same game in person.

**Continuous evolution:** as an ever-evolving concept, the metaverse adapts to emerging technologies, user contributions, and innovations, pushing boundaries and reshaping how people engage, work, and play digitally. This continuous evolution will create fan engagement opportunities that we cannot even imagine yet. Much like the discoverers of electricity or fire could not predict the opportunities these discoveries would bring so, with the metaverse, it is impossible to foresee yet what other possibilities may arise in the future when it comes to sports entertainment.

## **Future trends and challenges in e-sports and the metaverse**

The future of e-sports is intrinsically linked with the emerging concept of the metaverse, a virtual, interconnected universe in which people interact, work, and play. As e-sports continues to evolve, it intersects with the metaverse,

giving rise to exciting trends and challenges. In this section, we will explore some of the trends and challenges ahead.

## **Trends**

### **Immersive spectator experiences**

In the metaverse, e-sports viewers will have the opportunity for immersive, interactive experiences. Virtual reality (VR) and augmented reality (AR) technologies will enable fans to watch matches from within the game or alongside their favourite players.

### **Cross-platform play**

As games become more interconnected, cross-platform play will become the norm. Gamers on different devices and platforms will compete together, broadening the player base and fostering more competitive e-sports scenes.

### **Blockchain and NFT integration**

Blockchain technology and Non-Fungible Tokens (NFTs) will be integrated into e-sports, allowing players to own and trade in-game assets, skins, and collectibles. This could revolutionise the concept of ownership in e-sports.

## **Professional sports and e-sports teams in the metaverse**

Traditional sports, e-sports, and hybrid organisations may establish a virtual presence within the metaverse, hosting events, training facilities, and fan engagement spaces, creating a bridge between the digital and physical worlds.

An example of things to come can be experienced in the collaboration between Manchester City, the English Football Club, and Sony. Together they are pioneering the development of the world's inaugural soccer stadium within the metaverse. This virtual stadium is poised to serve as the focal point of Manchester City's presence in the virtual reality realm, employing cutting-edge image analysis and skeletal-tracking technologies developed by Hawk-Eye, a subsidiary of Sony (Muhammad, 2022).

**Figure 16. Manchester City bringing their stadium to the Metaverse with the help of Sony**



Source: Muhammad, 2022, <https://bit.ly/3G08p0K>.

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## Metaverse-focused games

Game developers will create e-sports titles with metaverse elements, blurring the lines between e-sports competitions and virtual world experiences. These games will provide a foundation for e-sports in the metaverse.

## Challenges

**Infrastructure and accessibility:** the metaverse and advanced e-sports experiences require high-speed internet, powerful hardware, and VR/AR devices. Ensuring widespread access and affordability remains a challenge.

**Data privacy and security:** with the metaverse's extensive data collection, privacy and security concerns will emerge. Protecting user data and preventing hacking and cyberattacks will be paramount.

**Regulation and governance:** the intersection of e-sports and the metaverse necessitates clear regulations and governance structures to ensure fair competition, protect intellectual property, and address issues like cheating and doping.

**Digital divide:** not everyone will be able to participate in the metaverse and e-sports on an equal footing, due to economic disparities and accessibility issues, bridging the digital divide is essential for inclusivity.

**Content moderation:** as user-generated content becomes more prevalent in the metaverse, moderation challenges arise, ensuring a safe and respectful environment while preserving freedom of expression is a complex task.

In conclusion, e-sports' future is intertwined with the metaverse, offering both incredible opportunities and significant challenges. The trends outlined above indicate a transformative shift in how we experience e-sports and entertainment. However, addressing the associated challenges, such as infrastructure, privacy, and regulation, will be crucial to realising the full potential of e-sports in the metaverse and ensuring that this new frontier remains inclusive and accessible to all.

## Module summary

In this module, we have only begun to glance at e-sports and the potential they hold for the future of sports entertainment. The e-sports journey began in the late 20th century, evolving from arcade and campus competitions to a global phenomenon, primarily driven by online multiplayer games and the internet's growth. The late 1990s and early 2000s marked the rise of professional e-sports organisations like Major League Gaming (MLG), now owned by Microsoft (Richardson and Wooten, 2022), and the Electronic Sports League, shaping the structured e-sports landscape we know today.

Traditional sports event organisers have recognised e-sports' potential. They have formed e-sports teams and hosted tournaments alongside physical events, engaging younger audiences and expanding revenue streams through sponsorships, merchandise, and media rights.

Transitioning into e-sports means embracing technologies, such as virtual reality (VR), augmented reality (AR), and live-streaming, to enhance fan experiences. The metaverse, a digital universe for interaction, holds significant potential for both traditional sports and e-sports. By entering the metaverse, sports event organisers can create virtual stadiums, host e-sports competitions, and provide unique fan interactions, ushering in a new era of innovation and engagement in sports and entertainment. Embracing this evolution positions them at the forefront of this dynamic digital landscape.

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# Activities

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The e-sports industry's growth is fuelled by factors, such as:

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- Technological advancements.
- Increased accessibility to gaming platforms
- Increased availability of game consoles.
- The rise of online streaming

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At the heart of the e-sports' ecosystem are:

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- The players and teams who transform gaming into a competitive art form.
- The managers and investors that enable the development of professional teams.

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Twitch is:

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- A dominant player in the e-sports streaming industry. It offers real-time streaming of gaming content, including tournaments, player streams and e-sports commentary.
- Is a platform that provides for both live-streaming and on-demand e-sports content. It is a major hub for tutorials, highlights and replays.

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